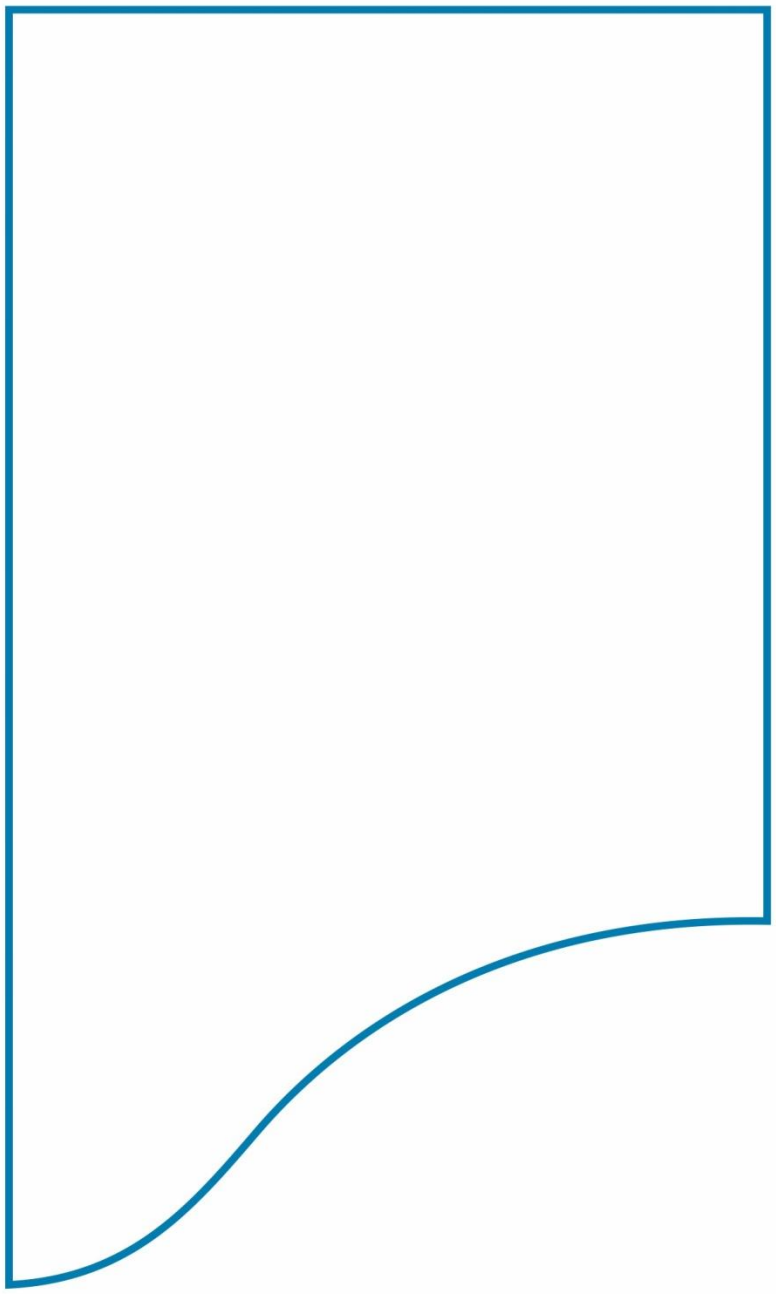
ENVIRONMENTAL MANAGEMENT PLAN



ODRA-VISTULA FLOOD MANAGEMENT PROJECT

Projekt Ochrony Przeciwpowodziowej w Dorzeczu Odry i Wisły

Państwowe Gospodarstwo Wodne **Wody Polskie**

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Projekt Ochrony Przeciwpowodziowej w Dorzeczu Odry i Wisły

Państwowe Gospodarstwo Wodne Wody Polskie

ENVIRONMENTAL MANAGEMENT PLAN

DRAFT VERSION

ODRA-VISTULA FLOOD MANAGEMENT PROJECT

PROJECT IMPLEMENTATION UNIT - IN ACCORDANCE WITH WB OP 4.01

COMPONENT 2:

Flood protection of the Kłodzka Valley

SUBCOMPONENT 2B:

Passive protection

WORKS CONTRACT 2B.1/1
Flood Protection of the Nysa Kłodzka Valley
Międzylesie, Długopole-Zdrój, Bystrzyca Kłodzka, Kłodzko Facilities

ISSUE	DATE	AUTHOR	REVIEWER	CLIENT'S APPROVAL	DESCRIPTION
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Wrocław – March 2021 r.

PROJECT IMPLEMENTATION UNIT:

State Water Holding Polish Waters represented by the director of the
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State Water Holding Polish Waters
Regional Water Management Authority in Wrocław
Project Coordination Unit of the Odra-Vistula Flood Management Project
Technical Assistance Consultant Joint Venture Sweco Polska Sp z o.o., Sweco Nederland B.V

ODRA-VISTULA FLOOD MANAGEMENT PROJECT:

World Bank (WB), Loan Agreement no. 8524 PL
Council of Europe Development Bank (CEB), Framework Loan Agreement no. LD 1866
State Budget

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List of basic definitions and abbreviations used in the EMP

Name	Description
rWMP	Revision of the Water Management Plan for the Odra River Basin (Regulation of the Council of Ministers of 18 October 2016 on the *Water Management within the Odra River Basin*)
IBRD / WB	The International Bank for Reconstruction and Development/ the World Bank
PCU / PCU OVFMP	Project Coordination Unit/ Project Coordination Unit of the Odra-Vistula Flood Management Project
BP	Bank Procedure[1]
C-ESMP	The Contractor's Environmental and Social Management Plan
Environmental decision / DEC	Decision on environmental conditions
Species decision	Decision authorizing activities subject to prohibitions applicable to protected animal, plant or fungi species
Epidemic	The occurrence of a significantly higher number of infections or infectious diseases in a given area than in the previous period or the occurrence of infections or infectious diseases not yet occurring.
ESMF	Environmental and Social Management Framework for OVFMP[2]
ES	World Bank Environmental and Social Policy (ES) concerning environmental and social issues (i.e. environmental protection, health and safety at work and community, gender equality, protection of minors, vulnerable people (including disabled people), sexual harassment, sexual violence, awareness and prevention of HIV / AIDS).
GDDKiA:	General Director of National Roads and Motorways
GRM	Grievance Redressal Mechanism. Details of the procedure are discussed in POM
CSO	Central Statistical Office (GUS)
Investor / Employer / PIU	State Water Holding Polish Waters in Warsaw represented by the Director of the Regional Water Management Authority Wrocław / Project Implementation Unit of the Odra-Vistula Flood Management Project
USWB	Unified Surface Water Body
UGWB	Unified Groundwater Body
PIO	OVFM Project Implementation Office at SWHPW RZGW in Wrocław
PDS	Project Data Sheet

[1] Operational Policies and Procedures of the World Bank are presented in The World Bank Operational Manual, available at: *https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx*.

[2] The document is available at the PCU OVFMP's website: http://odrapcu2019.odrapcu.pl/popdow_dokumenty/ and at the website of the World Bank, at the website: *http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework*.

Name	Description
Consultant / Engineer / Contract Engineer	Company or legal entity providing the Investor with the service of Technical Assistance Consultant within the OVFMP Project
Contract / Works contract / Task / Investment	Works Contract 2B. 2/1 Flood Protection of the Nysa Kłodzka Valley
LAMP	Local Area Management Plan
Facility	A project forming part of four elements of Contract 2B.2/1: Międzylesie, Długopole-Zdrój, Bystrzyca Kłodzka, Kłodzko
EIA	Environmental Impact Assessment
OP	World Bank's Operational Policy[1]
PAD	Project Appraisal Document for ORFP[2] or OVFMP[3]
WMORB / WMP	Water management plan within the Odra River Basin of 22.02.2011 (M.P. 2011 no. 40 item 451)
SWH PW	State Water Holding Polish Waters
HASP	Health and Safety Plan
SEM	State Environmental Monitoring
OPIE	Operational Programme Infrastructure and Environment
POM	Project Operations Manual for OVFMP[4]
LAP	Land Acquisition Plan
ORFPP / ORFP Project	Odra River Basin Flood Protection Project
OVFMP / OVFM Project	Odra-Vistula Flood Management Project
FRMP	Flood Risk Management Plan for the Odra river basin
EMP	Environmental Management Plan
RDOŚ	Regional Directorate for Environmental Protection
EIA Report	Report on the Environmental Impact Assessment of the Project

[1] See footnote for BP (World Bank Procedure).

[2] Document available at the World Bank's website: *http://documents.worldbank.org/curated/en/552201468145748680/pdf/31771.pdf*.

[3] Document available at the World Bank's website: *http://documents.worldbank.org/curated/en/320251467986305800/Poland-Odra-Vistula-Flood-Management-Project*.

[4] The document is available at PCU OVFMP's website: *http://odrapcu2019.odrapcu.pl/popdow_dokumenty/*.

Name	Description
SDF	Standard Data Form: The Standard Data Form (SDF) is a uniform template describing a Natura 2000 site. It is approved by a decision of the European Commission and compulsory for use in all Member States
Natural habitats	The concept of *natural habitats* used in the text refers to the definition of natural habitats and the listing of their types in The Directive of the Council no. 92/43/EEC of 21st May 1992 on conservation of natural habitats as well as wild fauna and flora (OJ EU L 206, 22.07.1992, as amended). (The Polish nomenclature of natural habitats is set out in the Regulation of the Minister of the Environment of 13 April 2010 *on natural habitats and species of Community interest and the criteria for the selection of areas eligible for recognition or designation as Natura 2000 sites* (consolidated text in Journal of Laws of 2014, item 1713), the Regulation specifies, inter alia, the types of natural habitats of Community interest which require protection in the form of designation of Natura 2000 sites, with the indication of priority natural habitat types)
State of the epidemic	The legal situation introduced in the area in question in connection with the occurrence of an epidemic with a view to taking up the measures laid down in the Act of 5 December 2008 *on preventing and combating infections and infectious diseases in humans* (unified text: Journal of Laws of 2019, item 1239 as amended) of anti-epidemic and preventive actions to minimize the effects of the epidemic.
Epidemic emergency	The legal situation introduced in the area in question in connection with the occurrence of an epidemic with a view to taking up the preventive measures laid down in the Act of 5 December 2008 *on preventing and combating infections and infectious diseases in humans* (Journal of Laws of 2019, item 1239 as amended)
Construction area/construction site	Construction area / construction site means places where Permanent Works are to be carried out, including storage and working places where Equipment and Materials are to be supplied, as well as other places indicated in the Contract as being part of the Construction Site. The terms "construction area" and "construction site" are interchangeable terms and are understood in the Conditions of the Contract as "Construction Site".
IPSW	Integrated Part of the Surface Waters
EU	European Union
ES Guidelines	The World Bank's Environmental, Health, and Safety (ES) Guidelines, General ES Guidelines[1].
WMC	Voivodship Monument Conservator
Contractor / Task Contractor / Contractor for Part of the Contract	Environmental Management Plan for Works Contract *2B.2/1 Flood Protection of the Nysa Kłodzka Valley*

[1] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

Name	Description
Road and bridge managing entity	An organizational unit performing duties of managing public roads and maintaining within the meaning of *the Act on Public Roads* or duties of managing non-public roads, including bridge structures.

List of abbreviated names of legal acts used in the EMP

The names of the legal acts referred to in the text of this EMP are given in abbreviated form. The full names of the individual legal acts are given in the list below.

Name in the text	Full name (including publication reference)
Bird Directive/BD	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ L 288, 06.11.2007)
Habitat Directive/HD	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.07.1992, as amended)
Water Framework Directive (WFD)	Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, as amended)
EIA Regulation	Regulation of the Council of Ministers of 10 September 2019 on investments likely to exert significant impact on the environment (Journal of Laws of 2019, item 1839).
EIA Act	Act of 3 October 2008 on disclosing information on the environment and its protection, public participation in environmental protection and environmental impact assessments (unified text: Journal 2020, item 283 as amended)
Act on Public Roads	Act of 21 March 1985 on public roads (unified text Journal of Laws of 2020, item 470)
Nature Conservation Act	Act of 16 April 2004 on nature protection (unified text Journal of Laws of 2020 item 55)
Monument Conservation Act	Act of 23 July 2003 on protection and care of monuments (unified text Journal of Laws of 2020, item 282)
Waste Act	Act of 14 December 2012 – Waste Act (unified text Journal of Laws of 2020 item 797);
Construction Law Act	Act of 7 July 1994 – Construction Law Act (unified text Journal of Laws of 2019 item 1186 as amended)
The Environment Protection Law Act	Act of 27 April 2001 – Environment Protection Law (unified text Journal of Laws of 2019 item 1396 as amended);
The Water Law Act	Act of 20 July 2017 – Water Law (Journal of Laws of 2020 item 310);

SUMMARY

This Environmental Management Plan (EMP) refers to the Works Contract 2B.1/1 *Flood Protection of the Nysa Kłodzka Valley.*

This EMP presents, inter alia, the following information:

- brief description of the OVFM Project;
- description of the Contract covered by this EMP (Chapter 2);
- characteristics of institutional, legal and administrative conditions of the implementation of the Contract, including the current status of the EIA procedures for the Contract (Chapter 3);
- description of the individual elements of the environment surrounding of the Contract (Chapter 4);
- summary of the Contract's Environmental impact assessment (Chapter 5);
- description of mitigation measures to eliminate or reduce potential negative impact of the Contract on the environment (Chapter 6), together with a tabular list of these measures (Appendix no. 1 to the EMP);
- description of environmental monitoring measures applicable to the Contract (Chapter 7), together with a tabular list of these measures (Appendix no. 2 to the EMP);
- description of the course of public consultations carried out at the different stages of development of environmental documentation for the Contract (Chapter 8);
- description of the organizational structure of EMP implementation (Chapter 9);
- a schedule for the implementation of the EMP and a description of reporting procedures (Chapter 10);
- list of source materials cited in the EMP (Chapter 11);
- list of appendices to the EMP (Chapter 12);
- summary of national environmental legislation (Appendix no. 3 to EMP);
- copies of decisions on environmental conditions issued by the Regional Director for Environmental Protection in Wrocław: the decision of 23 October 2020 (ref.: WOOŚ.420.17.2020.AP.17) for the Międzylesie Facility – Appendix 4a; decision of 19 November 2020 (ref.: WOOŚ.420.10.2020.AP.22) for the Długopole – Zdrój Facility – Appendix 4b; the decision of 13 November 2020 (ref.: WOOŚ.420.18.2020.AP.17) for the Bystrzyca Kłodzka Facility – Appendix 4c; the decision of 19 November 2020 (ref.: WOOŚ.420.20.2020.AP.17) for the Kłodzko Facility- Appendix 4d.
- location of the main elements of the Contract in relation to protected areas (Appendix no. 5),
- location of the main elements of the Contract (Appendix no. 6).

Characteristics of the Contract

The Contract concerns the construction, reconstruction and renovation of regulatory structures together with facilities related to them technically and functionally located in the Nysa Kłodzka riverbed and in the estuary sections of the Dolna, Porębnik, Bystrzyca, Jodłownik streams, as well as within the estuary section of the Bystrzyca Dusznicka to the Nysa Kłodzka in the Kłodzko area. The following sections of watercourses will be covered by works:

- the Nysa Kłodzka River at the section from km 172+200 to km 174+600 and the section of Dolna stream from km 0+000 to km 0+050 (*Międzylesie Facility*);
- the Nysa Kłodzka River at the section from km 156+970 to km 158+100 and the estuary section of the Porębnik stream at a length of about 25 m (*Długopole - Zdrój Facility*);
- the Nysa Kłodzka River at the section from km 148+078 to km 151+475 and the Bystrzyca stream at the section from km 0+129 to km 1+659 (Bystrzyca Kłodzka Facility);
- the Nysa Kłodzka River from km 127+433 to km 134+312, a section of the Bystrzyca Dusznicka River from km approx. 0+203 to km approx. 0+332 and an estuary section of the Jodłownik stream with a length of approx. 100 m and an estuary section of the Jaszkówka stream with a length of approx. 50 m (*Kłodzko Facility*).

Scope of the Contract

The Contract entails:

- reprofiling the existing regulatory walls and slope revetments,

  In addition, reprofiling means the execution of works to adapt the existing walls/bank revetments to the flow of flood waters with a probability of occurrence of p=10%. As part of the works, it is anticipated that the existing walls/bank revetments will be levelled or raised to the flow of flood waters with a probability of occurrence of p=10%.,
- construction of new regulatory walls and slope revetments,
- demolition of destroyed regulatory walls and slope revetments,
- reconstruction of the regulatory walls in the place and along the route of the existing walls,
- sectional reinforcement of the existing walls by executing a band (set-off),
- cleaning the existing embankment, repairing any damage (Międzylesie Facility),
- renovation of the flood protection embankment (Kłodzko Facility),
- reconstruction of the flood embankment on the Bystrzyca Dusznicka at km 0+203 – 0+332 (Kłodzko Facility),
- conversion of the weir in the Kłodzko Facility at km 131+050,
- conversion of the weir into a ramp at km 151+475 in the Bystrzyca Kłodzka Facility,
- conversion of the sills at km 148+226, 148+277-148+350 into ramps in the Bystrzyca Kłodzka Facility,
- construction of a fish migration channel - at a section of about 500 m in length, together with a control sill (Bystrzyca Kłodzka Facility),
- ichthyological flow capacity improvement by constructing ramps on the existing sills in the form of an inclined ramp with an inclination of about 1:25 or milder (*Długopole - Zdrój Facility*),
- ichthyological unblocking of the bed by converting the four sills: at km 172+971; at km 173+527; at km 173+603 and at km 174+588 to semi-natural ramps in the form of an inclined ramp made from boulders and stones with an inclination of about 1:25 or milder (Międzylesie Facility),

- ichthyological flow improvement of two sills through their conversion to semi-natural ramps made of boulders and wedged stones in the top layer without the use of concrete with an inclination of about 1:25 (Kłodzko Facility),
- ichthyological flow capacity improvement by converting the fish pass at the weir at km 131+050, in the form of a beam fish pass in a rectangular channel with a descending migration gutter at the weir on the right bank (Kłodzko Facility),
- construction of a fish migration channel (under low-water conditions) on a section of approx. 1 450 m from the weir to the mouth of the mill race (131+050 km to 129+600 km) (Kłodzko Facility),
- clearing the bed within the bridge located at km 157+642 of the Nysa Kłodzka (Długopole – Zdrój Facility),
- removing the remains of the damaged footbridge at km 156+970. Rebuilding and securing the slopes in its area (Długopole – Zdrój Facility),
- stabilization of the longitudinal profile by rebuilding the buttresses (Kłodzko Facility),
- renovation of the estuary section of the Jodłownik stream by cleaning and supplementing the joints, filling in the losses of stone and removing rubble and rubbish from the bed in order to improve its flow capacity. The formation of a bipartite bed which will consist in the construction of a channel in the existing bottom. Its purpose will be to concentrate the flow in the range of low flow rates (Kłodzko Facility),
- renovation of the estuary section of the Jaszkówka stream by removing rubble and rubbish from the bed, supplementing the joints, filling in the losses of stone (Kłodzko Facility),
- renovation of the estuary section of the Porębnik stream (Długopole – Zdrój Facility),
- shaping the bank line to provide access to the river for the people by building stairs and sidewalks (Kłodzko Facility),
- profiling the area under the beach on a section of about 50m (Bystrzyca Kłodzka Facility),
- local slope reinforcement with a wedged stone rip-rap,
- local revetment of the slopes with coconut matting with a mixture of native grasses,
- clearing the bed within bridges with formation of a bipartite channel,
- clearing the bed in the place of narrowing and within bridges, by removing gravel outwashes and silts;
- cutting down the trees and bushes colliding with the scope of works performed.

Institutional, legal and administrative conditions

The Contract, as regards its characteristics, anticipated potential environmental impacts and location in relation to protected areas, is carried out in accordance with relevant national environmental legislation in this scope and the with relevant World Banks operational policies and standards.

Status of administrative procedures for EIA

For the Contract in question, in accordance with the requirements of national legislation, the Investor, the State Water Holding Polish Waters, has been awarded the decisions on the environmental conditions of the project implementation (hereinafter: environmental decisions). The environmental decisions were issued by the Regional Director for Environmental Protection in Wrocław: the decision of 23 October 2020 (ref.: WOOŚ.420.17.2020.AP.17) for the Międzylesie Facility; the decision of 19 November 2020 (ref.: WOOŚ.420.10.2020.AP.22) for the Długopole Facility; the decision of 13 November 2020 (ref.: WOOŚ.420.18.2020.AP.17) for the Bystrzyca Kłodzka facility; the decision of 19 November 2020 (ref.: WOOŚ.420.20.2020.AP.17) for the Kłodzko Facility. The copies of the decision are attached as Appendix 4a, 4b, 4c, 4d to the EMP.

Condition of environmental elements in the Contract's surroundings

As a result of works connected with the identification of natural and cultural assets, it was found that the area of Contract implementation and its surroundings are characterized, inter alia, by the following environmental conditions:

- The analyzed area is located in the macroregion of the Central Sudetes and East Sudetes, mesoregions: Upper Nysa Graben, Bystrzyckie Mountains, Kłodzka Valley, Śnieżnik Massif
- The area where the Contract is planned to be carried out is characterized by a mild, moderately warm climate.
- The main sources of air pollution in the region include low emissions during the heating seasons, industrial emissions and car emissions. In terms of air quality, the biggest problem in the area of works is the high level of air pollution by particulate matter, both PM 10, PM 2.5 and benzo(a)pyrene. 55 days with the PM10 average daily rate exceeded were recorded in 2018 at the Kłodzko station at Szkolna Street.
- In the analyzed area, the oldest rock series, dating back to Proterozoic or old Paleozoic, are found in the Śnieżnik Massif and the Bystrzyckie Mountains. Between them there is a third geological unit called the Upper Nysa Kłodzka Graben, which is filled with Upper Cretaceous sediments lying on older metamorphic formations.
- In the area of the Contract, the following soil divisions should be distinguished: lithogenic (rankers and local leptosols); autogenic - (acidic and specific brown soils, podzolic soils and podsols); hydrogenic - (peat and mucky soils) and alluvial soils - represented by alluvial soils and muds. In the river valleys apart from the muds there are gravels and sands of river terraces.
- The Contract is located within the limits of seven unified surface water bodies: *USWB Nysa Kłodzka from Różanka to Biała Lądecka* with the code RW6000812159; *USWB Porębnik* with the code RW600041211969; *USWB Nysa Kłodzka from the sources to Różanka* with the code RW60004121169; *USWB Bystrzyca* with the code RW60004121499; *USWB Nysa Kłodzka from Biała Lądecka to Ścinawka* with the code RW60000812199; USWB *Jaszkówka* with the code RW60004121929; *USWB Jodłówka* with the code RW60004121969. Their status (except for USWB Bystrzyca, which was not assessed) in 2017 and 2018 was assessed as poor.
- The Contract area is located within the reach of two UGWBs: no. 125 with the code PLGW6000125 and no. 126 with the code PLGW6000126. Their qualitative and quantitative status was evaluated as good. They are not at risk of failure to reach the environmental objectives;

- Based on the conducted nature inventory, five natural habitats from Annex I of Directive 92/43/EEC were found to occur at the performance site and its surroundings;
- A total of 16 protected and/or rare species of vascular plants, mosses, liverworts, macroscopic algae and lichens were recorded at the implementation site and in the surroundings of the planned works. The most valuable element of the liverworts cover are the patches of Water-crowfoot *Batrachium penicillatum*, forming a habitat with the code 3260 in the Nysa Kłodzka riverbed;
- There are no legally protected species identified among the aquatic macro-invertebrates in the Nysa Kłodzka. However, invertebrate communities revealed significant species diversity which indicated good ecological status of the river;
- The analyzed sections of the Nysa Kłodzka Valley are inhabited by 8 species of protected invertebrates;
- Ten species of fish and one species of lamprey were recorded in the Nysa Kłodzka;
- Six representatives of herpetofauna were found in the Contract implementation area: three species of amphibians (Common toad, Common frog, European Tree Frog) and three species of reptiles (Sand lizard, Grass snake, Slowworm);
- In the area of the Contract, 21 species of birds covered by strict species protection in Poland were found, including three species listed in Annex I of the Bird Directive: Common Kingfisher, Middle Spotted Woodpecker, Red-backed Shrike;
- In the studied area, mammals are represented mainly by the otter and beaver;
- There are nine species of bats in the Task area;
- The following Natura 2000 sites are located in the immediate vicinity of the Contract implementation area:
  - Bystrzyca Łomnicka Valley PLH020083 - the minimum distance from the works area is about 2.5 km from the Bystrzyca Kłodzka Facility and about 6.5 km from the Długopole - Zdrój Facility;
  - Krowiarki Range PLH020019 - the minimum distance from the works area is about 3.5 km from the Bystrzyca Kłodzka Facility and about 6.5 km from the Kłodzko Facility;
  - Sztolnia w Młotach PLH020070 - the minimum distance from the works area is about 5.5 km from the Bystrzyca Kłodzka Facility;
  - Nysa Kłodzka Gorge near Morzyszów PLH020043 - the minimum distance from the works area is about 3.0 km from the Kłodzko Facility;
  - Bialskie Mountains and the Śnieżnik Group PLH020016 - the minimum distance from the works area is 3.8 from the Międzylesie Facility and about 6.5 km from the Długopole - Zdrój Facility;
  - Dzika Orlica PLH020061 - the minimum distance from the works area is 5.5 km from the Międzylesie Facility and from the Długopole-Zdrój Facility;
- There are no national parks, nature reserves or nature and landscape complexes within 5 km of the area of the planned works. The nearest one, Śnieżnicki Landscape Park, is located at a distance of about 3.9 km from the Międzylesie Facility and the buffer zone of the Park at a distance of about 2.8 km. In close proximity to the Długopole - Zdrój Facility (approx. 160 m), Międzylesie Facility (approx. 600 m) and Bystrzyca Kłodzka Facility (approx. 1 km), there is the Protected Landscape Area Bystrzyckie Mountains and Orlickie Mountains;
- There are trees being nature monuments in the close vicinity of the works area, approx. 0.005 km from the Międzylesie Facility and about 0.09 km from the Kłodzko Facility;

- There are 56 monuments protected under the Act of 23 July 2003 *on the protection and care of monuments* in the vicinity of the Contract area (up to 200 m).

Potential impact of the Contract on environment

Earth surface and landscape

The implementation of the investment will have a minimal impact on the surface of the earth during the construction phase. Impacts on the surface of the earth will be associated with temporary land occupation along the riverbeds. No permanent change of the earth surface is planned, except for short sections of riverbeds, where it is planned to shape the bank line, build slope reinforcements and convert the sills into ramps. Due to the small total length of these sections and the small scope of interference with the current shape of the earth surface, their impact is not significant in the scale of the analyzed area.

The implementation of the Contract will have an effect on changes in the landscape, which is connected with the presence of construction site facilities, technological roads, equipment and machines needed to carry out the works, as well as temporary storage places for materials generated during demolition works and removal of material deposited within the riverbed. Impacts on landscape values at the operation stage, especially in places where bank revetments and hydrotechnical structures are heavily damaged, can be positive. The transformation of sills and weirs into natural-like ramps may also have a positive impact on landscape values.

Climate

The Task implementation will not affect the climate and climate change at both the implementation and operation stages.

Air quality

At the stage of investment implementation, two types of air emissions are expected to occur: exhaust gas and dust emissions resulting from the operation of machinery and heavy construction equipment and the movement of vehicles transporting construction and demolition materials. It is expected that at the implementation stage the investment, due to its linear character and dispersion of works generating pollution, will not have a significant negative impact on the environment and will be limited to the closest vicinity of the work sites. No emissions of pollutants into the air at the operation stage are expected.

Soils and land

Impacts on soil and land will be associated with direct interference with bed sediments, alluvial soils (spot and selected river sections covered by the works), temporary transformation of the land surface and changes in soil structure on the temporarily occupied land (technological roads, construction site facilities). During the execution of the works, the potential threat is soil contamination due to equipment failure and leakage of petroleum substances from working machines. After completing the stage of construction works and after the properly done ground reinstatement, no significant changes to soil and water conditions and to soil productivity within temporary occupation sites are expected.

Surface waters

With regard to the planned renovation and rehabilitation works, these works do not essentially interfere with the shape of the riverbed and bank zone. Thus, the impacts on individual elements

of the assessment of the ecological status of unified surface waterbodies do not cause permanent negative effects. Most of the adverse impacts on water status include the implementation phase and cease after its completion. Permanent changes concern the sections where the shaping of the bank line and the construction of bank revetments, shaping a bipartite channel in the estuary section of the Jodłownik stream are planned, as well as the reconstruction of transverse objects in the watercourse beds: the conversion of weirs and of sills into semi-natural ramps.

The total length of the sections covered by the works is 8915 m on the Nysa Kłodzka, 1075 m on the Bystrzyca, 165 m on the Bystrzyca Dusznicka, 25 m on the Porębnik stream, 45 m on the Dolna stream and 50 m each on the estuary sections of the Jaszkówka and Jodłówka streams. In relation to the length of the USWBs, the length of the planned works is approx. 18% of the length of the USWB Nysa Kłodzka from Biała Lądecka to Ścinawka, code RW6000812199, approx. 9% of the length of the USWB Nysa Kłodzka from Różanka to Biała Lądecka, code RW6000812159, approx. 9% of the length of the USWB Nysa Kłodzka from the sources to Różanka, code RW60004121169, approx. 5% of the USWB Bystrzyca, code RW60004121499, approx. 0.5% of the USWB Porębnik, code RW600041211969, approx. 0.6% of the USWB Jaszkówka, code RW60004121969 and approx. 0.2% of the USWB Jaszkówka, code RW60004121929.

The planned activities are not expected to affect the deterioration of the status of USWBs. The said Contract does not threaten the achievement of the environmental objectives set for the unified bodies of water concerned. It will also not affect the threat to the achievement of environmental objectives of the neighboring USWBs, due to the spatial scope and local character of the changes.

Groundwater

The works connected with the planned investment will not change the existing water conditions in the area of its implementation and adjacent areas. At the implementation stage, there may potentially be negative impacts on the status of groundwater as a result of equipment failure and similar events which cannot be predicted at present and completely eliminated only by determining the appropriate organization and technology of works execution. After completion of the works, at the operation stage, no impact on the quantitative and chemical status of UGWBs is expected.

Natural habitats

At the stage of the Contract implementation, negative impacts on four natural habitats are expected to occur: 3260, 6430, 91E0, 9170, associated with the direct destruction of small areas of habitats.

Flora

Negative impacts are expected to occur at the area of the Długopole - Zdrój Facility on six species of rare plants, aphids and lichens protected in Poland at the stage of Contract implementation. These are: Oxlip, Wild Garlic, Streamside Hygroamblystegium Moss, Hildenbrandia rivularis, River Water-Crowfoot, Water-crowfoot. Due to the periodic transformation and loss of habitats, negative impacts are expected to occur on Streamside Hygroamblystegium Moss, Hildenbrandia rivularis, River Water-Crowfoot and Water-crowfoot also at the operation stage.

Fauna

At the stage of the Contract implementation, there may be a weak or moderate impact as a result of the works carried out on the site of the Dusky Large Blue, Large copper butterfly, three species of bumblebees and Roman Snail. No negative impacts on protected invertebrate species are expected at the operation stage.

