

Appendix 1. Plan of Mitigation Measures

Appendix 1 to the Environmental Management Plan (EMP) for Works Contract 3A.2/4 *Flood protection in Serafa Valley – Serafa 2 reservoir*

describes conditions for implementation of the aforementioned Contract in reference to measures mitigating adverse impact on the environment.

The costs and the schedule of implementation of those measures shall be included in the bid. Conditions described in this document in reference to the Contractor and its personnel (regardless of the legal form of cooperation) are also binding in the range referring to the current situation, subcontractors of the Contract and their personnel and subcontractors.

Conditions described in Appendix 1 to the EMP are grouped in the following categories:

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Clarifications to the table given in Appendix 1 to the EMP:

- 1) if not stated otherwise, the term “construction site” applied in this appendix shall be understood in accordance with a definition given in the Construction Law, i.e. as a space, where the construction works are performed, including a space taken by devices of the site facilities.
- 2) if not stated otherwise, the term *Contract Area* applied in this appendix refers to the area of any preparatory works, essential works (including Fixed Works and Temporary Works), and any other work associated with the removal of faults and defects, or performance of unfinished works – as listed in the Taking-Over Certificate or identified in the Defects, Guarantee, and Warranty Notification Period - including areas of necessary temporary acquisition.
- 3) if not stated otherwise, the term *Contract Implementation Period* applied in this appendix refers to the time of performance of any preparatory works, essential works (including Fixed Works and Temporary Works), and any other work associated with the removal of faults and defects, or performance of unfinished works – as listed in the Taking-Over Certificate or identified in the Defects, Guarantee, and Warranty Notification Period.
- 4) in the column “ED item” the following symbols were applied:
 - * – means item in the decision of the Regional Director for Environmental Protection in Cracow dated October 29, 2012 (ref. no.: OO.4233.13.2012.BM – Appendix 4a to this EMP) on environmental conditions;
 - ** – means item in the decision of the Regional Director for Environmental Protection in Cracow dated September 18, 2020 (ref. no.: OO.420.4.3.2019.BM – Appendix 4h to this EMP) amending the decision on environmental conditions dated October 29, 2012.

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Item	ED item	Issue	Site	Mitigation Measure	Unit
A. REQUIREMENTS ON THE SCHEDULE OF WORKS AND IMPLEMENTATION OF THE EMP					
1.	–	Schedule of Works	Contract Area	<p>EMP conditions on the time of works and on implementation of selected measures associated with the EMP implementation</p> <p>When setting work schedules and at the stage of their implementation, the EMP conditions regarding the dates and time of conducting various types of work should be taken into account, described in detail in the consecutive items of the table, including e.g.:</p> <ul style="list-style-type: none"> a) acceptable hours of works (see item 64); b) acceptable periods for the execution of works (see item 81); c) acceptable time and hour of deliveries on access roads to the construction site (see item 8); d) acceptable time for the removal of the top layer of top-soil (see item 41); e) acceptable dates for removing trees and shrubs (see items 16, 17); f) dates of environmental inspection before removal of trees (see item 17); g) dates of other inspections and environmental inventories (see items 27, 28, 29, 30, 31, 32, 37); h) dates of obtaining administrative decisions allowing for exceptions from bans related to the protected species (see items 17, 38); i) deadlines for implementation and reporting of the measures determined in decision of RDOŚ in Cracow dated 12/30/2020 (Appendix 4j to this EMP) (see item 39); j) dates for removing of the of temporary water deposits on the construction site (see item 33); k) the optimal date for conducting works within the root volumes of trees and shrubs and dates for protection of uncovered roots of trees and shrubs (see items 22, 23); l) dates of actions associated with reinstatement of a fertile layer of soil, sowing, and curing of grassland (see items 44, 45); m) dates of actions associated with execution and curing of planted trees and shrubs (see item 46); n) dates of cleaning for the reservoirs' bowls (see item 48); o) dates of trainings and educational actions associated with implementation of the EMP (see items 90, 96, 98, 100, 102, 103); p) dates of cyclic meetings on implementation of the EMP (see item 91); r) deadlines for reporting the implementation of the EMP (see items 86, 88, 90, 92). 	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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2.	–	Schedule of Works	Contract Area with access roads and their surroundings	<p>EMP conditions on activities to be carried out before or at the initial stage of works in a given section</p> <p>When setting work schedules and at the stage of their implementation, the EMP conditions should be taken into account regarding activities to be carried out before or at the initial stage of works, described in detail in the following items of the table, including e.g.:</p> <ul style="list-style-type: none"> a) conditions for building and equipping the construction site facilities, service roads and sites (see items 10, 13, 14, 15, 29, 30, 51, 54, 55, 56, 57, 58, 61, 62, 65, 69, 76, 78, 79); b) conditions for the road access to the construction site (see items 5, 6, 7, 8, 9, 10, 11); c) conditions for the removal and protection of top-soil layer/mineral soil layer (see items 41, 42); d) the condition for securing trees and shrubs unintended for removal (see item 20); e) conditions for the implementation of environmental inspections and inventories (see items 27, 28, 29, 31); f) the condition for securing the building site against the entry of small animals (see items 29, 39); g) the condition for obtaining decisions authorizing exceptions to the protection principles for species of plants, fungi and animals (see items 38, 39); h) conditions for the development of selected documents (see items 7, 38, 39, 40, 52, 68, 73, 80, 84, 86, 87, 88, 89, 92, 93, 100, 101); i) conditions for documentation of technical condition of buildings and infrastructure facilities (see items 9, 75); j) the condition for inventory of illegal landfills and waste disposal (see item 72); k) conditions for obtaining the Engineer's approval for the appointed person to be EMP coordinator and the composition of the team of environmental experts, the team of archaeological experts, and the team of sappers (see items 86, 87, 88, 89); l) conditions for training and educational actions (see items 90, 96, 98, 100, 101, 102, 103); m) conditions for payment of compensation (see items 3, 4). 	Contractor (e.g. Site Manager, EMP Coordinator)
B. REQUIREMENTS ON PURCHASE AND COMPENSATION					
3.	–	Obtainment of properties for permanent acquisition	Contract Area	<p>Compensation for permanent acquisition</p> <p>Purchase and payment of compensation for permanent acquisition and for support to Project Affected Persons – according to the Land Acquisition and resettlement Action Plan.</p>	Investor Engineer
4.	–	Obtainment of properties for temporary acquisition	Contract Area	<p>Compensation for temporary acquisition</p> <p>Payment of compensation for temporary acquisition prior to the commencement of performance and/or on the performance stage – according to the Land Acquisition and resettlement Action Plan.</p>	Investor Engineer Contractor

