

**REGIONAL DIRECTOR FOR
ENVIRONMENTAL PROTECTION
IN CRACOW**

OO.4233.1.2017.BM

Cracow, 4 September 2017

**DECISION
ON ENVIRONMENTAL CONDITIONS**

Based upon Article 104 and 107 (1) of the Act of 14 June 1960 Administrative Proceeding Code (OJ of 2016, item 23, consolidated text), Article 63, Article 71 (2) item 2, Article 75 (1) item 1 letter i), and Article 80 (2), Article 84 and Article 85 (2) item 2 of the Law of 3 October 2008 on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments (OJ of 2016, item 353, as amended), and based upon Article 17 of the Act of 8 July 2010 on the special preparation rules for flood protection investments (OJ of 2015, item 966, as amended), as well as Article 3 (1) item 65 of the regulation of the Council of Ministers of 9 November 2010 on the investments which may significantly affect the environment (OJ of 2016, item 71, consolidated text),

after considering

the application dated 03/31/2017, as provided by Mr. Michał Węgrzyn of Habitat Selection s.c. Kolecki Mateusz, Węgrzyn Michał, Sławkowice 35, 32-020 Wieliczka, acting upon the power of attorney provided by the Investor, i.e.: Lesser Poland Voivodship – Lesser Poland Board of Amelioration and Water Structures in Cracow, with its registered office in Cracow at 73. Szlak Street, 31-153 Cracow, formally supplemented with the note dated 04/27/2017, the scope of which was extended in the note dated 05/29/2017; and the investment data sheet supplemented with the note dated 06/22/2017 for the issuance of a decision on environmental conditions for the investment titled: **“Construction of the left backwater embankment at the Dłubnia River in the City of Cracow”**,

after obtaining opinion

of the State District Sanitary Inspector in Cracow – note dated 07/17/2017 (reception date: 07/27/2017), ref. no.: NZ-PG-420-261/17 ZL/2017/07/75,

I hereby decide as follows:

- 1. I state that it is not necessary to perform an environmental impact assessment for the investment.**
- 2. I state that it is not necessary to impose additional conditions and requirements determined under Article 84 (1a) of the Law of 3 October 2008 *on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments* (OJ of 2016, item 353, as amended).**
- 3. This decision is immediately enforceable, as applied by the Investor’s Proxy in the note dated 08/09/2017.**
- 4. Specificity of the investment is determined in appendix no. 1 forming an integral part of this decision.**

Justification

Mr. Michał Węgrzyn of Habitat Selection s.c. Kolecki Mateusz, Węgrzyn Michał, Sławkowice 35, 32-020 Wieliczka, acting upon the power of attorney provided by the Investor, i.e.: Lesser Poland Voivodship – Lesser Poland Board of Amelioration and Water Structures in Cracow, with its registered office in Cracow at 73. Szlak Street, 31-153 Cracow, provided an application on 03/31/2017, which was formally supplemented with the note dated 04/27/2017, the scope of which was extended in the note dated 05/29/2017 for the issuance of a decision on environmental conditions for the investment titled: **“Construction of the left backwater embankment at the Dłubnia River in the City of Cracow”**.

During the proceedings the following were attached to the application:

- 2 copies of investment data sheet, including a digital version;
- Topographic map including the implementation site and the impact area for the planned investment;
- Map in a scale assuring legibility of provided data, with marked area, where the investment shall be implemented, and with the area, where the investment shall exert impact, including a digital version;
- Copy of a cadastral map certified by relevant authorities, covering the expected site, where the investment shall be implemented, including the area, where the investment shall exert impact;
- Simplified extract from the land register provided by the Mayor of Cracow;
- Original power of attorney for Mr. Michał Węgrzyn to apply in the name of the Investor, i.e.: Lesser Poland Board of Amelioration and Water Structures in Cracow, to public administration units and in reference to administrative proceedings before those units, as well as before courts of all instances in relation to the issuance of decisions and establishments necessary to develop design and estimate documentation titled: *“Construction of the left backwater embankment at the Dłubnia River in the City of Cracow”*;
- Certified copy of Decision no. 380/14 of the Lesser Poland Voivodship Board of 8 April 2014 on modification of a decision no. 1515/10 of 14 December 2010 on provision of power of attorney for the Director of Lesser Poland Board of Amelioration and Water Structures in Cracow.