At the Contract implementation stage, negative impacts on 10 protected fish and lamprey species are expected to occur. The implementation of works will affect the living conditions of ichthyofauna through periodic changes in water physiochemistry and flow, including suspension inflow. The impacts will only relate to the phase of construction and will disappear after a few/a dozen or so hours after completion of works. Therefore, they will not be significant for the local populations of these species. During the operation phase of the project, significant or moderate impacts may occur as a result of the transformation of habitats in the area where the species occurs, possible loss of hiding places, larvae habitats (in the case of brook lamprey) or population fragmentation. These impacts will be partially reversible in the medium term (2-5 years). Positive impact of the investment at the Contract operation stage will occur as a result of permanent improvement of migration barriers.

No significant long-term impact is expected at the implementation stage to threaten the continuity of amphibian and reptile populations or significantly reduce their numbers. Negative impacts will potentially be associated with a possible temporary reduction in feeding grounds or a potential increase in the incidental mortality of individuals (during seasonal migration periods) as a result of increased vehicle traffic in the working area. No negative impacts on herpetofauna are expected during the operation phase.

The impacts on avifauna during the implementation phase are primarily related to the startling and scaring of bird species directly related to the riverbed and habitats occurring on the bank slopes, but also to the local felling of trees. The possibility of weak to moderate negative impacts on the following species is anticipated during the operation phase: Goosander, Eurasian Wryneck, Grey Wagtail, White Wagtail, Spotted Flycatcher, White-Throated Dipper, Common Sandpiper, Little Ringed Plover, Middle Spotted Woodpecker, Eurasian Golden Oriole, Common Redstart, Common Kingfisher. Impacts on the above-mentioned species will be related to the simplification of the bed morphology, which will make feeding more difficult, breeding sites will disappear or will be reduced in the watercourse development. The effects of this threat will be reduced by the compensating measures taken.

The implementation of the Contract will involve a weak or moderate negative impact on the otter and the beaver due to the disturbance of these animals and a temporary reduction in the use of feeding grounds. The unblocking of transverse partitions in the riverbed will have an indirect positive impact on the habitat conditions of terrestrial and water mammals. No negative impacts are expected during the operation phase.

The implementation of the Contract will have a weak or moderate negative impact on the inventoried bat species, due to the occupation of feeding grounds and the necessary felling of hollow trees. It is planned to introduce protective measures during the renovation of the wall, in the area of which the wintering site of Common Pipistrelle was found. No negative impacts on bats are expected during the operation phase.

Natura 2000 Sites

The Contract is located outside the boundaries of Natura 2000 sites. The scope of the planned works was not found to have an impact on the objectives of protection of these areas or to have a direct negative impact on the objects of its protection, both at the stage of implementation and operation.

In the case of the Natura 2000 site the Nysa Kłodzka Gorge near Morzyszów PLH020043, a moderate indirect negative impact as a result of an increased concentration of suspended matter in the waters of the Nysa Kłodzka below the area of works may occur on the habitat 3260 being the object of protection of the above-mentioned area and on the fish species (European Bullhead) occurring in the area. This impact will occur during the implementation phase and will be minimized accordingly.

With regard to the Natura 2000 site Bialskie Mountains and Śnieżnik Group PLH020016, it is possible to indirectly affect the populations of European Bullhead and European Brook Lamprey associated with the disturbance of population stability in the section of the Nysa Kłodzka below the area, being a potential refugee for species. Disturbance during the works period has no significant negative impact.

On the other hand, a lasting impact at the operation stage will be positive - the improvement of the ichthyological flow capacity of the Nysa Kłodzka section will improve the integrity and connection of Natura 2000 sites.

Other protected areas

The implementation of the Contract does not generate negative impacts on other protected areas, such as National Parks, Nature Reserves, Protected Landscape Areas, nature and landscape complexes and ecological sites, which are located outside the Contract's direct and indirect impact zone.

No breach of the prohibitions established for the Bystrzyckie and Orlickie Mountains Protected Landscape Area is foreseen.

Two trees which are natural monuments, Western Cedar in the area of the Międzylesie Facility and American Tulip Tree near the Kłodzko Facility, may be exposed to the negative impact of the conducted works resulting from accidental damage. For this reason, it is planned to implement measures that will eliminate this impact.

The implementation of the Contract does not result in negative impacts on the functionality of migration corridors of large mammals.

- At the implementation stage of the Contract, there will be a periodical deterioration of the migration capacity related to disturbances and deterioration of water quality (suspended matter) in the area of works. In the operation phase, however, the implementation of the planned flow capacity improvement works will contribute to the improvement of the flow capacity of the Nysa Kłodzka River and its tributaries as an ecological corridor.

Acoustic climate

Negative impacts in the form of noise emissions will occur at the Contract implementation stage. These will be short-term impacts varying over time, mainly related to the operation of machinery and heavy construction equipment and the movement of construction vehicles. Hydrotechnical structures covered by the scope of the Contract do not generate noise. Hence,

their operation does not permanently affect the acoustic status of the environment of the adjacent areas, except for the periods of maintenance works in the riverbed and on the bank slopes.

Monuments of culture

No significant risk was found at the stage of the Contract implementation for the sites deemed to be protected on the basis of an entry in the register or record of monuments. At the operation stage, a positive impact on historic buildings is expected due to the reduction of the flood risk level.

Material goods

Impacts on material goods at the stage of construction works will mainly result from the execution of works and movement of vehicles and machines in built-up and inhabited areas. There is a potential risk of hazards during the performance of demolition works related to, notably, the reconstruction of the set-offs of regulatory walls and the foundation of new facilities (regulatory walls). These works pose the following risks for structural buildings located in their vicinity: subsidence or uneven subsidence of the structure, rotation, tilting, deflection, displacement of the structure; occurrence of structural vibrations causing discomfort to users and lowering the functionality of the structure, as well as damages related to the occurrence of scratches and cracks of structural elements, affecting the safety of the structure, and for non-structural elements - lowering the aesthetics of the structure. These impacts have been identified as potential; these aspects will be monitored at the investment implementation stage. The effect of the Contract implementation will be a more effective protection of material goods (including, first of all, urban development and infrastructure) located in flood plains in the event of flooding.

Human health and safety

The impacts of the Contract at the implementation stage will be the impacts typical for medium-sized construction sites. These will be: noise emissions, pollution emissions and traffic nuisance (related to increased vehicle traffic). These impacts will be temporary (limited to the construction period). In the operational phase, changes in impacts on human health and safety are anticipated in terms of improved flood safety.

Waste

If the generated waste is properly handled and managed, the construction process will not have a negative impact on the environment during the implementation stage.

Cumulative and transboundary impacts

The implementation of all tasks included in the cumulative impact assessment does not pose a threat to the status of the USWBs in question, and also UGWBs, or to the achievement of WFD environmental objectives referred to in Article 57 and 59 of the Water Law. The prerequisite is to apply correct technical solutions and the planned minimization measures.

Due to the nature of the generated impacts and its location, the Contract does not pose a risk of the occurrence of transboundary impacts. There is no possibility that the possible impacts would extend to areas within the borders of the Czech Republic that are several to a dozen or so kilometers away.

Mitigation and monitoring measures

Chapters 6 and 7 and in the Appendix 1, 2 to EMP describe and present in a table form a set of mitigation and monitoring measures to eliminate or reduce the negative environmental impacts of the Contract and to ensure the effective implementation of the conditions of the EMP. These measures include the conditions specified in the environmental decisions issued for the particular structures implemented under Contract 2B.1/1, as well as additional conditions formulated at the stage of works over the EMP.

Public consultations

Chapter 8 of the EMP presents an account of public consultations carried out as part of the procedures related to the environmental impact assessment of the planned Task, including of:

- public consultations of the Environmental and Social Management Framework Plan for OVFMP (2015);
- public consultations carried out at the stage of issuing the environmental decisions for the Contract (2020);
- public consultations for this Environmental Management Plan (2021).

1. INTRODUCTION

This Environmental Management Plan (EMP) refers to the Works Contract 2B.1/1 *Flood Protection of the Nysa Kłodzka Valley.*

1.1. ODRA-VISTULA FLOOD MANAGEMENT PROJECT (OVFMP)

The aim of the Odra-Vistula Flood Management Project (OVFMP) is to increase the level of flood protection for people living in selected areas of the Odra and Upper Vistula river basins and to strengthen the institutional capacity of government administration to provide more effective protection against summer and winter floods and flash floods.

The project consists of five Components:

Component 1 - Flood Protection of Middle and Lower Odra River, including:

Subcomponent 1A - Flood protection of areas in Zachodniopomorskie voivodship;

Subcomponent 1B - Flood Protection on the Middle and Lower Odra;

Subcomponent 1C - Flood protection of Słubice city.

Component 2 - Flood protection of the Kłodzko Valley, including:

Subcomponent 2A - Active protection;

Subcomponent 2B - Passive protection.

Component 3 - Flood Protection of Upper Vistula, including:

Subcomponent 3A - Flood protection of Krakow and Wieliczka;

Subcomponent 3B - Flood protection in Sandomierz and Tarnobrzeg;

Subcomponent 3C - Passive and active protection in the Raba River basin;

Subcomponent 3D - Passive and active protection in the San river basin.

Component 4 - Institutional strengthening and upgrading of the forecasting system

Component 5 - Project Management and developing further studies

Detailed information and additional documents concerning the OVFM Project are available at the website of the Project Coordination Unit for the Odra-Vistula Flood Management Project (http://odrapcu2019.odrapcu.pl/) and at the World Bank's website (http://documents.worldbank.org/curated/en/docsearch/projects/P147460).

1.2. FLOOD PROTECTION OF THE KŁODZKA VALLEY (COMPONENT 2 OF OVFMP)

Component 2 of OVFMP titled *Flood protection of the Kłodzka Valley* aims to reduce the existing flood risk in the problem area (hot spot) of the Kłodzko Valley.

In accordance with the provisions of the FRMP and rWMP, as part of the Odra-Vistula Flood Management Project (OVFMP), 2 subcomponents are comprised within Component 2:

1. Subcomponent 2A - active protection:
   - 2A.1/1 Construction of the "Boboszów" dry flood control reservoir on Nysa Kłodzka River,
   - 2A.1/2 Construction of the "Roztoki Bystrzyckie" dry flood control reservoir on the Goworówka stream,
   - 2A.2/1 Construction of a dry flood protection reservoir "Krosnowice" on the Duna stream near Krosnowice,
   - 2A.2/1 Construction of "Szalejów Górny" dry flood control reservoir on Bystrzyca Dusznicka River;
2. Subcomponent 2B - passive protection:
   - **2B.1/1 Flood Protection of the Nysa Kłodzka Valley,**
   - 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River,
   - 2B.2/2 Flood protection of the Bystrzyca Dusznicka River and the Kamienny Potok River.

   The Contract 2B.1/1 consists of four Facilities:

   - Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Długopole-Zdrój Facility,
   - Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility,
   - Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility,
   - Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Kłodzko Facility.

2. CONTRACT DESCRIPTION

2.1. CONTRACT LOCATION

The Contract in question is located within the Nysa Kłodzka riverbed and at the mouth of the Porębnik and Dolna streams to the Nysa Kłodzka, as well as within the bed of the Bystrzyca and Bystrzyca Dusznicka stream and in their immediate vicinity.

From the administrative point of view, the task planned for implementation, i.e. *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley* is located in the area of the commune of Bystrzyca Kłodzka, within the precincts of: Długopole-Zdrój, Centrum, Zabłocie, Zacisze, Stara Bystrzyca, Stary Waliszów and Niedźwiedna and in the area of the Międzylesie commune, within the register precincts of: Międzylesie and Smreczyna, as well as in the municipal commune of Kłodzko – the precincts of: Boguszyn, Centrum, Jaskółcza Góra, Jurandów, Krosnowice, Stadion, Twierdza, Zagórze.

These areas are located within the boundaries of Lower Silesia Voivodship, in Kłodzko Poviat.

The sections covered by the study include:

- the Nysa Kłodzka River (including the section from km 172+200 to km 174+600 with a length of ca. L= 2.4 km and the section of the Dolna stream from km 0+000 to km 0+050 with a length of ca. L= 0.05 km (*Międzylesie Facility*);
- the Nysa Kłodzka River at the section from km 156+970 to km 158+100 with a length of ca. L= 1.13 and the estuary section of the Porębnik stream at a length of about 25 m (*Długopole - Zdrój Facility*);
- the Nysa Kłodzka River at the section from km 148+078 to km 151+475 with a length of ca. L= 3.4 km and the Bystrzyca stream on the section from km 0+129 to km 1+659 with a length of ca. L= 1.53 km (*Bystrzyca Kłodzka Facility*);
- the Nysa Kłodzka River from km 127+433 to km 134+312 with a length of ca. L=6.88 km, a section of the Bystrzyca Dusznicka River from km approx. 0+203 to km approx. 0+332 with a length of ca. L= 0,13 km and an estuary section of the Jodłownik stream with a length of approx. 100 m and an estuary section of the Jaszkówka stream with a length of approx. 50 m (*Kłodzko Facility*).

2.2. CONTRACT QUALIFICATION

The construction works planned under Contract 2B.1/1 qualify as an investment in scope of flood protection structures within the meaning of the Act of 8 July 2010 on special rules on preparing to investment implementation within the scope of flood control structures (i.e. Journal of Laws of 2019, item 933) (special flood act).

In accordance with Article 2(1) of the special flood act, the following categories of works are envisaged to be carried out as part of flood protection structures: construction, reconstruction and renovation of regulatory structures together with facilities related to them technically and functionally.

The planned duration of the works covered by the Contract is about 15 months.

2.3. TYPE OF TECHNOLOGY

DESIGN ASSUMPTIONS

The planned design solutions are generally of a renovation and restoration nature and consist in improving the technical condition of the existing regulatory bed development and stabilizing the course of the bed in the plan as well as in the longitudinal profile. The design solutions were determined using typical types of protection for mountain river areas.

Basic design assumptions:

- increasing the flood protection of bank areas with particular emphasis on built-up areas and traffic routes,
- improving the ichthyological flow capacity by eliminating transverse barriers,
- ensuring the durability and stability of the cross-section and longitudinal section by renovating the revetments,
- making the bank areas accessible to the population.

DETAILED SCOPE OF WORKS

I. Scope of works on the Nysa Kłodzka River in the area of the town of Międzylesie:

1. Renovation and reconstruction works (the lengths of one-sided works - for the right or left bank slope - are given):

- demolition and reconstruction of walls over a distance of about 15 m,
- reprofiling the walls over a distance of about 1200 m,
- construction bank revetments on a section of about 95 m,
- reprofiling the slopes over a distance of about 760 m,
- slope formation over a distance of about 390 m,
- clearing the bed at a distance of about 260 m,
- clearing the embankment and inter-embankment zone, repairing the possible damage to the dam at a distance of approx. 360 m,
- renovation of the estuary section of the Dolna stream at a distance L = approx. 45 m (removing rubble and rubbish from the bed in order to improve its flow capacity and construction of revetments of slopes in the form of wedge-shaped rip-rap).

2. Converting the four sills: at km 172+971; at km 173+527; at km 173+603 and at km 174+588 into ramps.

II. Scope of works on the Nysa Kłodzka River in the area of the town of Długopole-Zdrój:

1. Renovation and reconstruction works (the lengths of one-sided works - for the right or left bank slope - are given):

- construction of walls over a distance of about 480 m,
- demolition and reconstruction of walls over a distance of about 140 m,
- reprofiling the walls over a distance of about 200 m,
- revetment of bank slopes over a distance of about 115 m,

- clearing the bed at a distance of about 20 m (removing the outwashes in the bridge clearance),
- conversion of 2 sills into stone ramps with an inclination of 1:25,
- renovation of the estuary section of the Porębnik stream at a distance of about 25 m.

2. Conversion of the sills H-14 at km 157+473 and H-15 at km 157+603 into ramps.

III. Scope of works on the Nysa Kłodzka River in the area of the town of Bystrzyca Kłodzka:

1. Renovation and reconstruction works (the lengths of one-sided works - for the right or left bank slope - are given):

- construction of walls over a distance of about 140 m;
- demolition and reconstruction of walls over a distance of about 180 m;
- reprofiling the walls over a distance of about 925 m;
- construction of bank revetments on a section of about 530 m;
- demolition and reconstruction of revetments over a distance of about 80 m;
- reprofiling the slopes over a distance of about 180 m;
- slope formation over a distance of about 50 m;
- clearing the bed at a distance of about 320 m;
- profiling the area under the beach on a section of about 50m.

2. Construction of a fish migration channel at a section of about 500 m between the planned fish pass at the weir at km 148+894 and the mill race outlet, together with a sill diverting to the planned fish pass.

3. Conversion of the sills at km 148+226 and at km 148+376 into ramps.

4. Conversion of the weir at km 151+475 into a ramp.

IV. Scope of works on the Bystrzyca stream in the area of the town of Bystrzyca Kłodzka:

1. Renovation and reconstruction works (the lengths of one-sided works - for the right or left bank slope - are given):

- demolition and reconstruction of walls over a distance of about 615 m,
- reprofiling the walls over a distance of about 860 m,
- construction of bank revetments on a section of about 15 m.

V. Scope of works on the Nysa Kłodzka and Bystrzyca Dusznicka river in the area of the town of Kłodzko:

1. Renovation and reconstruction works (the lengths of one-sided works - for the right or left bank slope - are given):

- reprofiling the walls over a distance of about 955 m,
- demolition and reconstruction of walls over a distance of about 555 m,
- construction of walls over a distance of about 200 m,

- renovation, reconstruction of the bank revetments on a section of about 2,010 m,
- renovation of the flood protection embankment,
- reconstruction of buttresses in the clearance of the channel for the migration of fish at low water level – lowering of the buttress crest to ensure an unobstructed fish migration channel,
- renovation of the estuary section of the Jodłownik stream at a distance of approx. 100 m by cleaning and supplementing the joints, filling in the losses of stone and removing rubble and rubbish from the bed in order to improve its flow capacity and to shape a bipartite channel,
- renovation of the estuary section of the Jaszkówka stream with a length of approx. 50 m, by removing rubble and rubbish from the bed, supplementing the joints, filling in the losses of stone,
- flow capacity improvement of the estuary section of the ditch at km approx. 130+350 of the Nysa Kłodzka,
- shaping of the bank line by building exit stairs to the riverbed and pavements on permanent outwashes,
- cutting down the trees and bushes colliding with the scope of works performed,
- reconstruction of the flood embankment on the Bystrzyca Dusznicka at km approx. 0+203 – 0+332.

2. Conversion of the weir at km 131+050 of the Nysa Kłodzka together with the construction of a beam fish pass with a descending migration gutter, and construction of a fish migration channel (for low water level conditions) at a distance of approx. 1 450 m from the weir H-4 to the mill race estuary (km 131+050 to km 129+600).

3. Conversion to semi-natural stone ramps of the sills H-5 at km 133+441 and H-6 at km 134+312 (restoration of flow capacity at the section of the Nysa Kłodzka from Kłodzko to the Biała Lądecka estuary).

4. Development of bank areas for the needs of educational paths.

2.3.1. CONDITIONS FOR PERFORMANCE OF WORKS AND REQUIREMENTS FOR BACK-UP FACILITIES

The implementation of the Contract during the construction phase will be limited in space to the Nysa Kłodzka riverbed and the mouth of the Porębnik and Dolna streams to the Nysa Kłodzka, as well as within the Bystrzyca and Bystrzyca Dusznicka streambed. Due to the land profile, it is usually a strip not exceeding a width of about 20 m from the bank line.

Works related to reconstruction, demolition, reprofiling and renovation of regulatory walls, due to limitations in the availability of space directly along the riverbed (existing structures, trees and bushes, other infrastructure facilities adjacent directly to the riverbed), will have to be carried out in a sectional way using "from the water" technology, using a micro excavator. The use of heavy equipment is permitted within the Nysa Kłodzka bed, but only if it is not possible to carry out works from the land side or with a micro excavator. For this purpose, it is planned to build temporary, sectional cofferdams in the bed, i.e.: the lower, upper and longitudinal cofferdam, built of the natural material (e.g. sandbags with possible sealing with construction

foil). It is necessary to use bags with increased durability in order to avoid sand washing from them (protection of the gravel-stone bottom against sanding up). Cofferdams will separate the active riverbed from the works zone, from where residual water will be drained out and aquatic organisms caught will be transferred to another part of the bed not covered by the works. The equipment used for the performance of works along the river bank slopes will move in the dried part. For the duration of works, the dried part of the riverbed will be lined with a natural material in the form of fascine mattresses, laid out in the whole technological belt of machine movement, in order to limit direct impact on the riverbed (dilapidation, disturbing the structure of the bottom, initiating the erosion process).

Works will be carried out in short sections, in an alternating manner. The sections of the above-mentioned riverbed separation with cofferdams will be limited on one side with adjusting them to the scope of works at the length of approx. 15 ÷ 50 m. After the execution of works within the section of works on one bank slope (module of separation for works), the zone of works will be transferred, in a by passing manner, to the opposite slope (applies to cases where on a given section of the river both bank slopes are covered by works) or in the case of masonry works (concreting of the wall body) on the same bank, for the every other module in order to stage the works. This type of performing the works will also limit the time during which certain sections of the riverbed will be deprived of water.

Some of the works will be carried out under conditions of temporary (or permanent) occupation of private land.

The reconstruction of the weir will consist in dismantling the devastated, existing body of the weir and building a new reinforced concrete structure with stone lining, as well as rebuilding the downstream and upstream apron. Construction works on the reconstruction of the weir will be carried out in stages, under the cover of the cofferdam. The works will require the use of heavy equipment for demolition and pile-driver works. It will be necessary to build technological roads in the area of the weir leading to the weir's downstream station. The staged execution of the works will allow the biological flow to pass through the whole period of works, in the first period through the flushing release, and in the next stages through the fish pass.

Due to the length of the section covered by the investment, it seems reasonable to locate the construction site facilities in several locations. It is suggested to locate the construction site facilities in 8-10 locations, at least two locations each for Facility.

The construction site facilities and technological roads and yards should be located outside the areas covered by high greenery (trees, bushes), the boundaries of the identified natural habitats and the habitats and sites of protected species. Such facilities are to serve for storage of building materials and topsoil, garage, refueling and current repairs of machinery and devices, storage of fuels and oils, location of social facilities (a room for construction team, portable sanitary cabins with full equipment) and waste containers. The construction site facilities and all technological roads, where machinery and vehicles will move, should be covered with concrete road slabs on subcrust. In the vicinity of machine garaging and filling there should be a stand with sorbent serving to eliminate any leaks and spills of petroleum substances.

Each site selected by the Contractor for the location of construction site facilities and the course of technological roads must be approved by the natural supervision established for the purpose of carrying out the works (zoologist, botanist-phytosociologist). Each site selected by the Contractor for the location of construction site facilities and for the course of technological

roads must be approved by the Contractor's team of environmental experts and presented for the Engineer's approval.

The works Contractor should be obliged to periodically remove the contaminants formed on public roads as a result of vehicular and machinery traffic related to the proposed Task.

2.3.2. LAND OCCUPATION

- Some of the works will be carried out under conditions of temporary (or permanent) occupation of private land directly adjacent to the watercourse bed.

- Temporary occupation will be implemented in accordance with the contents of the Land Acquisition Plan for Task 2B.1/1 and the Operational Policy of the World Bank OP. 4.12[1], as well as in accordance with the procedures set out in the LARPF (Land Acquisition and Resettlement Policy Framework [2]). The LAP contains a detailed list of activities and procedures related to land acquisition for the implementation of the Task. Reservations and comments on the resettlement plan, as well as any reservations regarding the implementation of resettlement in accordance with Polish law, shall be qualified as complaints and motions (*Grievance Redress Mechanism*). This mechanism also covers the filing and management of any complaints that may be made in the course of the project by persons and entities affected by any of its impacts. This issue was discussed in detail in the POM for the OVFM Project[3].

- For the construction of individual Facilities, permanent occupation will be required at selected locations, on land adjacent to riverbeds. The rules for permanent and temporary occupation will be detailed in the Land Acquisition Plan for Contract 2B.1/1.

- In accordance with the provisions of the LAP, at the stage of project preparation and during its implementation, mitigation measures will be applied, the aim of which is to limit and compensate for all negative socio-economic effects of Contract implementation, including possible loss of property by those affected by the project.

2.4. TREES AND BUSHES FELLING

In connection with the implementation of the necessary scope of works, it is necessary to cut down trees and bushes. The detailed scope of the trees and bushes to be felled will be determined at the stage of detailed design works.

It is assumed that not all trees and bushes indicated in the Reports will be felled taking into account the adopted mitigation measures, including the possibility of retaining specific specimens at the stage of the works through appropriate technology and organization of the works, carried out under the ongoing supervision of natural experts.

In places where there is no direct collision of existing trees and bushes with the work sites, in order to limit the scope of felling, works will be carried out from the riverbed (after draining and catching fish from the area separated for works in prior).

[1] https://policies.worldbank.org/sites/ppf3/PPFDocuments/090224b0822f89db.pdf

[2] http://odrapcu2019.odrapcu.pl/doc/OVFMP/Ramowy_dokument_dotyczacy_Przesiedlen_i_Pozyskiwania_Nieruchomosci.pdf

[3] http://odrapcu2019.odrapcu.pl/doc/POM_PL.pdf

3. INSTITUTIONAL, LEGAL AND ADMINISTRATIVE CONDITIONS

3.1. INSTITUTIONS ENGAGED IN THE CONTRACT IMPLEMENTATION

The Investor of the Contract is the State Water Holding Polish Waters in Warsaw represented by the Director of the Regional Water Management Authority in Wrocław, 34 C. K. Norwida Street, 50- 950 Wrocław, acting for and on behalf of the State Treasury.

Additionally, during the construction and operation phase, the implementation of the Contract may require the involvement of public administration bodies at central, regional and local level. For the current coordination of the implementation of the Project by PIU, an organizational unit of the Project Coordination Unit of the Odra-Vistula Flood Management Project was established.

3.2. NATIONAL ENVIRONMENTAL LEGISLATION IN FORCE

The Polish law stipulates that the investment process in the field of environmental protection is regulated by more than ten acts and regulations. A list of selected basic legal acts related to the above-mentioned thematic scope and in force during the works over the EMP was presented in Appendix no. 3 to the EMP. The number and content of the legal acts listed therein may be subject to change, together with changes in national environmental legislation. In any case, the Contractor shall be obliged to comply with all current legal regulations applicable in Poland throughout the term of the Contract.

3.3. EIA PROCEDURE IN POLAND

The environmental impact assessment procedure valid in the Polish legislation is described in the *Environmental and Social Management Framework Plan* (ESMF), published, among others, at the websites of the Odra-Vistula Flood Management Project Coordination Unit[1] and the World Bank[2].

3.4. WORLD BANK GUIDELINES

The said Contract is co-financed by the World Bank and the conditions for its implementation in the field of environmental protection are consistent with the Bank's Operational Policies and Bank Procedures in the field of environmental protection, including, notably, such policies and procedures as *OP/BP 4.01* (concerning environmental impact assessment), *OP/BP 4.04* (concerning natural habitats), *OP/BP 4.11* (concerning cultural resources). The source texts of these policies and procedures can be found in *The World Bank Operational Manual*[3] and their descriptions are presented, in particular, in the ESMF.

The same *Grievance Redressal Mechanism* will apply under the Contract 2B.1/1. Reservations and comments on the resettlement plan, as well as any reservations regarding the implementation of resettlement in accordance with Polish law, shall be qualified as complaints and applications. This mechanism also covers the filing and management of any complaints

[1] At: *http://odrapcu2019.odrapcu.pl/popdow_dokumenty/*

[2] At: *http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework*

[3] At: *https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx*.

that may be made in the course of the Contract by persons and entities affected by any of its impacts (including, but not limited to, property buy-outs, temporary occupations of properties and compensation). This issue was discussed in detail in the POM for the OVFM Project[1].

3.5. EIA PROCEDURE FOR CONTRACT 2B.1/1

Pursuant to the provisions of the Regulation of the Council of Ministers of 10 September 2019 on investments likely to exert significant impact on the environment, the planned investment, i.e. *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility, Długopole - Zdrój Facility, Bystrzyca Kłodzka Facility, Kłodzko Facility* is a project that may potentially have a significant impact on the environment.

For the Task in question, in accordance with the requirements of the national legislation, the Investor i.e. State Water Holding Polish Waters, was awarded four decisions on environmental conditions (environmental decisions). Four environmental impact assessment reports were prepared as part of the procedure:

- The Project's environmental impact report for *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Międzylesie Facility, July 2020;*
- The Project's environmental impact report for *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Długopole – Zdrój Facility, August 2020;*
- The Project's environmental impact report for *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Bystrzyca Kłodzka Facility, August 2020;*
- The Project's environmental impact report for *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Kłodzko Facility, August 2020;*

The competent authority for issuing the environmental decision for investment activities included in *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley* was the Regional Director for Environmental Protection in Wrocław.

The Investor applied to the Regional Director for Environmental Protection in Wrocław on 13 February 2020 for issuing a decision on environmental conditions for the *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Długopole – Zdrój Facility* and for making it immediately enforceable. The application was supplemented formally on 19 March 2020, in accordance with the scope indicated by RDOŚ in Wrocław, in the letter of 18 February 2020, ref.: WOOŚ.420.10.2020.AP.

On 17 March 2020, the Consultant - on behalf of the Investor - submitted an application for issuing environmental decisions for *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility; Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility* and *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Kłodzko Facility* and for making them immediately enforceable.

Data on the applications for issuing the decisions on environmental conditions are included in the publicly available list of data on documents containing information on the environment and its protection (http://www.ekoportal.gov.pl/) under the numbers: 90/2020 for the *Długopole - Zdrój Facility*; 92/2020 for the *Międzylesie Facility;* 93/2020 for the *Bystrzyca Kłodzka Facility;* 95/2020 for the *Kłodzko Facility.*

[1] http://odrapcu2019.odrapcu.pl/

The Regional Director for Environmental Protection in Wrocław, by the notices of 23 March 2020, ref.: WOOŚ.420.10.2020.AP.3; WOOŚ.420.17.2020.AP; WOOŚ.420.18.2020.AP; WOOŚ.420.20.2020.AP, informed the parties to the proceedings, among others: on initiating the administrative procedure on issuance of the decisions on environmental conditions for the above-mentioned investments, on the authorities competent to issue the decisions and about the possibility to familiarize oneself with the case files and submit comments and applications at each stage of the procedure.

In the course of the proceedings, the Regional Director for Environmental Protection in Wrocław, in the letters of 23 March 2020, requested an opinion on the necessity to conduct an environmental impact assessment, and if such a need is identified, on the scope of the environmental impact report to: the Minister of Maritime Economy and Inland Navigation and to the State Poviat Sanitary Inspector in Kłodzko.