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C. REQUIREMENTS ON ACCESS ROADS TO THE CONTRACT AREA					
5.	I.1.2.h*	Protection of land surface and landscape, protection of soil and water, protection of material goods, protection of biotic nature	Access roads to the <i>Contract Area</i> with their surroundings	<p>Location of access routes to the Contract Area</p> <p>The existing road system shall be applied to the greatest feasible extent as access routes to the <i>Contract Area</i>.</p> <p>If it would be necessary to apply the existing non-public roads (so-called internal roads) as access roads, the Contractor shall be obliged to priorly establish conditions for use of those roads with their owners or administrators, and subsequently to observe those conditions within the <i>Contract Implementation Period</i>. Draft establishments shall be submitted to the Engineer for approval prior to signing.</p>	Contractor (e.g. Site Manager, EMP Coordinator)
6.	–	Protection of land surface and landscape, protection of soil and water, protection of material goods, protection of biotic nature	Access roads to the <i>Contract Area</i> with their surroundings	<p>Setting new access roads out</p> <p>If it would be necessary to develop new access roads to the <i>Contract Area</i> (beyond the existing system of public and non-public roads), the following conditions are binding:</p> <p>a) new access roads shall be set out at the possible shortest distance, beyond the area of high environmental value, and in a way minimizing necessary removal of trees and shrubs;</p> <p>b) Planned locations of new access roads shall be agreed with the environmental team (discussed under item 87), and shall be provided – including the aforementioned establishments – for the Engineer’s acceptance;</p> <p>c) planned locations and conditions for application of new access roads shall be agreed with owners or administrators of land located within the lane of planned roads or in a direct vicinity of that lane, and subsequently those conditions shall be observed within the <i>Contract Implementation Period</i>. Draft establishments shall be submitted to the Engineer for approval prior to signing;</p> <p>d) obtainment of the aforementioned establishments does not release the Contractor from necessary observance of binding regulations on planning and execution of transportation beyond the existing road network.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
7.	–	Protection of health and safety of people, protection of material goods	Access roads to the <i>Contract Area</i> with their surroundings	<p>Development of and agreement on temporary traffic organization designs</p> <p>Prior to the commencement of use for particular sections of access roads to the <i>Contract Area</i>, the Contractor shall submit to the Engineer for approval the temporary traffic organization designs for the time of works, as agreed upon with Road Managers, Police, and other authorities and entities associated with provision of safety on roads (especially in vicinity of entry roads to and exit roads from the construction site).</p> <p>Depending on the needs and on the progress of works, those designs should be updated and presented for re-acceptance by the Engineer (including the aforementioned establishments).</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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8.	–	Protection of health and safety of people, protection of material goods	Access roads to the <i>Contract Area</i> with their surroundings	<p><i>Assurance of safety and liquidity of traffic on access roads</i></p> <p>In the <i>Contract Implementation Period</i> the Contractor shall – on an ongoing basis and in proper advance – undertake any organizational and technical measures to assure safety and liquidity of traffic on access roads to the <i>Contract Area</i> (especially in vicinity of entry roads to and exit roads from the construction site), including e.g.:</p> <p>a) the Contractor shall ensure proper marking of all currently applied access roads to the <i>Contract Area</i>, in accordance with applicable law and arrangements with relevant Road Managers and Police (including compliance with the Engineer-accepted temporary traffic organization designs discussed under item 7). These markings will be regularly inspected, and in the event of their destruction or theft, the Contractor will immediately take action to restore or complement them.</p> <p>b) depending on the needs the Contractor shall supply, assemble, and operate additional temporary safety devices (e.g. light signalization, information boards, protective barriers, manual traffic management system, etc.) to assure safety for vehicles and pedestrians on access roads to the <i>Contract Area</i> and in vicinity of entry roads to and exit roads from the construction site. The aforementioned additional safety devices shall be priorly agreed with relevant Road Authorities and with the Police.</p> <p>c) at planning of measures that may result in an increase of traffic intensity in case of vehicles and construction machines on access roads and in vicinity of entry roads to and exit roads from the construction site (e.g. deliveries and removal of construction materials, deliveries of equipment and construction machines, offloading, etc.), the Contractor shall do its best to avoid having the planned deadlines, time, and implementation method for the aforementioned measures disturb the traffic, and especially in time of intensive traffic in a given location.</p>	Contractor (e.g. Site Manager, EMP Coordinator)
9.	–	Protection of land surface and landscape, protection of material goods	Access roads to the <i>Contract Area</i> with their surroundings	<p><i>Documentation on the original state of the site, access roads, and their surroundings</i></p> <p>The Contractor shall be obliged to document the original state of areas, which may undergo unfavourable impact due performance of the construction works, including the following e.g.:</p> <p>a) the Contractor is obliged to provide photographic documentation of the entire <i>Contract Area</i> and access roads, with particular reference to the technical condition of roads and buildings located in the vicinity of the roads for transporting building materials and construction equipment. The completed documentation should be described with the place and the date of development thereof;</p> <p>b) prior to the commencement of use in case of particular section of access roads to the <i>Contract Area</i>, the Contractor shall carry out site inspections in the presence of Road Administrators, subsequently to which the protocols of the condition of access roads shall be developed. Based on the protocols, the Contractor will be obliged to restore the technical condition of the roads (see also: item 12).</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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10.	–	Protection of health and safety of people	Access roads to the <i>Contract Area</i> with their surroundings	<p><i>Keeping the access roads clean</i></p> <p>In order to keep the access roads to the <i>Contract Area</i> clean and prevent accidents on the access roads the following steps should be taken:</p> <p>a) the Contractor shall apply all available technical means and organize works to minimize the dusting and pollution of access roads to the <i>Contract Area</i>;</p> <p>b) the Contractor is obliged to immediately and systematically remove any dirt caused on the access roads as a result of the movement of vehicles, machines and equipment related to the implementation of the Contract (especially in vicinity of entry roads to and exit roads from the construction site).</p>	Contractor (e.g. Site Manager, EMP Coordinator)
11.	–	Protection of health and safety of people, protection of material goods	Access roads to the <i>Contract Area</i> with their surroundings	<p><i>Observing load limits at access roads and conditions for transportation of non-standard loads</i></p> <p>The works shall be planned and performed in a way, which would assure the absence of deterioration of technical conditions for the access roads to the <i>Contract Area</i>, and especially due to deliveries of construction materials and construction equipment.</p> <p>The Contractor shall comply with the statutory load limits on the axle when transporting materials and equipment to and from the <i>Contract Area</i>.</p> <p>The Contractor shall obtain all necessary permits for the transport of non-standard loads and shall notify the Engineer of any such transport on a continuous basis</p>	Contractor (e.g. Site Manager, EMP Coordinator)
12.	–	Protection of health and safety of people, protection of material goods	Access roads to the <i>Contract Area</i> with their surroundings	<p><i>Repairs to buildings and infrastructural elements</i></p> <p>The Contractor will be liable for any damage to civil structures and buildings, roads, drainage ditches, culverts, water and gas pipelines, power poles and lines, cables, geodetic control points and installations of any kind, and other types of objects such as vertical and horizontal markings, navigation markings, information boards, cultural heritage structures, etc., caused by it or its Subcontractors, service providers and suppliers during the <i>Contract Implementation Period</i>.</p> <p>The Contractor is also responsible for restoring the flow of ditches and drainage systems in the area of works and used transport roads, in the event of damages caused by the performance of works and transport connected with the works,</p> <p>The Contractor shall immediately repair any damage at its own expense and, if necessary, carry out other work ordered by the Engineer (see also: item 9).</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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D. REQUIREMENTS ON LOCATION OF SITE FACILITIES AND SERVICE ROADS AND YARDS					
13.	I.1.2.g*	Protection of land surface and landscape, protection of soil and water, protection of biotic nature	Contract Area	<p>Obligation to build site facilities, service roads and yards</p> <p>Construction site facilities, service roads and yards must be completed prior to the commencement of construction works.</p> <p>Construction site facilities are used to store building materials, for garaging, refueling and repairing of vehicles, machines and equipment, and to provide location of social facilities (locker rooms, office, workshop, portable sanitary cabins) and waste containers.</p> <p>Equipment for site facilities should meet, among others, conditions provided for in detailed items 10, 13, 14, 15, 29, 30, 51, 54, 55, 56, 57, 58, 61, 62, 65, 69, 70, 71, 76, 77, 79.</p> <p>When planning the abovementioned facilities of the construction site, economic land use shall be assured and their space should be limited to the necessary minimum (see also: item 25).</p>	Contractor (e.g. Site Manager, EMP Coordinator)
14.	I.1.2.i* I.5).4.**	Protection of land surface and landscape, protection of soil and water, protection of acoustic climate, protection of biotic nature	Contract Area	<p>Conditions for the location of site facilities, yards, storage sites, etc.</p> <p>Site facilities, equipment bases, material storage sites and technological yards, construction materials and soil storage sites, and parking lots, etc. should be located:</p> <ol style="list-style-type: none"> a) in the areas ensuring no impact of noise on acoustically protected areas; b) in the greatest distance from residential houses; c) outside the immediate vicinity of flood waters of the river and outside the areas where water may be contaminated; d) at the maximum possible distance from water reservoirs and wetlands, including sites in a distance of at least 15 m from the temporary river-bed of Serafa; e) in areas allowing for keeping the existing trees and shrubs to the greatest extent; f) in the areas with the lowest natural values, taking into account the principle of minimizing land acquisition and transformation of its area and the obligation of land reclamation after completion of works. <p>The locations intended for site facilities, site facilities organization plans should be agreed with a team of environmental experts (discussed under item 87) and presented for the Engineer's approval together with expert agreements.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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15.	I.1.2.h*	Protection of land surface and landscape, protection of soil and water, protection of acoustic climate, protection of biotic nature	Contract Area	<p>Conditions for the location of service roads</p> <p>Service roads should be located:</p> <ul style="list-style-type: none"> a) in areas allowing for maintenance of conformity with binding regulations on acoustic protection of land; b) at the maximum possible distance from existing residential buildings; c) at the maximum possible distance from existing watercourses, water reservoirs and wetlands; d) in areas allowing for keeping the existing trees and shrubs to the greatest extent; e) outside the areas with the highest natural values; if the condition cannot be met in a given location, service roads should be located in the immediate vicinity of the works, taking up minimum necessary space of the areas; f) in the first place on existing roads. <p>The locations intended for service roads should be agreed with a team of environmental experts (discussed under item 87) and presented for the Engineer’s approval together with expert agreements.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
E. REQUIREMENTS ON REMOVAL OF TREES AND SHRUBS					
16.	I.1.2.m* I.1.2.n* I.1.2.p*	Protection of landscape, protection of biotic nature	Contract Area	<p>Acceptable scope, time and general conditions of removal trees and shrubs</p> <p>Removal of trees and shrubs shall be limited to the necessary minimum allowing for the performance.</p> <p>Trees and shrubs planned for removal shall be precisely located and visibly marked on site.</p> <p>Compliance between the location and the number of trees and shrubs marked on site (as planned for removal) and the information on this subject contained in the current project documentation, should be confirmed by a written opinion of environmental supervision (discussed under item 87).</p> <p>Felling and/or other forms of removal of trees and shrubs in the over-ground part shall be done beyond the breeding season of birds, i.e. beyond the period from March the 1st to October the 15th (this condition does not apply to removal of stumps and roots of trees and shrubs remaining after the above works).</p> <p>The felling of trees and shrubs shall be done under supervision of the expert ornithologist (discussed under item 87) after receiving a relevant permit (if it is required in a particular case).</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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17.	–	Protection of biotic nature	Contract Area	<p><i>Environmental supervision before and during removal of trees with a diameter of above 100 cm at breast height</i></p> <p>In the case of removing trees with diameter of above 100 cm at breast height, the following rules apply:</p> <ul style="list-style-type: none"> a) removal of trees with diameter above 100 cm at breast height should be preceded by the inspection of these trees for the presence of protected species of birds, invertebrates and bats, carried out by the experts: ornithologist, entomologist and chiropterologist (discussed under item 87), in no more than 1 week time before removal the tree; b) in case protected species of birds, invertebrates and/or bats in trees planned for removal are detected, the experts will schedule acceptable deadlines and ways to carry out removal of trees as well as determine the methods of dealing with the wood inhabited by protected animal species. The deadlines for removal as scheduled by the experts can not violate the conditions specified in item 16; c) removal of trees with diameter above 100 cm at breast height will be carried out under the direct supervision of the abovementioned experts; d) in case representatives of protected birds, invertebrates and/or bats are found in the trees currently subject to removal, the experts shall determine the methods of limiting mortality of identified specimens of protected animals, including methods of dealing with the wood inhabited by protected species of invertebrates; e) in case protected species of birds, invertebrates and/or bats in trees planned for removal and/or trees currently subject to removal are detected, an administrative decision required by law should be obtained to allow for exceptions to the prohibitions applicable to protected animal species (if required in a given case); f) if relocation of protected species of birds, invertebrates and/or bats from trees planned for removal and/or from trees currently subject to removal would be necessary, it shall be done in accordance with e.g. conditions given under item 34. 	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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F. REQUIREMENTS ON PROTECTION OF TREES AND SHRUBS NOT INTENDED FOR REMOVAL					
18.	I.1.2.q*	Protection of landscape, protection of biotic nature	Contract Area	<p>Protection of the areas under crowns of trees and shrubs</p> <p>Construction works should be carried out in a way that does not harm trees and shrubs that have not been intended for removal.</p> <p>At a distance of less than 1 m from the edge of the protrusion of the crown of trees and shrubs not intended for removal, it is forbidden to:</p> <ul style="list-style-type: none"> a) outline roads and service yards, parking spaces and other elements that may influence the increase in tamping and changes in soil aeration; b) allow for traffic, stopover and parking of vehicles, machines and equipment; c) store construction materials, earth masses (including topsoil), waste, and other materials that may influence the increase in tamping and changes in soil aeration or posing risk of pollution to the soil and water environment within that zone; d) smoke or use fire, use equipment or machines producing high temperature that can cause drying of the crown of trees and shrubs. <p>The storage of substances that may pollute the soil and water environment is prohibited at a distance of less than 10 m from trunks of trees and shrubs not intended for removal.</p> <p>The method of forming and compacting embankments in the vicinity of trees and shrubs not intended for removal shall be agreed with an expert dendrologist (discussed under item 87), and the results of the findings should be submitted to the Engineer for approval.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
19.	I.1.2.o*	Protection of landscape, protection of biotic nature	Contract Area	<p>Fencing of the areas under crowns of trees and shrubs</p> <p>Trees and shrubs not expected to be removed growing within the construction site (together with temporary occupation areas) should be fenced in the crown projection line in a way visible to all participants of the works.</p> <p>These fences should be installed before the commencement of works on a given section of works and kept in good condition until the completion of works that could have an adverse effect on the trees and shrubs in question.</p> <p>After completion of the above works fences should be removed.</p> <p>The detailed location and method of fencing trees and shrubs shall be agreed with an expert dendrologist (discussed under item 87), and the results of the findings should be submitted to the Engineer for approval.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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20.	I.1.2.o*	Protection of landscape, protection of biotic nature	Contract Area	<p>Protection of tree trunks not intended for removal</p> <p>Prior to the commencement of construction works in a particular section, trunks of trees – not intended for removal – exposed to mechanical damage should be protected, up to a height of at least 150 cm (e.g. through application of wooden boards, straw mats or jute, etc.), in a way that does not harm the tree.</p> <p>If the wooden boards protection is used, the cladding elements should be installed in such a way that the boards tightly adhere to the entire surface of the trunk, and the edges of the boards do not cause bark damage; the lower parts of boards should be secured against the possibility of changing positions, for example by covering with earth, additional wire fastening, etc.).</p> <p>During the <i>Contract Implementation Period</i>, the condition of tree trunks exposed to damage should be monitored on an ongoing basis and the protection should be maintained in a proper condition, whilst guaranteeing a proper protection for trunks against mechanical damage.</p> <p>After the completion of works trunk protection should be removed.</p> <p>The planned protection method for trees not to be removed need to be agreed with the expert dendrologist (discussed under item 87), and the results of establishments shall be submitted for the Engineer’s approval.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
21.	–	Protection of landscape, protection of biotic nature	Contract Area	<p>Protection or preventive cutting of tree boughs and branches exposed to damage</p> <p>In the case of trees not intended for removal, tree boughs and branches exposed to mechanical damage by working or moving vehicles, machinery and equipment should be protected against damage, e.g. by supporting the lowest growing branches and branches or by tying them to branches and branches growing above (each time in a way that does not damage the bark).</p> <p>If the above-mentioned protective measures cannot be applied, preventive cutting of tree boughs and branches exposed to mechanical damage should be carried out. Performing preventive cuts of tree boughs and branches always requires the Engineer's approval.</p> <p>These pruning cuts cannot disturb the natural habit of trees (they cannot cover more than 1/3 of the tree’s green mass), they should ensure stability and statics of trees (pruning must be even on each side of the crown). Pruning spots shall properly be secured with a fungicide.</p> <p>The range of preventive cutting and the method of care for cut boughs and branches need to be agreed with the expert dendrologist (discussed under item 87), and the results of establishments shall be submitted for the Engineer’s approval.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
22.	I.1.2.o*	Protection of landscape, protection of biotic nature	Contract Area	<p>Carrying out works within root blocks of trees and shrubs</p> <p>Works in the vicinity of root blocks of trees and shrubs not intended for removal should only be carried out manually, subject to the following conditions:</p> <ul style="list-style-type: none"> a) skeletal roots (with a diameter of over 4 cm) should not be cut off; b) excavations should be carried out no closer than 2 m from the trunk, if feasible; c) the time of root exposure to drying or freezing should be shortened to the minimum (while maintaining the conditions referred to in item 23); d) the suitable period for carrying out the work in question is from October to April. <p>The abovementioned activities should be performed in consultation with the expert dendrologist (discussed under item 87), and after they have been completed, the Engineer should be presented with an opinion on the aforementioned expert regarding the assessment of the activities.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
23.	–	Protection of landscape, protection of biotic nature	Contract Area	<p>Securing of exposed roots of trees and shrubs</p> <p>Exposed roots of trees and shrubs not intended for removal should be covered with straw or jute mats, in accordance with guidelines of the expert dendrologist (discussed under item 87).</p> <p>From the beginning of April until the end of October the exposed roots shall additionally be protected against drying-out (e.g. through watering of the mats covering the roots). At negative temperatures these mats should be dry to avoid freezing of the roots.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
24.	–	Protection of landscape, protection of biotic nature	Contract Area	<p>Care in case of damaging trees and shrubs</p> <p>In case aboveground parts of trees and shrubs not intended for removal have been damaged, the necessary care measures should be carried out immediately, adequate to the place and type of damage.</p> <p>In case of root damage, the ends should be trimmed off and the roots secured with a fungicide.</p> <p>The abovementioned activities should be performed in consultation with the expert dendrologist (discussed under item 87), and after they have been completed, the Engineer should be presented with an opinion on the aforementioned expert regarding the assessment of the activities.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
G. REQUIREMENTS ON SECURING THE PROTECTED ENVIRONMENTAL RESOURCES					
25.	I.1.2.g* I.1.2.f*	Protection of land surface and landscape, protection of soil and water, protection of biotic nature	Contract Area	<p>Limiting the impact of Contract implementation on environmental resources</p> <p>For the purpose of limiting the adverse impact of the works on environmental resources present in the <i>Contract Area</i> and in its vicinity the Contractor shall e.g.:</p> <ul style="list-style-type: none"> a) assure such organization of the works, to maximally reduce the <i>Contract Implementation Period</i>; b) assure economic use of the land and minimum transformation of its surface; c) limit the use and transformation of environmental elements only to the extent, which is necessary for proper and timely implementation of the Contract. 	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
26.	–	Protection of land surface and landscape, protection of soil and water, protection of biotic nature	Contract Area	<p>Protection of the existing plant cover and lay of land within the construction site</p> <p>The Contractor shall do its best to keep the existing plant cover (trees, shrubs, and herbal vegetation) and the existing lay of land within those parts of the construction site, which are not directly associated with the performance (according to the binding design documentation).</p> <p>For that purpose, the traffic of vehicles and construction machines within the construction site should only be limited to the active performance sites or to planned construction works and other works associated with implementation of the Contract, as well as to the set-out service roads, storage yards, site facilities, etc.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
27.	I.1.2.r*	Protection of biotic nature	Contract Area	<p>One-time environmental inventory of the Contract Area prior to the commencement of works</p> <p>Prior to the commencement of works, a one-time environmental inventory of the <i>Contract Area</i> shall be done, performed by a team of environmental experts, referred to in item 87.</p> <p>The purpose of the inventory is to determine the current distribution of natural habitats and habitats and sites of protected species of flora and fauna, including ongoing revision of information on the subject as included in the EMP and in other available source materials.</p> <p>If the presence of natural habitats and habitats or protected sites of plant and animal species in the <i>Contract Area</i> has been confirmed, it is necessary to act as follows:</p> <ul style="list-style-type: none"> a) in the case of protected environmental habitats - further actions should be agreed with a competent environmental team's expert (discussed under item 87), and the results of the findings should be submitted to the Engineer for approval; b) in the case of habitats or sites of protected species - further actions should be agreed with a competent environmental team's expert (discussed under item 87), including conditions specified under items 34, 38 and 39, and the results of the findings should be submitted to the Engineer for approval. 	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
28.	1.5).11 **	Protection of biotic nature	Contract Area	<p><i>Preventing the spread of invasive species</i></p> <p>Prior to the commencement of works in particular sections of the <i>Works Contract</i> one shall perform inspection to establish the current presence of foreign invasive species. The inspection shall be done the expert botanist-phytosociologist, as discussed under item 87.</p> <p>In case of identifying presence of foreign invasive plant species (Canadian goldenrod (<i>Solidago canadensis</i>), tall goldenrod (<i>Solidago gigantea</i>), grass-leaved goldenrod (<i>Solidago graminifolia</i>), coneflower (<i>Rudbeckia</i> sp.), copper tops (<i>Impatiens glandulifera</i>), Japanese knotweed (<i>Reynoutria</i> sp.), hogbane (<i>Heracleum mantegazzianum</i>), Sosnowsky’s hogweed (<i>Heracleum sosnowskyi</i>), wild cucumber (<i>Echinocystis lobata</i>)) in the <i>Contract implementation period</i>, one shall determine and implement necessary measures to prevent the spread of the aforementioned plants due to implementation of the Contract (and especially in case of identifying the aforementioned plants within land where top-soil shall be removed). Those measures shall be defined in agreement with the aforementioned expert, and the results of establishments shall be submitted to the Engineer for acceptance.</p> <p>On the stage of using the reservoir invasive plant species shall be immediately removed.</p>	<p>In the <i>Contract Implementation Period</i> – Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)</p> <p>After the <i>Contract Implementation Period</i> – Investor</p>
29.	–	Protection of biotic nature	Contract Area	<p><i>Securing the Contract area against small animals entering the site</i></p> <p>Works should be performed in such a way as to avoid killing of animals.</p> <p>Prior to the commencement of and during the works within particular sites of the <i>Contract Area</i> the environmental teams (discussed under item 87) shall perform cyclic inspections of those sites to determine the need of actions to limit migration of wild animal species (especially of protected species) into the construction site.</p> <p>In case such a need would be identified, the aforementioned environmental supervision team shall determine conditions necessary to limit the migration of the aforementioned animal species into the construction site (e.g. fencing of selected sections of the construction site, cyclic inspections, and trapping done under supervision of the aforementioned environmental supervision team, etc.), and shall subsequently supervise their implementation. A detailed description of the planned measures in that range within a particular site shall be submitted for the Engineer’s acceptance.</p>	<p>Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)</p>