The subject investment task is qualified to the group of investments which may potentially affect the environment significantly, for which an environmental impact assessment may be required, in accordance with **Article 3 (1) item 65** – *“flood defenses, except for redevelopment of flood embankments including sealing of the embankment body and its subbase, to limit the possibility of washing-out and failure during accommodation of flood water, as well as regulation of water or its channeling understood as water management allowing for its use for navigation purposes”* – regulation of the Council of Ministers of 9 November 2010 on the investments which may significantly affect the environment (consolidated text: OJ of 2016, item 71).

In conformity with provisions under Article 63 (1) of the Law of 3 October 2008 on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments, it is required to identify the necessity of performing the environmental impact assessment by a relevant regional director for environmental protection.

In accordance with Article 80 (2) of the Law of 3 October 2008 on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments (OJ of 2016, item 353, as amended), identification of compliance between the investment location and establishments under the local spatial development plan is not related to flood defenses implemented based upon the Act of 8 July 2010 on the special preparation rules for flood protection investments (OJ of 2015, item 966, as amended).

In accordance with the investor's application the decision on environmental conditions shall be necessary to obtain a decision on investment project implementation permit, as discussed under provisions of the Act of 8 July 2010 on the special preparation rules for flood protection investments; thus – in compliance with Article 75 (1) item 1 letter i) of the *EIA Act* – the unit relevant for the issuance of decisions on environmental conditions is the Regional Director for Environmental Protection in Cracow.

Due to Article 17 (3) of the Act of 8 July 2010 on the special preparation rules for flood protection investments (OJ of 2010 no. 143, item 963), the Regional Director for Environmental Protection in Cracow notified via the note dated 05/30/2017 the General Directorate for Environmental Protection on the submission of application for the issuance of a decision on environmental conditions for the aforementioned investment.

Based upon Article 61 (4) of the Administrative Proceeding Code the Regional Director for Environmental Protection notified the parties of proceedings in the note dated 05/31/2017, ref. no.: OO.4233.1.2017.BM, on the commencement of proceedings to issue this decision. Due to the fact that the number of proceeding parties exceeded 20, in accordance with Article 74 (3) of the Law of 3 October 2008 on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments (hereinafter referred to as the *EIA Act*), Article 49 of the Administrative Proceeding Code (hereinafter referred to as the *APC*) – stating notification of the parties through an announcement – was applied. Placement of the announcement for 14 days took place on a noticeboard of the Regional Directorate for Environmental Protection in Cracow (hereinafter referred to as the *RDOŚ in Cracow*) and in the City Office of Cracow.

The announcement of commencement was placed on the noticeboard of the RDOŚ in Cracow from 06/01/2017 to 06/14/2017, whereas on the noticeboard of the City Office of Cracow – from 06/01/2017 to 06/16/2017. Information on the commencement of proceedings was also included in the Public Information Bulletin at the website of the Regional Directorate for Environmental Protection in Cracow, and also in the publicly accessible data register at the website of the Center on Information on the Environment.

In the course of proceedings the RDOŚ in Cracow called the Investor's Proxy with a note dated 06/22/2017, ref. no.: OO.4233.1.2017.BM, to supplement the investment data sheet. The Investor's Proxy provided a relevant substantial supplementation in the note dated 06/22/2017.

The RDOŚ in Cracow notified the parties of proceeding in the note dated 06/29/2017, ref. no.: OO.4233.1.2017.BM, about applying to the State District Sanitary Inspector in Cracow for an opinion on the obligation to perform an environmental impact assessment.