The State Poviat Sanitary Inspector in Kłodzko in the decisions of 6 April 2020 ref. NS-ZNS-72-17/AZ/20 (*Kłodzko Facility*); 8 April 2020, ref.: NS-ZNS-72-18/AZ/20, (*Długopole - Zdrój Facility*); 21 April 2020, ref.: NS-ZNS-72-21/AZ/20 (*Międzylesie Facility*), expressed an opinion on the lack of the need to conduct an environmental impact assessment. The State Poviat Sanitary Inspector in Kłodzko did not take a position on the need to carry out an environmental impact assessment for *Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility,* within the statutory deadline, which according to the current regulation of Article 78(4) of the EIA Act, is considered to constitute the lack of objections.

The Minister of Maritime Economy and Inland Navigation, in the letter of 9 April 2020, ref.: DOK.DOK2.9750.1.19.2020.SK (*Długopole - Zdrój Facility*), ref.: DOK.DOK2.9750.1.20.2020.SW (*Międzylesie Facility*); ref.: DOK.DOK2.9750.1.15.2020.ASL (*Bystrzyca Kłodzka Facility*); DOK.DOK2.9750.1.17.2020.SL (*Kłodzko Facility*), applied to RDOŚ in Wrocław to summon the applicant to supplement the Project Data Sheets.

After the supplements to the PDS were provided by the Investor's representative, to the extent indicated by the Minister of Maritime Economy and Inland Navigation, the Regional Director for Environmental Protection in Wrocław applied to the State Poviat Sanitary Inspector in Kłodzko for a new opinion on the necessity to carry out environmental impact assessments of the planned projects or to maintain the above-mentioned position.

The Minister of Maritime Economy and Inland Navigation, in the letter of 15 June 2020, ref.: DOK.DOK2.9750.1.19.2020.SK (*Długopole – Zdrój* Facility), of 18 June 2020 ref.: DOK.DOK2.9750.1.20.2020.SW (*Międzylesie Facility*) and ref.: DOK.DOK2.9750.1.15.2020.ASL (*Bystrzyca Kłodzka Facility*), of 19 June 2020, ref.: DOK.DOK2.9750.1.17.2020.SL (*Kłodzko Facility*), stated that there is no need to conduct an environmental impact assessment for the above-mentioned projects, indicating at the same time the necessity to consider the conditions and requirements specified in the above-mentioned opinions in the decisions on environmental conditions.

The State Poviat Sanitary Inspector in Kłodzko maintained its position that there is no need to carry out an environmental impact assessment or issued its opinion after the statutory deadline, which according to the current regulation of Article 78(4) of the EIA Act, is treated as the absence of objections.

The Regional Director for Environmental Protection in Wrocław has analyzed the collected documentation in the context of the provisions of Article 63(1) of the cited act. In consideration of the information included in the PDS, it was found that the said investment projects may have a significant environmental impact and it is therefore required to conduct an environmental impact assessment. In connection with the above, on 3 July 2020, it issued the decisions ref.: WOOŚ.420.10.2020.AP.11 (*Długopole – Zdrój Facility*); WOOŚ.420.17.2020.AR.10 (*Międzylesie Facility*); WOOŚ.420.18.2020.AP.9 (*Bystrzyca Kłodzka Facility*); WOOŚ.420.20.2020.AP.9 (*Kłodzko Facility*) on the obligation to conduct an environmental impact assessment and determined the scope of the environmental assessment reports for the said projects.

On 31 July 2020, the Investor's representative submitted "The environmental impact report for the project titled: "*Task 2B.21/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility*". With the letters of 17 August 2020, the Environmental impact report was also submitted for the project entitled "*Task 2B.1/1 Flood protection of the valleys of the Nysa Kłodzka River - Długopole-Zdrój Facility*" and "Report on the environmental impact of the project entitled: *"Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility"*. On 21 August 2020, the Investor's representative submitted "The environmental impact report for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - *Kłodzko Facility*".

After analyzing the above-mentioned Reports and the submitted documentation, the Regional Director for Environmental Protection in Wrocław, with the letter of 13 August 2020, ref.: WOOŚ.420.17.2020.AP.13 (*Międzylesie facility*) and the letter of 31 August 2020, ref.: WOOŚ.420.10.2020.AP.17 (*Długopole - Zdrój Facility*), ref.: WOOŚ.420.18.2020.AP.12 (*Bystrzyca Kłodzka Facility*), ref.: WOOŚ.420.20.2020.AP.12 (*Kłodzko Facility*), summoned the Investor's representative to supplement the content of the reports.

The documentation submitted in the case, including the Report, was finally supplemented on 8 September 2020 (*Międzylesie Facility*), 18 September 2020 (*Długopole - Zdrój Facility*), 21 September (*Bystrzyca Kłodzka and Kłodzko Facility*).

After submitting the documentation in accordance with Article 79 of the EIA Act, as part of the environmental impact assessment, the Regional Director for Environmental Protection in Wrocław provided the opportunity for public participation in the proceedings, which is described in more detail in chapter 8. No comments or proposals were submitted in the course of public consultations, and there were no entities or persons that would apply to the body conducting the proceedings to be admitted to participate in the proceedings at the rights of a party.

After conducting public consultations, the Regional Director for Environmental Protection in Wrocław, based on the analysis of the collected evidence, issued four decisions on environmental conditions:

- Międzylesie Facility – Decision ref.: WOOŚ.420.17.2020.AP.17 of 23 October 2020;
- Długopole – Zdrój Facility – Decision ref.: WOOŚ.420.10.2020.AP.22 of 19 November 2020;
- Bystrzyca Kłodzka facility – Decision ref.: WOOŚ.420.18.2020.AP.17 of 13 November 2020;

- Kłodzko facility – Decision ref.: WOOŚ.420.20.2020.AP.17 of 19 November 2020.

These decisions lay down the environmental conditions for the implementation of the Task. Copies of the decision are attached as appendix 4a to the EMP.

Moreover, the Regional Director for Environmental Protection in Wrocław has found that it is necessary to make the decisions immediately enforceable and has thus approved the investor's application. Hence, the decisions are made immediately enforceable in subsequent administrative proceedings, even before they have become final.

4. DESCRIPTION OF ELEMENTS OF THE ENVIRONMENT SURROUNDING THE CONTRACT

4.1. EARTH SURFACE AND LANDSCAPE

According to the division of Poland into physical-geographical units according to Kondracki, the analyzed area is defined by the following units:

- Megaregion: Non-Alpine Central Europe (3)
- Province: Czech Massif (33),
- Subprovince: Sudetes Land of the Northern Podkarpacie region (332),
- Macroregion: Central Sudetes (332.5),
  - Mezoregion: Upper Nysa Graben (332.55) – *Długopole Zdrój Facility, Międzylesie Facility, Bystrzyca Kłodzka Facility;*
  - Mezoregion: Bystrzyckie Mountains (332.53) - *Międzylesie Facility;*
  - Mezoregion: Kłodzka Valley (332.54) - *Międzylesie Facility;* Kłodzko Facility*;*
- Macroregion: East Sudetes (332.6),
  - Mezoregion: Śnieżnik Massif (332.62) - *Międzylesie Facility.*

Długopole-Zdrój has great landscape values, due to the mountainous shape of the terrain, as well as the health resort character of the village. The decoration of the Health resort is the historic Health Resort Park located in the center with walking alleys and specimens of old trees.

Międzylesie is located in the southern part of the Upper Nysa Graben. The axis of the commune's area is the south-running Nysa Kłodzka valley. The commune's landscape is sub-mountainous in character, a significant part of the area (32%) is covered by forests, which dominate in the higher areas. These are mixed lowland-and-mountain forests and primeval mountain forests in fragments having high natural values.

The town of Bystrzyca Kłodzka also has great landscape values, additionally enhanced by significant cultural values. Significant elements of the natural landscape are the gorge section of the Nysa Kłodzka River and the riverbed meandering north and south of this gorge. The majority of urban development, including the entire historic downtown district, occupies the area of the steep, left-bank slope of the deep, erosional valley of the Nysa Kłodzka River, spreading further to the north and west. In this location, the historic downtown buildings, together with the surrounding development complexes, which were later implemented from all sides.

In the landscape of the town of Kłodzko there are three basic units: the valley of the Nysa Kłodzka, the hill of the Forteczna Mountain and the hill of the Owcza Mountain, on the opposite banks of the Nysa Kłodzka, which forms a narrow section between them. The town of Kłodzko is one of the tourist centers of the Kłodzko Valley, thanks to, among other things, the buildings of the old town with preserved original urban layout of a medieval character, the area of the Main Fortress and the complex of "Owcza Mountain" forts.

The built-up area of Międzylesie, through which the Nysa Kłodzka River flows, is characterized by low landscape values, mainly due to limited access to the riverbed (buildings adjacent to the river and bushes) and poor technical condition of the riverbed's regulatory development (losses, washings).

The Długopole - Zdrój facility is characterized by negligible positive landscape values, which stems preponderantly from the location of the Nysa Kłodzka riverbed outside the town center. Poor technical condition of the regulatory development also results in a reduction of landscape values. On the sections of the Nysa Kłodzka located in the built-up area of the historic downtown district of Bystrzyca Kłodzka, the landscape values were rated high, similarly in the case of the Old Town of Kłodzko.

4.2. CLIMATE

The area where the Contract is planned to be carried out is characterized by a mild, moderately warm climate. In the warm six-month period, the climate is assessed as humid, cool with a relatively high cloud cover. In the cool six-month period, the climate is moderately humid, warm with a large number of cloudy days. The climatic conditions of the area, apart from the land profile, determine the global movements of air masses in the east-west direction. Favorable climatic conditions of the area, located within the Upper Nysa Graben, deteriorate along with northern circulation. The Upper Nysa Graben has the character of a deep mid-mountain valley, within which the frequency of inversion phenomena in the form of fogs and frosts increases due to increased air humidity. As per the agricultural and climatic division of Poland according to Gumiński, the Contract area belongs to the Sudeten climatic district.

In the Międzylesie Commune, the average annual temperature is 7-8° C. The warmest month is July with an average temperature of 17.0°C. The Międzylesie Commune is classified as one of the regions with high and very high total rainfall, the total annual rainfall is about 800 mm. The average durability of snow cover in Międzylesie is 80 days and its average thickness is about 20-30 cm. The deep valleys of the Nysa Kłodzka valley and its tributaries are the routes of cold air masses and the place of its accumulation. This is accompanied by higher humidity, frequent fogging and frosts in spring and autumn.

The average annual air temperature in Długopole-Zdrój is 6.8°C. The total annual rainfall is 812 mm. In Długopole-Zdrój, a specific microclimate of the health resort was formed. It lies in the well-covered, sunny valley of the Nysa Kłodzka. There is a low stimulus microclimate here with mild climate parameters in relation to the environment. The number of days with climatic comfort per year is 40-50%.

The average annual temperature in Bystrzyca Kłodzka is 7.4°C. The annual sum of precipitation in Bystrzyca Kłodzka is 868 mm, its maximum is in July. The prevailing winds are those from the west and south and related directions (NW, SW).

The average annual temperature in the town of Kłodzko is 7.4°C. Average annual precipitation is 576.1 mm, with a maximum in July. The prevailing winds are south-western and south winds.

4.3. AIR QUALITY

The biggest problem on the scale of the Lower Silesian Voivodship is the high level of air pollution by particulate matter, both PM 10, PM 2.5 and benzo(a)pyrene. The main sources of air pollution in the region include:

- low emissions during the heating seasons (households and communal facilities),
- industrial emissions (entities introducing gases and dust into the air and paying for the use of the environment),
- car emissions (applies to roads and the immediate vicinity).

The protection zones in the area of the Contract implementation should include the health resort protection zone A.

The current condition of air in the Task area was evaluated on the basis of measurements made as part of the State Environmental Monitoring in 2018 at the nearest measurement and control point, located in Kłodzko at Szkolna Street [GIOŚ RWMŚ, 2019]. No exceedances of the limit values for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and benzene, both 1 hourly and 24-hourly levels, were recorded. The biggest problem are high concentrations of PM10 and benzo(a)pyrene, especially observed during the heating period. 55 days with the PM10 average daily rate exceeded were recorded in 2018 at the Kłodzko station at Szkolna Street.

4.4. GEOLOGICAL STRUCTURE

The geological structure of the area is complicated. The rocks that build the subsoil belong to different geological units. The rocks were quickly disintegrating and extensive stone debris and block covers and slope clay were formed. Finally, the river valleys were covered with alluvial deposits and eluvial clays were formed on the higher outcrops of crystalline rocks.

In the analyzed area, the oldest rock series, dating back to Proterozoic or old Paleozoic, are found in the Śnieżnik Massif and the Bystrzyckie Mountains. There is a third geological unit called the Upper Nysa Kłodzka Graben between them.

The Upper Nysa Kłodzka Graben is filled with Upper Cretaceous sediments lying on older metamorphic formations. Cenozoic deposits are less widespread in the commune. Tertiary deposits are not encountered, while Quaternary deposits are represented mainly by river sediments of the Nysa Kłodzka River and its tributaries, as well as gravel sediments of the inflow cones. The covers of drifts clays of the moraine origin from the Middle Poland glaciation period are deposited on the surfaces of high accumulation terraces and areas located above this river backfill. Their thickness does not exceed 4 m. On the slopes in the mountain areas there are slope formations made of rock clays, rubble and sandy dusty formations up to about 2-3 m thick.

The town of Kłodzko is located within the range of the geological and structural unit of the Kłodzko Massif (Kłodzko metamorphic form), located in the area of the Pre-Sudetic monocline. It is a structure located to the north-west of the Kłodzko-Złotostocka intrusion between the Bardzkie Mountains and the Śrudecka Basin. The rocks of the Kłodzko metamorphic form in the area of the town are significantly diversified and strongly folded. On the surface there are sporadic rock formations belonging to the Kłodzko metamorphic form and in part to the

Bardzka structure, in the mouth of the Ścinawka river there is an exposure of Pliocene age sediments, on the highlands and at the bottom of the valley there are Quaternary formations of various origins. There are also occurrences of the Middle Polish glaciation drifts clays and loess formations of the North Polish glaciation. Within the area of the town, three morphological units can be distinguished: grey-rock shales, clay shales, mudstones; quaternary loess-like formations, i.e. silt and moraine clays; clay muds, gravels and sandstones.

4.5. SOILS AND LAND

The diversity of the geological substratum and varied land relief of the area as well as different climatic factors were the basis for significant soil diversity of the Contract area. The following sections of soils are distinguished: lithogenic - formed in rocky areas and mountain slopes where the parent rock is in direct contact with the surface (rankers and local leptosols); autogenic - formed under the influence of soil-forming factors of the parent rock, vegetation and land relief (acidic and specific brown soils, podzolic soils and podsols); hydrogenic - marshy and post-marshy soils (peat and mucky soils) and alluvial soils - represented by alluvial soils and muds.

Hydrogenic soils limit their range to the bottoms of larger river valleys. These are alluvial soils of the river mud type. They are created by the influence of flowing water.

In the river valleys, apart from muds, there are gravels and sands of river terraces. There are Holocene diluvial clays, often with rock rubble, on the slopes of river valleys. In terms of agricultural suitability, the soils in the Contract area are represented by a cereal-mountain, wheat-mountain, and locally cereal-potato complex. As far as agricultural properties are concerned, the soils of the soil class II and III predominate.

4.6. SURFACE WATERS

The Contract is located within the limits of the following Unified Surface Water Bodies (hereinafter USWBs):

- USWB Nysa Kłodzka from Różanka to Biała Lądecka with code RW6000812159 - *Długopole - Zdrój Facility, Bystrzyca Kłodzka Facility,*
- USWB Porębnik with code RW600041211969 - *Długopole - Zdrój Facility,*
- USWB Nysa Kłodzka from the sources to Różanka, code RW60004121169 - *Międzylesie Facility,*
- USWB Bystrzyca with code RW60004121499 - *Bystrzyca Kłodzka Facility,*
- USWB Nysa Kłodzka from Biała Lądecka to Ścinawka, code RW60000812199 - *Kłodzko Facility*,
- USWB Jaszkówka with code RW60004121929 - *Kłodzko Facility,*
- USWB Jodłówka with code RW60004121969 - *Kłodzko Facility.*

The *USWB Nysa Kłodzka from Różanka to Biała Lądecka* represents the abiotic type no. 8 - a small silicate highland river. These are rivers with a significant drop and high current velocity and cool and well-oxygenated water. The bottom substrate is mostly made of thick gravel and large stones, in calm places made of sand and clay. Habitat diversity is determined by the presence of oversized boulders and wood rubbles. Part of the waters has the status of a natural USWB.

The *USWB Porębnik* represents the abiotic type no. 4 - a silicate upland stream with a coarse-grained substrate. These are streams with a significant drop, high current velocity and large annual flow fluctuations. The bottom substrate is mostly made of boulders, stones, and thick gravel. Habitat diversity is determined by the presence of oversized boulders and wood rubbles. The water body has the status of a heavily modified water body (HMWB) USWB.

The *USWB Nysa Kłodzka from the sources to Różanka* represents the abiotic type no. 4 - a silicate upland stream with coarse-grained substrate. These are streams with a significant drop, high current velocity and large annual flow fluctuations. The bottom substrate is mostly made of boulders, stones, and thick gravel. Habitat diversity is determined by the presence of oversized boulders and wood rubbles. Part of the waters has the status of a natural USWB.

The *USWB Bystrzyca* represents the abiotic type no. 4 - a silicate upland stream with a coarse-grained substrate – western. It has the status of a heavily modified water body.

The *USWB Nysa Kłodzka from Biała Lądecka to Ścinawka* represents the abiotic type no. 8 - a small silicate highland river. These are rivers with a significant drop and current velocity and cool and well-oxygenated water. The bottom substrate is dominated by stones and gravel, while sandy and muddy sediments are found in stagnant water and in deeper meander pools with slower current. The diversity of habitats is determined by the presence of oversized boulders, wood rubble and washed banks with tree roots. The discussed SWB includes the estuary section of the Bystrzyca Dusznicka (below Wielisławka), which shows intermediate features between the abiotic type 6 and 8. The composition of ichthyofauna in the unseparated estuary section is under considerable influence of the main river, while above the unobstructed partitions it is similar to that described for type no. 6. It should be stressed that the lower part of the Bystrzyca Dusznicka, included in the SWB Nysa Kłodzka, is mentioned as important for recreating a migration pathway for salmon and sea trout, as there are potential spawning grounds for these species. The USWB has the status of a natural USWB.

The *USWB Jaszkówka and USWB Jodłówka* represent the abiotic type 4 - a silicate upland stream with coarse-grained substrate - western. They have the status of a heavily modified water body.

Assessment of ecological status/potential

The *USWB Nysa Kłodzka from Różanka to Biała Lądecka* was examined at the Nysa Kłodzka measurement and control point - above the estuary of the Biała Lądecka (Krosnowice) with code PL02S1401_1228. The status of waters was evaluated as bad, which was determined by the assessment of physicochemical elements (group 3.1-3.5) - below the good status. The ecological status of *USWB Nysa Kłodzka from Różanka to Biała Lądecka* has been defined as moderate (class III) due to the evaluation of phytobenthos (the only biological element assessed). The status of the hydromorphological elements is very good (class I), while the chemical status was determined as good.

The *USWB Porębink*, code RW600041211969, belongs to unmonitored USWBs according to rWMP.

The status of the *USWB Nysa Kłodzka from the sources to Różanka* was evaluated as part of the EMP in 2017 and 2018, at the Nysa Kłodzka measurement and control point - below Międzylesie (PL02S1401_1227). The status of the SWB waters in 2017 was assessed as bad. Among biological elements, phytobenthos, macrophytes and ichthyofauna were rated in class III. Macro-invertebrates only were assessed in the 1st class of organic status. For the reasons

presented above, the environmental status of the USWB was assessed in class III and the overall status of the USWB was bad.

The status of the both USWBs was evaluated within the framework of the EMP in 2017. The *USWB Nysa Kłodzka from Różanka to Biała Lądecka* was examined at the measurement and control point of Nysa Kłodzka - above the estuary of the Biała Lądecka (Krosnowice) with code PL02S1401_1228. The *USWB Bystrzyca* was examined at the Bystrzyca measurement and control point - the estuary to the Nysa Kłodzka. The status of the both USWBs in 2017 was assessed as bad (Tab. 4). In the case of the both USWBs, the assessment of physicochemical elements (group 3.1-3.5) - below the good status - decided about the bad status. The ecological status of the *USWB Nysa Kłodzka from Różanka to Biała Lądecka* was defined as moderate (class III) due to the evaluation of phytobenthos. The status of the hydromorphological elements is very good (class I), while the chemical status was determined as good. The ecological potential of the *USWB Bystrzyca* was determined as below good. The status of the hydromorphological elements is good (class II), while the chemical status was determined as good.

The status of all the USWBs was evaluated in the framework of the EMP in 2017. The *USWB Nysa Kłodzka from Biała Lądecka to Ścinawka* was examined at the Nysa Kłodzka measurement and control point - below Kłodzko with code PL02S1401_1229. The status of the biological elements was determined as moderate due to the evaluation of macrophytes and ichthyofauna, while both phytobenthos and macro-invertebrates were evaluated in class II. The physicochemical parameters were also awarded class II, but the chemical status was determined to be below good due to exceeding the limit values for priority substances. Hence, the status of the USWBs was determined as bad.

The *USWB Jaszkówka* was examined at the Jaszkówka measuring and control point - the estuary to the Nysa Kłodzka, code PL02S1401_2275. The USWB Jodłówka was examined at the Jodłówka measurement and control point - the estuary to the Nysa Kłodzka with code PL02S1401_1235. Both USWBs in question were characterized by a moderate ecological potential. They were evaluated in class I for macro-invertebrates and in class III for phytobenthos, monitoring of macrophytes and ichthyofauna was not performed. The class of physicochemical elements (group 3.1-3.5) was defined as "below good status", but no data on the chemical status are available. As a result, their status was assessed as bad.

The USWBs in question were characterized by a moderate status or ecological potential. However, their status was assessed as bad.

The status of the individual USWBs within the Contract, evaluated under the EMP in 2017 and 2018, is presented in Table 1.

Table 1. Status of the USWBs located within the Task according to the EMP of 2017 and 2018.[1]

Name of the classified USWB	Nysa Kłodzka from Różanka to Biała Lądecka	Porębnik	Nysa Kłodzka from the sources to Różanka	Bystrzyca	Nysa Kłodzka from Biała Lądecka to Ścinawka	Jaszkówka	Jodłówka
Code of classified USWB	RW6000812159	RW600041211969	RW60004121169	RW60004121499	RW60000812199	RW60004121929	RW60004121969
Measurement point code	PL02S1401_1228	-	PL02S1401_1227	PL02S1401_1231	PL02S1401_1229	PL02S1401_2275	PL02S1401_1235
Name of measurement point	Nysa Kłodzka - above the estuary of the Biała Lądecka (Krosnowice)	-	Nysa Kłodzka - below Międzylesie	Bystrzyca - estuary to the Nysa Kłodzka	Nysa Kłodzka - below Kłodzko	Jaszkówka - estuary to the Nysa Kłodzka	Jodłówka - estuary to the Nysa Kłodzka
USWB chainage, km	27.76	5.28	44.73	21.48	14.28	26.18	8.16
Abiotic type	8	4	4	4	8	4	4
USWB status	NAT	SZCW	NAT	SZCW	NAT	SZCW	SZCW
Class of biological elements	III	-	III	I	III	III	III
Class of hydromorphological elements	I	-	I	I	I	II	II
Class of physiochemical elements (group 3.1-3.5)	psd	-	II	I	II	psd	psd
Class of physiochemical elements - specific synthetic and non-synthetic pollutants (group 3.6)	no data	-	II	no data	II	no data	no data
ECOLOGICAL STATUS/POTENTIAL	MODERATE (Class III)	-	MODERATE (Class III)	MAXIMUM (Class I)	MODERATE (Class III)	MODERATE (Class III)	MODERATE (Class III)
CHEMICAL STATUS	GOOD	-	psd	lack of assessment	Psd	no data	no data
USWB STATUS ASSESSMENT	POOR WATER STATUS	POOR WATER STATUS	POOR WATER STATUS	lack of assessment	POOR WATER STATUS	POOR WATER STATUS	POOR WATER STATUS

[1] *Source: own study based on http://www.gios.gov.pl/pl/stan-srodowiska/monitoring-wod (Assessment of water bodies of rivers and artificial water-damming reservoirs in 2017 – 2018).*

Findings resulting from the Water Management Plan within the Odra River Basin (rWMP)

Pursuant to the Regulation of the Council of Ministers of 18 October 2016 on Water Management within the Odra River Basin (Journal of Laws of 2016, item 1967), the Task was defined as "Flood Protection of the Nysa Kłodzka Valley" (id: 3_166_O).

Table 2 presents the basic provisions concerning both USWBs contained in the current Water Management Plan within the Odra River Basin.

The environmental objectives set for these USWBs are to achieve good ecological status/potential and good chemical status. The environmental objectives set for the *USWBs Nysa Kłodzka Nysa from Różanka to Biała Lądecka* and *Nysa Kłodzka from Biała Lądecka to Ścinawka* are also to ensure the possibility of migration of aquatic organisms in the section of the significant stream - Nysa Kłodzka from Biała Lądecka to Bystrzyca and Nysa Kłodzka together with Bystrzyca Dusznicka.

Table 2 Characteristics of the USWBs within the Task based on rWMP

Name of the classified USWB	Nysa Kłodzka from Różanka to Biała Lądecka	Porębnik	Nysa Kłodzka from the sources to Różanka	Bystrzyca	Nysa Kłodzka from Biała Lądecka to Ścinawka	Jaszkówka	Jodlówka
Environmental objectives set in the rWMP	good ecological status, the possibility of migration of aquatic organisms in the section of the significant stream - Nysa Kłodzka from Biała Lądecka to Bystrzyca, good chemical status	good environmental potential, good chemical status	good ecological status, good chemical status	good environmental potential, good chemical status	good ecological status; the possibility of migration of aquatic organisms in the section of the significant watercourse - the Nysa Kłodzka within the USWB together with the Bystrzyca Dusznicka within this USWB; good chemical status	good environmental potential, good chemical status	good environmental potential, good chemical status
Date of achieving good status	2027	2021	2015	2015	2027	2021	2021
Risk of failure to achieve WFD objectives	at risk	at risk	no risk	no risk	at risk	at risk	at risk
Deviations	4(4)-1: Lack of technical capacity 4(7): Flood Protection of the Nysa Kłodzka Valley	4(4): Lack of technical capacity and disproportionate costs.	4(7): Flood protection of the Kłodzka Valley - Goworówka stream	4(7): Flood protection of the Kłodzka Valley - Bystrzyca Kłodzka	4(4)-1: Lack of technical capacity 4(7): Flood protection of the valleys of the Bystrzyca Dusznicka River and the Kamienny Potok River, Flood Protection of the Nysa Kłodzka Valley	4(4)-1: Lack of technical capacity 4(7): Flood protection of the Kłodzka Valley - Jaszkówka stream	4(4)-1: Lack of technical capacity 4(7): Flood protection of the Kłodzka Valley - Jodłownik stream

Source: Own study based on the rWMP database

Information on protected areas indicated in §16(32) of the Act of 20 July 2017 - Water Law

Pursuant to Article 16(32) of the Act of 20 July 2017 Water Law (Journal of Laws of 2018, item 2268), protected areas are designated for which water-related environmental objectives are defined:

a) unified water bodies intended for water intake for securing the drinking water supply for human consumption,

b) unified water bodies intended for recreational purposes, including swimming purposes,

c) areas sensitive to eutrophication caused by contaminations coming from municipal sources, understood as enrichment of waters with biogenes, in particular nitrogen or phosphorus compounds, causing accelerated growth of algae and higher forms of plant life, resulting in undesirable disturbance of biological conditions in the aquatic environment and deterioration of the quality of those waters,

d) areas designated for the protection of habitats or species referred to in the provisions of the Nature Protection Act of 16 April 2004 where the maintenance or improvement of the status of water is an important factor in their protection,

e) areas intended for the conservation of aquatic animal species of economic importance.

Table 3, on the basis of the rWMP database, presents the above-mentioned protected areas designated within the said USWBs.

Table 3 Protected areas under the Water Law act designated within the USWBs

Protected areas designated pursuant to §16(32) of the Act of 20 July 2017 - Water Law:	USWB Nysa Kłodzka from Różanka to Biała Lądecka RW6000812159	USWB Porębnik RW60004121969	USWB Nysa Kłodzka from the sources to Różanka RW60004121169	USWB Nysa Kłodzka from Różanka to Biała Lądecka RW6000812159	USWB Bystrzyca RW60004121499	USWB Nysa Kłodzka from Biała Lądecka to Ścinawka RW60000812199	USWB Jaszkówka RW60004121929	USWB Jodłówka RW60004121969
Unified water bodies intended for water intake for securing the drinking water supply for human consumption	YES	NO	YES	YES	NO	NO	NO	NO
Areas intended for the conservation of aquatic animal species of economic importance	NO	NO	NO	NO	NO	NO	NO	NO
Unified water bodies intended for recreational purposes, including swimming purposes	NO	NO	NO	NO	NO	NO	NO	NO
Areas sensitive to eutrophication caused by contaminations coming from municipal sources, understood as enrichment of waters with biogenes, in particular nitrogen or phosphorus compounds, causing accelerated growth of algae and higher forms of plant life, resulting in	YES	YES	YES	YES	YES	YES	YES	YES

Protected areas designated pursuant to §16(32) of the Act of 20 July 2017 - Water Law:	USWB Nysa Kłodzka from Różanka to Biała Lądecka RW6000812159	USWB Porębnik RW60004121969	USWB Nysa Kłodzka from the sources to Różanka RW60004121169	USWB Nysa Kłodzka from Różanka to Biała Lądecka RW6000812159	USWB Bystrzyca RW60004121499	USWB Nysa Kłodzka from Biała Lądecka to Ścinawka RW60000812199	USWB Jaszkówka RW60004121929	USWB Jodłówka RW60004121969
undesirable disturbance of biological conditions in the aquatic environment and deterioration of the quality of those waters								
Areas designated for the protection of habitats or species referred to in the provisions of the Nature Protection Act of 16 April 2004 where the maintenance or improvement of the status of water is an important factor in their protection	YES	YES	YES	YES	YES	YES	YES	YES

Source: Own study based on the rWMP database

4.7. GROUNDWATER

The planned Contract is located within the area of two Unified Groundwater Bodies (UGWBs): UGWB no. 125 (*Długopole - Zdrój Facility, Międzylesie Facility, Bystrzyca Kłodzka Facility, Kłodzko Facility*) and UGWB no. 126 (*Kłodzko* Facility).

The current assessment of the quantitative and chemical status of the UGWBs was presented on the basis of the PGI PIB *Report on the status of unified groundwater bodies in river basins - status as at 2016*, prepared for the Chief Inspectorate of Environmental Protection (GIOŚ) in Warsaw, as part of the implementation of the project entitled: *"Monitoring of chemical status and assessment of the status of unified groundwater bodies* (*UGWBs*) *in river basins in 2015-2018"*. The qualitative and quantitative status of UGWB no. PLGW6000125 and UGWB no. 126 with code PLGW6000126 was assessed as good. The environmental objectives set for these UGWBs are to achieve good ecological status/potential and good chemical status. They are not at risk of failure to reach the environmental objectives.

Within the range of influence of the Kłodzko Facility, in the Quaternary aquifer, the Main Groundwater Reservoir - GZWP No. 340 - Nysa Kłodzka river valley is located. No groundwater reservoirs have been designated in the area of the other Facilities.