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Item	ED item	Issue	Site	Mitigation Measure	Unit
30.	I.1.2.s*	Protection of biotic nature	Contract Area	<p>Securing the sites of seasonal migration of amphibians</p> <p>If seasonal migrations of amphibians are reported to take place in the <i>Contract Area</i>, the Contractor is obliged to secure the area so that the amphibians cannot get to the site where they would be at risk due to the performance.</p> <p>For this purpose, temporary an amphibian-resist fencing (e.g. foil, agro-textile, or net with a mesh smaller than 0.5 x 0.5 cm) with a height of about 50 cm, including 10 cm overhang outside, should be set up. The material need to be dug into the ground at its bottom part – the fencing shall tightly adjoin the ground and shall be anchored properly to prevent migration of amphibians to the construction site.</p> <p>Determining the precise location of fencing securing the <i>Contract Area</i> against animals entering the site, selection of the fencing type, and installation of the abovementioned fencing should be carried out under the supervision of an expert herpetologist (discussed under item 87).</p> <p>The technical condition of the abovementioned fencing should be inspected on regular basis throughout its presence on site, and any possible gaps and damages should be immediately removed (not later than once in 3 days).</p> <p>Amphibians moving along the fencing shall systematically be caught and moved – with a frequency and in a manner agreed with the aforementioned expert herpetologist – in accordance with conditions given under item 34.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
31.	I.1.2.r*	Protection of biotic nature	Contract Area	<p>Limitation of losses in protected animal species during the earthworks</p> <p>Directly prior to the commencement of earthworks in a given site relevant experts of the environmental team (discussed under item 87) shall inspect sites of the currently planned works in terms of the protected animal species' occurrence.</p> <p>In case of identifying presence of the aforementioned animals, one shall implement measures discussed under item 34.</p> <p>The earthworks shall be performed under supervision of the aforementioned experts.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
32.	I.1.2.u*	Protection of biotic nature	Contract Area	<p>Protection and inspection of places that could be traps for small animals</p> <p>Excavations, wells and other sites that may form traps for animals (especially for amphibians, reptiles, and small mammals) shall be protected – to the maximum feasible extent – against presence of the aforementioned animals without having them released on their own, and they shall be systematically inspected to limit mortality of specimens, which – despite the protection – moved to those sites.</p> <p>The protection type for particular sites and the time and frequency of their inspections and the proceeding methods for trapped animals shall be agreed with the environmental team (discussed under item 87) on an ongoing basis, and results of those establishments shall subsequently be implemented.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
33.	I.5).9.**	Protection of biotic nature	Contract Area	<p>Ongoing liquidation of temporary water deposits in the Contract Area</p> <p>During the <i>Contract Implementation Period</i> (in particular from the beginning of March to the end of May), it is necessary to permanently eliminate temporary water deposits in places which may interfere with ongoing or scheduled works as well as in places where ongoing or scheduled traffic of vehicles, machines and equipment is to be run.</p> <p>This measure aims to prevent the settlement of protected amphibian species in the <i>Contract Area</i> during the performance of works. This activity should be carried out in consultation with a herpetologist (discussed under item 87), who will also supervise if the procedures are followed.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
34.	I.1.2.r* I.1.2.s*	Protection of biotic nature	Contract Area	<p>Trapping and relocating small animals from the Contract Area</p> <p>If small animals (e.g. amphibians, reptiles, small mammals) are reported to inhabit the <i>Contract Area</i> (where the construction works may pose risk to their life or health), they should be trapped and relocated from the <i>Contract Area</i> to a place appropriate for the given species, having similar habitat conditions, disabling return of the animals to the site until the completion of works.</p> <p>These actions should be performed under the supervision of a competent environmental expert (discussed under item 87) and in accordance with informed guidelines.</p> <p>A memo and photo documentation shall be developed on relocation of / damage to the present habitats and stands of plants or animals, in accordance with guidelines given in the obtained administrative decisions.</p> <p>The memo shall at least state the following: type and quantity of relocated species, indication of the present site and the site of relocation, determination of a relocation method, and the time when it was done.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
35.	–	Protection of land surface and landscape, protection of soil and water, protection of biotic nature	Contract Area	<p>Ban to interfere in the channel and in the bank zone of water-courses</p> <p>In the <i>Contract Implementation Period</i> one shall not interfere in channels and banks of water-courses (e.g. banned traffic of vehicles, machines, and devices; ban of polluting, devastating, material storing, etc.), except for channels and banks sections covered by the works, in accordance with the valid design documentation.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
36.	I.1.2.v*	Protection of water, protection of biotic nature	Contract Area	<p>Keeping the continuity of water flow in water-courses</p> <p>Actions of the Contractor shall be planned and performed in a way to keep the continuity of water flow in water-courses throughout the <i>Contract Implementation Period</i>.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
37.	I.1.2.r*	Protection of water, protection of biotic nature	Contract Area	<p>Ongoing inspections of the team of environmental experts during the Contract Implementation Period</p> <p>The works and other works performed during the <i>Contract Implementation Period</i> should be carried out under the ongoing supervision of a team of environmental experts (referred to in item 87).</p> <p>These experts should, among others, carry out regular inspections of the entire <i>Contract Area</i> (at least once a month) and submit their comments and recommendations to the Contractor's staff responsible for carrying out works in accordance with the EMP conditions on an ongoing basis.</p> <p>The notes from the inspections should be made in writing, attached to the monthly reports on the implementation of the EMP conditions (referred to in item 92).</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
38.	–	Protection of biotic nature	Contract Area	<p>Obtaining a decision allowing for exceptions to the principles of species protection of plants, fungi and animals identified in the Contract Area</p> <p>In respect of the resources of protected species of flora and fauna present within the <i>Contract Area</i> and in its impact range (including resources described in this EMP and in other available sources, as well as identified in the <i>Contract Implementation Period</i> due to actions of the environmental team discussed under item 87), the following measures shall be undertaken:</p> <p>a) the Contractor shall obtain and submit to the Engineer for approval a written opinion of the team of environmental experts including the specification of:</p> <ul style="list-style-type: none"> • the extent of the possible impact of the works on the identified natural resources, and • the need to obtain the decision referred to in point b below, <p>and then, if it proves necessary in the light of the abovementioned opinion, shall carry out the activities referred to in points b-d (hereunder);</p> <p>b) before taking any actions that may lead to the destruction of habitats and sites or flushing out the representatives of protected species, the Contractor is required to obtain the administrative decision required by law, allowing for exceptions to the binding prohibitions regarding protected species of plants, fungi and animals. The Contractor's request on the issuance of the aforementioned decision requires acceptance of the Engineer and of the Investor prior to its submission to a relevant unit;</p> <p>c) the Engineer should be notified of the decision obtained;</p> <p>d) the Contractor is obliged to precisely and timely implement the conditions contained in the abovementioned decision.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
39.	–	Protection of biotic nature	Contract Area	<p><i>Conditions on performance of actions banned in relation to protected animal species within the area of Works Contract 3A.2/4, covered with a permit given in the decision of RDOŚ in Cracow dated 12/30/2020</i></p> <p>In case of performing actions banned in relation to protected animal species within the area of Works Contract 3A.2/4 – as discussed under permit given in the decision of RDOŚ in Cracow dated 12/30/2020 (forming Appendix 4j to this EMP) – the following conditions are binding:</p> <ul style="list-style-type: none"> a) those actions shall be completed on July 31, 2023 at the latest (i.e. until expiration of the permit discussed under the decision of RDOŚ in Cracow dated 12/30/2020, forming Appendix 4j to this EMP); b) those actions shall be performed under supervision of relevant expert naturalists discussed under item no. 87; Up to 14 days before the beginning of the above-mentioned actions, the Contractor will submit to the Engineer a list of persons who will supervise the implementation of the individual actions listed in the above-mentioned decision of the RDOŚ; c) transfer of Roman snails is feasible only during their ground-based activity, i.e. from March 1 to September 30; d) transferring particular specimens of Roman snails shall be done in a way avoiding injuring or killing them. The time of keeping the specimens shall be limited to minimum; e) all Roman snails present within the investment site shall be moved to areas selected by the environmental supervision, at inclusion of their current habitat needs; f) method and time of damaging the habitats of bumblebees shall be consulted with expert entomologist; g) actions associated with catching of reptiles, their keeping and transferring from sites of regular presence to other sites, shall be done during their ground-based activity in a way avoiding injuring of caught specimens; h) catching of reptiles shall be done manually, eventually with use of nets or a herpetological bucket; the animals shall be transported in high buckets laid with wet bedding, grass and leaves, with access to the air; i) all reptiles caught within the planned investment site shall be transferred to the closest sites placed in a distance of minimum 500 meters from the construction site, as indicated by environmental supervisors, including current habitat needs of the transferred species; j) in order to disable the access to the construction site for the animals, the works shall be protected with herpetological fencing in neuralgic places on sites determined by the environmental supervision; k) prior to the commencement of works associated with damaging of habitats or mainstays or with the removal of nest, the area must be checked again for the occurrence of protected animal species and for inhabited nests. The re-verification should be done by a person performing environmental supervision (referred to in item no. 87). 	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
				<p>If a hatch or a litter would be identified, the nests may be removed just after young specimens leave them;</p> <p>l) from December 15 to February 28 and from April 1 to June 30 it is not allowed to demolish dams and damage lairs, due to the wintering period for beavers and due to their breeding and rearing;</p> <p>m) the demolition shall be done in such a way to avoid flooding of the areas located downstream of the dam by water collected upstream of the dam, during the works;</p> <p>n) prior to the commencement of damaging the lairs it shall be checked if they are not inhabited by beavers. In case it would be stated that they are inhabited, the lairs may be damaged just after prior scaring of the beavers away;</p> <p>o) damaging of the lairs shall be done manually or with mechanical equipment through digging-up, in order to make sure that animals are not present there, and subsequently through filling them with natural material, proper for the particular area;</p> <p>p) in case of identifying on register plots no. 442/5, 1728, 442/6, 443, 787/3, 445/6, 444, 446/2, 455/9, 447/2, 448/2, 449, 450/2, 451/2, 452/3, 453/6, 1615, 1616, 1617, 1618, 461/2, 457/24, 1727, 442/3, 442/1, 440/2, 455/19, and 441/2, register unit Wieliczka 2, Municipality of Cracow-Podgórze, District of Cracow, Małopolskie Province, within the Serafa River Valley, of other animal species under protection not listed in the decision of RDOŚ in Cracow dated 12/30/2020 (forming Appendix 4j to this EMP), the Regional Director for Environmental Protection shall be provided with a relevant application allowing for departure from bans related to determined species;</p> <p>r) by February 1, 2022 and by February 1, 2023, the Contractor will submit to the Engineer written reports on the implementation of the actions referred to in the decision of RDOŚ in Cracow dated 30/12/2020 (forming Appendix 4j to this EMP) performed in the previous year. By August 15, 2023 or until the end of the Works Contract 3A.2/4 (whichever date is sooner), the Contractor shall submit to the Engineer a written final report on the implementation of actions referred to in the above-mentioned decision (covering the entire period of its validity). The above-mentioned reports will include e.g. descriptions and dates of performed actions, along with photographic documentation.</p>	