The announcement of commencement and in applying for an opinion of the SDSI in Cracow was placed on the noticeboard of the RDOŚ in Cracow from 06/29/2017 to 07/14/2017, whereas on the noticeboard of the City Office of Cracow – from 06/30/2017 to 07/17/2017. Information on the commencement of proceedings was also included in the Public Information Bulletin at the website of the Regional Directorate for Environmental Protection in Cracow, and also in the publicly accessible data register at the website of the Center on Information on the Environment.

The State District Sanitary Inspector in Cracow issued a sanitary opinion on 07/17/2017 (reception dated: 07/27/2017), ref. no.: NZ-PG-420-261/17 ZL/2017/07/75, and it stated that the subject investment does not require performing the environmental impact assessment.

Due to Article 63 (1) of the Law of 3 October 2008 on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments, while taking into account specificity of performance and of use of the left backwater embankment at the Dłubnia River to be developed the following conditions were taken into consideration:

1. Type and character of the investment including the following:

a) Scale of the investment and size of acquired land, and their mutual proportions, as well as significant solutions specific for the investment.

The subject of the investment is the development of the left backwater embankment over a length of about 476 m, from a distinct ending of the existing backwater embankment at the River Dłubnia at chainage km 1+136 to the location at chainage km 1+612. The investment shall comprise the development of a backwater embankment with necessary redevelopment and construction of accompanying facilities (embankment lock with an intake port, maneuvering yard as a station for mobile pumps, and protection of the existing ditches) and redevelopment of collisions with the embankments (power and gas network, sewerage).

The investment shall be implemented in accordance with the requirements under provisions of the Regulation of the Minister of Environment of 20 April 2007 on the technical conditions for hydraulic structures and their location (OJ of 2007 no. 86, item 579), and the flood embankment designed as the backwater embankment for the River Vistula was classified to Class II. In case of Class II flood embankments the design flow is the flow with 1% probability and the control flow is the flow with 0.3% probability. Freeboard required for the structures is 1.0m for design water and 0.3 m for control water, respectively.

In administrative terms the investment in question is located within the Municipality of Cracow, on the left bank of the River Dłubnia. The designed new section of the backwater embankment shall be located at chainage km 1+577 – 2+140 of the Dłubnia River. It starts at the ending of the existing left embankment, which gently turns east in a form of a small embankment. The new embankment with a total length of about 476 m starts at register plots no.: 380, 381, and 379, and it forms a straight-line extension for the existing embankment in its initial section. As an amelioration ditch exists at chainage km 1+244, it is designed to develop an embankment lock with a channel diameter of about 0.8 m. The lock shall have an intake port, failure valves on the embankment crest, and a maneuvering yard and a station for mobile pumps. Then the embankment, at the maneuvering yard, turns north-east and runs as a straight section to the slight bend and joins the high bank of the Dłubnia valley. Due to the development of the embankment left-bank embanked area shall be formed with a width of from about 20 to 110 meters. The land area under the application is about 1.3 ha.

The new flood embankment to be developed shall be constructed in a new location, and the previous use within the separated place shall be modified to a flood embankment function. Currently, within the most of the plots listed the following are present: arable land, developed arable land, pastures, land with shrubs and trees, permanent meadows, housing areas, various areas, roads. However, in direct reference to the areas separated to the construction of embankment the following are located: succession shrubs and trees within a small area, parts of pastures and waste-land overgrown with golden rod, and arable land. In total the arable land is about 52%, shrubs and trees – about 14%, whereas pastures and waste-land – about 34%. There are no houses and outbuildings within the

planned investment area. The closest houses are located on the eastern side of the planned embankment in a small distance – from about 12 to about 14 m; those are houses located at Bardosa Street.