The area of the town of Bystrzyca Kłodzka is located entirely within the ONO area of the highest water resources protection GZWP No. 341 "Inter-Sudetes Basin Kudowa Zdrój - Bystrzyca Kłodzka".

There are mineral water springs in Długopole-Zdrój. These are hydrogen-carbonate-calcium-sodium-magnesium ferrous springs with a relatively low degree of mineralization (0.9-15 g/liter). Currently, 3 mineral water sources are active and exploited: "Emilia", "Renata" and "Kazimierz".

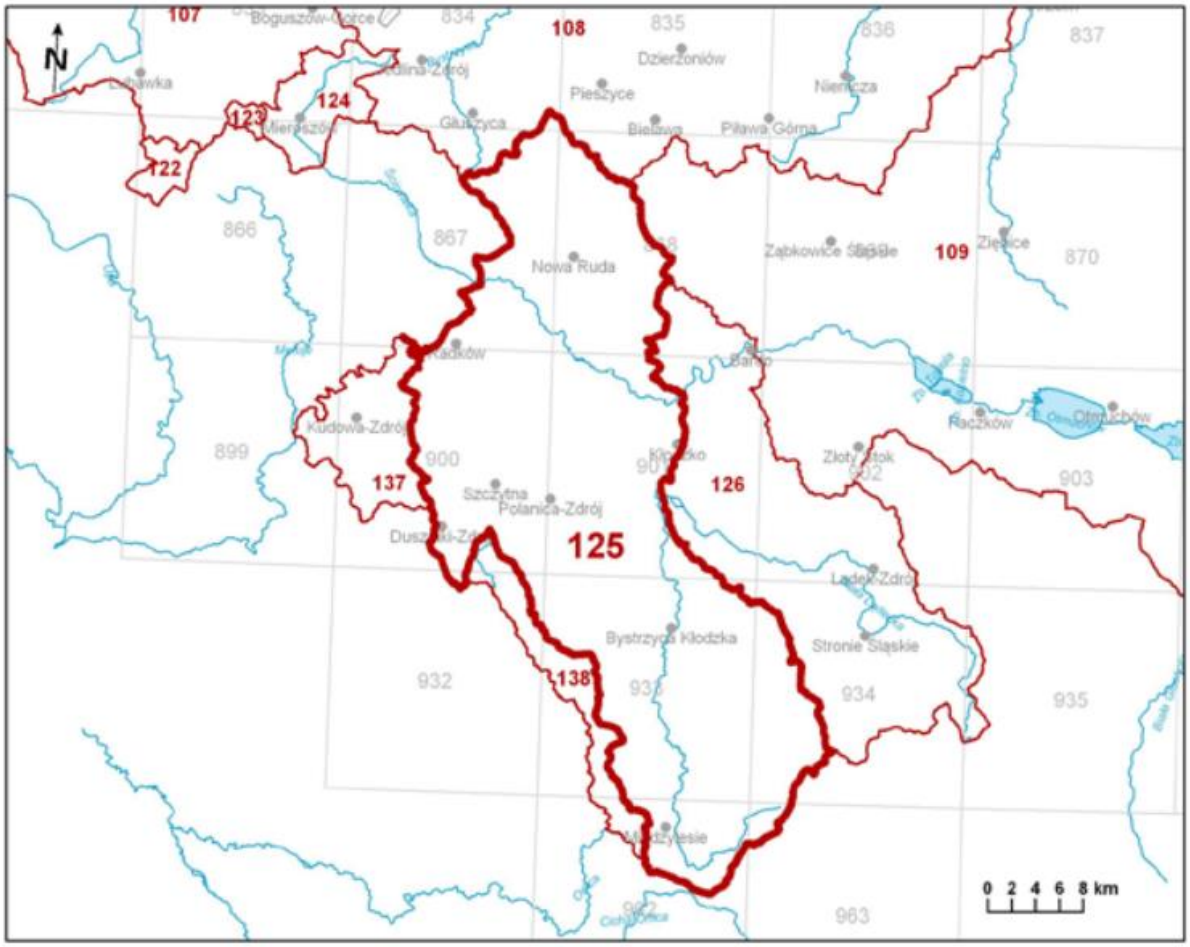

Fig. 1 Location of the undertaking in relation to UGWB no. 125

Source: UGWB Information Sheet (Polish Geological Institute PIB - https://www.pgi.gov.pl/dokumenty-pig-pib-all/psh/zadania-psh/USWBd/USWBd-120-139/4560-karta-informacyjna-USWBd-nr-125/file.html)

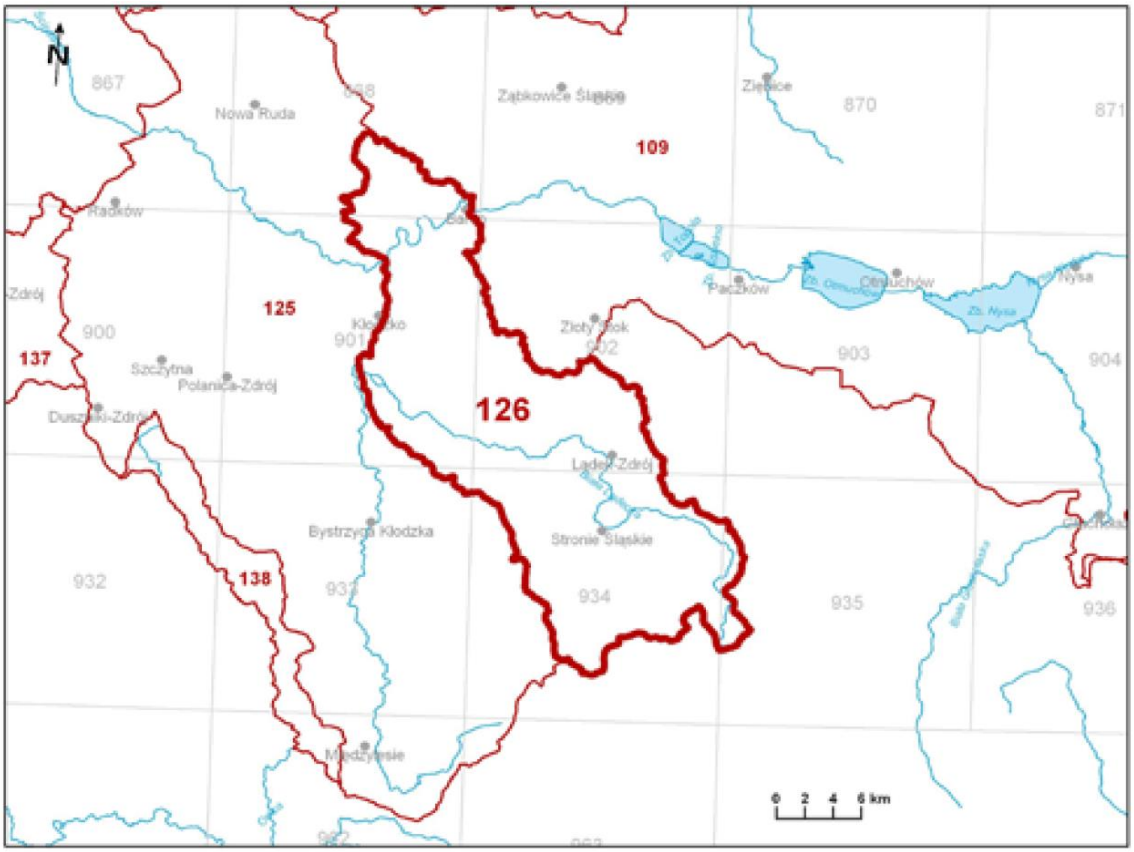

Fig. 2 Location of the undertaking in relation to UGWB no. 126

Source: UGWB Information Sheet (Polish Geological Institute PIB - https://www.pgi.gov.pl/dokumenty-pig-pib-all/psh/zadania-psh/USWBd/USWBd-120-139/4501-karta-informacyjna-USWBd-nr-126/file.html)

4.8. ACOUSTIC CLIMATE

Based on the provisions of local area management plans in force for the areas in the site of the planned investments:

- Local Area Management Plan for a part of the health resort area of Długopole-Zdrój (Resolution No. XXI/185/16 of the Municipal Council in Bystrzyca Kłodzka of 26 February 2016),
- Local area management plan of the town and commune of Międzylesie (resolution no. XXVIII/183/05 of the Municipal Council of Międzylesie of 31 May 2005),
- Study of Conditions and Directions of Spatial Development of the City of Kłodzko. Attachment No. 1 to Resolution No. LXI/475/2018 of the Kłodzko Municipal Council of 15 November 2018.

It should be noted that along the river there are largely acoustically protected areas: areas of residential development, both single and multi-family development, as well as housing and services, areas of health resort services (in Długopole - Zdrój) and recreational areas (green park areas).

The Contract will be carried out, notably, in the areas of the health resort of Długopole-Zdrój established *by* the *Regulation of the Minister of Health and Social Welfare of 25 July 1967 on the list of towns recognized as health resorts* (*M. P. No. 45, Item 228*), *meeting the conditions of the Act of 28 July 2005 on health resort treatment, health resorts and areas of health resort*

protection and on health resort communes (Journal of Laws of 2016, item 879, 960, 2260, of 2017, item 60), within the border of health resort protection zones "A" and "B". In accordance with Resolution no. XXI/185/16 of the Municipal Council in Bystrzyca Kłodzka of 26 February 2016 on adopting a local area management plan for a part of the area of the health resort Długopole-Zdrój - Bystrzyca Kłodzka commune, the areas of the health resort were marked as UZ - areas for the development of health resort services.

In the areas belonging to the protection zone "A" of health resorts, there are more restrictive standards applicable concerning the permissible noise levels, i.e. 45dB at daytime and 40 dB at night (Table 4).

Permitted values for sound levels are determined according to the type of source, type of terrain and a reference period. The results of the local acoustic climate analysis expressed by short-term sound level indicators LAeqD dB(A) and LAeqN dB(A) were based on the Regulation of the Minister of Environment of 14 June 2007 *on permissible noise levels in the environment* (unified text) [Journal of Laws, 2014.112 2014.1025 unified text].

Table 4 Permissible noise levels

Type of terrain	Permitted noise level [dB]	
	LAeq D period of reference time equal to 8 least favorable hours of the day in succession as follows	**LAeq N reference time interval equal to the least favorable night hour time**
a) Protection zone "A", health resorts b) Hospital areas outside the city	45	40
a) Areas of single-family housing development b) Buildings associated with the permanent or long-term stay of children and young people c) Areas of nursing homes d) Hospital areas in cities	50	40
a) Multi-family housing and collective housing areas b) Built-up farmstead areas c) Recreation and leisure areas d) Housing and service areas	55	45

On the basis of the available research data concerning the road system reconstruction works, it may be stated that at a distance of 50 m from the works boundary, the permissible noise levels in the environment will be exceeded irrespective of the nature and scope of the works. The values of the equivalent sound level exceed 55 dB(A). This means that it is necessary to apply measures mitigating the negative impact on the acoustic climate associated with installation of portable acoustic screens, listed in Appendix no. 1 of the Environmental Protection Plan.

4.9. FLORA AND FAUNA

4.9.1. PROTECTED NATURAL HABITATS

Based on the conducted nature inventory, five natural habitats from Annex I of Directive 92/43/EEC were found:
- 3260 Lowland and foothill rivers with water-crowfoot communities (*Rnunculion fluitantis*), - 6430 Mountain tall herb communities (*Adenostylion alliariae*) and riverside tall herb communities (*Convolvuletalia sepium*),
- 6510 Extensively used lowland and mountain fresh meadows (*Arrhenatherion*),
- 9170 Central-European and subcontinental oak-hornbeam forests (*Galio-Carpinetum and Tilio-Carpinetum*),
- 91E0* Willow-poplar-alder-ash forests (*Salicetum albo-fragilis, Populetum albae, Alnenion glutinoso-incanae*, large bittercress)

A summary of inventoried natural habitats in the Contract area is presented in Table 5.

Table 5 Summary of inventoried natural habitats in the Contract area

No.	Habitat type (code)	Number of patches identified				Total area [ha]
		Międzylesie	Długopole – Zdrój	Bystrzyca Kłodzka	Kłodzko	
1.	3260	Nysa Kłodzka bed on the whole analyzed length	Nysa Kłodzka bed on the whole analyzed length	Nysa Kłodzka bed on the whole analyzed length	Nysa Kłodzka bed on the whole analyzed length	28.67
2.	6430	-	2	1	1	0.27
3.	6510	-	1	-	-	0.77
4.	9170	1	3	1	-	4.22
5.	91E0*	-	3	2	7	19.57

**Priority habitat*

4.9.2. PROTECTED SPECIES OF PLANTS, FUNGI, MOSSES AND LICHENS

PLANT COVER

A total of 16 protected and/or rare species of vascular plants, mosses, liverworts, macroscopic algae and lichens were recorded at the implementation site and in the surroundings of the planned works (Table 6).

The most valuable element of the vegetation are the patches of Water-crowfoot *Batrachium penicillatum*, forming a habitat 3260 in the Nysa Kłodzka riverbed. It is a nationally extinct species, occurring quite rarely in the Nysa Kłodzka riverbed between the mouth of Biała Lądecka in Krosnowice and Kłodzko. A coarse-grained bottom substrate has also been preserved in built-up areas, which, combined with the rapid current, is the most important factor enabling the development of the species.

Table 6 Protected and/or rare species of vascular plants, aphids, lichens, liverworts and macroscopic algae occurring at the site and surrounding area of the Contract.

No.	Species (Polish name)	Number of sites				Total estimated resources
		Długopole – Zdrój	Międzylesie	Bystrzyca Kłodzka	Kłodzko	
Vascular plants						
1.	Oxlip *Primula elatior*	7	-	-	1	51 - 2750 individuals
2.	Wild Garlic *Allium ursinum*	5	-	2	5	112 - 370 individuals
3.	Spring Snowflake *Leucoium vernum*	-	-	1	-	101-250 individuals
4.	Martagon Lily *Lilium martagon*	-	-	1	-	1-5 individuals
5.	River Water-Crowfoot *Batrachium fluitans*	-	-	-	20	No data
6.	Water-crowfoot *Batrachium penicillatum*	-	-	-	1	11-50 individuals
Mosses						
7.	Knotskroesmos *Ulota crispa*	2	-	-	-	22-100 individuals
8.	Broom Forkmoss *Dicranum scoparium*	1	-	-	-	1-5 individuals
9.	Rough Goose Neck Moss *Rhytidiadelphus squarrosus*	1	-	-	-	11-50 individuals

10.	Streamside Hygroamblystegium Moss *Hygroamblystegium fluviatile*	4	-	1	-	11-200 individuals
11.	Orthotrichum Moss *Orthotrichum striatum*	-	-	-	1	1-5 individuals
Liverworts						
12.	Dilated Scalewort *Frullania dilatata*	5	-	-	-	45-205 individuals
Lichens						
13.	Ramalina farinacea *Ramalina farinacea*	1	-	-	-	6-10 individuals
14.	Oakmoss *Evernia prunastri*	-	1	-	-	1-5 individuals
Red algae						
15.	Batrachospermum moniliforme *Batrachospermum moniliforme*	1	-	-	-	51-100 individuals
16.	Hildenbrandia rivularis *Hildenbrandia rivularis*	4	-	1	-	51-550 individuals

4.9.3. PROTECTED ANIMAL SPECIES

Macrobenthos and malacofauna

Among the aquatic macro-invertebrates, at the inventory positions in the Nysa Kłodzka: Roztoki and Podtynie, no legally protected species were identified. However, invertebrate communities showed a significant taxonomic diversity, which translated into the evaluation of MMI PL in class I for the Roztoka position and in class II for the Podtyna position.

The presence of Oligochaeta, sedgeflies, flies, mayflies, leeches and Megaloptera was found at both inventory positions.

The presence of damselflies was also noted. The representatives of the malacofauna were rarely occurring mollusks - Pisidium spp. and two snail species – Ancylus fluviatilis and Gravel Snail – a foreign species of ponto-Caspian origin.

Fish and lampreys

In the area of the planned works, 10 fish species covered by different forms of protection can be expected to occur. An important utility species occurring in the area is Rainbow Trout. This species also plays an important ecological role in ichthyofauna communities and belongs to the group of indicator species for good water status. There may also be 1 species of lampreys in the investment area - European Brook Lamprey.

Results of the 2017 inventory (Sweco Consulting 2017), literature data and information from the State Environmental Monitoring indicate that in Nysa Kłodzka, in the surroundings of the planned Task, protected fish and lamprey species listed in Table 7 may occur.

Table 7 Presence of fish and lamprey species in the area of the Contract implementation.

Species of fish and lampreys				
No.	**Długopole - Zdrój Facility**	**Międzylesie Facility**	**Bystrzyca Kłodzka Facility**	**Kłodzko Facility**
1	European Brook Lamprey *Lampetra planeri*	European Brook Lamprey *Lampetra planeri*	Alpine Bullhead *Cottus gobio*	Stone Loach *Barbatula barbatula*
2	*Alpine Bullhead Cottus gobio*	Alpine Bullhead *Cottus gobio*	European Bullhead *Cottus poecilopus*	Barbel *Barbus barbus*
3	*European Bullhead Cottus poecilopus*	European Bullhead *Cottus poecilopus*	Stone Loach *Barbatula barbatula*	Grayling *Thymallus thymallus*
4	*Stone Loach Barbatula barbatula*	Stone Loach *Barbatula barbatula*	European Brook Lamprey *Lampetra planeri*	Alpine Bullhead *Cottus gobio*
5	Grayling *Thymallus thymallus*	Grayling *Thymallus thymallus*	Grayling *Thymallus thymallus*	European Bullhead *Cottus poecilopus*
6	Barbel *Barbus barbus*	-	Barbel *Barbus barbus*	European Brook Lamprey *Lampetra planeri*
7	-	-	-	Rainbow Trout *Salmo trutta fario*
8	-	-	-	European chub *Leuciscus cephalus*
9	-	-	-	Common Minnow *Phoxinus phoxinus*
10	-	-	-	Gudgeon *Gobio gobio*
11	-	-	-	Common nase *Chondrostoma nasus*

Entomofauna - species of insects and land snails

The analyzed sections of the Nysa Kłodzka valley and Bystrzyca stream are inhabited by 8 species of protected invertebrates. Gudgeon *Phengaris nausithous* was found on the meadows located near Nysa Kłodzka. The butterfly is under strict protection and is under protection in the nearby Natura 2000 sites of Bystrzyca Łomnicka Valley PLH020083 and Krowiarki Range PLH020019. It is the most valuable species of invertebrates found in the area. Large Copper Butterfly *Lycaena dispar* listed in Annex II of the Habitats Directive, is found on sorrels growing near the river. Roman Snail *Helix pomatia* inhabits humid habitats on the banks of the Nysa Kłodzka River. The snail may also be found outside the identified area. It is a widely distributed species with numerous and unendangered habitats. The inventory also identified bumble bee species (Common Carder Bee *Bombus pascuorum*, Red-tailed Bumblebee *Bombus lapidarius*, Buff-Tailed Bumblebee *Bombus terrestris*). The valley of the Nysa Kłodzka River and the Bystrzyca stream is a feeding ground for this group of insects. No nests were discovered. Bumblebees travel long distances to obtain their feed and are therefore not associated with specific habitats. Among the beetles from the ground beetles family, 2 protected species have been inventoried (*Carabus coriaceus*, *Carabus auronitens*) mainly along forest sections in the river buffer.

All the inventoried species listed in Table 8 are widespread species with numerous and not endangered habitats.

Table 8 Presence of protected invertebrate species in the area of the Contract implementation

Protected invertebrate species				
No.	**Długopole - Zdrój Facility**	**Międzylesie Facility**	**Bystrzyca Kłodzka Facility**	**Kłodzko Facility**
1	Roman Snail *Helix pommatia*	Large copper butterfly *Lycaena dispar*	Dusky large blue butterfly *Phengaris nausithous*	Common Carder Bee *Bombus pascuorum*
2	Common Carder Bee *Bombus pascuorum*	Dusky large blue butterfly *Phengaris nausithous*	Roman Snail *Helix pomatia*	Dusky large blue butterfly *Phengaris nausithous*
3	Carabus coriaceus *Carabus coriaceus*	Red-tailed Bumblebee *Bombus lapidarius*	-	Large copper butterfly *Lycaena dispar*
4	Carabus auronitens *Carabus auronitens*	Common Carder Bee *Bombus pascuorum*	-	-
5	-	Buff-Tailed Bumblebee *Bombus terrestris*	-	-

Herpetofauna

Common toad *Bufo bufo*, Common frog *Rana temporaria* and European Tree Frog *Hyla arborea* are the identified protected amphibian species that inhabit the site. Due to the nature of the terrain, the feeding specimens can be found in various places. Rivers are not their breeding ground. Toad may occur in both wet and dry habitats. The grass frog is more closely associated with humid meadows, forests and bushes. The tree frog prefers small bushes, which it climbs and feeds there. In the area of the Długopole - Zdrój facility, in the close vicinity of

the area of the planned works, there are park ponds, which are the habitat of amphibians' breeding, requiring special protection.

The sites of three protected reptile species were also found in the Task area: Slowworm, Sand Lizard and Grass Snake. Grass Snake is a species closely related to water.

The species inventoried in the Contract area are listed in Table 9.

Table 9 Presence of protected species of amphibians and reptiles in the area of the Contract implementation

Protected amphibian and reptile species				
No.	**Długopole - Zdrój facility**	**Międzylesie facility**	**Bystrzyca Kłodzka facility**	**Kłodzko facility**
1	Common frog *Rana temporaria*	European toad *Bufo bufo*	European toad *Bufo bufo*	Grass snake *Natrix natrix*
2	European toad *Bufo bufo*	Common frog *Rana temporaria*	Common frog *Rana temporaria*	Sand lizard *Lacerta agilis*
3	Slowworm *Anguis fragilis*	-	European tree frog *Hyla arborea*	-
4	-	-	Grass snake *Natrix natrix*	-

Teriofauna

In the area of the planned Contract, an otter was found in the Nysa Kłodzka and Bystrzyca riverbed. It is under partial protection and is subject to protection in Natura 2000 sites (Dzika Orlica PLH020061, Bystrzyca Łomnicka Valley PLH020083). It is important for the species to keep their hiding place in the river bank. For this purpose it uses, among other things, places under the roots of trees and bushes growing on the bank.

Within the Bystrzyca Kłodzka and Kłodzko Facilities, the presence of the beaver was also indicated. The beaver uses mainly fragments of the riverbed located outside the city centers, where riparian forests and other woods (not shaped as patches of natural habitats) are found along the riverbed.

Table 10 shows the protected mammal species inventoried in the area of the Contract.

Table 10 Presence of protected species of mammals in the area of the Contract implementation

Protected species of mammals				
No.	**Długopole - Zdrój facility**	**Międzylesie facility**	**Bystrzyca Kłodzka facility**	**Kłodzko facility**
1	European Otter *Lutra lutra*	European Otter *Lutra lutra*	European Otter *Lutra lutra*	European Otter *Lutra lutra*
2	-	-	European beaver *Castor fiber*	European beaver *Castor fiber*

Avifauna

In the area of the Contract, 21 species of birds covered by strict species protection in Poland have been found, including three species listed in Annex I of the Bird Directive: Common Kingfisher, Middle Spotted Woodpecker, Red-backed Shrike;

Goosander, Common Sandpiper, Little Ringed Plover, Common Kingfisher, White-Throated Dipper, Grey Wagtail are protected bird species directly related to the riverbed. White-Throated Dipper and Grey Wagtail prefer the area around bridges, where they often nest in their construction. Nests may also be in the reinforcements of river banks, for example between stones. White-Throated Dipper uses rocks sticking out of the water and other places from which it can dive in search of food in the river. Common Kingfisher establishes nests in the steep outcrops of banks (earth mink). For hunting it uses branches of trees and bushes hanging over the current.

Common Sandpiper and Little Ringed Plover are associated with exposed flat terrains by the water (beaches, sandbanks), where they feed and can nest (nesting period from the end of April to mid-July). Goosander is feeding in the river current. It creates nests in hollows, less often in burrows or cavities. River Warbler often has its habitat in riverside herbs and bushes. Grey Wagtail uses the river and its surroundings rather for feeding. It creates nests most often used among buildings, they can also be bridge constructions. Eurasian Wryneck, Eurasian treecreeper, Eurasian Golden Oriole, Spotted Flycatcher, European Green Woodpecker, Red-backed Shrike, Common Redstart are associated with wooded areas and bushes.

Red-backed Shrike, Whinchat and Grasshopper Warbler are birds of the open air such as riverside meadows with bushes. The presence of Kestrel and Jackdaw is due to the anthropogenic environment of the works area - these species are largely nesting in towns, on man-made structures (bridges, chimneys, towers, etc.).

The synanthropic species (Sparrow, Eurasian Collared Dove, Wood pigeon, Black Redstart, Great Tit, Gudgeon) flying over the river have been omitted, as for them it is not a habitat where they are constantly staying. However, when undertaking tree and bush felling, attention should be paid to all the bird species found in the area of works, as they may be nesting in the riverside vegetation.

Table 11 enumerates the protected species of birds inventoried in the said Contract area.

Table 11 Presence of protected species of birds in the Contract implementation area

Protected species of birds				
No.	**Długopole - Zdrój Facility**	**Międzylesie Facility**	**Bystrzyca Kłodzka Facility**	**Kłodzko Facility**
1	Goosander *Mergus merganser*	Middle spotted woodpecker *Dendrocopos medius*	Common Sandpiper *Actitis hypoleucos*	Goosander *Mergus merganser*
2	Eurasian Wryneck *Jynx torquilla*	European Green Woodpecker *Picus viridis*	Eurasian Wryneck *Jynx torquilla*	Common Sandpiper *Actitis hypoleucos*
3	Grey Wagtail *Motacilla cinerea*	Jackdaw *Corvus monedula*	Spotted Flycatcher *Muscicapa striata*	Common Kestrel *Falco tinnunculus*

Protected species of birds				
No.	**Długopole - Zdrój Facility**	**Międzylesie Facility**	**Bystrzyca Kłodzka Facility**	**Kłodzko Facility**
4	Grey Wagtail *Motacilla alba*	Common Moorhen *Gallinula chloropus*	Goosander *Mergus merganser*	Common Fisher *Alcedo atthis*
5	Spotted Flycatcher *Muscicapa striata*	Grey Wagtail *Motacilla cinerea*	Eurasian Treecreeper *Certhia familiaris*	Middle spotted woodpecker *Dendrocopos medius*
6	White-Throated Dipper *Cinclus cinclus*	Grey Wagtail *Motacilla alba*	Grey Wagtail *Motacilla cinerea*	Grey Wagtail *Motacilla cinerea*
7	-	-	Grey Wagtail *Motacilla alba*	Grey Wagtail *Motacilla alba*
8	-	-	White-Throated Dipper *Cinclus cinclus*	White-Throated Dipper *Cinclus cinclus*
9	-	-	Little ringed plover *Charadrius dubius*	Red-backed shrike *Lanius collurio*
10	-	-	River Warbler *Locustella fluviatilis*	Eurasian Golden Oriole *Oriolus oriolus*
11	-	-	Eurasian Golden Oriole *Oriolus oriolus*	Common grasshopper warbler *Locustella naevia*
12	-	-	Common Fisher *Alcedo atthis*	River Warbler *Locustella fluviatilis*
13	-	-	-	Whinchat *Saxicola rubetra*
14	-	-	-	Common Redstart *Phoenicurus phoenicurus*
15	-	-	-	Jackdaw *Corvus monedula*

Chiropterofauna

The nature inventory in the Nysa Kłodzka and Bystrzyca Dusznicka valley (Sweco Consulting, 2017) showed a total of 9 species of bats within the individual facilities (Table 12).

Myotis alcathoe hunts for insects low above the water surface and its summer hiding places are located in tree hollows. It is therefore a species potentially negatively affected by the planned Contract. An important element of the habitat of the Brandt's bat *Myotis brandtii* are the forests and water reservoirs, where it likes to hunt butterflies, spiders and flies.

Daubenton's Bat *Myotis daubentonii* is the species most associated with the river. It often feeds just above the water table.

Common Noctule *Nyctalus noctula* is a species that eagerly feeds in open areas, including waterways. Reproductive colonies are located in tree hollows. Common pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, on the other hand, are species that often inhabit anthropogenic hiding places, such as the crevices of walls, which are numerous in bank revetments of the Nysa Kłodzka River.

Serotine bat *Eptesicus serotinus* is an outstandingly synanthropic bat. Both summer and winter hiding places are located in anthropogenic structures.

Natterer's bat *Myotis nattereri* hunts mostly among trees and overgrown waters.

It is important to pay attention to the possible presence of bats in crevices (Serotine bats, Common Noctule and others) when performing works connected with bridge structures. These species were found at short distances from the planned worksites.

Table 12 Presence of protected species of birds in the Contract implementation area

Protected species of bats				
No.	**Długopole - Zdrój Facility**	**Międzylesie Facility**	**Bystrzyca Kłodzka Facility**	**Kłodzko Facility**
1	Brandt's bat* *Myotis brandtii*	Common noctule *Nyctalus noctula*	Common pipistrelle *Pipistrellus pipistrellus*	Common noctule *Nyctalus noctula*
2	Myotis alcathoe *Myotis alcathoe*	Soprano pipistrelle *Pipistrellus pygmaeus*	Daubenton's Bat *Myotis daubentonii*	Common pipistrelle *Pipistrellus pipistrellus*
3	-	Common pipistrelle *Pipistrellus pipistrellus*	Common noctule *Nyctalus noctula*	-
4	-	Vesper Bat *Eptesicus/Vespertilio*	Natterer's bat *Myotis natteri*	-
5	-	Daubenton's Bat *Myotis daubentonii*	Serotine bat *Eptesicus serotinus*	-

4.9.4. NATURA 2000 SITES

- The Contract, due to its location and scope of works, may potentially indirectly affect the following Natura 2000 sites:

  - **Bystrzyca Łomnicka Valley PLH020083 -** the minimum distance from the works area is about 2.5 km from the Bystrzyca Kłodzka Facility and about 6.5 km from the Długopole - Zdrój Facility;
  - **Krowiarki Range PLH020019** - the minimum distance from the works area is about 3.5 km from the Bystrzyca Kłodzka Facility and about 6.5 km from the Kłodzko Facility;
  - **Sztolnia w Młotach PLH020070** - the minimum distance from the works area is about 5.5 km from the Bystrzyca Kłodzka Facility;
  - **Nysa Kłodzka Gorge near Morzyszów PLH020043** - the minimum distance from the works area is about 3.0 km from the Kłodzko Facility.
  - **Bialskie Mountains and the Śnieżnik Group PLH020016** - the minimum distance from the works area is 3.8 km from the Międzylesie Facility and about 6.5 km from the Długopole - Zdrój Facility.
  - **Dzika Orlica PLH020061 -** the minimum distance from the works area is 5.5 km from the Międzylesie Facility and from the Długopole-Zdrój Facility.

- The location of the main elements of the Contract in relation to Natura 2000 sites is presented in Appendix no. 5 to the EMP.