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Item	ED item	Issue	Site	Mitigation Measure	Unit
H. REQUIREMENTS ON GROUND MANAGEMENT (INCLUDING TOP-SOIL)					
40.	–	Protection of land surface and landscape, protection of soil	<i>Contract Area</i>	<p>Managing the soil from the construction site</p> <p>First, soil located on the construction site (including soil mass) shall be managed on site. The excess of soil shall be managed in accordance with design documentation. A proceeding method for ground remaining waste shall be presented in the Waste Management Plan (Waste MP), as developed by the Contractor and handed over for acceptance to the Engineer prior to the commencement of works (according to item 68).</p>	Contractor (e.g. Site Manager, EMP Coordinator)
41.	l.1.2.r* l.1.2.t*	Protection of soil, protection of biotic nature	<i>Contract Area</i>	<p>Collecting the top layer of soil</p> <p>In order to protect the layer of topsoil from the <i>Contract Area</i>:</p> <ol style="list-style-type: none"> a) prior to the commencement of construction works in particular sections of the <i>Contract Area</i> top layer of fertile soil (so-called top-soil) having thickness corresponding with applicable design documentation shall be removed (this condition refers to all locations within the <i>Contract Area</i>, where the existing top-soil layer may be degraded due to the works, traffic and servicing of vehicles, machines and devices, and storage of materials, etc.); b) the works associated with the removal of top-soil shall be performed from September to February (inclusive); c) the works shall be preceded with provision of environmental inventories discussed under items 27, 28, and 31, and their execution need to include e.g. the conditions informed under item 31. 	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
42.	l.1.2.t*	Protection of land surface and landscape, protection of soil, protection of biotic nature	<i>Contract Area</i>	<p>Storing of top-soil</p> <p>The removed layer of top-soil shall be stored in the following way:</p> <ol style="list-style-type: none"> a) removed top-soil shall be stored in the form of piles, located in places where it will be effectively protected against degradation (see also the description in point c); b) the precise location of top-soil piles should be pre-arranged with a team of environmental experts (discussed under item 87), so that top-soil storing does not degrade natural habitats and protected species, nor does it adversely affect the condition of trees and shrubs; c) storage piles of top-soil should be marked and efficiently secured against: contamination, being driven over by vehicles, compaction, storage of building materials, etc.; d) storage piles of top-soil shall be kept in adequate humidity, in a manner allowing for its reuse (e.g. they should be systematically sprinkled, with a frequency depending on the weather). 	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
43.	l.1.2.t*	Protection of soil, protection of biotic nature	<i>Contract Area</i>	<p>Use of top-soil</p> <p>The stored top-soil should be used to reinstate the fertile soil's layer on further construction stages (see also: item 44b).</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
I. REQUIREMENTS ON LAND RECLAMATION AND USE AFTER COMPLETION OF WORKS AND REPLACEMENT PLANTING OF TREES AND SHRUBS					
44.	I.1.2.i* I.1.2.t* I.1.2.w*	Protection of land surface and landscape, protection of soil, protection of biotic nature	Contract Area	<p>Recreation of topsoil layer and green areas and tidying up the site after completion of the works</p> <p>After completion of the works:</p> <p>a) construction facilities, service roads and sites should be dismantled, whilst road slabs and sand collected from ballast (if applicable) should be transported outside the <i>Contract Area</i> to the place specified beforehand (accepted by the Engineer);</p> <p>b) in the areas acquired in connection with the implementation of the Contract (within the boundaries of the <i>Contract Area</i>), appropriate agrotechnical measures should be taken (soil loosening, fertilization, etc.), in order to prepare the recreation of the fertile soil layer, and then the fertile soil layer should be recreated (e.g. using the topsoil collected from the area of works – see: item 43);</p> <p>c) provide treatment facilitating reinstatement of green areas (including sowing and planting of trees [in accordance with design documentation], using native species of plants only, in conformity with local habitat conditions). The sowing shall be done in the shortest possible time after completion of reinstatement of the fertile soil layer to prevent development of weeds within top-soiled surfaces;</p> <p>d) proper care of the recreated green areas should be ensured (e.g. in accordance with conditions determined under item 45) until the end of the Defect, Guarantee and Warranty Period;</p> <p>e) remove any waste left and tidy up the <i>Contract area</i>;</p> <p>f) order and restore the proper condition of the area under works, due to the e.g.: traffic of machines, means of transportation, and the areas adjacent to the performance site.</p> <p>Activities described in items b-d (above) should be performed under the supervision of expert botanist-phytosociologist and expert dendrologist (discussed under item 87), including e.g.:</p> <ul style="list-style-type: none"> • agreement of the exact dates of works; • agreement of the composition and quantitative proportions of seed mixtures planned for sowing; • agreement of conditions for preparation of soil; • agreement of the principles of caring for the recreated green areas; • submission of the results of the above agreements to the Engineer for approval; • supervision over the implementation of activities supporting the recreation of green areas and supervision over the care of these areas (until the end of the Defects Notification Period, Guarantee and Warranty). <p>Activities related to the recreation of the topsoil layer and the restoration of green areas referred to in this item of the EMP should be commenced as soon as their implementation is possible (including condition given in item c above).</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
45.		Protection of land surface and landscape, protection of soil, protection of biotic nature	Contract Area	<p><i>Caring for grasslands</i></p> <p>Caring for grasslands in the first growing season after planting consists in:</p> <p>a) Fertilizing:</p> <ul style="list-style-type: none"> • lawns should be supplied with mineral fertilizers as needed (no more 3-5 kg NPK/are/year); • mixtures of fertilizers should be prepared in such a way as to supply the grass with ingredients required in particular seasons: <ul style="list-style-type: none"> ○ in spring, the lawn requires a mixture with dominating nitrogen, ○ from the middle of summer nitrogen should be reduced, increasing the dose of potassium and phosphorus, ○ the final fertilization should not contain nitrogen, but potassium and phosphorus. <p>b) Additional seeding.</p> <p>c) Mowing:</p> <ul style="list-style-type: none"> • the first mowing should be carried out when the grass is about 10 cm high and should be cut to a height of 6 cm, • subsequent mowing should take place at such intervals so that the grass does not exceed 15 cm in height, • the last pre-winter mowing should be carried out 1 month before the expected cold weather (for the climate of Poland the first half of October may be assumed), • after each mowing, cut grass should be removed from all surfaces and harvested hay should be stored outside the construction site. <p>d) Maintenance of proper soil humidity.</p> <p>Mowing of grasslands in subsequent growing seasons should be carried out twice a year.</p>	<p>In the <i>Contract Implementation Period</i> (including the time within Defects, Guarantee, and Warranty Notification Period) – Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)</p> <p>After the <i>Contract Implementation Period</i> (after completion of Defects, Guarantee, and Warranty Notification Period) – Investor</p>