Due to the development of the embankment it shall be necessary to locally redevelop or protect such facilities as the following:

- Overhead neSD line located at chainage km 1+432.20 (due to too extensive droop of the line it is necessary to place an additional post on the landside of the embankment),
- Combined sewer system ko 1200/1950 located at chainage km 1+630.80 (MPWiK Kraków does not raise remarks related to the redevelopment of the protection of sewerage and accepts the designed raising of the embankment body),
- Low pressure steel gas piping with a diameter of 100 mm, working pressure of up to 10 kPa, located at chainage km 1+291.90 (in case of the low pressure gas piping it is expected to replace the section made of steel with a diameter of 100 mm over a length of 52 m with 160 mmPE, including protection of the piping with a protective tube in a reach running underneath the designed embankment. Redevelopment of the gas piping shall be done at the existing route and on the same depth).

Additionally, an amelioration ditch runs at chainage km 1+244 of the planned embankment, and its mouth reaches the Dłubnia River.

The scope of construction works under the planned investment shall include the following, e.g.:

- Removal of the top layer of top-soil from the subbase over a width of the planned embankment;
- Development of an anti-filtration membrane in the subbase;
- Development of a soil bank;
- Placement of bentomat;
- Finishing and shaping of the embankment;
- Placement of a transient layer made of mineral soil;
- Placement of top-soil with sowing using a grass mix.

Basic technical parameters of the designed embankment shall be as follows:

- Length of the designed embankment: - about $l = 476$ m, at chainage km 1+136 to 1+612 (River Dłubnia chainage km 1+577 – 2+140),
- Hydraulic Class II,
- Embankment crest datum: – from about 200.91 m a.s.l. to about 200.95 m a.s.l.,
- Crest width: - about $b = 4.0$ m
- Feet width: - from about 8.08 m to about 23.79 m,
- Riverside slope grade: - 1:2.5,
- Landside slope grade: - 1:2.0,
- Height of the embankment in reference to the embanked area: - from about 0.95 m to about 3.56 m,
- Height of the embankment in reference to the area beyond the embankment: - from about 0.95 m to about 2.40 m,
- Embankment platforms at chainage km 1+186, 1+309, 1+604,
- U-turn (maneuvering yard) at chainage km 1+366,
- Grade of embankment platforms: 1:12,
- Embankment lock with diameter of 800 at chainage km 1+244,
- Maneuvering yard in the area of the lock at chainage km 1+252.

The analyzed flood embankment shall be designed as an earth structure with elements of sealing and with service roads. Traffic on the embankment and access to the lock with a pumping station shall be secured by service roads located on the embankment crest and on the footstrip at the embankment with a course composed of KSO having a height of 20 cm, filled in with breakstone. The KSO system shall be arranged on geo-textile. Embankment platforms shall have a surface made of open-work reinforced-concrete road slabs. Their application is necessary to protect the embankment crest against damaging. The application of open-work slabs simultaneously allowed for keeping the surface partially permeable.

Along with the development of new flood embankment works associated with the development of a new embankment lock – ended on both sides of the embankment with reinforced-concrete abutment, descend roads and crossings through the embankment shall be performed. Embankment crossings and descend roads shall be made of reinforced-concrete open-work road slabs. Grade of all descend roads shall amount to 1:12. First two descend roads to both sides of the embankment are located at chainage km 1+186. From that place the roads shall run on the embankment crest and on the crest of strip at the embankment. A strip of greenery with a width of about 4 meters (so-called green road) is designed on the embanked area's side, whereas the road located on the other side shall be hardened, and it shall lead to the pumping station, and then to the maneuvering yard. Another descend road from the embankment crest shall be located before the maneuvering yard at chainage km 1+252. At the end of the designed embankment all three roads shall join on the embankment crest reaching the high bank.

As informed by the Author of investment data sheet the assumed flood protection effect shall be achieved through the development of a flood embankment forming a continuation for the existing flood embankment. Furthermore, increasing the tightness of the designed flood embankment shall be achieved through embedding a bentonite mat in its riverside slope and through the development of a cement and bentonite membrane in the subbase of the riverside embankment foot. Such an arrangement shall allow for reducing the height of vertical membrane (by the height of embankment, where the mat shall be placed), and in turn it shall allow for applying multi-bucket excavators and for reducing the performance time for the planned task. For the purpose of additional protection on the riverside embankment slope it is designed to apply a mesh against beavers onto the bentomat. In reference to the existing researches, including the ones done to design modernization of Vistula embankments by SWECO (including initial sections of embankments for the River Dłubnia based upon filtration calculations done using mathematic models), and based upon geological surveys it was assumed that it is necessary to develop a cement and bentonite membrane in the ground to a depth of up to 3 m.