4.9.5. OTHER PROTECTED AREAS

NATIONAL PARKS

- There are no national parks within the distance of 5 km from the area of the planned works. The nearest National Park, Stołowe Mountains, is located about 16 km (and limits of its buffer zone approx. 10 km) from the Kłodzko Facility.

NATURE RESERVES

- There are no nature reserves within the distance of 5 km from the area of the planned works. The nearest Cisy Reserve is located about 8.3 km from the Kłodzko Facility.

LANDSCAPE PARKS

There are no Landscape Parks in the place of planned works. The nearest Śnieżnicki Landscape Park is located at a distance of about 3.9 km from the Międzylesie Facility and the buffer zone of the Park at a distance of about 2.8 km.

PROTECTED LANDSCAPE AREAS

- In close proximity to the Długopole - Zdrój Facility (approx. 160 m), Międzylesie Facility (approx. 600 m) and Bystrzyca Kłodzka Facility (approx. 1 km) there is the Protected Landscape Area Bystrzyckie Mountains and Orlickie Mountains, hence the impact on the possibility of violating the prohibitions for this area has been analyzed (chapter 5.7.4).

NATURE AND LANDSCAPE COMPLEXES

- There are no nature and landscape complexes within the distance of 5 km from the area of the planned works. The closest Natural and Landscape Complex Obryw Skalny is located about 7.8 km from the Kłodzko facility.

ECOLOGIC SITES

- There are no ecologic sites within the distance of 5 km from the area of the planned works. The closest ecologic site Rogóżka is located about 11 km from the Bystrzyca Kłodzka Facility.

DOCUMENTATION SITES

- There are no documentation sites within the distance of 5 km from the area of the planned works. The closest documentation site - Adit No. 18 in the Underground Tourist and Educational Route in the Old Uranium Mine in Kletno is located about 14 km from the Długopole - Zdrój and Bystrzyca Kłodzka Facility.**MONUMENTS OF NATURE**

- The following monuments of nature are located in the vicinity of the works area:
  - Western Cedar *Thuja plicata* (*Thuja gigantea*) - approx. 0.005 km from the Międzylesie Facility,
  - American Tulip Tree *Liriodendron tulipifera* - about 0.09 from the Kłodzko Facility,
  - Common Beech *Fagus sylvatica*, Ginkgo biloba *Ginkgo biloba*, Black Pine *Pinus nigra* – approx. 0.2-0.4 km from the Bystrzyca Kłodzka Facility.
- There is a nature monument *Taxus baccata* much further (about 3.4 km from Długopole-Zdrój).

ECOLOGICAL CORRIDORS

- The works within the Międzylesie Facility will be carried out within the boundaries of the ecological corridor Bystrzyckie Mountains GKZ-8B.
- In close proximity to the planned Contract, about 0.3 km from the Długopole - Zdrój facility, runs the ecological corridor of the Stołowe Mountains - south GKZ-5A and about 0.3 km from the Międzylesie Facility - the ecological corridor of the Bialskie Mountains and Śnieżnik Massif GKZ-8C.
- The ecological corridor Złote Mountains - Sowie Mountains GKZ-7B runs slightly farther from the planned Contract (about 1.9 km from the Kłodzko Facility).
- The above ecological corridors are important for the population of large forest mammals and for the coherence of forest and wetland habitats on a national and continental scale. There are no elements for the Contract that could be a barrier to the migration of organisms, especially large forest mammals. The schematic course of ecological corridors within the Kłodzko Land is shown in Figure 7.

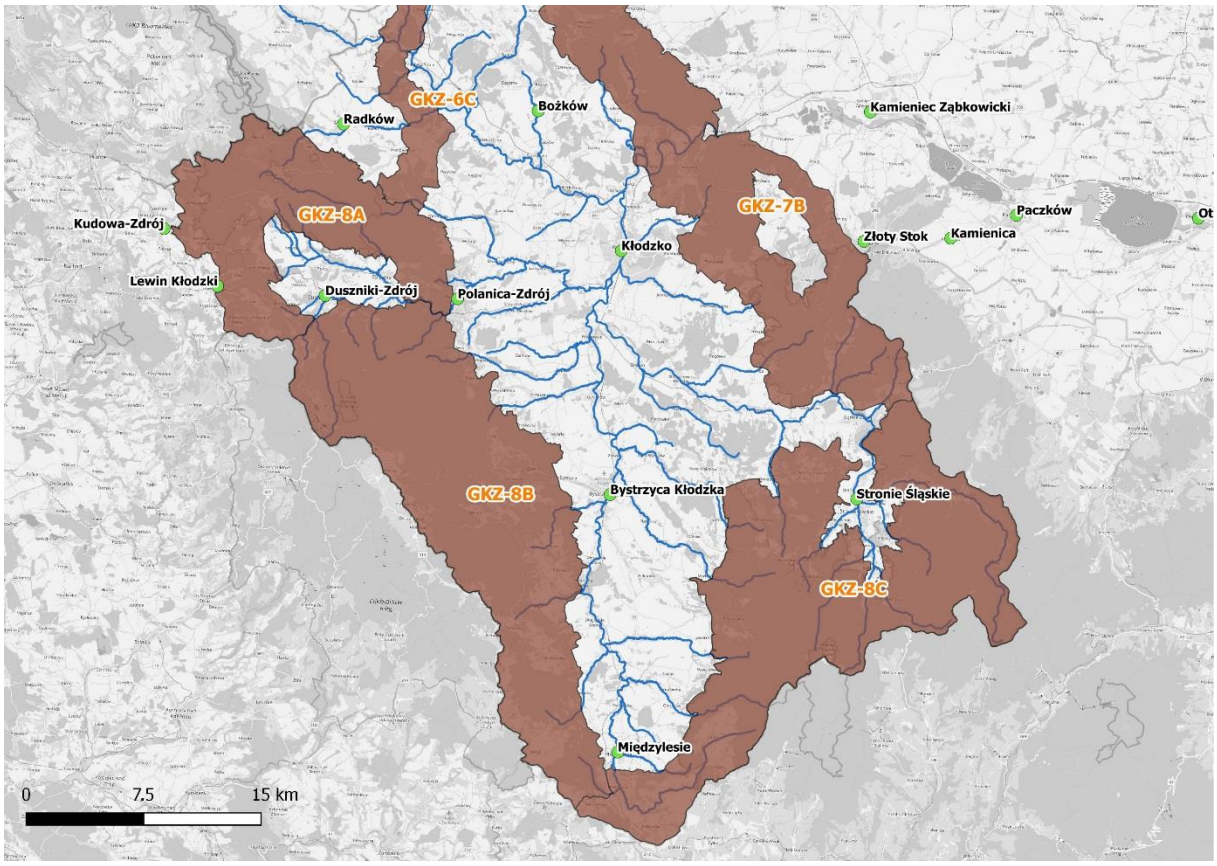

Fig. 3 Schematic course of ecological corridors within the Kłodzko Land (Jędrzejewski et al. 2012)

The Nysa Kłodzka River and its tributaries in the Odra basin played a historically important role as a spawning ground for migratory fish species. The river ensured the availability of spawning grounds with a large area for numerous species (in lower course for sturgeon, in middle and upper course for Atlantic salmon, sea trout, vimba and river lamprey). The river is also a place of occurrence and breeding of potamodromic fish: leuciscus asp, rainbow trout and grayling, as well as protected species: European Bullhead, Alpine Bullhead, Stone Loach and Brook Lamprey. The Nysa Kłodzka drainage basin still has a very large area of potential spawning grounds for bi-environmental salmonids, reaching about 60 ha, including the area of

spawning grounds in tributaries (Błachuta et al. 2010). Requirements for migratory capacity: Nysa Kłodzka - From the estuary to the Odra to the estuary of Ścinawa Niemodlińska (km 0+000-12+200) - linear continuity for sturgeon, and from the estuary of Ścinawa Niemodlińska to Biała Lądecka (km 12+200-135+100) and from the estuary of Biała Lądecka to Bystrzyca (km 135+100-150+200) - linear continuity for salmon. The Contract area (area of the Bystrzyca Kłodzka and Kłodzko Facility) is located in the section indicated as important for the bi-environmental fish that historically migrated along this route to the Upper Nysa Kłodzka and its main tributaries (Bystrzyca Dusznicka and Biała Lądecka). The Nysa Kłodzka is also a migration route for potamodromic species. The river's capacity and connection to tributaries is also necessary to improve the stability of the populations of protected species occurring in the river (European Bullhead, Stone Loach, Grayling, Barbel, European Brook Lamprey).

4.10. MONUMENTS OF CULTURE

Table 13 presents a list and description of monuments protected on the basis of the Act of 23 July 2003 on protection and care of monuments (Journal of Laws of 2003 No. 2020 item 282), located in the vicinity of the Contract implementation site (up to 200 m).

Table 13 List of monuments in the vicinity of the Contract implementation site

No.	Monument	Chronology	Facility	Distance from the Task [m]
1.	Palace 468 of 1957-10-10; A/5241/468 of 2011-05-12	Date unknown	Międzylesie	70
2.	Parish Church of Corpus Christi 1071 of 1964-02-24; A/954/1071 of 2006-09-06	17th cent.	Międzylesie	100
3.	Park 673/Wł of 1977-10-04; A/970/673/Wł of 2006-09-07	1705	Międzylesie	30
4.	House of 332 of 1956-11-06; A/5242/332 of 2011-05-12	Date unknown	Międzylesie	110
5.	Cloth halls, e.g. House 333 of 1956-11-06; 639 of 1960-02-10; A/966/333 of 2006-09-07	17th cent.	Międzylesie	110
6.	House 2032 of 1972-05-25; A/968/2032 z 2006-09-07	19th cent.	Międzylesie	150
7.	Weavers' House, the so-called 7 Brothers 1987 from 1971-12-22; A/967/1987 from 2006-09-07	18th cent.	Międzylesie	150
8.	Residential house 1987 of 1971-12-22; A/967/1987 of 2006-09-07	18th cent.	Międzylesie	160
9.	Residential building A/6088 of 2018-07-17	17th cent.	Międzylesie	200
10.	House 2032 of 1972-05-25; A/968/2032 of 2006-09-07	19th cent.	Międzylesie	200
11.	House 2032 of 1972-05-25; A/968/2032 of 2006-09-07	19th cent.	Międzylesie	200
12.	House 2032 of 1972-05-25; A/968/2032 of 2006-09-07	19th cent.	Międzylesie	200
13.	House 2032 of 1972-05-25; A/968/2032 of 2006-09-07	19th cent.	Międzylesie	200
14.	House 2032 of 1972-05-25; A/968/2032 of 2006-09-07	19th cent.	Międzylesie	200

No.	Monument	Chronology	Facility	Distance from the Task [m]
15.	House 2032 of 1972-05-25; A/968/2032 of 2006-09-07	19th cent.	Międzylesie	200
16.	Indoor walking hall, spa house; 282/A/04 from 2004-03-10	beg. of 20th cent.	Długopole-Zdrój	60
17.	Protestant Church 929/WŁ of 1983-01-31; 209/929/Wł of 2003-10-16	turn of the 19th and 20th cent.	Długopole-Zdrój	25
18.	Spa Park 672/Wł of 1977-10-04; 210/672/Wł of 2003-10-16	early 19th cent.	Długopole-Zdrój	35
19.	St John of Nepomuk Hospital Church 436 of 1958-12-16; A/1674/436 of 2010-03-08	18th cent.	Bystrzyca Kłodzka	42
20.	House 1320 from 1965-08-03; no number from 2000-04-28; A/3659/1320 from 2010-09-07	18th cent.	Bystrzyca Kłodzka	5
21.	Residential building 1063 from 1964-02-24; A/3664/1063 from 2010-09-07	14th cent.	Bystrzyca Kłodzka	27
22.	House 1323 of 1965-08-03; A/3662/1323 of 2010-09-07	17th cent.	Bystrzyca Kłodzka	39
23.	Water Gate 647 of 1960-02-26; A/2565/647 of 2010-07-22	14th cent.	Bystrzyca Kłodzka	37
24.	House 1321 of 03/08/65; A/3660/1321 of 07/09/10	17th cent.	Bystrzyca Kłodzka	77
25.	House 1064 of 1964-02-24; A/3667/1064 of 2010-09-0	17th cent.	Bystrzyca Kłodzka	57
26.	House 1322 of 03/08/65; A/3661/1322 of 07/09/10	17th cent.	Bystrzyca Kłodzka	70
27.	House 1322 of 03/08/65; A/3661/1322 of 07/09/10	17th cent.	Bystrzyca Kłodzka	75
28.	House 1322 of 03/08/65; A/3661/1322 of 07/09/10	17th cent.	Bystrzyca Kłodzka	78
29.	House 1110/WŁ of 1985-04-13; A/3666/1110/Wł of 2010-09-07	19th cent.	Bystrzyca Kłodzka	77
30.	House 1319 of 03/08/65; A/3658/1319 of 07/09/10	16th cent.	Bystrzyca Kłodzka	94
31.	House 1091/WŁ of 1985-04-13; A/3650/1091/Wł of 2010-09-07	18th cent.	Bystrzyca Kłodzka	82
32.	House 1092/WŁ of 1985-04-13; A/3651/1092/Wł of 2010-09-07	18th cent.	Bystrzyca Kłodzka	92
33.	Historical center of the city	Half of 18th cent.	Bystrzyca Kłodzka	-

No.	Monument	Chronology	Facility	Distance from the Task [m]
34.	Tranche at Fort Owcza Mountain 143/A/02/1-17 of 2002-12-02	1745-1750	Kłodzko	100
35.	Brama Celna 143/A/02/1-17 of 2002-12-02	1745-1750	Kłodzko	60
36.	Battery at Fort Owcza Mountain 143/A02/1-17 of 2002-12-02	1745-1750	Kłodzko	100
37.	St. George and St. Adalbert Church 690 of 10/05/60; A/4325/690 of 16/11/10	18th cent.	Kłodzko	90
38.	Monastery 1467 of 29/11/65; A/4326/1467 of 16/11/10	1478	Kłodzko	90
39.	Barracks, Warehouse facility 1051/Wł of 1984-04-03; A/4376/1051/Wł of 2010-11-16	1748-1751	Kłodzko	90
40.	Fortress water intake building 475/A/O5 of 2005-01-17	End of the 15th cent.	Kłodzko	90
41.	House 594/Wł of 1997-12-31; A/4394/1594/Wł of 2010-11-16	1910	Kłodzko	100
42.	Brewery 11/A/00 of 2000-03-10; no number of 2017-07-18	1760	Kłodzko, Zofii Stryjeńskiej	60
43.	House 1053/Wł of 1984-11-30; A/4369/1053/Wł of 2010-11-16; no number of 2017-07-18;	1739	Kłodzko, Jana Matejki	65
44.	House 1637/Wł of 1998-12-01; A/4373/1637/Wł of 2010-11-16	2nd half of the 19th cent.	Kłodzko	80
45.	House 1223/Wł of 16/06/87; A/4371/1223/Wł of 2010-11-16	18th cent.	Kłodzko	80
46.	The Dwelling House so-called House under crayfish 1639/Wł of 14/12/98; A/4372/1639/Wł of 2010-11-16	17th cent.	Kłodzko	90
47.	House 1052/Wł of 30/11/84; A/4370/1052/Wł of 2010-11-16	Half of 18th cent.	Kłodzko	100
48.	House 1059/Wł of 1984-11-30; A/4365/1059/Wł of 2010-11-16;	1st half of the 18th cent.	Kłodzko	45
49.	House 1058/Wł of 1984-11-30; A/4364/1058/Wł of 2010-11-16	18th cent.	Kłodzko	40
50.	House 1057/Wł of 1984-11-30; A/4363/1057/Wł of 2010-11-16	18th cent.	Kłodzko	40
51.	House 1013 of 09/01/64; A/4362/1013 of 16/11/10	Beg. of 17th cent.	Kłodzko	40
52.	House	18th cent.	Kłodzko	40

No.	Monument	Chronology	Facility	Distance from the Task [m]
	1055/Wł of 1984-11-30; A/4361/1055/Wł of 2010-11-16			
53.	House with the outbuilding, the former Wilcza Jama restaurant 1635/Wł of 1998-12-01; A/4366/1635/Wł of 2010-11-16	2nd half of the 18th cent.	Kłodzko	40
54.	Church of the Nativity of the Blessed Virgin Mary, Mother of God of the Rosary Painting 689 of 1960-05-10; 1107 of 1964-05-25; A/1754/1107 of 2010-03-17	17th cent.	Kłodzko	50
55.	Monastery 1107 of 25/05/64; A/1754/1107 of 17/03/10	17th cent.	Kłodzko	20

Source: own study based on https://mapy.zabytek.gov.pl/nid/

4.11. POPULATION AND MATERIAL GOODS

The said Contract is located in the Bystrzyca Kłodzka, Międzylesie and Kłodzko Communes. There are 18,825 inhabitants in the Bystrzyca Kłodzka commune and the population density is 57 persons per km^2. There are about 7,168 inhabitants in the Międzylesie commune. The average population density is 39 persons per km^2. The rural commune of Kłodzko has 17,112 inhabitants, while the town of Kłodzko has 26,742 inhabitants. The average population density in the town is 1085.1 persons per km^2, while in the commune it is only 68 persons per km^2 (GUS 2019).

The implementation of the works does not directly interfere with built-up areas. However, the compact development and urban infrastructure in Międzylesie, Długopole - Zdrój, Bystrzyca Kłodzka and Kłodzko is directly adjacent to the Nysa Kłodzka riverbed and the Bystrzyca stream. There are areas of residential development along the river, both single and multi-family and residential-service buildings. There are spa areas in the city of Długopole Zdrój, including spa hospitals, close to investment works. In Bystrzyca Kłodzka and Kłodzko, the task will be carried out near the historical buildings of the town.

4.12. HEALTH RESORTS AND HEALTH RESORT PROTECTION ZONES

The Długopole-Zdrój Facility will be implemented in the areas of the Długopole-Zdrój health resort established by the Regulation of the Minister of Health and Social Welfare of 25 July 1967 on the list of towns recognized as health resorts (M. P. no. 45, Item 228), meeting the conditions of the Act of 28 July 2005 on health resort treatment, health resorts and areas of health resort protection and on health resort communes (Journal of Laws of 2016, item 879, 960, 2260, of 2017, item 60). The Contract in this area will be executed within the border of the health protection zones "A" and "B".

Other facilities planned under the task 2B. 1/1 will not be implemented in health resort areas.

5. POTENTIAL IMPACT OF THE CONTRACT ON ENVIRONMENT

5.1. EARTH SURFACE AND LANDSCAPE

The implementation of the Contract will have an impact on the earth surface and landscape along the watercourse beds, which will mainly result from the functioning of the construction site facilities and technological roads, as well as from the execution of narrow-space excavations for fixing the reconstructed buttresses. These changes and transformations to the landscape will be temporary, related to the nature of the works and upon their completion, the landscape will be restored to its pre-implementation condition.

The Contract implementation is related to activities that have a negative local impact on the landscape. These activities include the construction of new walls. The Contract implementation requires also the local felling of existing trees and bushes, growing on slopes and the bank zone. Depending on their scope, they may have a negative or positive impact on the landscape.

The remaining activities will be carried out within a strongly transformed riverbed and will have a renovation and reconstruction character.

In places where bank revetments and hydrotechnical structures are heavily damaged, the activities will have a positive impact on the aesthetic values of the buildings. The transformation of sills into natural-like ramps will also have a positive impact on landscape values.

Impacts at the operation stage are therefore permanent and have a positive impact on landscape values.

5.2. CLIMATE

The planned Contract will not affect the climate and climate change. The main climate change issues focus on issues such as greenhouse gas emissions, direct and indirect emissions related to energy demand, the effectiveness of the solutions applied.

Greenhouse gas emissions

The planned hydrotechnical facilities will not be a source of greenhouse gas emissions at a large scale. During the construction phase, combustion of fuels in cars and machines will result in the emission of carbon dioxide, nitrogen oxides, which are classified as greenhouse gases, and particulate matter (soot, fumes, ash) will be emitted. During the investment implementation, there will be energy demand associated with e.g. the functioning of the construction site facilities. Electricity consumption will indirectly cause emission of carbon dioxide and water steam to the atmosphere (greenhouse gases) during generation of such energy. Due to the local nature of the impacts of the Contract, all emissions mentioned above do not affect the climate and its changes.

No negative impact on climate and climate change is expected during the operation phase (no emissions to air, except for emissions from machinery and equipment during maintenance works, no electricity demand).

Proofing the Contract to the negative phenomena accompanying the climate change

The design solutions were determined using typical types of protection used for mountain watercourses. The selection of materials, and in particular of the main reinforcement, was made

with reference to maintenance practice and knowledge of phenomena such as floods. It is planned to verify the technical condition of regulatory structures as often as possible, especially after recorded surges and floods. If any irregularities are found, corrective/replacement actions will be taken.

With regard to bridge facilities, the Contract implementation will increase the resistance of these facilities to the basic hazard such as floods. These facilities will be adapted to the size of the flood water runoff. The local removal of landslides in the stream bed is also assumed, in places significantly narrowing the cross-section of the bed, including in the vicinity of bridges.

The climate risks associated with the Contract implementation are reduced to an acceptable level.

The works carried out in the construction, operation and liquidation phases of the planned Contract will not cause any climate phenomena leading to changes in microclimate in the area of the reconstructed and built hydrotechnical structures.

5.3. AIR QUALITY

Implementation stage

At the Contract implementation stage, there will be negative impacts on the sanitary condition of air. These will be short-term and time-varying impacts associated with earthworks (increase in dustiness) and machinery operation. At this stage, the main compounds emitted to the atmosphere will be: nitrogen oxides, carbon oxides, hydrocarbons and dust particulate matter (suspended dust). A potential source of dust emissions to the air is also the transport of bulk materials at sections from loading points to work areas.

The impacts will be limited to the working hours of machines and will cease when the works are completed. During earthworks, more dustiness may occur, depending on weather conditions. These impacts will have a local range, not extending beyond the boundaries of the works area within the individual Facilities.

All the impacts mentioned are therefore short-term and reversible and will cease once the works are completed. Adequate mitigation measures are envisaged to diminish them, as detailed in appendix no. 1 to the EMP.

Operation stage

The hydrotechnical structures covered by the scope of the Contract do not generate emission of pollutants into the air. They will require episodic maintenance activities at the stage of Contract operation (e.g. repair of damage to the regulatory walls) and will not be associated with significant emissions of pollutants. The emission of pollutants into the air will only result from the operation and movement of machines and vehicles necessary for maintenance works. Emissions will take place at average annual intervals and will not be emissions that stand out from the background of pollutant emissions to the environment. Impacts will therefore be short-term and reversible in nature and will cease once maintenance works are finished. Adequate mitigation measures are envisaged to diminish them, as detailed in appendix no. 1 to the EMP.

5.4. SOILS AND LAND

Implementation stage

Due to the area and scope of the planned works, the impact on soils and land will be related to direct interference with bed sediments, temporary transformation of the land surface (narrow excavations for construction of semi-buttresses) and changes in the soil structure on the land occupied temporarily (technological roads, construction yards). On the access roads to the bed at the place where the works are carried out and in the bank zone of the renovated sections, the fine structure of the soil will be disturbed as a result of being compacted by the working equipment. In the area of the bank slopes, in places where works are carried out, the land will be covered with fascine mattresses in order to limit direct impact on the riverbed. There will also be a permanent occupation of part of the land surface within the bed as a result of constructing the set-offs.

During the execution of the works, the potential threat is soil contamination due to equipment failure and leakage of petroleum substances from working machines.

These will be reversible impacts lasting until land reclamation is completed. Adequate mitigation measures are envisaged to diminish them, as detailed in appendix no. 1 to the EMP.

Operation stage

After completing the stage of construction works and after the properly done ground reinstatement, no significant changes to soil and water conditions and to soil productivity within temporary occupation sites are expected.

5.5. SURFACE WATERS

5.5.1. STATUS OF USWB AND ENVIRONMENTAL OBJECTIVES

It was found on the basis of the conducted analyses of the impacts on all the elements of water status assessment, taking into account the impacts at the stage of implementation and operation, that the said Contract is associated with the following impacts on the elements of unified surface water bodies' status:

1. Biological elements

- Macrophytes and phytobenthos
  - Mechanical destruction of plants, resulting from the technology and organization of this type of works (implementation stage, direct impact);
  - Reduction of transparency and deterioration of light conditions as a result of increased suspended solids concentration in the water during the works (implementation stage, indirect impact);
  - Possible transformations in the composition of macrophytes and phytobenthos communities or their liquidation as a result of changes in habitat conditions in the sections covered by the works (implementation stage, indirect impact). Reversible bottom changes in the short term (phytobenthos) and medium term (macrophytes), changes due to bank transformation - permanent;
  - Also, possible positive impact on the development of macrophytes and phytobenthos as a result of increasing the access of light to the bed by felling trees on slopes (implementation stage, indirect impact).

- Benthic macro-invertebrates
  - Scaring of fauna, mechanical damage/destruction of animals (implementation stage, direct impact);
  - Deterioration of living conditions of benthic invertebrates as a result of increased suspended matter concentration in water during the works and the resulting silting of the gravel-stone bottom substrate (implementation stage, indirect impact);
  - Possible transformations in the composition of macro-invertebrates as a result of reversible or sectionally permanent (e.g. slope reinforcement sections) changes in habitat conditions in the sections covered by the works (implementation stage, indirect impact);
  - Liquidation of hiding places and places of existence of invertebrates, which may cause transformations in their composition (operation stage, direct impact). Reversible changes in the medium term.
  - Locally a permanent impact on living conditions as a result of changes in sunlight and water temperature at tree felling sites, thermal barriers (operation stage, indirect impact)
  - Positive effect of the fish pass and ramps on the migration of organisms as a result of the opening of important partitions (operation stage, indirect impact).
- Ichthyofauna
  - The scaring or mechanical damage/destruction of individuals of fish and lampreys during the works (implementation phase, direct impact);
  - Deterioration of living conditions of fish as a result of increased suspended matter concentration in water, silting of the gravel-stone bottom substrate and changes in flow conditions during the performance of works (implementation stage, indirect impact), the impact is particularly dangerous during spawning and egg incubation;
  - Possible transformations in the composition of ichthyofauna as a result of reversible changes in habitat conditions in the sections covered by the works (operation stage, indirect impact);
  - Positive impacts for fish migration, provided that appropriate technical solutions are applied for the e.g., opening of partitions (operation stage, direct impact)
  - Permanent loss of habitats and hiding places, loss of hydromorphological diversity along the bank line, creation of thermal barriers due to tree felling (operation stage, direct impact);

2. Hydromorphological elements
  - A temporary change of water flow conditions at the implementation stage (works carried out in the zone of the riverbed may disturb the flow of water in the river);
  - Change of water flow conditions during operation (reduction of flow resistance due to construction of regulatory walls);
  - The change in the dynamics of the flow of surge waters in the zone of sills renovated or reconstructed into semi-natural ramps will contribute to the increase of the USWB's flow capacity for aquatic organisms and for the transport of debris);
  - The sectional permanent modification of the riverbed in the cross-section related to the local formation of the bank line, the construction of slope revetments and set-offs (due

to the location of works in the previously regulated bed and to the renovation character of these works, the hydromorphological index m4 for USWB is not expected to be affected);

- The increase of the USWB's flow capacity for migration of organisms and transport of debris, which will reduce the value of the Hydromorphology Transformation Index (operation stage);
- The liquidation of natural hydromorphological elements (outwashes, silts, gaps and crevices in escarpments) in the bed sections covered by renovation and restoration works (partially reversible changes - outwashes and silts will be restored in the medium term at the operation stage due to natural fluvial processes).

3. Physiochemical elements

- Indicators characterizing the physical condition, including thermal conditions (temperature, suspended matter) - during the implementation phase, during the works in the riverbed and on the bank slopes, due to activation of small fractions of river sediments, temporary turbidity of water and increase in suspended matter concentration will occur, which will affect the color of water, transparency, increase in mineralization, in the sections covered by the works and below;
- Indicators characterizing oxygen conditions (oxygenation conditions) and organic pollution (oxygen, BOD5, organic carbon) - at the implementation stage, during works in the bed and on slopes due to deterioration of physical conditions (increase in suspension concentration), oxygen conditions will temporarily deteriorate. Due to the risk of activating small fractions with organic pollutants, there may be an increase in the concentration of nutrients in the water, in the sections covered by the works and below.

The analysis shows that hydromorphological elements, as well as macrophytes and phytobenthos, are the most threatened elements of the assessment of the ecological status/potential of surface waters. With respect to the planned renovation and reconstruction works, which do not interfere with the current shape of the riverbed and bank zone, these effects are not permanent. Mid-bed and bank outwashes created in the accumulation processes, which are natural hydromorphological elements, will be removed from the riverbed as a consequence of the renovation/reconstruction/rebuilding of revetments. These effects are reversible as the natural hydromorphological elements will gradually reproduce in the bed as a result of erosive-accumulated water activity. It will be the same with aquatic plants.

For the other elements of the ecological potential evaluation, no permanent deterioration of their class is expected, either. Macro-invertebrates and ichthyofauna are mobile, and for the duration of works will relocate (themselves or will be moved under the supervision of an expert zoologist) from the part of the bed where the works will be carried out to sections not covered by the activities. They will most probably return after the end of works. Impacts on physicochemical elements mainly concern the implementation phase and will also cease after its completion.

Adequate mitigation measures are envisaged at the operation stage to diminish the above impacts, as detailed in appendix no. 1 to the EMP.

Permanent changes concern the sections where the shaping of the bank line and the construction of bank revetments are planned, as well as the reconstruction of transverse objects in the watercourse beds:

- reconstruction of the weir H-4 at km 131+050 along with the construction of the fish pass;
- conversion of the sills H-5 at km 133+441, H-6 at km 134+312, H-9 at km 148+226, H-10 at km 148+376, H-14 - at km 157+473, H-15 - at km 157+603, H-16 at km 172+971, H-17 at km 173+527, H-18 at km 173+603, H-19 at km 174+588 and weir H-12 at km 151+475 into semi-natural ramps.

The total length of the sections covered by the works is 8,915 m on the Nysa Kłodzka, 1,075 m on Bystrzyca, 165 m on Bystrzyca Dusznicka, 25 m on the Porębnik stream, 45 m on the Dolna stream and 50 m each on the estuary sections of the Jaszkówka and Jodłówka streams. In relation to the length of the USWBs, the length of the planned works is about 18% of the length of the USWB Nysa Kłodzka from Biała Lądecka to Ścinawka, code RW6000812199, about 9% of the length of the USWB Nysa Kłodzka from Różanka to Biała Lądecka, code RW6000812159, about 9% of the length of the USWB Nysa Kłodzka from the sources to Różanka, code RW60004121169, about 5% of USWB Bystrzyca, code RW60004121499, about 0.5% of USWB Porębnik, code RW600041211969, about 0.6% of USWB Jodłówka, code RW60004121969 and about 0.2% of USWB Jaszkówka, code RW60004121929.

The planned works have a renovation and restoration nature mainly and consist primarily in improving the technical condition of the existing regulatory bed development. Moreover, they are planned in built-up, urban areas which have already undergone significant transformations as a result of regulatory works and construction of flood protection. The effect of the planned activities will contribute to an increase in morphological diversity and the introduction of semi-natural elements and materials in a strongly regulated riverbed in place of heavy hydrotechnical development and a section of the riverbed of a strictly technical nature. Activities linked to the conversion of sills and weirs will have a positive impact on the flow capacity of the riverbed and the continuity of the river, provided that appropriate technical solutions are applied.