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Item	ED item	Issue	Site	Mitigation Measure	Unit
46.	1.5).10 **	Protection of landscape, protection of biotic nature	Sites indicated by the Investor after making establishments with the local authorities	<p>Replacement planting of trees and shrubs</p> <p>For the purpose of limiting the impact of Subcomponent 3A OVFMP implementation on the condition of arborescent plants in Cracow and in its vicinity, the Contractor for Works Contract 3A.2/4 shall execute planting of trees and shrubs including the following:</p> <p>a) replacement planting of trees and shrubs resulting from item 1.5).10 of the decision of RDOŚ in Cracow dated 09/18/2020 (forming Appendix 4h to this EMP), according to the documentation for Works Contract 3A.2/4;</p> <p>b) remaining planting of trees and shrubs given in the documentation for Works Contract 3A.2/4 (not associated with implementation of the decision discussed under item a).</p> <p>The Contractor shall secure curing measures for the executed plantings, according to the documentation for Works Contract 3A.2/4.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
47.	1.3).c**	Protection of soil and water	Contract Area	<p>Assurance of rainfall water discharge from the area beyond the embankment</p> <p>On the stage of designing, implementation, and use of the dry reservoir Serafa 2 one shall guarantee the discharge of rainfall water from the sites located in the area beyond the embankment (in particular through the construction of a drainage ditch).</p>	<p>In the <i>Contract Implementation Period</i> – Contractor (e.g. Site Manager, EMP Coordinator)</p> <p>After the <i>Contract Implementation Period</i> – Investor</p>
48.	1.1.2.d*	Protection of land surface and landscape, protection of soil and water	Contract Area	<p>Removal of sediments and pollutions after accommodation of a flood wave</p> <p>After accommodation of a flood wave and depletion of the reservoir, sediments and pollutions left in it shall be removed.</p>	<p>In the <i>Contract Implementation Period</i> – Contractor (e.g. Site Manager, EMP Coordinator)</p> <p>After the <i>Contract Implementation Period</i> – Investor</p>

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Item	ED item	Issue	Site	Mitigation Measure	Unit
J. REQUIREMENTS ON PREVENTION OF POLLUTION EMISSION TO THE GROUND AND WATER ENVIRONMENT					
49.	–	Protection of soil and water, protection of health and safety of people, protection of biotic nature	<i>Contract Area</i>	<p><i>Assurance of safety for the ground and water environment</i></p> <p>The Contractor is obliged to assure such an organization of works, including organization and equipment for the construction site, so it would prevent the possible contamination of the ground and water environment in the <i>Contract Area</i> and its vicinity, as well as it would prevent the uncontrolled leakage of earth masses and other construction materials into surface waters.</p>	Contractor (e.g. Site Manager, EMP Coordinator)
50.	I.1.2.e* I.5).6**	Protection of soil and water, protection of health and safety of people, protection of biotic nature	<i>Contract Area</i>	<p><i>The use of building materials in accordance with regulations and standards and harmless to the environment</i></p> <p>Only building materials and raw materials that meet valid standards of environmental protection, having legally requires certificates, and allowed for application in a way planned by the Contractor, may be used.</p> <p>Earth structures should be made of natural materials, without application of hazardous materials or materials harmful to health.</p> <p>The material used for the construction of reservoir and for backfilling of excavations must not contain substances harmful to the aquatic environment and which present a risk of contamination of the earth's surface (in particular, it must not contain harmful substances subject to leaching, which occur in a form of soluble compounds).</p>	Contractor (e.g. Site Manager, EMP Coordinator)
51.	I.1.2.j*	Protection of soil and water, protection of air	<i>Contract Area</i>	<p><i>Technical efficiency and inspections of vehicles, machines and equipment</i></p> <p>Only technically efficient vehicles, machines and equipment – technical condition of which does not pose risk of uncontrolled emission of pollutions to the water and ground environment (e.g. leakage of fuel, diesel, operating fluids, grease, etc.) and to the air (exceeding acceptable emission standards for combustion gases) – should be used to implement the Contract.</p> <p>The Contractor should carry out ongoing inspections of the efficiency of vehicles, machines and equipment, and eliminate with any resources available any permeating of contamination to soil and water (including in particular spilling of fuel, hydraulic diesel, operating fluids, grease, etc.) both during operating, servicing, refueling, transport, as well as stoppage of vehicles, machines and equipment.</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
52.	1.5).5.** 1.5).8.**	Protection of water, protection of biotic nature	Contract Area	<p>Conditions for the works performance in channels of flowing waters and stagnant waters</p> <p>For the purpose of protecting flowing waters and stagnant waters against contamination, the works within channels of those waters shall be performed according to the following rules:</p> <p>a) any work done within channels of water-courses shall be limited to minimum.</p> <p>b) in order to reduce impact of the planned measures on the condition of water, the construction works at the Serafa River (Works Contract 3A.2/4) and at the Malinówka Stream (Works Contract 3A.2/3) shall be done in different time.</p> <p>c) during the performance in channels of flowing waters or stagnant waters one shall continuously perform a visual monitoring for water at performance sites in order to check, if water is not locally polluted with suspension, which may affect the physical-chemical condition of water adversely and/or deteriorate living conditions for water organisms within the channels, due to the performance. In case of identifying occurrence of the aforementioned contamination, one shall immediately notify the Engineer and obtain an opinion of the water protection expert (discussed under item 87) on the possibility of and the conditions for further performance of the given type of works on site, and on the necessity and method of providing laboratory tests for the purpose of identifying the current level of contamination. The aforementioned opinion requires acceptance of the Engineer.</p> <p>d) if, due to the measures described under point c (above), the binding contamination standards would be exceeded or it would be possible that they would be exceeded, the works on site shall be stopped (immediately or just after reaching a stage, when stopping the given type of works does not provide hazards of other type to the environment and/or health and safety of people), and decision on restarting them may be made not earlier than after receiving an opinion of environmental supervision team (including the aforementioned water protection expert) determining the time of feasible recommencement for the given type of works, as well as detailed conditions for the performance (in reference to the protection of water against pollutions). The aforementioned opinion requires acceptance of the Engineer.</p> <p>e) prior to the commencement of the given type of works within channels of flowing waters or stagnant waters, the Contractor shall present a Detailed Quality Assurance Plan (DQAP) for the given type of works – including e.g. conditions described in points c, and d (above) and containing a written opinion of the environmental supervision team (including the water protection expert) – for the Engineer’s acceptance. The proceeding rules described in the aforementioned DQAP cannot be against the guidelines given in the document titled (<i>“Environmental, Health and Safety Guidelines for Ports, Harbours, and Terminals”</i>), as published at the website of the World Bank¹.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

¹ On the website: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_policy_ehs-portsharborterminals