The basic membrane shall be done using the multi-bucket excavator under cover of thixotropic suspension. Locally the membranes shall be developed using other excavators, drills for deep-soil mixing with injection of cement leaven or driven using a piledriver (vibrohammer).

b) Connection with other investments, and especially accumulation of impacts of investments in progress and completed ones, for which a decision on environmental conditions was issued, located on sites, where implementation of the investment is planned and in areas of investment impact or impact of which is included in the planned investment impact area in the scope, in which the impact may lead to accumulation of impacts with the planned investment.

The investment planned for implementation and including the development of new left backwater embankment at the River Dłubnia forms a continuation for the designed adjacent investment comprising redevelopment of the River Dłubnia embankments (titled: "Completion of construction of

Vistula flood embankments in Cracow: Section 1 – the left embankment of the Vistula River from the Wandy Bridge to the Przewóz Barrage with backwater embankment for the River Dłubnia”). Implementation of the designed extension of backwater embankment shall not cause accumulation of impact with the aforementioned investment comprising redevelopment of the embankment.

On site, where the investment shall be implemented, any other investment was not implemented and is not planned. Therefore, implementation of the discussed assignment shall not cause accumulation of impact.

c) Biological diversity, use of natural resources, including soil, water and earth surface.

The site designated for implementation of the discussed investment is mostly formed by arable land – about 52%, shrubs and trees form about 14%, whereas pastures not used and waste-land amount to about 34% of the site. All listed vegetation forms are fitocenosis significantly transformed by man, associated with farming having small environmental value.

In case of overgrowing pastures and fallow land, giving up grazing of stock or meadow management caused slow process of overgrowing by ruderal plants, as well as by invasive species, golden rod mainly. In more wet places, especially along amelioration ditches, willow sprouts occur: basket willow (*Salix viminalis*), crack willow (*Salix fragilis*), white willow (*Salix alba*), and black alder (*Alnus glutinosa*) and blackthorn (*Prunus spinosa*).

During implementation and use of the investment it is not expected to apply natural resources extensively. During implementation of the investment it shall be necessary to use raw materials, i.e.: e.g. embedded soil – about 260.000 m³; water supplied to the construction site – about 1.2 m³/day, on average, and up to about 3.6 m³/day at the most intensive works; and such materials as: concrete/reinforced-concrete – about 1.000 m³, cement and bentonite membrane – about 22.000 m³, and bentonite mat – about 120.000 m². Then plastics (mats, geo-membranes) – about 65.000 m², and also steel in quantities required (necessary) for implementation of the task.

The same materials as in case of the investment implementation stage shall be applied in minor quantities for ongoing maintenance of the objects, and for repairs and overhauls. After implementation of the investment the planned investment shall not affect the quality of water in any way.

d) Emission and occurrence of other nuisance.

Neither emission of pollution to air nor noise emission shall occur during the use. Minor nuisance cause by the investment shall occur on the implementation stage only, and those shall be minor, short and transitory impacts, associated with the construction stage only.

Emission of pollution to air shall mainly be associated with deliveries of materials necessary for implementation of the investment to the investment site by heavy-duty vehicles, and with operations of machines and devices applied at performance of construction works; however, their quantity shall not significantly deteriorate cleanliness of air beyond the investment implementation site. Impact of machine operating at the works is minor. The planned investment shall not cause exceeding of acceptable pollution values and deteriorating the quality of air. Impact of pollution emission shall practically be limited to the site, where the works will be performed.