Hence, the works will not affect the Hydromorphology Transformation Index (WPH)[1] on the scale of the analyzed water bodies.

The planned actions are not expected to affect the deterioration of USWBs. The said Contract does not threaten the achievement of the environmental objectives set for the analyzed unified bodies of water. It will also not affect the threat to the achievement of environmental objectives of the neighboring USWBs, due to the spatial scope and local character of the changes.

[1] the index used in the assessment of the hydromorphological status of unified surface water bodies, in accordance with the methodology of the State Environmental Monitoring "Manual for the assessment of flowing waters based on the hydromorphological river index" GIOŚ 2017 of its revision (www.gios.gov.pl)

5.5.2. ENVIRONMENTAL OBJECTIVES FOR PROTECTED AREAS INDICATED IN §16(32) OF THE ACT OF 20 JULY 2017 - WATER LAW

On the basis of the rWMP database, areas are presented protected under the Water Law act, designated within the USWB *Nysa Kłodzka from Biała Lądecka to Ścinawka, code RW6000812199, USWB Nysa Kłodzka from Różanka to Biała Lądecka, code RW6000812159, USWB Nysa Kłodzka from the sources to Różanka, code RW60004121169, USWB Bystrzyca, code RW60004121499, USWB Porębnik, code RW600041211969, USWB Jodłówka, code RW60004121969 and USWB Jaszkówka, code RW60004121929.*

The conducted analyses of the impact of the Contract on the above-mentioned areas indicate that:

- USWB Nysa Kłodzka from the sources to Różanka, code RW60004121169 and USWB Nysa Kłodzka from Różanka to Biała Lądecka, code RW6000812159, are the unified surface water bodies intended for water intake for the purposes of supplying the population with water for consumption. None of them is also located in an area dedicated to the protection of aquatic animal species of economic importance. Hence, the possibility of impacts on the achievement of the environmental objectives of these areas is not considered.
- Within the area of all USWBs, areas sensitive to eutrophication caused by pollution from municipal sources have been identified. In Poland, for the purposes of implementation of Directive 91/271/EEC concerning urban wastewater treatment, it has been assumed that the whole area of the country is sensitive to eutrophication caused by pollution from municipal sources. As social and household sewage will be created only at the Contract implementation stage and will be discharged into portable toilet tanks and collected by entities holding appropriate permits for sewage management, the Contract will not affect the achievement of the objectives of these areas.
- All the USWBs are located within areas designated for the protection of habitats or species referred to in the provisions of the Nature Conservation Act, for which the maintenance or improvement of the water status is an important factor in their protection. *For USWB RW6000812199 these are: PLH0200662 Bardzkie Mountains, Protected Landscape Area Bardzkie Mountains and Sowie Mountains, for USWB RW6000812159 these are: PLH020019 Krowiarki Range, Bystrzyckie and Orlickie Mountains Protected Landscape Area, for USWB RW60004121169 these are the following: PLH020016 Bialskie Mountains and Śnieżnik Group, Śnieżnicki Landscape Park, Bystrzyckie and Orlickie Mountains Protected Landscape Area, for USWB RW60004121499 these are: PLH020083 Bystrzyca Valley, Protected Landscape Area Bystrzyckie Mountains and Orlickie Mountains, for USWB RW600041211969 these are: Bystrzyckie and Orlickie Mountains Protected Landscape Area, for USWB RW60004121969 these are the following: PLH020062 Bardzkie Mountains, Protected Landscape Area Bardzkie Mountains and Sowie Mountains, for USWB RW60004121929 these are: PLH020096 Złote Mountains, Śnieżnicki Landscape Park, Bardzkie Mountains and Sowie Mountains Protected Landscape Area.* The assessment of the Contract's impact on the achievement of environmental objectives of protected areas intended for the protection of habitats or species is presented in chapter 5.7.

- Neither USWB is a unified water body intended for recreational purposes, including swimming.

5.6. GROUNDWATER

Implementation stage

The works connected with Contract execution will not change the existing water conditions in the area of its implementation and in adjacent areas.

At the stage of the Contract implementation, the main causes of groundwater pollution may be oil-derivative substances leaking from construction machines in poor technical condition or as a result of their failure.

The possibility of the movement of contaminants, together with rainwater, from the surface of the ground to the groundwater largely depends on the thickness of the layers of weakly permeable formations, isolating the aquifer. In general, after implementation of minimizing measures to reduce the possibility of water and soil pollution, the construction works will not cause negative impacts on the quantitative and qualitative status (changes in water chemistry and hydrodynamics) of groundwater.

Operation stage

After completion of the works, at the operation stage, no impact on the quantitative and chemical status of UGWBs is expected.

5.7. FLORA AND FAUNA

5.7.1. PROTECTED NATURAL HABITATS

At the stage of the Contract implementation in the area of the Długopole - Zdrój facility, negative impacts on three natural habitats are expected to occur: 3260, 6430, 91E0 associated with direct damage to the parts of habitats.

In the Międzylesie facility area, direct destruction of a fragment of habitat 3260 is expected. It is also possible to cut down individual trees belonging to habitat 9170.

In the area of the Bystrzyca Kłodzka Facility, direct negative impacts are indicated for two habitat types: 3260, 9170. A moderate impact is anticipated for the patches of riparian habitat 91E0* located in the vicinity of the ongoing works.

As a result of the works execution within the Kłodzko facility, 2 inventoried natural habitats are exposed to destruction: 3260, 91E0*. In the close vicinity, there will be habitat 6430 located, which may be subject to a weak or moderate impact as a result of the conducted works, which will cease after completion of the works.

These impacts will mainly result from direct destruction of habitat fragments during implementation of the works, which are permanent impacts. Adequate mitigation measures are envisaged to diminish them, as detailed in appendix no. 1 to the EMP.

At the stage of Contract operation, there may be a transformation and loss of habitats of species typical and characteristic for Ranunculion fluitantis rivers - habitat 3260. It should be noted,

however, that the planned conversion of weirs and sills into ramps will potentially increase the area available for the habitat 3260 at the operation stage.

5.7.2. PROTECTED FUNGI, PLANT AND ANIMAL SPECIES

No protected fungi species were found in the implementation area and in the immediate vicinity of the Contract.

Protected plant species

Negative impacts are expected to occur at the area of the Długopole - Zdrój Facility on 4 species of rare and/or protected plants, aphids and lichens at the stage of Task implementation. These are: Oxlip, Wild Garlic, Streamside Hygroamblystegium Moss, Hildenbrandia rivularis. Due to the periodic transformation and loss of habitats, negative impacts are expected to occur on Streamside Hygroamblystegium Moss and Hildenbrandia rivularis also at the operation stage.

No negative impacts on the flora are expected in the area of the Międzylesie Facility during the implementation and operation of the Contract.

In the area of the Bystrzyca Kłodzka Facility, the impacts will occur in relation to two species of protected mosses and red algae, i.e. Streamside Hygroamblystegium Moss and Hildenbrandia rivularis. A moderate impact may occur on the above-mentioned moss and red algae species at the stage of investment operation as a result of sectional transformation and loss of potential habitats of species below the inventoried sites.

In the area of the Kłodzko Facility, negative impacts are expected to occur on two protected vascular plant species, i.e. River Water-Crowfoot and Water-crowfoot, as a result of direct destruction of their sites. A significant or high impact may occur on the inventoried species of water-crowfoot at the stage of investment operation as a result of sectional transformation and loss of the habitat.

All the above-mentioned impacts will mainly result from the direct destruction of individuals (irreversible impacts) and species habitats (partly reversible impacts) during the execution of works and a potential deterioration of the physicochemical properties of water during the execution of works (reversible impacts that cease after the completion of the works). Adequate mitigation measures are envisaged to diminish them, as detailed in Appendix no. 1 to the EMP.

Protected animal species

Invertebrates

A weak or moderate impact of the investment may occur at the stage of execution of works planned within the Długopole - Zdrój and Kłodzko Facility as a result of the works carried out on the Dusky large blue butterfly position, due to the close proximity of the position to the border of the conducted works.

The possibility of a moderate negative impact of the works within the Międzylesie Facility is predicted at the implementation stage, due to temporary destruction of Large Copper host plants and weak negative impacts on three species of bumblebees (Red-tailed Bumblebee, Common Carder Bee, Buff-Tailed Bumblebee).

Weak impacts on the Roman Snail may occur in the area of the Bystrzyca Kłodzka Facility, due to possible temporary restriction of feeding grounds.

Such impacts will be short-term and reversible. Adequate mitigation measures are envisaged to diminish them, as detailed in Appendix no. 1 to the EMP.

No negative impacts on protected invertebrate species are expected during the operation of the investment.

Fish and lampreys

At the Contract implementation stage, moderate to considerable negative impacts on 11 protected fish and lamprey species are expected to occur: Stone Loach, Barbel, Grayling, European Bullhead, Alpine Bullhead, Brook Lamprey, Rainbow Trout, Common Minnow, Gudgeon, Common nase. The implementation of works will affect the living conditions of ichthyofauna through changes in water physiochemistry and flow, including suspension inflow, particularly dangerous during spawning and egg incubation. The impact of desilting and removal of outwashes on the larvae of stream lamprey and their habitat is particularly unfavorable. The impacts will only relate to the phase of construction and will disappear after a few/a dozen or so hours after completion of works. Therefore, they will not be significant for the local populations of these species.

During the operation phase of the investment, significant or moderate impacts may occur as a result of the transformation of habitats in the area where the species occurs, possible loss of hiding places, larvae habitats (in the case of brook lamprey) or population fragmentation. These impacts will be partially reversible in the medium term (2-5 years). Positive impact of the investment at the Contract operation stage will occur as a result of permanent improvement of migration barriers.

Amphibians and reptiles

The possibility of weak to moderate negative impacts on Common toad, Common frog, Slowworm, Grass Snake and Sand Lizard is predicted. These impacts will potentially be associated with a possible temporary reduction in feeding grounds or a potential increase in the incidental mortality of individuals. No negative impacts are expected during the operation phase.

Birds

The possibility of weak to significant negative impact on the following species is anticipated due to Contract execution: Goosander, Eurasian Wryneck, Grey Wagtail, White Wagtail, Spotted Flycatcher, White-Throated Dipper, Middle Spotted Woodpecker, European Green Woodpecker, Jackdaw, Common Moorhen, Common Sandpiper, Common Sandpiper, Eurasian Treecreeper, Little Ringed Plover, River Warbler, Common Kingfisher, Common Kestrel, Red-backed shrike, Eurasian Golden Oriole, Common grasshopper warbler, Whinchat, Common Redstart.

The negative impact on avifauna at the investment implementation stage may be related to the disturbance of bird species living in the vicinity of the works being carried out and to the temporary restriction of feeding grounds. Nesting sites in the area where the works are carried out may be directly exposed to noise and disturbance (if the works are carried out during the breeding season). Threats to bird habitats may occur as a result of the removal of trees, including hollow trees, where protected bird species may be present, as well as the destruction of nesting sites under bridges and in watercourse development. After completion of the works, the

negative impacts will disappear and the nature of habitats in the urban section of the river will not change.

The possibility of weak to moderate negative impacts on the following species is anticipated during the operation phase: Goosander, Eurasian Wryneck, Grey Wagtail, White Wagtail, Spotted Flycatcher, White-Throated Dipper, Common Sandpiper, Little Ringed Plover, Middle Spotted Woodpecker, Eurasian Golden Oriole, Common Redstart. Impacts on the above-mentioned species will be related to the simplification of the bed morphology, which will make feeding more difficult, breeding sites will disappear or will be reduced in the watercourse development. Significant impact at the operation stage is expected in relation to Common Kingfisher position (in the area of Bystrzyca Kłodzka Facility). The structures will limit the breeding sites for this species, while tree and bush felling will make it difficult for it to feed.

Mammals (*except bats*)

The implementation of the Contract will involve a weak or moderate negative impact on the otter and the beaver (near Bystrzyca Kłodzka and Kłodzko Facilities) due to the disturbance of these animals and a temporary reduction in the use of feeding grounds. The unblocking of transverse partitions in the riverbed will have an indirect positive impact on the habitat conditions of terrestrial and water mammals. No negative impacts are expected during the operation phase.

Bats

The implementation of the Contract will have a weak or moderate negative impact on the following bat species: Brandt's bat, Myotis alcathoe, Common noctule, Soprano pipistrelle, Common pipistrelle, Vesper Bat, Daubenton's Bat. There may be a weak threat to the inventoried species of bats during the investment implementation due to the occupation of feeding grounds and the necessary felling of hollow trees. In the case of the wintering site of Common Pipistrelle (Kłodzko Facility) found in the area of conducted works, a significant impact on the habitat of the protected bat species may occur. Therefore, it is necessary to introduce protective measures during the renovation of the wall. No negative impacts are expected during the operation phase.

Most of the above-mentioned impacts on fauna are of short-term and reversible nature, ceasing after the completion of the works phase or after the pre-investment habitat conditions are reinstated. Mechanical accidental destruction of organisms is a permanent impact. Adequate mitigation measures are anticipated to reduce all negative impacts, as detailed in appendix no. 1 to the EMP.

5.7.3. NATURA 2000 SITES

- As part of the environmental impact assessment of the Contract, the possibility of negative impact on the following Natura 2000 sites was analyzed:
  - Bystrzyca Łomnicka Valley PLH020083,
  - Krowiarki Range PLH020019.
  - Sztolnia w Młotach PLH020070,
  - Nysa Kłodzka Gorge near Morzyszów PLH020043,

- Bialskie Mountains and the Śnieżnik Group PLH020016,
- Dzika Orlica PLH020061.

The Bystrzyca Łomnicka Valley Natura 2000 site PLH020083 has no established plan of protection tasks or protection plan. The Contract will not be performed within the area. The scope of the planned works was not found to have an impact on the objectives of protection of the area or to have a negative impact on its objects of protection, both at the stage of implementation and operation of the Contract.

For the area of the Krowiarki Range PLH020019, a plan of protection tasks (PZO) was established by the order of the Regional Director for Environmental Protection in Wrocław of 29 September 2014 on the establishment of a plan of protection tasks for the Natura 2000 site of the Krowiarki Range PLH020019 (OJ LSV of 2014, item 4025). The scope of the planned works was not found to have a significantly negative impact on the objectives of protection of the area or its objects of protection, both at the stage of implementation and operation of the Contract.

The Sztolnia w Młotach PLH020070 Natura 2000 site has no established plan of protection tasks or protection plan. The Contract will not be performed within the area. The scope of the planned works was not found to have an impact on the objectives of protection of the area or to have a negative impact on its objects of protection, both at the stage of the Contract implementation and operation.

The Nysa Kłodzka Gorge near Morzyszów PLH020043 Natura 2000 site is located 3 km from the Kłodzko Facility. A moderate indirect negative impact of an increased concentration of suspended matter in the waters of the Nysa Kłodzka below the area of works may occur on the habitat 3260 being the object of protection of the above-mentioned area and on the fish species present in the area (Alpine Bullhead), listed in SDF as present with status D (population insignificant). This is a short-term, reversible impact that will cease upon completion of the works. At the implementation stage, minimising measures will be taken, described in detail in appendix no. 1 to the EMP. At the operation stage, there will be a positive impact of the ichthyological flow capacity improvement of significant partitions (over 15 km in total), related to the improvement of connection of the population of Alpine Bullhead between the mentioned area and the habitats of the species upstream in the Nysa Kłodzka and its tributaries: Biała Lądecka and Bystrzyca Dusznicka. This impact will also benefit the remaining ichthyofauna species protected under the Natura 2000 network: brook lamprey, barbel and grayling. For this reason, the indirect impact of the Contract on the Natura 2000 site in question has been identified as weak to moderate (implementation phase) and positive (operation phase).

For the Natura 2000 site Bialskie Mountains and Śnieżnik Group PLH020016, a plan of protection tasks was established by the order of the Regional Director for Environmental Protection in Wrocław of 24 December 2014 on establishing a plan of protection tasks for the Natura 2000 site Bialskie Mountains and Śnieżnik Group PLH020016 (OJ LSV of 2014 item 5459). The scope of the planned works was not found to have an impact on the objectives of protection of the area or to have a direct negative impact on its objects of protection. It is predicted that the flow capacity improvement of the sills - converted into ramps for the Długopole-Zdrój facility and the sills within the Międzylesie facility (a total length of 23 km) will have a lasting positive impact on increasing the degree of integrity and stability of the

populations of the species mentioned above as a result of the ecological flow capacity improvement of the river and increased connection of the populations of protected ichthyofauna species in the upper Nysa Kłodzka system.

For the Natura 2000 site Dzika Orlica PLH020061, a plan of protection tasks (PZO) was established by the order of the Regional Director for Environmental Protection in Wrocław of 09 May 2014 on the establishment of a plan of protection tasks for the Natura 2000 site Dzika Orlica PLH020061 (OJ LSV of 2014 item 2342) changed by the order of RDOŚ in Wrocław of 31 October 2018 (OJ LSV of 2018 item 5439). The Dzika Orlica site is located outside the Nysa Kłodzka river basin, which excludes direct and indirect impact on natural habitats and species of ichthyofauna within the area.

No significant negative impacts have been identified for any of the Natura 2000 sites.

5.7.4. OTHER PROTECTED AREAS

Contract implementation does not generate negative impacts on other protected areas, such as National Parks, Nature Reserves, nature and landscape complexes, documentation sites and ecological sites, which are located outside the Contract's direct and indirect impact zone.

The Bystrzyckie and Orlickie Mountains Protected Landscape Area is located about 160 m to the west of the Długopole - Zdrój Facility, about 600 m from the Międzylesie Facility and about 1 km from the Bystrzyca Kłodzka Facility. The prohibitions laid down for this area, quantified in Table 14, will not be breached as a result of the Contract implementation.

Table 14 Analysis of the possibility of breaching the prohibitions in the Bystrzyckie and Orlickie Mountains Protected Landscape Area.

Prohibitions in force in the Area	Breach of prohibition as a result of Contract execution
1) killing of wild animals, destruction of their burrows, breeding grounds, other shelters and breeding sites and spawning polls and eggs placed, except for amateur fishing and activities related to rational agricultural, forest, fishing and hunting activity;	Such impacts are not anticipated in the area; mitigation measures will be taken in the works areas
2) implementation of projects likely to have a significant impact on the environment within the meaning of the Act of 3 October 2008 on making available information on the environment and its protection, public participation in environmental protection and environmental impact assessments	The Contract does not belong to the categories that can significantly affect the environment.
3) elimination and destruction of mid-field, roadside and waterside trees, if they do not result from the need to protect against flooding and ensure the safety of road or water traffic or the construction, reconstruction, maintenance, renovation or repair of water facilities	During the construction phase, the trees within the area will not be destroyed
4) excavation of rock, including peat, and fossils, including fossil remains of vegetation and animals, as well as minerals and amber for economic purposes	The ban will not be violated.

Prohibitions in force in the Area	Breach of prohibition as a result of Contract execution
5) performing earthworks that permanently deform the terrain, except for works related to storm, flood or landslide protection or maintenance, construction, reconstruction, renovation or repair of water facilities	The ban will not be violated. The works are related to flood protection and maintenance of water structures outside the Area.
6) making changes in water conditions, if they serve other purposes than nature conservation and sustainable use of agricultural land and fisheries and rational water or fishing management.	The Contract is implemented within the framework of rational water management (protection against flooding), in accordance with the active protection of ecosystems contained in the Regulation (§3(3)) concerning water ecosystems): conducting regulation and maintenance works on watercourses to the extent necessary for actual flood protection. The works will be carried out outside the Area.
7) liquidating natural waterbodies, oxbow lakes, marshy areas and wetlands;	The scope of works does not provide for liquidation of natural water reservoirs, oxbow lakes and water and marshy areas and wetlands.
8) construction of new structures in a 100 m wide strip: a) bank lines of rivers, lakes and other natural water bodies, b) the range of the water surface in artificial water reservoirs situated on the waters flowing at the normal damming level specified in the water law permit referred to in Article 389(1) of the Act of 20 July 2017. - Water law - except for water facilities and structures for the rational management of agriculture, forestry or fishing.	Flood protection and regulatory structures in accordance with Article 9(19)(a) of the Act of 18 July 2001 Water Law (i.e. Journal of Laws of 2005 No. 239 item 2019 as amended) are water facilities.

Two trees which are natural monuments, Western Cedar in the area of the Międzylesie Facility and American Tulip Tree near the Kłodzko Facility, may be exposed to the negative impact of the conducted works resulting from accidental damage, having the nature of short-term or permanent impacts. For this reason, implementation of the minimisation measures described in appendix 1 to the EMP is planned.

Implementation of the Task does not result in negative impacts on the functionality of migration corridors of large mammals.

The conversion of sills into semi-natural ramps, planned as part of the planned works (ten structures), conversion of weirs (two structures), construction of a fish migration channel between the planned fish pass at the weir H-11, the construction of a beam fish pass with a descending migration gutter, and construction of a fish migration channel at the section from the weir H-4 to the mill race estuary and the diversion sill in its estuary, will contribute to a considerable improvement in the river's flow capacity as an ecological corridor.

The section on which the flow capacity of significant migration barriers will be improved meets the length criterion for very good migration conditions for European Bullhead and moderate conditions for Brook Lamprey, however, in order to achieve such conditions, it will be necessary to further improve the flow capacity of smaller barriers (low sills >20 cm).

- At the implementation stage of the Contract, there will be a periodical deterioration of the migration capacity related to disturbances (machine traffic, noise - startling) and deterioration of water quality (suspended matter) in the area of works. In the operation phase, however, the implementation of the planned flow capacity improvement works will contribute to the improvement of the flow capacity of the Nysa Kłodzka River and its tributaries as an ecological corridor.

5.8. ACOUSTIC CLIMATE

Negative impacts in the form of noise emissions will occur at the Contract implementation stage. These will be short-term impacts varying over time, mainly related to the operation of machinery and heavy construction equipment and the movement of construction vehicles. The range of the noise impact associated with the construction will depend on the type of machines used, the number of machines running simultaneously and their operating time. The sound power level of most construction machines and chain saws is within the L_{WA} = 105- 115 dB. Noise generated at the stage of investment execution will be dispersed, emitted only during the daytime. These impacts will have a local reach.

For the purpose of the simplified analysis of the designation of facilities potentially threatened by noise, a range of 100 m from investment works was assumed, regardless of their type and emissions.

It was found that in the town of Długopole - Zdrój in the analyzed area, the number of sites exposed to temporary exceedances of permissible noise standards is 23 residential buildings, 2 hotels, 6 buildings of hospitals and medical care institutions and 1 building of schools and research institutions.

On the area of Międzylesie, in the analyzed area of 100 m from work sites, the number of sites exposed to temporary exceedances of the permissible noise standards is as follows: 93 residential buildings, 6 hotels, 15 schools and research institution buildings, 1 kindergarten/nursery.

In Bystrzyca Kłodzka, the number of sites exposed to temporary exceedances of the permissible noise standards is as follows: 238 residential buildings, 2 hotels, 1 hospital and medical facility building.

On the area of Kłodzko, in the analyzed area of 100 m, the number of sites exposed to temporary exceedances of the permissible noise standards is as follows: 189 residential buildings, 1 hospital and healthcare facility building.

The increased noise emission in such areas is only related to the stage of implementation, i.e. a short period of time, limited to the execution of necessary works. Adequate advance notice is anticipated to owners and/or users of the facilities exposed to high noise emissions from the conducted works. In addition, it is envisaged that appropriate information boards will be installed at places and times when works posing a risk of high noise emissions will be carried out. Periodic nuisances related to noise emission will disappear with the completion of individual stages of works.

Operation stage

Hydrotechnical structures covered by the scope of the Contract do not generate noise. Hence, their operation does not permanently affect the acoustic status of the environment of the adjacent acoustically protected areas described above.

The emission of noise will only result from the operation and movement of machines and vehicles necessary for the performance of maintenance works. These will be short-term and local impacts (limited to locations where necessary maintenance works are carried out with heavy equipment), arising as needed.

5.9. MONUMENTS OF CULTURE

When analyzing the scope of the Contract and the technology of performing the works, it was not found that they pose a significant threat to the objects considered to be protected on the basis of an entry into the register or record of monuments.

Archaeological supervision will be in place at the stage of works implementation to ensure that the works are carried out in accordance with any detailed guidelines and arrangements with the Voivodship Monument Conservator.

At the operation stage, a positive impact on historic buildings is expected due to the reduction of the flood risk level.

5.10. MATERIAL GOODS

Implementation stage

Impacts on material goods at the stage of construction works will mainly result from the execution of construction works and the movement of vehicles and machines in built-up and inhabited areas. Residents and their estates may be exposed to vibrations, noise, dust. For this reason, mitigation measures were specified, presented in appendix no. 1 to the EMP (item 10), where it was indicated that all damages to structures and buildings and other infrastructure elements resulting from the execution of works by the Contractor or its Subcontractors will be repaired. Item 92 of App. 1 to the EMP also stipulates the necessity of developing a *Detailed Quality Assurance Plan* specifying the principles for documenting the condition of the infrastructure prior to commencing the works and for controlling the potential impact of the works on its condition as a result of vibration emissions. The condition of road infrastructure may also deteriorate, but it will be restored to its pre-investment condition upon completion of the works.

At the investment implementation stage, there is a potential risk of a hazard arising during the execution of demolition works, and such related to the foundation of new facilities.

In order to protect material goods at the construction stage, the Contractor will be obliged to implement a number of measures to minimize the impact both in the vicinity of the construction site and access roads. Their implementation should reduce the risk of negative impact on material goods in the area of the Task, thus no significant impacts are expected in this respect.

Operation stage

The Contract execution aims, in particular, to increase the flood protection of bank areas with particular emphasis on built-up areas and traffic routes, as well as to protect the towns of Długopole – Zdrój, Międzylesie, Bystrzyca Kłodzka and Kłodzko against damages to regulatory structures and bridges during the flood wave. The result of the Contract implementation will be, inter alia, restoration of the functionality and/or increased reliability of the functioning of hydrotechnical structures and ensuring safe passage of the flood wave in the section of Nysa Kłodzka within the aforementioned towns. Therefore, material goods (including, above all, urban development and infrastructure), located in flood plains (with very high historical, cultural and tourist values) will be more effectively protected in the event of flooding.

5.11. HUMAN HEALTH AND SAFETY

Implementation stage

The impacts of the Contract at the implementation stage will be the impacts typical for medium-sized construction sites.

The main categories of these impacts are:

- noise and vibration emissions (operation of construction equipment and machinery, transport of materials),
- emissions of pollutants to air (exhaust emissions from internal combustion engines of machinery and means of transport, dust emissions when performing earthworks and transport processes),
- traffic nuisances (related to increased vehicle traffic).

All the above-mentioned impacts will be temporary in nature (limited to the period of performing works and the advancing front of works) and will not cause permanent changes in air quality and acoustic climate parameters. Adequate mitigation measures are envisaged to reduce their scale and intensity, as detailed in appendix no. 1 to the EMP.

In particular, the residents of the properties in the vicinity of the riverbed of the Nysa and the Bystrzyca stream will be exposed to these impacts.

At the construction stage, the nuisance and severity of the above-mentioned impacts will be minimized by the application of technical and organizational measures, comprising:

- time limits for carrying out works connected with significant noise emission and in the immediate vicinity of buildings, mainly residential buildings,
- reduction of dust emissions from the construction site and means of transport,
- reduction of noise and exhaust emissions by using efficient equipment and disabling the engines during breaks,
- development and agreement of the traffic organization project with the road manager and proper marking and securing of roads according to the above-mentioned project.

The implementation of the Contract is planned in accordance with the applicable regulations of a high standard of modernity, it will meet the requirements of occupational health and safety and fire and environmental protection regulations.

Operation stage

The main benefits of the investment are the restoration of the functionality and/or increasing the reliability of hydrotechnical structures and protection of nearby road infrastructure against washing out, which will improve human health and safety. The executed investment will not involve the emission of pollutants harmful to people.

The implementation of the Contract is planned in accordance with the applicable regulations and high standards. It will meet the requirements of occupational health and safety and fire and environmental protection regulations. The Task's operation stage will indirectly influence the improvement of living conditions of people by reducing the flood hazard.

5.12. WASTE

Implementation stage

Typical construction, renovation and demolition waste (including soil and earth) is expected to be generated. It is also possible to produce waste related to the operation of mechanical equipment and construction machinery powered by combustion engines, including hazardous waste. Municipal waste will be generated within the construction site facilities during the period of conducting the works.

If the generated waste is properly handled and managed, the construction process will not have a negative impact on the environment during the implementation stage. An area will be designated at the construction site facilities to accommodate holders and containers for temporary storage of waste, depending on their type, including special sealed containers for hazardous waste storage. Waste will be transferred on a regular basis to the means of transport of entities authorized to transport waste and managed further on the basis of the classification of waste carried out at the stage of works implementation.

Soils extracted from works sites (including the earth mass outside the watercourse riverbeds and sediments from watercourse riverbeds) will be managed at the construction site if they meet the technical and environmental parameters (classified as uncontaminated soils). If this is not possible, in whole or in part, they will be managed in accordance with the applicable waste regulations. The Contractor is also required to prepare documents such as: *Waste Management Plan* and *Soil Management Plan* presenting in detail how to treat soils and will subject to the Contract Engineer's approval prior to the commencement of works generating waste and soils.

Operation stage

Potential generation of waste at the operation stage of the Contract will be related to the maintenance and maintenance works. No significant amount of waste is expected to be produced.

5.13. EMERGENCY HAZARDS (CRISIS AND EMERGENCY SITUATIONS)

The implementation and operation of the planned Contract entails the possibility of the following emergencies which may cause extraordinary environmental hazards.

Leakage of petroleum substances

During the construction phase, an emergency situation may occur, resulting in leakage of petroleum substances from vehicles, construction machinery, tanks, etc., resulting in contamination of surface water and/or land surface. Leakages can potentially occur during

the movement of vehicles and machines, as well as at parking and fueling points. During the course of the works, the risk of an emergency situation will be minimized by ensuring that appropriate procedures and measures are in place to limit losses in the event of environmental damage.

Fire or explosion of flammable substances

During the construction phase, an emergency situation related to the occurrence of a fire may occur (e.g. due to equipment failure, personnel negligence, explosion of flammable substances, lightning strike, etc.). The occurrence of such a situation poses a threat to both the Contractor's personnel and the environment. Nevertheless, in order to minimize such situations, among other things, only equipment in proper technical condition will be used and properly operated and maintained.

Finding unexploded ordnance and unexploded shells

At the stage of the earthworks and other construction works, hazardous materials of military origin may be found, such as unexploded ordnance and unexploded shells (e.g. fuses, missiles, aerial bombs, artillery and rifle cartridges, armor plating, grenades, all types of mines, explosives charges, scrap metal containing residual explosives, etc.). The Contract will be carried out in such a way as to eliminate the risk of any danger to the Contractor's staff and local residents. Procedures will be developed in case of such a situation and appropriate personnel will be involved (sapper's supervision).