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Item	ED item	Issue	Site	Mitigation Measure	Unit
53.	–	Protection of water, protection of biotic nature	Contract Area	<p>Conditions for draining construction excavations</p> <p>Within the excavations one shall apply a relevant drainage system for construction excavations to assure keeping them without stagnant water.</p> <p>If suspensions are found in water pumped out of the excavations, the water should be cleaned (e.g. in a sedimentation/settling tank intercepting suspensions) before it is discharged into surface waters.</p> <p>Suspensions from treatment should be disposed of in a manner consistent with their type, eliminating the possibility of penetration into surface waters or storage in places where there may be flooding, etc.</p>	Contractor (e.g. Site Manager, EMP Coordinator)
54.	–	Protection of soil and water	Contract Area	<p>Location and equipment for sites of collecting, producing, and treatment of materials, which may pollute the ground and water environment</p> <p>The sites of collecting, producing, and treating the construction materials (e.g. concrete mass, prefabricates, aggregate, etc.) and other substances that may pollute the subbase and/or surface water, shall be located and equipped to minimize the risk of their adverse impact on the condition of environment, and especially to limit the risk of pollution emission to the ground and water environment.</p> <p>Such sites shall be provided with proper protection against possible contamination of the subbase and water, and should be provided with equipment and materials allowing for immediate removal of potential pollutions.</p> <p>Location of the aforementioned sites should also meet conditions discussed under item 14.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
55.	–	Protection of soil and water	Contract Area	<p>Conditions regarding the performance of regular service actions to vehicles, machines, and devices</p> <p>Regular service actions to vehicles, machines, and devices – associated with a risk of polluting the subbase or water (including e.g. supplementation of operating fluids and refueling, removal of minor mechanic failures, cleaning of wheels for vehicles and machines, cleaning of the equipment applied for concrete-casting, etc.) shall only be done in places located away from banks of water reservoirs, properly protected against possible polluting of the subbase and water, and provided with the equipment and with materials allowing for immediate removal of potential pollutions.</p> <p>If feasible, such actions shall be done mainly in designated, marked, and properly equipped places within the site facilities, as discussed under item 57.</p>	Contractor (e.g. Site Manager, EMP Coordinator)
56.	–	Protection of soil and water	Contract Area	<p>Conditions regarding the performance of periodical service actions, repairs, and cleaning of vehicles, machines, and devices</p> <p>Periodical service actions (e.g. replacement of diesel, fluids; replacement of worn-out parts and components; etc.), repairs and cleaning of vehicles, machines, and devices shall only be done in designated, marked, and properly equipped places within the site facilities, as discussed under item 57.</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
57.	–	Protection of soil and water	Contract Area	<p><i>Designation, marking, and equipment of servicing sites for vehicles, machines, and devices, hazardous materials storage sites, and hazardous waste storage sites within the site facilities</i></p> <p>Within the site facilities one shall designate, mark, and properly equip:</p> <ul style="list-style-type: none"> • the sites for servicing, refueling, repairing, and cleaning of vehicles, machines, and devices; • the sites for storing hazardous materials; • the sites for storing hazardous waste. <p>These sites should be equipped with in technical and chemical measures to remove or neutralize hazardous substances, including petroleum derivatives.</p> <p>The aforementioned sites shall be covered with tight insulating materials protecting the subbase against the leakage of potential hard or liquid pollutions, and access to the station with absorbent shall be assured (see description under item 58).</p> <p>At establishing locations for the aforementioned sites one shall consider e.g. a safe distance from reservoirs of flowing water and of stagnant water.</p> <p>A detailed location of the aforementioned sites shall be agreed with the environmental team (discussed under item 87).</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)
58.	I.1.2.k*	Protection of soil and water	Contract Area	<p><i>Assuring the availability of absorbents close to locations under risk of diesel substances' emission</i></p> <p>In places under risk of uncontrolled emission of diesel derivatives to the subbase and to water (including e.g. servicing sites for vehicles, machines, and devices; equipment bases; parking lots; etc.) one shall provide access to the proper volume of absorbents used for removal of leaks and spills of diesel substances.</p> <p>In the event of the aforementioned emissions, ground and water pollution shall be immediately neutralized.</p>	Contractor (e.g. Site Manager, EMP Coordinator)
59.	–	Protection of soil and water	Contract Area	<p><i>Inspection of the subbase condition at work and stoppage locations for vehicles, machines, and devices</i></p> <p>Locations of operations and stoppage of vehicles, machines, and devices should be regularly inspected (especially after longer time of operation or stoppage in a given location) to identify potential leaks of substances that may pollute the ground subbase.</p> <p>In case of identifying the leaks one shall undertake relevant measures, in accordance with conditions described under item 60.</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
60.	–	Protection of soil and water	<i>Contract Area</i>	<p><i>Proceedings in the case of emission of diesel derivatives</i></p> <p>In the event of any events associated with emission of diesel derivatives into the environment (including subbase and water), one shall:</p> <ol style="list-style-type: none"> a) take immediate action to prevent the spread of contamination, by means of available resources (e.g. absorbents); b) immediately remove contaminated layers of soil, according to the currently binding regulations; c) in case of major failures, use the procedures for notification of crisis situation (described in item 82). 	Contractor (e.g. Site Manager, EMP Coordinator)
K. REQUIREMENTS ON PREVENTION OF POLLUTION EMISSION TO THE AIR					
61.	1.1.2.h*	Protection of air, protection of acoustic climate	<i>Contract Area</i>	<p><i>Limiting air pollution with exhaust fumes</i></p> <p>In order to reduce the adverse impact on the condition of the air:</p> <ol style="list-style-type: none"> a) the works shall be planned and performed in a way allowing for minimization of use in case of the construction equipment and the means of transportation; b) only technically efficient vehicles, machines and equipment should be used, with the required approvals to reduce the emission of gaseous and particulate substances into the air; c) a place should be provided for free manoeuvres of vehicles, such as yards; d) it is necessary to limit the traffic of vehicles, machines and devices to the necessary minimum, as well as to limit the speed of traffic on the construction site; e) it is necessary to eliminate the idling time of engines and follow the instructions on turning the machines and equipment off during stoppage and breaks in operation. 	Contractor (e.g. Site Manager, EMP Coordinator)
62.	1.5).2.** 1.5).7.**	Protection of air	<i>Contract Area</i>	<p><i>Limiting dusting from the construction site and roads</i></p> <p>When carrying out construction works, dusting should be limited by maintaining a high work culture, in particular by:</p> <ol style="list-style-type: none"> a) regular cleaning of the construction site; b) applying the necessary technical and organizational measures to limit the emission of dust from the construction site, including storage places for building materials and dusting from wheels of vehicles and machines; c) proper protection of bulk material and aggregate necessary for the performance against blowing them away and against excessive dusting, both: at the delivery and storage, as well as during embedding; d) spraying water on roads, squares and other dusting surfaces; e) limiting the speed of vehicles on dusting roads (especially in dry periods); f) using sealed tarpaulins on cars carrying materials that can cause dusting during transport; g) cleaning vehicle wheels before entering access roads to the <i>Contract Area</i>; h) removing dirt using mechanical devices. 	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
63.	–	Protection of air	<i>Contract Area</i>	Ban to burn fires and burn down materials, waste, litter, etc. It is forbidden to burn fires and burn down materials, waste and litter, etc. in the <i>Contract Area</i> .	Contractor (e.g. Site Manager, EMP Coordinator)
L. REQUIREMENTS ON PREVENTION OF NOISE EMISSION					
64.	I.5).1**	Protection of acoustic climate, protection of biotic nature	<i>Contract Area</i>	Reducing time of works to daytime In the surroundings of areas and buildings subject to acoustic protection, construction works and transport of building materials should be carried out in a daytime, i.e. from 6:00 am to 10:00 pm.	Contractor (e.g. Site Manager, EMP Coordinator)
65.	–	Protection of acoustic climate	<i>Contract Area</i>	Reducing noise of vehicles, machines and equipment During the <i>Contract Implementation Period</i> only technically efficient vehicles, machines and equipment shall be used, with noise emission (acoustic power) compliant with the binding regulations and which does not result in exceeding the environmental quality standards in the scope of permissible noise levels. In case any inefficient vehicles, machines and equipment are found which can generate a higher noise level in their neighbourhood, they should be immediately replaced with the efficient ones.	Contractor (e.g. Site Manager, EMP Coordinator)
66.	–	Protection of acoustic climate	<i>Contract Area</i>	Reducing noise of pump sets In the case of carrying out works in the acoustically protected areas or in their vicinity, in order to reduce their inconvenience to residents, only such pump sets shall be used which are equipped with soundproof housing which ensures the reduction of the noise levels to be compliant with the applicable regulations and standards (regarding permissible noise levels in the environment).	Contractor (e.g. Site Manager, EMP Coordinator)
67.	–	Protection of acoustic climate	<i>Contract Area</i>	Control of noise level in acoustically protected areas In the case of works carried out in acoustically protected areas or in their vicinity, the noise level shall be constantly monitored and, depending on the needs, appropriate technical and organizational measures ensuring noise reduction to be compliant with applicable regulations and standards (regarding permissible noise levels in the environment) should be applied.	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
M. REQUIREMENTS ON WASTE MANAGEMENT					
68.	–	Protection of soil and water	<i>Contract Area</i>	Development of a Waste Management Plan (Waste MP) Prior to the commencement of works the Contractor – as a waste producer – shall develop and submit for the Engineer’s approval a Waste Management Plan, specifying the way of handling waste expected to be generated during the works and taking into account, among others, conditions for waste management included in the EMP.	Contractor (e.g. Site Manager, EMP Coordinator)
69.	–	Protection of soil and water, protection of air	<i>Contract Area</i>	Guidelines for waste management Waste produced during implementation of the Contract shall be: a) segregated and stored selectively in sealed containers or in separate and properly organized places, in conditions protecting against dusting and blowing light fractions out, and their adverse impact on the environment; b) successively taken over by units having proper permits for their treatment.	Contractor (e.g. Site Manager, EMP Coordinator)
70.	–	Protection of soil and water	<i>Contract Area</i>	Guidelines for handling hazardous waste Hazardous waste should be segregated and stored separately in special sealed containers placed in the sealed, paved area that is marked and secured against access by third parties, until it is handed over to entities authorized to handle it.	Contractor (e.g. Site Manager, EMP Coordinator)
71.	1.5).3.**	Protection of soil and water	<i>Contract Area</i>	Guidelines for handling domestic waste Domestic waste shall be collected at site facilities (paved) in tight holding tanks, contents of which shall be transferred to authorized entities having relevant certificates for their treatment.	Contractor (e.g. Site Manager, EMP Coordinator)
72.	–	Protection of soil and water	<i>Contract Area</i>	Preventing illegal dumping of litter and waste Prior to the commencement of works the Contractor shall investigate the <i>Contract Area</i> for possible occurrence of illegal landfills of litter and waste. In case of identifying an illegal landfill, the Contractor shall clear such sites through removing the waste and transporting it away to the treatment site. In the <i>Contract Implementation Period</i> the Contractor shall secure the <i>Contract Area</i> against possible formation of such landfills.	Contractor (e.g. Site Manager, EMP Coordinator)

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N. REQUIREMENTS ON PROTECTION OF HEALTH AND SAFETY OF PEOPLE					
73.	–	Protection of health and safety of people	Contract Area	<p>Development of documents related to safety in the Contract area</p> <p>In the <i>Contract Area</i> it is necessary to maintain order and ensure proper organization of works.</p> <p>Prior to the commencement of works, the Contractor will develop and then obtain the Engineer's approval for the following documents related to safety on the construction site (description in Chapter 6.14 of the EMP):</p> <ol style="list-style-type: none"> a) Construction site organization plan; b) Waste management plan (Waste MP – see also item 68); c) Quality assurance plans (general and detailed ones for particular types of works); d) Flood protection plan for the site for the performance time (see also item 80); e) Health and safety plan (BIOZ Plan). 	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
74.	–	Protection of health and safety of people	Contract Area	<p>Sapper inspection and supervision in the Contract area</p> <p>In order to minimize the risk related to the possible occurrence of dangerous objects of military origin in the <i>Contract Area</i>, the Contractor shall ensure:</p> <ol style="list-style-type: none"> a) during the works – sapper supervision of works (carried out by the team of sappers discussed under item 89), consisting in the ongoing checking and clearing of the <i>Contract Area</i> of dangerous objects of military origin along with their treatment; b) in the case of finding dangerous objects of military origin in the <i>Contract Area</i> - implementation of procedures described in item 83. 	Contractor (e.g. Site Manager, EMP Coordinator, Sapper Supervision Team)
75.	–	Protection of health and safety of people, protection of material goods	Contract Area	<p>Documentation and monitoring of the technical condition of buildings exposed to tremor and vibrations</p> <p>Before starting works during which tremors and vibrations threatening the local residents as well as nearby buildings and infrastructure facilities may occur, the Contractor will carry out an inventory of existing buildings and facilities located in the zone of potential impact of vibration and vibration, with particular reference to cracks and damages.</p> <p>During the performance of the aforementioned works, the Contractor will monitor the condition of these buildings and facilities on a regular basis.</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
76.	–	Protection of health and safety of people	<i>Contract Area</i>	<p>Implementation of guidelines on work safety requirements</p> <p>The Contractor will ensure the implementation of detailed guidelines on work safety requirements, including in terms of:</p> <ul style="list-style-type: none"> a) development of the construction site, including hazardous areas; b) storage and transport; c) electrical installations and devices; d) machines and technical equipment; e) work at heights; f) earthworks; g) selected renovation and demolition works, <p>contained in applicable legal regulations and/or required by the Engineer.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
77.	–	Protection of health and safety of people	<i>Contract Area</i>	<p>Safe performing of works at reservoir's dams</p> <p>Operations of machines, devices, and other equipment in the area of reservoir's dams shall be done in a way not posing hazard to the safety of people and assets, avoiding toppling, slipping or rolling them down the dam's slope.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
78.	–	Protection of health and safety of people	<i>Contract Area</i>	<p>Conditions for the safe storage of construction materials</p> <p>Materials applied for construction works shall be stored in a way protecting them against destruction and in a way not posing hazard to the safety of people and assets, avoiding toppling, slipping down or falling of goods, devices, machines, and other equipment.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
79.	–	Protection of health and safety of people	<i>Contract Area</i>	<p>Ensuring hygienic conditions</p> <p>In the <i>Contract Area</i>, it is necessary to ensure the necessary number of portable toilets and ensure their use by employees, as well as ensure the training of all employees in maintaining appropriate hygiene conditions within the construction site and its immediate neighbourhood.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
O. REQUIREMENTS ON EXCEPTIONAL HAZARDS TO THE ENVIRONMENT					
80.	I.1.2.I*	Protection of health and safety of people	Contract Area	<p>Development and implementation of the Flood protection plan for the site</p> <p>In connection with the flood risk, the Contractor will prepare and submit to the Engineer's approval a document entitled: "Flood Protection Plan for the Construction Site", taking into account local hydrological and meteorological conditions in the vicinity of the construction site, and determining a dependence between the time of commencing the evacuation and/or protection of construction equipment and the occurrence of a particular hydro-meteorological situation. This document should include, inter alia, the conditions described in item 81.</p> <p>In the event of a flood, the Contractor will follow the procedures described in the above-mentioned document.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
81.	–	Protection of health and safety of people	Contract Area	<p>Guidelines in relation to the risk of flooding</p> <p>Construction works related to the construction of reservoir should be carried out outside the periods of bankful discharge at the Serafa River in the vicinity of the construction site.</p> <p>During the flood wave transition, vehicles, machinery, building materials and other mobile objects and elements used during construction should be located in areas beyond the reach of flood waters.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
82.	–	Protection of health and safety of people	Contract Area	<p>Guidelines on notifying of emergency</p> <p>In the event of emergency (other than a flood), accident, major failure, etc., the Contractor is obliged to take the following actions:</p> <ol style="list-style-type: none"> a) Immediately notify relevant services (Fire Brigade, Ambulance Service, Police, etc.); b) until the arrival of the relevant services, take the necessary actions to reduce the risk of loss of personnel, property and environment (as agreed with the relevant services, if possible); c) notify the Engineer and the Employer; d) after the arrival of the relevant services, act strictly according to their guidelines and instructions. 	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
83.	–	Protection of health and safety of people	<i>Contract Area</i>	<p>Guidelines for handling unexploded ordnance or live bombs</p> <p>In the case of finding unexploded ordnance or live bomb, the Contractor shall:</p> <ul style="list-style-type: none"> a) immediately stop works on the particular site; b) assure evacuation of the employees from the explosion risk area; c) immediately notify the sapper supervision team (discussed under item 89) and the Police, and then follow the guidelines obtained from them; d) notify the Engineer and the Employer. <p>Under no circumstances unexploded ordnance or live bombs may be picked up, dug out, buried, relocated, thrown to fire or water, etc.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Sapper Supervision Team, H&S Supervisor)
P. REQUIREMENTS ON THE PROTECTION OF CULTURAL HERITAGE					
84.	–	Protection of heritage	<i>Contract Area</i>	<p>Providing archaeological supervision for the earthworks</p> <p>The earthworks in the <i>Contract Area</i> shall be performed under archaeological supervision assuring protection of cultural heritage.</p> <p>To this end, the Contractor shall:</p> <ul style="list-style-type: none"> a) ensure the participation of a team of archaeologists (discussed under item 88) who conduct ongoing supervision of earthworks; b) prepare a relevant action plan for the archaeological supervision team in the <i>Contract Implementation Period</i>, and present it for the Engineer’s acceptance; c) if necessary, obtain the permission required by law to conduct archaeological research from the competent heritage conservator. 	Contractor (e.g. Site Manager, EMP Coordinator, Archaeological Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
85.	–	Protection of heritage	Contract Area	<p><i>Guidelines on the conduct in the case of uncovering mobile monuments or archaeological sites</i></p> <p>If during the works an object is uncovered which may be or certainly is a historic monument or has a historical value, the Contractor is obliged to:</p> <ul style="list-style-type: none"> a) immediately stop any work that may damage or destroy uncovered objects in a given place; b) secure (by means of available sources) uncovered objects and the place where they were found against being destroyed, damaged or stolen; c) immediately notify the team of archaeologists (discussed under item 88) and the Engineer; d) take further security measures, agreed with the team of archaeologists and the Engineer; e) facilitate and ensure carrying out documentary activities, archaeological research and other necessary activities indicated by an expert team of archaeologists and/or administrative authorities responsible for preserving the historic substance; f) after completing the activities and research listed in items d) and e) uncovered mobile monuments should be relocated to appropriate institutions indicated by a team of archaeological experts and/or administrative authorities responsible for protecting the historic substance (in accordance with the applicable regulations and the content of the Permit referred to in item 84, letter c); g) in the case of immobile monuments, after completing the activities and research listed in items d) and e) the guidelines should be implemented regarding further treatment of the uncovered historic substance, established by a team of archaeological experts and/or administrative authorities responsible for protecting the historic substance (in accordance with applicable regulations and the content of the Permit referred to in item 84, letter c). 	Contractor (e.g. Site Manager, EMP Coordinator, Archaeological Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
Q. REQUIREMENTS ON THE CONTRACTOR'S PERSONNEL IMPLEMENTING THE EMP					
86.	–	Implementati on of the EMP and implementati on reporting	<i>Contract Area</i>	<p>Appointment of the EMP coordinator in the Contractor's team</p> <p>In the Contactor's team, a person shall be appointed to coordinate and supervise actions related to the implementation of the EMP.</p> <p>The responsibilities of the person shall include:</p> <ul style="list-style-type: none"> a) supervising the implementation of individual EMP terms in the subsequent stages of the Contract implementation; b) ongoing monitoring of the status of implementation of individual terms of Appendix 1 and Appendix 2 to the EMP in the <i>Contract Area</i>; c) ongoing informing of the Contractor's management team on the obligations arising from the EMP at the particular stage of works, as well as on the issues arising during the implementation of the EMP; d) co-operation with the rest of the Contractor's team (including a team of environmental experts, a team of archaeologists, a team of sapper supervision, and a H&S supervisor) in the scope of ensuring the implementation of the EMP; e) preparation of commentaries and reports for the Engineer (e.g. kick-off, monthly, quarterly, ad-hoc, final report); f) development of memos and reports for RDOŚ and/or for GDOŚ (to the extent resulting from the relevant administrative decisions obtained at the Contract implementation stage [e.g. permits on departure from bans related to the protected species, as discussed under items 38 and 39], if the Contractor would obtain such decisions); g) co-operation with people responsible for the implementation of the EMP from the Engineer's team and the Employer's team. <p>The person appointed to perform the abovementioned role shall require the Engineer's approval.</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
87.	–	Implementation of the EMP and implementation on reporting, protection of water, protection of biotic nature	Contract Area	<p>Providing a team of environmental experts</p> <p>Throughout the whole <i>Contract Implementation Period</i> the Contractor shall provide a team of environmental experts.</p> <p>The team shall be engaged in implementation of mitigation measures related to the protection of environmental resources, as specified in this EMP (see items, e.g.: 6, 14-39, 41, 42, 44-46, 52, 54, 57, 86, 91, 92). Monthly reports on actions of the environmental team shall be developed and attached to the Contractor's reports (as discussed under item 92).</p> <p>The environmental team shall be composed of the representatives of the following specializations:</p> <ul style="list-style-type: none"> a) botanist - phytosociologist (natural habitats and protected plant species); b) dendrologist (rule for tree care and protection); c) zoologist - entomologist (invertebrates); d) zoologist - ichthyologist (fish); e) zoologist - herpetologist (amphibians and reptiles); f) zoologist - ornithologist (birds); g) zoologist - chiropterologist (bats); h) zoologist - theriologist (non-flying mammals); i) water protection expert. <p>One member of the team of environmental experts may combine at most two specializations listed above in items a-i (an exception is a water protection expert, who may additionally represent one or two specializations listed above in items a-h). Each specialist shall have carried out at least two natural supervisions in their professional carrier. The personnel composition of the team of environmental experts requires the Engineer's approval.</p> <p>Being involved in the work on other OVFMP Project contracts or on any other Contracts cannot limit the availability of the experts for this Contract.</p> <p>Before the commencement of works, the Contractor will submit to the Engineer's approval a Quality Assurance Plan regarding the activities of the team of environmental experts.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
88.	–	Implementation of the EMP and implementation on reporting, protection of heritage	Contract Area	<p>Providing a team of archaeological experts</p> <p>Throughout the whole <i>Contract Implementation Period</i> the Contractor shall provide a team of archaeological experts.</p> <p>These experts will be involved in the implementation of selected mitigation measures related to protection of cultural heritage, as specified in the EMP (see items: 84, 85, 86, 91 and 92). Monthly reports on actions of the archaeological supervision team shall be developed and attached to the Contractor's reports (as discussed under item 92).</p> <p>Depending on the needs, a team of archaeological experts can consist of one or more people with the appropriate professional licenses. The personnel composition of the team of archaeologists requires the approval of the Engineer.</p> <p>Being involved in the work on other OVFMP Project contracts or on any other Contracts cannot limit the availability of the experts for this Contract.</p> <p>Before the commencement of works, the Contractor will submit to the Engineer's approval a Quality Assurance Plan regarding the activities of the team of archaeological experts.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Archaeological Supervision Team)
89.	–	Implementation of the EMP and implementation on reporting, protection of health and safety of people	Contract Area	<p>Providing a sapper supervision team</p> <p>Throughout the whole <i>Contract Implementation Period</i> the Contractor shall provide a sapper supervision team.</p> <p>This team will be involved in the implementation of selected mitigation measures to protect health and safety of people, as specified in the EMP (see items: 74, 83, 86, 91 and 92).</p> <p>Depending on the needs, a team of sappers can consist of one or more people with the appropriate professional licenses. The personnel composition of the team of sappers requires the approval of the Engineer.</p> <p>Being involved in the work on other OVFMP Project contracts or on any other Contracts cannot limit the availability of the experts for this Contract.</p> <p>Prior to the commencement of works, the Contractor will submit to the Engineer for approval a Quality Assurance Plan for the sapper supervision team</p>	Contractor (e.g. Site Manager, EMP Coordinator, Sapper Supervision Team)
90.	–	Implementation of the EMP and implementation on reporting	Contract Area	<p>Training of the Contractor's staff in the scope of the EMP implementation</p> <p>The Contractor is obliged to train its managerial and engineering and technical staff on the rules and methods of implementation of these EMP terms which, in accordance with Appendix 1 and Appendix 2 to the EMP, are assigned to the Contractor. These trainings should be completed with a test.</p> <p>In the monthly reports submitted to the Engineer, the Contractor shall provide information on the state of training of the Contractor's staff in the scope of the EMP terms in the current reporting period.</p>	Contractor (e.g. Site Manager, EMP Coordinator)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
R. REQUIREMENTS ON IMPLEMENTATION REPORTS FOR THE EMP					
91.	–	Implementati on of the EMP and implementati on reporting	Contract Area	<p>Discussing the implementation of EMP during working meetings and Site Meetings</p> <p>During the <i>Contract Implementation Period</i> monthly meetings of the representatives of the PIO, the Engineer and the Contractor will be held to discuss and control the implementation of mitigation measures and monitoring measures specified in the EMP. Meeting memos / protocols shall be developed for the purpose of those meetings, and they shall be attached to monthly reports discussed under item 92.</p> <p>Notwithstanding the above, updated requirements and problems related to the implementation of the EMP will be discussed at all Site Meetings and included in Site Meeting memos / protocols.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team, Archaeological Supervision Team, Sapper Supervision Team, H&S Supervisor)
92.	–	Implementati on of the EMP and implementati on reporting	Contract Area	<p>Reporting the implementation status of the EMP</p> <p>During the <i>Contract Implementation Period</i>, the Contractor will submit monthly reports to the Engineer on the implementation of the conditions specified in the EMP (in the form of a checklist together with the necessary attachments, including reports on the implementation of environmental supervision and archaeological supervision) and shall include a description of the EMP implementation status in monthly Progress Reports.</p> <p>A template of the above-mentioned report (checklist) will be developed by the Contractor and submitted to the Engineer for approval.</p> <p>Depending on the circumstances, the Engineer may request the Contractor to submit additional reports regarding, among others, emerging critical situations, accidents, implementation of selected EMP items, and others.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Environmental Supervision Team, Archaeological Supervision Team, Sapper Supervision Team, H&S Supervisor)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
S. REMAINING ES REQUIREMENTS					
93.	–	Protection of health and safety of people, remaining ES issues	<i>Contract Area</i>	<p><i>Obligation to observe ES requirements and conditions</i></p> <p>The Contractor shall be obliged to apply and observe all ES policies' requirements and conditions (i.e. the ones related to environmental, social and health and safety issues) as determined in the Contract documents, in the Operational Policies and Procedures of the World Bank concerning protection of health and environment, as well as safeguard policies (see: description in Chapter 6 of the EMP), in the WBG's Environmental, Health and Safety (EHS) Guidelines (see: description in Chapter 6 of the EMP), in the ES Code of Conduct developed on the stage of filing a bid (see: description in Chapter 6 of the EMP), in documents of the Contractor listed in item 73 (above), and as results from the legislation valid in Poland (including the Labour Code, the Construction Law, and others).</p> <p>The ES requirements and conditions determined in reference to the Contractor and its personnel in the aforementioned sources (regardless of the legal cooperation form) are also valid in the scope relevant for a given case for Contractor's subcontractors and their personnel and their subcontractors.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
94.	–	Remaining ES issues	<i>Contract Area</i>	<p><i>Assurance of safety in case of accidents at work</i></p> <p>The Contractor shall be obliged to assure such conditions for implementation of the Contract (including performance conditions) to avoid accidents engaging any people associated with implementation of the Contract (including the staff of e.g.: the Contractor, the Engineer, the Investor, the PCU, subcontractors, suppliers, and others) and third parties.</p> <p>In case an accident happens, the Contractor shall immediately assure proper treatment for injured people, notify relevant services and provide them with access to the site, and secure the place in a way assuring safety to the aforementioned services and other people, who may be present in the area of the event.</p> <p>Regardless of the aforementioned actions the Contractor shall immediately inform the Engineer about all accidents and near misses related to implementation of the Contract (both: on site, as well as in any other location), in accordance with binding procedures determined in the Contract documents (see also: item 101).</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
95.	–	Remaining ES issues	<i>Contract Area</i>	<p><i>Provision of H&S Expert in the Contractor's team</i></p> <p>The Contractor shall be obliged to assure a permanent H&S supervision throughout the <i>Contract Implementation Period</i>, and the supervisor shall take care for observing the H&S rules determined in the Contract documents and in the binding provisions of national law. Members and qualifications of the H&S supervising team need to be in compliance with Polish provisions of the labour law.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
96.	–	Remaining ES issues	Contract Area	<p>Educational actions related to H&S rules and regulations</p> <p>The H&S Supervisor shall implement trainings and an awareness programme for the Contractor’s staff in reference to the H&S rules and regulations on site.</p> <p>Those actions shall be implemented throughout the performance period, at least once per 6 months.</p> <p>They shall take a form of informational, educational and awareness campaigns related to H&S issues in the scope corresponding with the current stage of Contract implementation.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
97.	–	Remaining ES issues	Contract Area	<p>Assurance of safety for people in case of sexual harassment and mobbing</p> <p>The Contractor shall be obliged to assure such conditions of Contract implementation to avoid cases of sexual harassment or mobbing towards the Contractor’s personnel and subcontractors, any other people associated with implementation of the Contract, and any third parties.</p> <p>If aforementioned cases of sexual harassment or mobbing occur, the Contractor shall undertake measures to immediately stop the aforementioned behavior, and subsequently it shall immediately take disciplinary measures determined by the law and internal regulations of the company in relation to perpetrators, and shall provide the victims of such behavior with any necessary help and support in the scope corresponding with the case.</p> <p>Regardless of the aforementioned actions the Contractor shall immediately inform the Engineer about any cases of sexual harassment or mobbing, in accordance with binding procedures determined in the Contract documents (see also: item 101).</p>	Contractor (e.g. Site Manager, EMP Coordinator, Sexual Harassment and Mobbing Prevention Specialist)
98.	–	Remaining ES issues	Contract Area	<p>Educational actions to prevent cases of sexual harassment and/or mobbing</p> <p>The Contractor shall implement trainings and an awareness programme for the Contractor’s staff in reference to the prevention of cases of sexual harassment and mobbing.</p> <p>Those actions shall be implemented throughout the performance period, at least once per 12 months.</p> <p>They shall take a form of informational, educational and awareness campaigns related to sexual harassment and mobbing.</p> <p>The measures shall be implemented by an expert having proper substantial qualifications in that scope, who would remain a member of the Contractor’s team.</p>	Contractor (e.g. Site Manager, EMP Coordinator, Sexual Harassment and Mobbing Prevention Specialist)