Sudden water rush, flood

A potential situation posing a threat to the environment and human health and safety at the stage of works is also the occurrence of a sudden increase in the water level in the river. The Contractor should monitor on a regular basis the hydrological situation in the catchment areas of the Nysa Kłodzka in zones that may result in increased water levels in the area of works. During the period of high water levels or jamming floods, the Contractor's equipment and elements of construction site facilities may be located within the river bed and in the bank zone. Therefore, procedures will be developed in case of such a situation.

Storms and hurricanes

The occurrence of extreme weather conditions such as storms and hurricanes is potentially dangerous for the conditions under which the work is carried out, and thus for the safety and health of people and the environment. Some of the works will be carried out within or in close proximity to high greenery.

Possibility of failure during operation

Emergency situations in the operation of the renovated hydrotechnical facilities may result from machine failures during maintenance works, being a source of uncontrolled leakage of petroleum substances and oils.

Epidemiological risk

In the event of an epidemic, there may be threats to the health and life of the Contractor's employees and the Employer's and Engineer's staff as well as to the construction process. The state of epidemic was announced by the Regulation of the Minister of Health of 20 March 2020 on *declaring the state of the epidemic on the territory of the Republic of Poland* (Journal of Laws item 491, as amended) in the period from 20 March 2020 until further notice, in the territory of the Republic of Poland in connection with SARS-CoV-2 virus infections.

5.14. CUMULATIVE AND TRANSBOUNDARY IMPACTS

In accordance with the provisions of the FRMP and rWMP, as part of the Odra-Vistula Flood Management Project (OVFMP), Subcomponent 2A - active protection and Subcomponent 2B - passive protection, the following projects are planned:

1) Subcomponent 2A - active protection:

- 2A.1/1 Construction of the "Boboszów" dry flood control reservoir on Nysa Kłodzka River,
- 2A. 1/2 Construction of the "Roztoki Bystrzyckie" dry flood control reservoir on the Goworówka stream,
- 2A.2/1 Construction of a dry flood protection reservoir Krosnowice on the Duna stream near Krosnowice,
- 2A.2/1 Construction of "Szalejów Górny" dry flood control reservoir on Bystrzyca Dusznicka River;

2) Subcomponent 2B - passive protection:

- **2B.1/1 Flood Protection of the Nysa Kłodzka Valley,**
- 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River,
- 2B.2/2 Flood protection of the Bystrzyca Dusznicka River and the Kamienny Potok River.

Considering in the context of flood protection of the whole problem area (hot - spot) of the Kłodzko Valley, the cumulative impact of the above-mentioned measures will result in the reduction and extension of the surge waves in the Nysa Kłodzka, and as a consequence will significantly contribute to the reduction of flood risk in the Kłodzko Valley, as well as in the Odra River valley.

Considering the cumulative impacts for the ecological status of the USWBs in the Nysa Kłodzka river, within the limits of which passive flood protection activities are planned, it can be concluded that the construction of dry flood protection reservoirs "Boboszów", "Roztoki Bystrzyckie", "Krosnowice" and "Szalejów Górny" has little or no impact on the condition of these USWBs. This results from the location of the Boboszów and Roztoka Bystrzyckie reservoirs within the same USWBs where the analyzed Contract 2B.1/1 is located. However, these reservoirs affect small stretches of unified water bodies (less than 5% of the length of the USWB), they also do not limit the flow capacity of rivers for ichthyofauna migration, except for flood situations that occur less frequently than once every 10 years. The other two reservoirs are located on the tributaries of the Nysa Kłodzka River which are separate USWBs. Moreover, decisions on environmental conditions have been issued for these investments, specifying the measures which mitigate their negative impact on the environment and do not directly affect the USWBs covered by the Contract 2B.1/1.

- **Cumulative impacts on the status of USWBs within which the Contract is located and on the natural resources of the Nysa Kłodzka valley**

- The total length of the analyzed USWBs, where the Contract 2B.1/1 Flood protection of the Nysa Kłodzka River valley will be implemented, is 147.87 km. Within the framework of passive protection, it is planned to carry out renovation and reconstruction works in watercourse beds on sections with a total length of about 8.12 km, which constitutes nearly 5.5% of the length of the analyzed USWBs.

- In the course of implementing the measures at the areas where the works are carried out, the direct destruction of aquatic plant communities and the startling of communities of benthic invertebrates, ichthyofauna and other aquatic organisms will take place. A temporary change in water flow conditions, as well as a temporary turbidity of the water, an increase in suspension concentration and a deterioration in oxygen conditions will also occur. There will be an accumulation of these impacts if all the investments are carried out simultaneously (Międzylesie Facility, Długopole-Zdrój, Bystrzyca Kłodzka and Kłodzko).

- The most probable is the accumulation of impacts within the limits of *USWB Nysa Kłodzka from Biała Lądecka do Ścinawka*, which is the lowest located of the water bodies in question and *USWB Nysa Kłodzka from Różanka to Biała Lądecka*, where 2 facilities are located: Długopole-Zdrój and Bystrzyca Kłodzka. The cumulative impacts on particular groups of terrestrial and aquatic animals will not be significant and will be independent of each other, which will be related to both the distance and local character of these investments (especially in the field of passive protection). This indirectly results in reduced water transparency and deterioration of light conditions for macrophytes and phytobenthos, as well as deterioration of water quality parameters and reduction of occurrence of ichthyofauna and benthic macro-invertebrates. There may also be temporary limitation for the free migration of aquatic organisms. The time and spatial shift of the works from the top to the bottom of the river for each of the facilities was indicated as one of the measures to counteract the accumulation of impacts. The spawning of fish may be disturbed if the Contractor fails to employ such measures. The living conditions of species of terrestrial and aquatic animals will also deteriorate, and the mechanical damage to animals can occur by running machines. These impacts will end with the completion of all investments. A moderate indirect effect of increased suspension concentration is also predicted for the USWB Nysa Kłodzka from Ścinawka located below Kłodzko until the separation of Młynówka Pomianowska.

- The impact accumulated at the operation stage concerns mainly hydromorphological transformations in the USWB beds covered by the investments. As the planned works will be carried out in the beds strongly transformed in the past and will be mainly of the renovation-restoration character, they will not significantly and permanently affect the hydromorphological status of the Nysa Kłodzka and its tributaries. Therefore, no impact is expected on the value of the indicator m4 set for the USWBs in question, determining the total length of river sections where regulation works were carried out (longitudinal development and documented change of the river course) related to the total length of significant streams.

- The natural hydromorphological elements eliminated during the works will be reinstated as a result of natural fluvial processes taking place in the river. For this reason and given also the small spatial scope of works on the scale of the analyzed USWBs (5.5% of their total length), the changes are not so significant as to lower the assessment of the status or the ecological potential of the analyzed USWBs. The prerequisite is to apply correct technical solutions.

Cumulative impacts with activities resulting from the Water Maintenance Plan for the analyzed USWBs

All the activities listed in the WMP are maintenance works, performed periodically every 3 or 5 years. Some of them will be implemented on the sections covered by the activities under Contract 2B.1/1, the others - in close proximity to them. If works are carried out simultaneously on the sections within the impact range of the Contract, cumulative impacts may occur within the following range:

- increasing the concentration of suspended matter in USWB waters,
- pollution of surface water and groundwater by oil-derived substances leaking from construction machinery when it is in poor condition or as a result of its failure,
- changes in habitat conditions as a result of the elimination of breaks and depressions in slopes and bottom (reduction of morphological diversity) and removal of alluvium, roots, fallen trunks, stones, etc. deposited in the bottom of watercourses,
- the startling of aquatic animals and the removal of plants from the bottom and slopes.

These will be impacts occurring locally and periodically. There will be no cumulative direct impacts on the elements of USWBs and UGWBs if the works are carried out at the stage of operating the said Contract. Thus, no impact on the achievement of the environmental objectives set for them, as referred to in Articles 57 and 59 of the Water Law, is expected. The indirect impact of the works provided for in the WMP may relate to the restoration of habitats after the completion of the investment and the acclimatization of re-planted water-crowfoot patches (2-5 years). Maintenance works will also be planned and carried out considering the principles of good practices, which will reduce their negative impact.

The Contract's accumulated impacts with other tasks listed in FRMP

- The investments listed in the FRMP as buffer measures in the Middle Odra water region are planned for the unified water bodies where the works under the Contract are located, as well as for the USWBs neighboring them. These are:

- Flood protection of the Kłodzka Valley - Goworówka stream;
- Flood protection of the Kłodzka Valley – Domaszkowski Stream;
- Flood protection of the Kłodzka Valley – Waliszowska Woda Stream;
- Flood protection of the Kłodzka Valley - Pławna Stream;
- Flood protection of the Kłodzka Valley - Jaszkówka Stream;
- Flood protection of the Kłodzka Valley - Jodłownik Stream.

At the same time, the FRMP recommended to limit the scope of works and interference in the watercourse bed as much as possible, only to areas where there is a significant threat to human health and life and infrastructure. Thus, it is currently not determined what the final scope of these investments will be. At the implementation stage, if all investments are carried out simultaneously, which is unlikely to happen (due to the lack of detailed arrangements for this project), there may be an accumulation of impacts mainly in terms of an increased suspended solids concentration in the waters of the Nysa Kłodzka River, especially in the area of Kłodzko. For this reason, it is strongly recommended not to undertake works on the above-mentioned streams before the end of the activities under the Task 2B.1/1.

The impacts accumulated in the scale of the entire Nysa Kłodzka catchment area will concern mainly hydromorphological elements. Due to the lack of information concerning the final scope of activities on the above-mentioned streams, it is difficult to determine their nature at this stage, especially in terms of permanent or long-term impacts related to the operation stage.

Aggregate assessment of cumulative impacts

The environmental objectives set for these USWBs are to achieve good ecological status/potential and good chemical status. The additional environmental objectives set for the *USWBs Nysa Kłodzka Nysa from Różanka to Biała Lądecka* and *Nysa Kłodzka from Biała Lądecka to Ścinawka* are also to ensure the possibility of migration of aquatic organisms in the

section of the significant stream - Nysa Kłodzka from Biała Lądecka to Bystrzyca and Nysa Kłodzka together with Bystrzyca Dusznicka.

No risk of deterioration of the ecological status or potential of the USWBs in question and no risk of achieving the environmental objectives set for them was identified in relation to the cumulative impact of the Contract in question and other investments carried out in the upper Nysa Kłodzka river basin. The envisaged flow capacity improvement measures can contribute to some extent to improving the ecological status and meeting the environmental objectives of these USWBs.

- **TRANSBOUNDARY IMPACTS**

The planned Contract, due to the nature of the generated impacts and its location, does not pose a risk of the occurrence of transboundary impacts. The result of the works carried out under the Contract may go beyond the immediate locations of their implementation, but it will only include impacts scattered downstream of the watercourses. There is no possibility that the possible impacts would extend to areas within the borders of the Czech Republic that are several to a dozen or so kilometers away.

6. DESCRIPTION OF MITIGATION MEASURES

In order to limit the negative impacts of the planned Contract on the environment, monuments, material goods, and first of all on the health and life of people exposed to the impact of the planned works, Appendix no. 1 to the EIA contains a list of mitigation measures that will be binding for all the participants of the investment process, including in particular the Works Contractor. These activities were developed on the basis of the conditions stated in the environmental decisions issued for the particular Facilities under the Contract, with the addition of supplementary conditions established at the stage of EMP preparation. A summary of the main categories of mitigation measures is presented below, broken down into individual environmental components discussed in chapters 4 and 5 of the EMP.

6.1. EARTH SURFACE AND LANDSCAPE

The basic forms of negative impact of the planned Contract on the earth surface and landscape are presented in Chapter 5.1.

In order to reduce such impacts, the following mitigation measures were introduced in Appendix no. 1 of the EMP:

- 1, 2, 3, 4, 5 (01 - Location and limitation requirements for the area of places of temporary occupation),
- 9, 10 (04 - Requirements concerning the transport service of the Contract implementation area),
- 14, 15, 16 (06 - Principles of top soil handling and reclamation of land subject to temporary occupation),
- 17, 18, 19, 20, 21, 22, 23, 24, 25 (07 - Requirements for felling, protecting trees and bushes),
- 42, 23, 44 (09 - Requirements concerning handling waste).

6.2. CLIMATE

In the case of the Contract, no mitigation measures were found to be necessary for the protection of local climatic conditions (measures related to air quality protection have been introduced - chapter 6.3). This task simultaneously prevents and mitigates the effects of extreme weather events.

6.3. AIR QUALITY

The basic forms of the planned Contract's negative impact on air quality are presented in chapter 5.3. In order to diminish such impacts, Appendix no. 1 to the EMP introduces mitigation measures under the following items: 33, 37, 41 (08 - Environmental pollution and emission prevention requirements).

6.4. SOILS AND LAND

The basic forms of the Contract's negative impact on soils and land are presented in chapter 5.4.

In order to diminish such impacts, the following mitigation measures have been introduced in Appendix no. 1 to the EMP:

- 11, 12, 13 (05 – Requirements for the management of soil masses),
- 14, 15, 16 (06 - Principles of top soil handling and reclamation of land subject to temporary occupations),
- 26, 27, 28, 29, 30, 31, 32, 37, 38, 39, 40, 41 (08 - Environmental pollution and emission prevention requirements),
- 46, 47 (09 – Requirements concerning handling waste).

6.5. SURFACE WATERS

The basic forms of the planned Contract's negative impact on surface waters are presented in chapter 5.5.

In order to diminish such impacts, the following mitigation measures were introduced in Appendix no. 1 of the EMP:

- 2 (01 – Location and limitation requirements for the area of places of temporary occupation),
- 11, 12, 13 (04 – Requirements for the management of soil masses),
- 26, 27, 28, 29, 30, 31, 32, 37, 38, 39, 40, 41 (08 - Environmental pollution and emission prevention requirements),
- 46, 47 (09 – Requirements concerning handling waste),
- 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61 (11 – General principles of carrying out works within beds of watercourses).

6.6. GROUNDWATER

The impact of the planned Contract on groundwater is analyzed in Chapter 5.6. The Contract does not generate negative impacts on the status of groundwater. Preventive measures relating to the protection of groundwater against pollution are listed in Appendix no. 1 to the EMP. Mitigation measures for the reduction of impacts on groundwater are those specified for the protection of soils and land and surface water (in accordance with Chapter 6.4 and 6.5).

6.7. ACOUSTIC CLIMATE

The basic forms of negative impact of the planned Contract on the acoustic climate are presented in Chapter 5.8.

In order to diminish such impacts, the following mitigation measures have been introduced in Appendix no. 1 to the EMP: 34, 35, 36, 37, 39 (08 - Environmental pollution and emission prevention requirements).

6.8. FLORA AND FAUNA

6.8.1. NATURAL HABITATS, FLORA AND FAUNA

The basic forms of negative impact of the planned Contract on natural habitats, flora and fauna are presented in Chapter 5.7.

In order to diminish such impacts, the following mitigation measures have been introduced in Appendix no. 1 to the EMP:

- 2, 3 (01 – Location and limitation requirements for the area of places of temporary occupation),
- 17, 18, 19, 20, 21, 22, 23, 24, 25 (07 - Requirements for felling, protecting trees and bushes),
- 48, 49 (10 – Requirements relating to the prevention and eradication of invasive plant species),
- 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61 (11 – General principles of carrying out works within beds of watercourses),
- 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76 (12 - Animated nature protection requirements),
- 93, 94, 95 (16 - Requirements for the contractor's personnel involved in the implementation of the EMP),
- 113, 114, 115, 116, 117 (20 – Detailed requirements – Międzylesie Facility),
- 118, 119, 120, 121, 122, 123 (21 – Detailed requirements – Długopole - Zdrój Facility),
- 124, 125, 126, 127, 128, 129 (22 – Detailed requirements – Bystrzyca Kłodzka Facility),
- 130, 131, 132, 133, 134, 135, 136, 137, 138, 139 (23 – Detailed requirements – Kłodzko Facility).

In particular in sec. 12 - Animated nature protection requirements and requirements for particular Facilities (Categories 20, 21, 22, 23) of Appendix no. 1 to EMP, a number of mitigation measures have been developed relating to the organization of works, protection of valuable natural sites adjacent to the work areas and appropriate control of work sites by experts of the Contractor's environmental team.

Also, the mitigation measures for riverbed works (11 - General principles of carrying out works within beds of watercourses), indicated in chapter 6.5, are the measures to protect the river ecosystem.

Thus, the natural resources in the place and surroundings of the works after the completion of the works do not suffer any permanent deterioration in terms of the natural value as they currently represent. It should be borne in mind that the river valley is an environment subject to natural variability and therefore the distribution of natural habitats and species may differ from year to year.

6.8.2. PROTECTED AREAS

The mitigation measures adopted for natural habitats and protected plant and animal species also apply to the protection of natural values of protected areas. A set of mitigation measures for the protection of protected areas is presented in no. Appendix 1 to the EMP (the items indicated in chapter 6.8.1).

6.9. CULTURAL LANDSCAPE AND MONUMENTS

The basic forms of negative impact of the planned Contract on the cultural landscape and monuments are presented in Chapter 5.9.

In order to diminish such impacts, the following mitigation measures have been introduced in Appendix no. 1 to the EMP: 77, 78, 79 (13 – Requirements concerning the protection of cultural monuments).

6.10. MATERIAL GOODS

The basic forms of negative impact of the planned Contract on the cultural landscape and monuments are presented in Chapter 5.10. In order to diminish such impacts, the following mitigation measure is introduced in Appendix no. 1 of the EMP: 9, 10 (04 - Requirements concerning the transport service of the Contract implementation area) and 92 (15 – Requirements for protection of buildings against noise and vibration).

Issues related to land acquisition or change in land use, as well as acquisition of land for temporary occupancy, are discussed in detail in the *Land Acquisition Plan* (LAP) for this Contract.

6.11. HUMAN HEALTH AND SAFETY

The basic forms of negative impact of the planned Contract on human health and safety are presented in chapter 5.11.

In order to diminish such impacts, the following mitigation measures have been introduced in Appendix no. 1 to the EMP:

- 48, 49 (10 – Requirements concerning prevention of proliferation and elimination of invasive species of plants),
- 80 – 91 (14 - Requirements for the protection of human health and safety),
- 92 (15 – Requirements for protection of buildings against noise and vibration),
- 102, 103, 104, 105, 106, 107, 108, 109, 110, 111 (18 - Detailed requirements of the World Bank's ES policies),
- 112 (19 - Guidelines for dealing with the situation in the event of an epidemic or state of epidemic risk during the execution of works).

6.12. EMERGENCY HAZARDS (CRISIS, EMERGENCY SITUATIONS)

Crisis situation

In the event of an emergency, the competent services must be notified first:

Service	Telephone No.
Emergency number from a mobile phone	112
Police	997
Fire Brigade	998
Ambulance	999

The procedure for interaction and information of the parties to the Contract will be described in the Contractor's Manual provided by the Engineer to the Contractor prior to commencement of works. The manual will include contact details (including e-mail), considering the personnel status of the Engineer's, Contractor's and PIO's structure assigned to the performance of the Contract.

It is the Contractor's responsibility to prevent hazards in the first place and, if they occur, to mitigate their effects. The basic hazards are characterized below; however, the list of hazards given is open and does not exhaust the risk of other hazards not mentioned in the EMP.

In the event of any emergency, the Contractor shall immediately notify the appropriate departments and the Employer, Engineer and OVFM Project Coordination Unit.

Flood

The equivalent of an industrial accident in relation to this Contract can be considered to be the occurrence of high-water levels or the occurrence of flooding, within the riverbed. Before the commencement of the works, the Contractor will prepare an appropriate plan of proceedings in case of such events (*Flood Protection Plan for the construction site*) and obtain the Engineer's approval for its contents. This document will describe, among other things, the procedures to be followed in the event of such phenomena (see chapter 6.14). The condition related to the necessity to draw up such a document is included in item 86 in Appendix no. 1 to the EMP

Storms and hurricanes

The Contractor is responsible for ensuring safety in the area of Contract implementation. The procedure to be followed in case of extreme weather conditions will be included in the HASP prepared by the Contractor (see chapter 6.14.). The requirement for the Contractor to develop the HASP and obtain the Engineer's approval for its content is specified in item 85 of Appendix 1 to the EMP (14 - Requirements for ensuring human health and safety).

Leakage of petroleum substances

Another type of extraordinary hazard is the leakage of petroleum substances into water or soil. In order to reduce the risk of environmental pollution, appropriate preventive measures will be implemented relating, inter alia, to the appropriate organization and equipping of construction sites and facilities, equipping the sites of possible spills with appropriate sorbents and the

current monitoring of the condition of used construction equipment.
In the event of possible spillage of petroleum products, containment measures must be taken and removed immediately.
If contaminated soil layers are present, they must be managed in accordance with the applicable regulations. Mitigation measures to protect the soil and water environment are set out in Appendix no. 1 to the EMP (see chapter 6.4-6.5).

Findings of unexploded ordnance

The works will be carried out in the Odra valley, at selected locations of the river channel. Due to the fact that during World War II military operations were carried out in the vicinity of these areas, it is possible to find unexploded ordnance in the course of construction works, such as: fuses, missiles, aerial bombs, artillery and rifle cartridges, armor plating, grenades, all types of mines, explosive charges, scrap containing remnants of explosives and others.

The Employer did not inspect the work site for the presence of unexploded ordnance. In connection with the above, the Contractor is obliged to ensure, during the earthworks, the supervision of sappers (the Contractor's sapper supervision) consisting in current checking (above all before the works begin) and clearing the area of dangerous objects of military origin together with their disposal.

In case of finding unexploded ordnance during the works, the Contractor should immediately stop the work and evacuate the employees and notify the supervisor, the police, the Engineer, PIO (Employer) and PCU OVFMP.

it is strictly forbidden, before the arrival of the Contractor's sapper supervision or military demining patrol, to lift, dig up, bury, carry, throw into fire or water, etc. any discovered objects of potentially dangerous military origin.

The mitigation measures relating to the risks of unexploded ordnance and unexploded shells found are set out under the following headings in the table in Appendix no. 1 to the EMP: 89, 90 (14- Human health and safety requirements).

Fire

The Contractor is responsible for fire protection in the area of Contract implementation. The detailed procedure in case of fire will be included in the HASP prepared by the Contractor (see chapter 6.14.). The requirement for the Contractor to develop the HASP and obtain the Engineer's approval for its content is specified in item 82 of Appendix no. 1 to the EMP (14 - Requirements for ensuring human health and safety).

Epidemiological risk

If an epidemiological threat or epidemic emergency state is in force during the execution of works, the Contractor shall be obliged to act in accordance with legal requirements, in particular the Act of 5 December 2008 *on preventing and combating infections and infectious diseases in humans* (unified text: Journal of Laws of 2019, item 1239, as amended), all obligations resulting from the announcement of an epidemic or a state of emergency and relevant World Bank guidelines. The Contractor's actions should reduce the risk of spreading the infection both to the Contractor's staff as well as to the Employer and the Engineer and the local community. The guidelines for dealing with an epidemiological emergency or epidemic state are contained in item 112 (19 - Guidelines for dealing with the situation in the event of an epidemic or state of epidemic risk during the execution of works) in App. 1 to EMP.

Notwithstanding the above, in accordance with item 88 (14 - Requirements for the protection of human health and safety) the Contractor will implement an awareness-raising program on the spread of communicable diseases (e.g. COVID 19).

6.13. WASTE AND WASTEWATER

Mitigation measures for waste management are the following items in no. Appendix np. 1 to the EMP: 42 – 47 (09 – Requirements concerning handling waste).

The mitigation measures for waste water treatment are described in item 47 in Appendix no. 1 to the EMP (09 - Requirements concerning handling waste).

6.14. REQUIREMENTS FOR THE IMPLEMENTATION OF ACTION PLANS DURING THE CONSTRUCTION PHASE

In order to ensure the proper organization of the conduct of works, as well as the proper implementation of the conditions set out in Appendix 1 and 2 in the Environmental Management Plan, the Contractor is obliged to develop and obtain the Engineer's approval and then enforce the following documents as elements of **the Contractor's Environmental and Social Management Plan (C-ESMP)**:

- *Site organization plan*, which should include, inter alia, elements such as:
    - Location of the construction site facilities
    - Management of the construction site facilities
    - Safety of the construction site facilities
    - Technological roads, including mandatory planned temporary site occupations,
    - Environment protection within the site facilities.
- *The traffic organization plan for the duration of the works*, which should be compliant with:
    - technical specifications,
    - road managers' requirements for transport and conditions of use.
- *The waste management plan* should contain, inter alia, the following main elements and the detailed guidelines contained in Appendix no. 1 to the EMP:
    - Encountered and predicted kinds and volumes of waste,
    - Manners of preventing negative impact of the waste on environment,
    - Manners of waste management with taking into account collection, transportation, recover and treatment of waste,
    - Type of waste generated (inter alia, waste from construction, renovation and dismantling of buildings and road infrastructure - including soil from polluted areas, hazardous waste, municipal waste, waste containing asbestos) and the method of their storage and disposal.

- *Quality assurance plans* for particular categories of works and other activities of the Contractor (depending on the needs, including the Engineer's requirements), which should include, among others:
    - Information on the planned organization of the execution of a given category of works or activities;
    - Information on the conditions of implementation of a given category of works or activities included in the EMP;
    - Information on possible other ways of preventing the negative environmental impact of a given category of works.

- *Flood protection plan* for the construction site for the duration of the works, which should include such elements as, in particular:
    - Monitoring the hydrological and weather situation,
    - Conditions for allowing surge flows in the period of works performance,
    - The rules of work for the Contractor's team in the period of flood risk,
    - Basic duties of the members of the Company Flood Protection Team,
    - List of people having certain positions in the period of flood risk,
    - List of equipment and transportation means needed to conduct rescue actions,
    - Instructions for the proceedings during surges.
- *The plan for dealing with uncontrolled emissions* (*leakage*) *of petroleum products,* which should contain, inter alia, elements on how to deal with spillage of chemical and petroleum products, i.e.:
    - The mode of equipping with appropriate materials in relation to the anticipated hazards and substances,
    - Alarm and notification mode of individual services,
    - The procedure to limit spillage,
    - The procedure for dealing with sorbent materials.
- *ES Code of Conduct for Contractor Personnel* (Code of Conduct ensuring the implementation of measures to address environmental and social risks related to the implementation of the Contract, including the risks of sexual exploitation, sexual abuse and sexual harassment).
  The Contractor shall submit the ES Code of Conduct containing provisions defining the obligations of the Contractor selected as a result of the contract award procedure, in particular with respect to environmental protection, social, health and safety issues, in accordance with the template, after it has been signed (on each page) together with the bid. It therefore acknowledges the need to apply its requirements during each phase of the contract.
  The Code of Conduct forms part of the measures to address the environmental and social risks associated with the implementation of the Task, including the risks of sexual harassment and mobbing, as well as discrimination on the basis of gender. It applies to all personnel of the Contractor, workers and other employees in the area of Contract implementation. It also applies to the personnel of each Subcontractor and any other personnel assisting the Contractor in performing the Task.

- *ES Management Strategies and Implementation Plans* (management strategies and implementation plans for environmental, social, health and safety risks), which include elements such as:
    - description of actions taken to manage risks;
    - description of materials used, equipment, management processes, etc., which will be carried out by the Contractor and its subcontractors in order to minimize risks.

The Contractor is obliged to submit for Engineer's approval and then to implement the **Contractor's Environmental and Social Management Plan (C-ESMP),** in accordance with the Conditions of the Contract, Sub-Clause 4.1 SC, containing, among others, the agreed Management Strategies and ES Implementation Plans, the Contractor's Code of Conduct for Contractor's Personnel (ES) and the Environmental Management Plan (EMP) will constitute a binding part of C-ESMP. The Contractor shall not be entitled to modify the provisions and conditions laid down in the EMP. The Contractor shall review the C-ESMP plan periodically and update it in accordance with the requirements of the Contract to ensure that it includes actions suitable for the Works. The updated C-ESMP is submitted to the Engineer for control. The procedures for reviewing the C-ESMP and updating it are as described in Subclause 4.4.1 SC.

- *The Health and Safety Plan* (HASP)**,** which should include, inter alia, the following elements:
    - Indication of the elements of plot or area management that may create risk for people's safety and health;
    - Information on anticipated threats occurring during the execution of construction works, specifying the scale and types of threats and the place and time of their occurrence, including those to the environment;
    - Information on the separation and marking of the construction site according to the type of hazard;
    - Information on how to instruct employees before carrying out particularly dangerous works;
    - Determining how to store and move dangerous materials, articles, substances and preparations on the site;
    - Indication of technical and organizational measures to prevent dangers resulting from the performance of construction works in areas of special health hazards or in their adjacency, including those ensuring safe and efficient communication, enabling rapid evacuation in the event of fire, breakdown and other hazards;
    - Indication of the place where construction documentation and documents necessary for proper operation of machines and other technical devices are stored.
    - Information on solving problems related to COVID-19 (attention should also be paid to the other information on carrying out work in pandemic conditions, specified in the App. 1 and 2 to EMP).

The Contractor, when preparing the aforementioned documents, shall take into account relevant operational policies of the World Bank concerning health, environment and safety rules, including ES Guidelines[1]. These documents must be approved by the Engineer before implementation, who then also monitors their correct enforcement.

[1] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

The Contractor will also conduct training on the principles and conditions of EMP implementation for the Contractor's managerial and engineering staff, as well as regular training of Employees in the field of occupational health and safety, raising awareness in the field of combating sexual harassment and mobbing.

When preparing the aforementioned documents, the Contractor shall take into account relevant operational policies of the World Bank concerning health, environment and safety rules. These documents must be approved by the Engineer before implementation, who then also monitors their correct enforcement. The requirement to develop and obtain acceptance of the contents of the above-mentioned documents was indicated in items 83 in Appendix 1 to the EMP.

6.15. DETAILED REQUIREMENTS FOR ES WORLD BANK POLICIES (ENVIRONMENTAL AND SOCIAL ASPECTS, INCLUDING RISKS OF SEXUAL EXPLOITATION, SEXUAL ABUSE AND SEXUAL HARASSMENT)

The implementation of the Contract is related to the need to meet a number of ES requirements (environmental, social, health and safety aspects), which are regulated by national regulations governing environmental protection, health and safety at work and labor law. The institutions and bodies of the state supervise their observance. In particular, as regards compliance with occupational health and safety regulations and labor law, the state health and labor inspection authorities are authorized to control entrepreneurs' activities, including on construction sites. However, given the high priority given by the World Bank to ES requirements, the conditions of the contracts co-financed by the World Bank loan impose obligations to ensure the implementation of existing legislation. Special attention is given to issues such as:

- Protection of juveniles employed for the execution of the Contract.
- Eliminate inappropriate forms of behavior of persons employed under the Contract (including sexual harassment and mobbing).
- Ensure the safety and health protection of the persons employed in the performance of the Contract, including the provision of health and safety services required by law.
- Ensure proper social and employment conditions for employees employed in the performance of the Contract (including fair pay conditions).

A list of issues in the form of requirements for the Contractor related to the WB's ES policies is presented below. It should be emphasized that the ES requirements and conditions specified for the Contractor and its employees also apply to the Contractor's Subcontractors and their employees or Subcontractors.