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Item	ED item	Issue	Site	Mitigation Measure	Unit
99.	–	Remaining ES issues	Contract Area	<p><i>Assurance of proper conditions of work and payment for the personnel</i></p> <p>The Contractor shall be obliged to secure proper conditions of works and payment for the personnel associated with implementation of the Contract, fully in accordance with provisions of the labour law binding in Poland (and especially with the Labour Code), including the following, e.g.:</p> <ul style="list-style-type: none"> • the Contractor shall assure equal treatment in case of payment for the employees performing the same work, without consideration of sex, sexual orientation, and age; • people employed at the Contract shall not be harassed due to sex, sexual orientation and age; • the Contractor may employ only such a young employee, who is 15 years old, completed at least 8-years of primary school, and provided a medical statement confirming that a work of a given type is not risky to his/her health; • the Contractor shall ensure that juvenile employees (persons under the age of 18) will not perform work that is forbidden for juvenile employees², including in particular works that create an accident hazard, including construction and demolition work; • the Contractor – adequately to the potential and conditions, and in accordance with Polish provisions of the Labour Code – shall secure the living and social needs of the employees on the work site; • the Contractor shall be obliged to facilitate the employees in improving their professional qualifications. 	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)
100.	–	Remaining ES issues	Contract Area	<p><i>Educational actions related to the provision of claims referring to the conditions of work and payment</i></p> <p>The Contractor shall inform all people employed due to implementation of the Contract about a possibility of providing claims related to the conditions of work and payment, and shall develop an information leaflet with necessary data on provision of claims and applications, in which it would assure about e.g. the absence of repercussion for a person notifying about an issue. Proceeding rules described in the aforementioned leaflet cannot be against the guidelines given in the document titled “<i>Grievance Redress Mechanisms</i>”, as published on the website of the World Bank³.</p> <p>Contents of the aforementioned leaflet shall be agreed with the Engineer.</p>	Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)

² In accordance with provisions set out in the *Regulation on works prohibited for juveniles*

³ On the website:
<http://documents.worldbank.org/curated/en/145491521090890782/Grievance-redress-mechanisms>

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Item	ED item	Issue	Site	Mitigation Measure	Unit
101.	–	Protection of health and safety of people, remaining ES issues	Contract Area	<p><i>Development and implementation of procedures related to the ongoing provision of information on ES issues</i></p> <p>In the period not longer than 30 days from the commencement date of the Contract, the Engineer shall develop and provide the Contractor with a set of procedures related to the ongoing provision of information related to the following:</p> <ul style="list-style-type: none"> • exceptional hazards (i.e. emergency and crisis situations discussed in Chapter 5.12 of the EMP); • accidents and near misses; • cases of sexual harassment and mobbing; • claims of the personnel related to the conditions of work and payment. <p>The Contractor shall immediately inform the Engineer about any issues in that scope, in accordance with the conditions determined under the valid contractual procedures.</p>	<p>Engineer (e.g. Resident Engineer, H&S Supervisor)</p> <p>Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)</p>
102.	–	Protection of health and safety of people, remaining ES issues	Contract Area	<p><i>Guidelines on prevention of infectious diseases (including HIV/AIDS type diseases and diseases caused by corona viruses)</i></p> <p>The Contractor shall, via an approved service provider, implement an awareness-raising programme (including an appropriate training) on the prevention of sexually transmitted diseases (among others HIV/AIDS) and other infectious diseases (including those caused by coronaviruses) and shall take all other measures to reduce the risk of transmission of infectious diseases among the Contractor's personnel and the local community. These activities should be performed in accordance with the detailed guidelines set out in the Bidding Documents.</p>	<p>Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)</p>
103.	–	Protection of health and safety of people, remaining ES issues	Contract Area	<p><i>Rules of conduct in the event of an epidemic state or an epidemic risk state</i></p> <p>In the event that an epidemic state or an epidemic risk state is in force during the <i>Contract Implementation Period</i>, the Contractor is obliged to:</p> <ol style="list-style-type: none"> a) to provide the persons on the construction site with all necessary precautions to maintain the health and safety of persons related to the Contract implementation, to the extent described in the Terms and Conditions of the Contract, in particular to introduce appropriate measures to avoid or minimise the spread of infectious diseases, including measures aimed at avoiding or minimising the transmission of infectious diseases that may be associated with the inflow of temporary or permanent labour, related to the Contract implementation, in the manner specified in the applicable Law (e.g. in regulations issued pursuant to the Act of 5 December 2008 on preventing and combating infections and infectious diseases in humans, and others); b) designate a person responsible under the Contract for matters relating to the health and safety at work during an epidemic state or an epidemic risk state; c) implement relevant recommendations of the World Bank and sanitary services in the Republic of Poland; d) cooperate with the Engineer and the Investor, in particular 	<p>Contractor (e.g. Site Manager, EMP Coordinator, H&S Supervisor)</p>

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				<p>provide current information on the precautions taken or planned, (including the appropriate protection of the construction site against unauthorised access, the procedures introduced and the appropriate updating of the documents described in Chapter 6.14 of the EMP, in particular the Health and Safety Plan);</p> <p>e) organise information action (e.g. in the form of posters and instructions on the construction site) on the symptoms and signs of infection, virus spread, protection measures (including among others regular hand washing);</p> <p>f) organise training for the Contractor's personnel who is related to the Contract implementation, at least in the scope of:</p> <ul style="list-style-type: none"> • updated procedures and documents, • symptoms and signs of COVID-19 (or any other infectious disease connected with an established epidemic state or epidemic risk state), including self-monitoring of symptoms, spread of the virus, available protection measures, • procedures in case of noticing symptoms of the disease in oneself and others, • regulations in force concerning the quarantine of workers and their families, remuneration for the period of illness, isolation or quarantine, the provision of health care, including sanitary transport carried out in connection with the prevention of infection, • applicable procedures for signalling infringements or reporting complaints by employees, • waste handling (e.g. masks, gloves, disinfectants and cleaning products). <p>In the course of an epidemic state or an epidemic risk state, within the scope of the law, training should be provided by electronic means of communication or in the form of self-education.</p>	