- The Contractor shall conduct training and implement an awareness-raising program to combat sexual harassment and mobbing. These activities will be carried out during the entire term of the Contract including the period of reporting defects at least every second month. These will take the form of information, education and awareness-raising campaigns.
- The Contractor shall inform the Consultant immediately of all reported cases and suspicions of sexual harassment and mobbing.
- The Contractor will inform all persons employed on the construction site about the possibility of lodging complaints about working and pay conditions and will deliver an information leaflet with the necessary information about lodging complaints and requests, in which it will ensure that there are no repercussions for the person lodging the problem. The content of the leaflet will be agreed with the Consultant.

- The Contractor shall inform the Consultant about all accidents involving employees and third parties in accordance with the procedure provided by the Consultant. In the event of an accident, the Contractor shall take all actions that they are obliged to take under applicable laws, such as the Construction Law and the Labor Code.
- The Contractor shall ensure equal pay for employees performing the same work without taking into account gender, sexual orientation or age, and the Contractor shall not persecute or discriminate against persons employed under the Contract on the basis of gender, sexual orientation and age.
- The Contractor, in accordance with the possibilities and conditions and the Polish provisions of the Labor Code, satisfies the living and social needs of employees in the workplace.
- The Contractor is obliged to facilitate the improvement of professional qualifications of employees.
- The Contractor may employ only such a juvenile employee who is at least 15 years old, has completed at least eight years of primary school and has presented a medical certificate stating that the work of a given type does not threaten their health.
- The Contractor will employ a health and safety specialist with qualifications and professional experience in accordance with Polish labor law.

In view of the above, the table of mitigation measures in App. 1 to the EMP items 105 - 113 (18 - Detailed requirements of World Bank's ES policies) contains detailed conditions binding on the Contractor, covered by the monitoring and reporting obligation during the Task implementation period. It should be stressed, however, that the Contractor is obliged to apply and observe all provisions of the Labor Code and will act in accordance with the ES Code of Conduct.

6.16. REQUIREMENTS RELATED TO THE IMPLEMENTATION OF NATURE COMPENSATION

In accordance with the conditions included in the environmental decisions issued for the Contract, the implementation of the Task does not require the execution of compensation measures. The following restoration activities are introduced in App. 1 to the EMP:

- 117 (20 – Detailed requirements – Międzylesie Facility),
- 121, 122, 123 (21 – Detailed requirements – Długopole - Zdrój Facility),
- 128, 129 (22 – Detailed requirements – Bystrzyca Kłodzka Facility),
- 136, 137, 138, 139 (23 – Detailed requirements – Kłodzko Facility).

7. DESCRIPTION OF MONITORING MEASURES

7.1. ENVIRONMENTAL MONITORING DURING THE PERIOD OF CONDUCTING THE WORKS

Appendix No. 2 to the EMP provides a set of monitoring measures applicable to the Contractor. These activities were formulated on the basis of the conditions contained in the environmental decisions issued for the Contract, with the addition of additional conditions established at the stage of EMP preparation.

The monitoring measures listed in Appendix no. 2 to the EMP belong to three categories:

- monitoring for implementation of mitigation measures from Appendix 1 to the EMP;
- monitoring of the compensatory measures indicated in chapter 6.16 specified in the decisions on environmental conditions:
  - 116 (20 – Detailed requirements – Międzylesie Facility),
  - 119-121 (21 – Detailed requirements – Długopole - Zdrój Facility),
  - 126-127 (22 – Detailed requirements – Bystrzyca Kłodzka Facility),
  - 135-138 (23 – Detailed requirements – Kłodzko Facility);
- monitoring indicated in the decisions on environmental conditions (presented in chapter 7.2).

7.2. ENVIRONMENTAL MONITORING DURING OPERATION

The following monitoring measures were introduced in Appendix no. 2 to the EMP, indicated in the environmental decisions for the individual Facilities:

- 118, 119, 120, 121, 122 (20 – Detailed requirements – Międzylesie Facility),
- 129, 130, 131, 132, 133 (21 – Detailed requirements – Długopole - Zdrój Facility),
- 139, 140, 141, 142, 143 (22 – Detailed requirements – Bystrzyca Kłodzka Facility),
- 154, 155, 156, 157, 158 (23 – Detailed requirements – Kłodzko Facility).

8. PUBLIC CONSULTATION

8.1. PUBLIC CONSULTATION OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK PLAN FOR OVFMP (2015)

The draft document entitled the Environmental and Social Management Framework Plan (ESMF) for the OVFM Project (including Component 1, which includes, inter alia, this Task) was subject to a public consultation procedure, conducted in accordance with the World Bank's operational policy OP 4.01. The purpose of the consultation was to allow the community to familiarize itself with the contents of the document and to assure the possibility of filing potential remarks, enquiries, and applications to its contents. Documentation of the public consultation process of the above-mentioned document is available at the website of the Project Coordination Unit of the Odra-Vistula Flood Management Project [1].

Public consultations were also conducted in the area of Międzylesie, Długopole - Zdrój, Bystrzyca Kłodzka and Kłodzko in November-December 2019 (as well as in the remaining 5 localities where works in Sub-component 2B are planned to be carried out), which primarily concerned the scope of the planned works. The consultations took the form of direct meetings with inhabitants, representatives of the local government and all other persons and entities interested in OVFM Project in the Kłodzko Land. The meetings were of open nature, materials presenting the scope of works (technical concept development stage) were provided in advance to the interested parties.

Participants of consultation meetings in the vast majority evaluated the scope and form of the meetings' organization positively. They expressed the positive opinion for the opportunity to review the technical concept prior to the meeting and to make comments and discuss specific solutions at the meeting. Questions were asked, comments made, and feedback provided on a regular basis. Some applications were submitted by letter or electronically. Residents and representatives of local governments made a number of contributions to the planned activities. The majority of postulates, falling within the territorial and material scope of the project, and not conflicting with the technical, environmental, architectural or ownership requirements, were analyzed by the designers and taken into account in further works. In many cases, the works planned for implementation meet the expectations of the local authorities in terms of opening up the cities towards the rivers, while at the same time applying environmentally friendly technical solutions and architectural monuments. The majority of meeting participants expressed their satisfaction with the fact that the Polish Waters commenced concrete investment activities in the field of flood safety improvement in the Kłodzko Land. It was also highlighted that the planned works are inadequate and mainly include water and water facility maintenance works. The inhabitants of the Kłodzko Land expect that the promises and further actions on non-urbanized areas and other tributaries of the Nysa Kłodzka River are fulfilled, at the same time expressing their will to participate in further talks and consultations.

[1] http://www.odrapcu.pl/popdow_dokumenty_RPZSiSS.html.

8.2. PUBLIC CONSULTATION AT THE STAGE OF ENVIRONMENTAL PROCEDURES OF THE TASK (2020)

Consultations with the public were carried out under the responsibility of the body conducting the procedure for issuing decisions on environmental conditions, i.e. the Regional Director for Environmental Protection in Wrocław.

In accordance with Article 79 of the EIA act, before issuing environmental decisions, the Regional Director for Environmental Protection in Wrocław provided the opportunity for public participation in the proceedings as part of the environmental impact assessment.

By the announcement of 23 March 2020, ref. no.: WOOŚ.420.10.2020.AP.3; WOOŚ.420.17.2020.AP; WOOŚ.420.18.2020.AP; WOOŚ.420.20.2020.AP, the Regional Director for Environmental Protection in Wrocław has informed the parties to the proceedings, among others: on initiating the administrative procedure on issuance of the decision on environmental conditions for the above-mentioned investments, the authorities competent to issue the decision and about the possibility to familiarize oneself with the case files and submit comments and applications at each stage of the procedure.

Interested parties were given the opportunity to view the full file of the case:

- from 25 September 2020 to 26 October 2020 (inclusive) - *Długopole Zdrój Facility,*

- from 14 September 2020 to 13 October 2020 (inclusive) - *Międzylesie Facility,*

- from 28 September 2020 to 27 October 2020 (inclusive) - *Bystrzyca Kłodzka Facility,*

- from 28 September 2020 to 27 October 2020 (inclusive) - *Kłodzko Facility,*

and submit motions and proposals on the planned investment through various means of communication.

The above-mentioned announcement was also made public by means of a notice board at the headquarters of the Regional Directorate for Environmental Protection in Wrocław and published at the website of the BIP of the Regional Directorate for Environmental Protection in Wrocław (rdos.wroclaw.gov.pl) and the BIP of the Bystrzyca Kłodzka Town and Commune Office, the BIP of the Międzylesie Town and Commune Office, the BIP of the Kłodzko Commune Office and the BIP of the Kłodzko Town Office.

The announcements were also made available at the place of investment implementation, i.e.:

- for the *Długopole – Zdrój Facility*: on the notice boards of the Bystrzyca Kłodzka Town and Commune Office and on the notice board located in Długopole Dolne, near the Nysa Kłodzka riverbed, on the notice board at Wolna Street in the town of Długopole-Zdrój near the Nysa Kłodzka riverbed, on the notice board at Zdrojowa Street in the town of Długopole-Zdrój near the Nysa Kłodzka riverbed and on the notice board at the crossing of Wolna Street and Zdrojowa Street in the town of Długopole-Zdrój near the Nysa Kłodzka riverbed,

- for the *Międzylesie Facility*: on the information board located at Rynek Street in the town of Miedzylesie, on the information board located at the Miedzylesie Town and Commune Office, near the bridge located on the Nysa Kłodzka River within Tysiąclecia Państwa Polskiego Street in Miedzylesie and near the bridge located on the Nysa Kłodzka River, within the Smreczyna registration area near the address Smreczyna 24;

- for the *Bystrzyca Kłodzka Facility*: on the notice board of the Bystrzyca Kłodzka Town and Commune Office, near the bridge over the Nysa Kłodzka between the national road no. 33 and

the town of Zabłocie within the Stary Waliszów registration area, near the building on Plac Szpitalny Street in the vicinity of the Bystrzyca stream bed and near the bridge over the Nysa Kłodzka River at Unii Lubelskiej Street;

- for the *Kłodzko Facility*: on the notice boards of the Kłodzko Commune Office and on the notice boards of the Kłodzko Town Office, near the Water Supervision Building of the State Water Holding Polish Waters in Kłodzko at 1 Kościuszki Street, near the footbridge over the Nysa Kłodzka riverbed at J. Słowackiego Street and near the bridge at the estuary of the Biała Lądecka River to the Nysa Kłodzka River within the Krosnowice registration area.

No comments or motions were made in the pending proceedings within the time limit set.

On 23 October 2020, the Regional Director for Environmental Protection issued the decision on environmental conditions for the *Międzylesie Facility* (ref.: WOOŚ.420.17.2020.AP.17) on 13 November 2020 for the *Bystrzyca Kłodzka Facility* (ref.: WOOŚ.420.18.2020.AP.17) and on 19 November 2020 for the *Długopole - Zdrój Facility* (ref.: WOOŚ.420.10.2020.AP.22) and the *Kłodzko Facility* (ref.: WOOŚ.420.20.2020.AP.17).

These decisions were been made public by means of a notice in a manner similar to that of the notice of initiation of the public participation procedure.

No comments or proposals were submitted in the course of public consultations by the community representatives. There were also no persons or entities that requested to participate in the proceedings on the rights of parties.

8.3. PUBLIC CONSULTATIONS FOR THE ENVIRONMENTAL MANAGEMENT PLAN (2021)

The draft document was subject to the public consultation procedure carried out in compliance with the World Bank's operational policies (*OP 4.01*.)

After the draft of an EMP document has been prepared, its electronic version is posted on publicly available websites and the paper version is provided for viewing by interested parties. Detailed information on the possibility of familiarizing oneself with this document and the possibility of submitting motions and comments (including contact details: e-mail address, addresses of places where the draft document may be consulted, office hours, telephone numbers) is made available publicly in the announcement published in local press and on the website of the Contract implementation entity being the subject of the EMP.

In view of the current situation of the COVID-19 epidemic, the action plan for the publication of the Environmental Management Plan takes into account the World Bank's Technical Note "Public Consultation and Stakeholder Engagement in World Bank Supported Activities, in the event of restrictions on public meetings".

The meeting organized so far in the framework of making the document public in the form of an open debate will be replaced by a webinar organized, i.e. a type of an online seminar conducted and implemented using webcast technology, which enables two-way communication between the meeting leader and participants, using virtual tools. The meeting will be organized through Microsoft Teams application. This program allows you to organize and conduct a webinar, with the possibility of sharing, among other things, a presentation or a screen view, as well as switching between several speakers and asking questions by participants in a chat (only

in writing) and answering them by the speakers. Participants are only required to have access to the Internet and a web browser - no other program is required to install on their computer to join the webinar.

In connection with the above, the announcement about the publication of the EMP document will contain information about the date and time of the start of the webinar together with a hint that a link will be made available on the Investor's website to join the webinar.

In order to allow questions to be asked during the period of EMP publication, a helpline will be launched. The information about the helpline will also be included in the announcement about the publication of the EMP.

Comments from the public that need to be taken into account are entered into the EMP document and prepared in the final version. The EMP in this form is also sent to the World Bank for award of an acceptance clause, the so-called "no objection".

9. ORGANIZATIONAL STRUCTURE OF EMP IMPLEMENTATION

The Contract which is the subject of the present EMP is implemented within the framework of the Odra-Vistula Flood Management (see chapter 1), co-financed by the World Bank, the Council of Europe Development Bank (CEB), the Cohesion Fund and the state budget. In relation to the above, the structure of supervision over the implementation of the EMP must comply with both Polish law and the requirements of the World Bank.

9.1. PROJECT COORDINATION UNIT OF THE ODRA-VISTULA FLOOD MANAGEMENT PROJECT (PCU OVFMP)

- The overall coordination of the implementation of the individual EMPs within the OVFM Project is the responsibility of the Project Coordination Unit (PCU), which functions as an organizational unit within the structures of the National Water Management Authority (KZGW), which is an organizational unit of the State Water Management Polish Waters. The scope tasks of PCU OVFMP include, among others:
    - Management of tasks of Project Implementation Offices (PIO) and Project Implementation Units (PIU), within the scope of tasks included in the Projects,
    - Technical assistance and support to the PIOs and PIUs in the implementation of the tasks of the Projects, including the application of World Bank procedures on procurement, environmental protection and social issues,
    - Preparation of annual work programs for the Projects and evaluation of their progress,
    - Supervise the work of the Projects and evaluate their progress,
    - Regular control and monitoring of funds allocated for the implementation of the Projects and participation in the management of funds of the Projects,
    - Reporting, including preparation and submission of quarterly reports on the implementation of the Projects to the World Bank, the CEB and the Steering Committee.

9.2. PROJECT IMPLEMENTATION UNIT (PIU) AND PROJECT IMPLEMENTATION OFFICE (PIO)

The entity directly responsible for the implementation of the EMP to the Contract and monitoring the progress of its implementation will be the Project Implementation Unit (PIU), i.e. State Water Holding Polish Waters Regional Water Management Authority in Wrocław.

In connection with the implementation of the OVFM Project in the PIU structure, the Project Implementation Unit (PIO) was separated, which is a separate organizational unit and is supervised by the President of the State Water Holding Polish Waters. Such a structure is transparent and has a very high decision-making level, which increases the effectiveness of Project implementation. As part of the supervision over the implementation of the EMP, the PIO performs the following tasks:

1) monitoring the progress of the implementation of the EMP;
2) financial management and accounting;
3) drawing up the necessary reports for monitoring and coordinating the implementation of the EMP by all services involved in the implementation of the EMP;

The scope of duties of PIO employees related to supervising the implementation of the EMP is as follows:

- managing, coordinating and supervising the implementation of the EMP by the Consultant and the Contractor;
- direct supervision over the correct implementation of the Contract;
- cooperation with PCU;
- exercising administrative and legal supervision over the implementation of the EMP;
- verification of the Reports and reporting on the implementation of the EMP prepared by the Consultant and the Contractor;
- exercising financial supervision over the implementation of the EMP;
- supervision over the correctness of the application of formal procedures in the implementation of the EMP, resulting from, among others, the requirements of the Contract, *Construction Law Act, Environmental Protection Act* and other relevant administrative decisions and legal acts.

The PIO employs appropriate specialists responsible for the implementation of EMP and other ESHS issues. The structure of this team may be as follows:

- Head of the Environmental and Property Team,
- Chief Specialist
- Senior Specialists.

In the organizational structure of the PIO, there are also appointed positions of specialists for technical public procurement, legal, financial, property and resettlement and international cooperation.

9.3. CONSULTANT/ENGINEER

The role of the Consultant/Engineer is to support PIU (SWH PW RZGW in Wrocław) in the effective execution of the entire investment process - from preparation of the investment to its settlement.

The Consultant/Engineer was selected using the QCBS method (Selection based on quality and price), in accordance with the *"Guidelines for the Selection and Employment of Consultants by World Bank Borrowers"*.

In accordance with the planned structure of the Engineer - Technical Assistance Consultant team, at the stage of works implementation, the Engineer's Team (supervision inspectors in cooperation with the environmental team, coordinated by the Key Environmental Expert, real estate team) will supervise the proper performance of construction works and the observance and implementation of the EMP and ESHS provisions. In the Engineer's Team, implementation activities are coordinated by the Key Environmental Expert and additional environmental management expert staff (1- 2 people). In accordance with the scope of activities specified in the Technical Assistance Consultant Contract, the Engineer-Consultant will be obliged to ensure that the team composition is such that it can properly supervise the implementation of the EMP through, in particular:

- monitoring the implementation of the EMP;
- monitoring the activities of the Contractor;
- checking the quality of construction works performed by the Contractor and built-in construction products, and in particular preventing the use of defective construction products and those not approved for use in construction;

- representing the Investor on the construction site by controlling the compliance of its execution with the design and the implementation permit, environmental protection regulations and technical knowledge rules;
- supervising all environmental issues through environmental specialists and other Engineer personnel;
- continuous monitoring of the correct implementation of measures to mitigate negative environmental impacts;
- carrying out additional tests when it is necessary to verify the Contractor's reports;
- identifying problems resulting from the harmful environmental impact of construction works and presenting proposals to solve these problems;
- checking and acceptance of construction works that are covered or disappearing, as well as preparation and participation in the acceptance activities of finished building structures and their handing over for use;
- confirmation of the actually performed works and removal of defects, and, at the request of the Investor, control of construction settlements.

Social issues will be monitored during the execution stage by the Consultant's property team, coordinated by the key property expert, who will work closely with the team of construction supervision inspectors.

In accordance with item 101 of App. to the EMP, the implementation of the EMP will be discussed at periodic (monthly) working meetings and at Site Councils. Meetings will be held monthly with the participation of representatives of the teams of the PIO, PCU OVFMP, Engineer and Contractor in order to discuss and control the implementation of mitigation and monitoring measures.

Minutes from the meetings on the implementation of the EMP will be prepared by an environmental expert in the Engineer's Team. The minutes will be submitted to the PIO and the Contractor and will constitute an appendix to the Engineer's monthly report on the implementation of the activities specified in the EMP. Regardless of the above, the current requirements and problems related to EMP enforcement will be discussed during Construction Site Meetings.

9.4. CONTRACTOR

- In order to carry out the construction works, a Contractor will be selected who will be responsible for the implementation of the EMP and other ES issues. The Contractor's obligations in this respect include:

- conducting construction works in accordance with the rules laid down in the EMP, contract terms and project documentation, in accordance with applicable laws and requirements of administrative decisions issued for the Task;

- implementation of the Engineer's recommendations (including specialists in environmental supervision and the investor's supervision inspector) concerning the implementation of the EMP;

- ensuring that a HASP, a Waste Management Plan, a Quality Assurance Plan, a Flood Protection Plan for the construction site for the duration of the works and a Site

Organization Plan are prepared before the construction starts (as elements of the Construction Environmental and Social Management Plan - C-ESMP);

- submitting for the Contract Engineer's approval the ES Code of Conduct and ES Management Strategy and Implementation Plans described in the bidding documentation, developed at the bidding stage, and to verify these documents as a result of the Engineer's periodic recommendations;
- maintaining construction documentation;
- preparing the monthly reports and review reports;
- preparing environmental reports;
- applying to the Investor for changes in the design solutions, if it is justified by the need to increase the safety of the construction works or to improve the construction process as far as the implementation of the EMP is concerned.

The Contractor's team will appoint an EMP Coordinator, a person to coordinate and supervise the activities related to the implementation of the EMP. Throughout the whole Contract implementation period, the Contractor shall ensure the participation of environmental experts, as required. The work of the team of experts will be coordinated by the Contractor’s EMP Coordinator.

A Health and Safety Specialist will also be appointed in the Contractor's Team, available throughout the Contract period, who is also responsible for the implementation of other ES issues not included in the EMP. The Contractor will designate a person to whom complaints of mobbing, discrimination and mistreatment can be lodged.

10. SCHEDULE FOR THE IMPLEMENTATION OF EMP AND REPORTING PROCEDURES

The implementation of the EMP allows the parties involved in the preparation, implementation and supervision of the Contract for:

- identification of the various environmental aspects that have a significant impact on the state of the environment, so that they can be controlled, corrected, reduced, but thus have an economic impact;
- correction of unfavorable consequences of works in progress for the benefit of the environment and financial results;
- defining the objectives and tasks to be implemented within the framework of the adopted environmental policy, covered by the EMP, which require investment and bring measurable effects;
- identification and elimination of potential hazards and breakdowns, prevention and removal of environmental effects that may be associated with them and entail disproportionate in relation to costs preventive losses;
- rational use of nature's goods, with minimal environmental losses and optimal cost generation.

Moreover, the implementation of recommendations and actions resulting from the EMP may reduce or even eliminate the risk in the Contract, in particular:

- the risks of omitting environmental protection issues in the process of Task implementation by the Contractor;
- risk of escalation of protests of the local society as a result of the Contractor's failure to comply with the Engineer-approved works technologies and environmental procedures;
- the risk of additional environmental penalties;
- the risk of incurring additional environmental damage.

Bearing in mind the gravity of the issues determining environmental and social conditions, the following procedures for the implementation of the EMP are envisaged:

- before selecting the Contractor, the Employer shall submit a draft EMP to the World Bank for opinion and acceptance for starting public consultations;
- the EMP will then be subject to public consultations;
- the public consultations will be followed by the completion of the EMP and the final version will be submitted to the World Bank for approval;
- after the approval of the EMP by the World Bank, the final document will be included in the bidding documentation for the selection of the Contractor;
- All activities of the Contractor shall be reported at regular intervals (monthly), in paper and electronic form, with regard to the obligations arising from the EMP and other contract documents. These reports will be subject to approval by the Engineer.

Environmental monitoring in terms of impact of the Contract on the environment consists, among others, of:

1. Control of the performance of construction works related to the Task execution under the supervision of a team of environmental experts appointed by the Contractor for the Contract execution period.,

2. The team of the Contractor's environmental experts carries out activities including, in particular:
   - review and ongoing inspection of the area covered by the construction and hydrotechnical works prior to their commencement, as well as inspections during construction and during the Defects Notification Period, together with the preparation of appropriate reports, which are the documentation for the proper performance of environmental supervision and, at the same time, information on the proper implementation of mitigation measures,
   - formulating and submitting to the Engineer conclusions on the need to undertake mitigation measures (including their implementation) necessary to mitigate the adverse effects of the Task on natural habitats and species and species subject to legal (species) protection, unforeseeable and/or not revealing at the stage of establishing the conditions for the implementation of the Task in question within the framework of the procedure aimed at issuing a decision on environmental conditions. The measures may be implemented only after the Engineer's approval,
   - obtaining, if necessary, the needed permits to derogate from the prohibitions on the protection of species of plants, fungi or animals in accordance with the principles and procedures laid down in the Act on Nature Conservation,
   - conducting reporting in the form of periodic reports (not less frequently than every month).

3. The Contractor will appoint the following specialists: phytosociologist, dendrologist, entomologist, ichthyologist, herpetologist, ornithologist, mammalogist, chiropterologist. The above-mentioned specialists must have proven experience in this field, at least 3 projects corresponding to the scope of the activities planned under the Contract, i.e. performing natural supervision of the investment (practical experience in carrying out environmental inventories performed as part of preparing environmental impact assessment reports for linear infrastructure projects in the road, network or hydrotechnical sectors, or experience in preparing such reports directly, will also be considered as alternative and acceptable for the case) and have an environmental or related education. One member of the Contractor's natural team may represent a maximum of two of the above-mentioned natural specializations.

At the stage of works execution, it is planned that the Contractor will prepare collective reports on environmental monitoring, confirmed by specialists from the Contractor's team of environmental experts, approved by the Engineer's environmental supervision. The detailed scope of the report will be determined by the Engineer (start report, periodical - monthly, quarterly, special, final), they will also determine the dates of their execution. During the period of execution of the works and possibly in the Defects Notification Period, monitoring will be carried out by the Contractor.

According to the provisions of the decision on environmental conditions, the results should be submitted to the RDOŚ within one month from the end of the given monitoring stage in the given year from each stage (year) of the conducted monitoring.

The Contractor will prepare a monitoring report and submit it to the Employer. After the Defects Notification Period, if necessary, the monitoring will be taken over by the Employer and will be carried out by the end of the monitoring period set out in the EMP.

The Contract reporting system will be based on monthly reports submitted by the Contractor to PIO via the Engineer and monthly reports by the Engineer. As part of monthly reports or as a separate document, monthly reports on EMP implementation (of the Contractor and Engineer) will also be prepared. On this basis, collective quarterly reports will also be prepared.

The PIU will submit quarterly reports to PCU in the part concerning the tasks to be performed. They will contain the required set of information and descriptions to enable the preparation of the Project quarterly report by PCU. Moreover, especially in case of problems with the implementation of the Task, the PCU will expect the PIO to provide statements and data on a monthly basis.

The following reporting procedures have been established:

1) Reporting:
    a) reports (start, monthly, quarterly, final) prepared by the Contractor,
    b) submission of reports required by administrative decisions (implementation of the derogation decision concerning protected plant and animal species) to the Engineer,
    c) review and verification of reports by the Engineer,
    d) submitting the approved report from points a), b) and c) to the Employer (for information),
    e) submitting the quarterly report of PIU to PCU.
2) Archiving:
    a) Contractor: 1 copy of each report in electronic form for 5 years from the date of completion of the Contract,
    b) Engineer: 1 copy of each report in electronic form for 5 years from the date of completion of the Contract,
    c) Employer: 1 copy of each report in electronic form for 5 years from the date of completion of the Contract.
3) Evaluation - current assessment of the results of the implementation of the planned actions resulting from the EMP. The current analysis of the documentation (Contractor's Reports) by the Engineer. Providing the Employer with reliable information on the course of the construction process with particular emphasis on the implementation of measures to reduce the negative impact on the environment and recommendations resulting from the environmental decision.

PCU also prepares reports to the World Bank on a quarterly basis.

The following is planned:

- *ex-ante* evaluation: Report before the start of the Contract (Engineer's Report),
- current evaluation: Engineer’s quarterly reports,
- *ex-post* evaluation:
    - ✓ Report after the completion of the Contract execution (Final Report on EMP drawn up by the Contractor and the Engineer),
    - ✓ Report on EMP after the defects notification period, prepared by the Engineer.

11. LIST OF SOURCE MATERIALS

1) The Project Data Sheet for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility" prepared in March 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

2) The Project Data Sheet for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Długopole – Zdrój Facility" prepared in February 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

3) The Project Data Sheet for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility" prepared in March 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

4) The Project Data Sheet for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Kłodzko Facility" prepared in March 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

5) The environmental assessment report for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility" prepared in July 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

6) The environmental assessment report for the project titled: "Task 2B.21/1 Flood Protection of the Nysa Kłodzka Valley - Długopole – Zdrój Facility" prepared in August 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

7) The environmental assessment report for the project titled: "Task 2B.21/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility" prepared in August 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

8) The environmental assessment report for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Kłodzko Facility" prepared in August 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski;

9) Decision on environmental conditions ref.: WOOŚ.420.17.2020.AP.17 of 23 October 2020, issued by the Regional Director for Environmental Protection in Wrocław for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility;

10) Decision on environmental conditions ref.: WOOŚ.420.10.2020.AP.22 of 19 November 2020, issued by the Regional Director for Environmental Protection in Wrocław for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Długopole-Zdrój Facility".

11) Decision on environmental conditions ref.: WOOŚ.420.18.2020.AP.17 of 13 November 2020, issued by the Regional Director for Environmental Protection in Wrocław for the

project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility;

12) Decision on environmental conditions ref.: WOOŚ.420.20.2020.AP.17 of 19 November 2020, issued by the Regional Director for Environmental Protection in Wrocław for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Kłodzko Facility;
13) SDF for the Natura 2000 site Bystrzyca Łomnicka Valley PLH020083;
14) SDF for the Natura 2000 site Sztolnia w Młotach PLH020070;
15) SDF for the Natura 2000 site Krowiarki Range PLH020019;
16) SDF for the Natura 2000 site Nysa Kłodzka Gorge near Morzyszów PLH020043;
17) SDF for the Natura 2000 site Bialskie Mountains and the Śnieżnik Group PLH020016;
18) SDF for the Natura 2000 site Dzika Orlica PLH020061;
19) By the order of the Regional Director for Environmental Protection in Wrocław of 29 September 2014 on the establishment of a plan of protection tasks for the Natura 2000 site Krowiarki Range PLH020019 (Journal of Laws of Lower Silesia Voivodship of 2014 item 4025);
20) By the order of the Regional Director for Environmental Protection in Wrocław of 24 December 2014 on the establishment of a plan of protection tasks for the Natura 2000 site Bialskie Mountains and the Śnieżnik Group PLH020016 (Journal of Laws of Lower Silesia Voivodship of 2014 item 5459);
21) By the order of the Regional Director for Environmental Protection in Wrocław of 9 May 2014 on the establishment of a plan of protection tasks for the Natura 2000 site Dzika Orlica PLH020016 (Journal of Laws of Lower Silesia Voivodship of 2014 item 2342); changed by the order of RDOŚ in Wrocław of 31 October 2018 (Journal of Laws of Lower Silesia Voivodship of 2018 item 5439);
22) Smoczyk M. 2017. Results of the nature inventory. Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley. Sweco.

12. LIST OF APPENDICES

Appendix 1. Plan of mitigation measures.

Appendix 2. Plan of monitoring measures.

Appendix 3. Summary of national environmental legislation.

Appendix 4. Copies of administrative decisions

4a Copy of Decision on environmental conditions ref.: WOOŚ.420.17.2020.AP.17 of 23 October 2020, issued by the Regional Director for Environmental Protection in Wrocław for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Międzylesie Facility";

4b Copy of Decision on environmental conditions ref.: WOOŚ.420.10.2020.AP.22 of 19 November 2020, issued by the Regional Director for Environmental Protection in Wrocław for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley – Długopole-Zdrój Facility".

4c Copy of Decision on environmental conditions ref.: WOOŚ.420.18.2020.AP.17 of 13 November 2020, issued by the Regional Director for Environmental Protection in Wrocław for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Bystrzyca Kłodzka Facility";

4c Copy of Decision on environmental conditions ref.: WOOŚ.420.20.2020.AP.17 of 19 November 2020, issued by the Regional Director for Environmental Protection in Wrocław for the project titled: "Task 2B.1/1 Flood Protection of the Nysa Kłodzka Valley - Kłodzko Facility";

Appendix 5. Map of the location of the Contract against the background of protected areas.

Appendix 6. Map of location of main elements of the Contract.