During implementation of the investment one may identify two main noise sources, i.e. traffic (heavy-duty vehicles – deliveries of raw materials), construction equipment (excavator, loader), and noise associated with wheel traffic. Noise generated by machines and devices during the construction works shall be temporary, and the related nuisance shall stop at completing the construction works. Noise associated with truck deliveries shall be minor and transient, and it shall not significantly affect the environment.

Development of the analyzed section of the flood embankment shall be done within the undeveloped area or in a close distance to few houses. The closest houses are placed on the eastern side of the planned embankment, in a distance of from about 12 to 1 m (houses located at Bardosa Street). In order to reduce adverse investment impact on the environment on the performance stage, the works in vicinity of houses shall be done during the daytime only (from 6.00 am to 6.00 pm). Short-term occurrence of noise level higher than 55 dB (a) shall not form hazard to the health of inhabitants, and it shall not generate acoustic nuisance to the environment. Acoustic nuisance related to implementation of the investment shall stop at the completion of works. The main guideline related to the emission of noise during the performance is execution of the work during the day only.

e) Risk of serious failures or natural disasters and construction disasters assessed based upon scientific knowledge, including substance used and technologies applied, including a risk associated with climate change.

The risk of serious failure is not expected in case of the planned investment, as neither technologies nor substances harmful to the environment shall be applied.

Provided that the construction works shall be performed in accordance with technical knowledge, binding regulations, standard, and H&S rules, the occurrence of a natural disaster of a construction disaster is unlikely in case of the investment in question.

Implementation of the investment shall also not contribute to the occurrence of adverse effects of climate change.

f) Expected quantities and type of waste produced and their impact on the environment, if their production is planned.

Due to implementation of the investment, production of waste is expected on the performance stage directly due to the work done (e.g. use of construction equipment and operations of staff facilities), and their producer shall be the work contractor responsible for possession of relevant permit related to waste management. On the current stage of proceeding one cannot unequivocally and in details determine the quantity of waste to be produced. Waste produced on the performance stage was informed in estimated quantities in the table given below:

Code	Waste type	Expected waste quantity Mg/year
17 01 06	Mixed packaging waste	0.35
17 01 07	Mixed concrete waste, ceramic waste and waste elements of equipment other than those listed under 17 01 06	2000
17 12 09	Other waste not listed (stone)	330
15 02 03	Absorbent, filtration material, rubbing textile (e.g. rags, cloths) and protective clothes, other than those listed under 15 02 02	0.01
17 02 01	Wood	300
17 04 11	Cables other than those listed under 17 04 10	1.5
17 06 04	Insulating materials other than those listed under 17 06 01 to 17 06 03 (mineral wool, polystyrene foam)	0.5
17 02 03	Plastics	0.5
17 04 05	Iron and steel	100
17 01 02	Brick debris	50.0
17 03 80	Waste roofing felt	0.5

Soil in the form of gravel, sand-gravel, loam – collected during the performance – shall be used as material for development of the embankment body. Spoil present as waste is not expected, due to its application within the investment site.

The analysis of design solutions done proves that during the use of objects small quantities of hazardous waste and waste other than hazardous one shall be produced.

Types and quantities of waste produced during the use of objects are given in the table below:

Code	Waste type	Expected waste quantity Mg/year
16 01 07*	Oil filters	0.002
16 02 14	Worn-out devices other than those listed under 16 02 09 to 16 02 13	0.01
17 04 05	Iron and steel	0.02
17 04 11	Cables other than those listed under 17 04 10	0.02
Total		0.052

g) Hazard to health of people, including the one resulting from the emission.

Occurrence of hazard to health of people, including the one resulting from the emission, is not expected during implementation and use of the investment.

2. Location of the investment, including possible hazard to the environment, and especially at the existing and planned land used, self-purification possibilities for the environment and renewal of natural resources, environmental and landscape values and local conditions under spatial management plans.

Implementation of the investment shall take place on the left bank of the Dłubnia River, which is a left-bank tributary river of Vistula, and it shall contain development of the left backwater embankment over a length of 476 m, which would join the modernized, existing left embankment of the Vistula River at chainage km 1+136, i.e. at chainage km 1+577 of the River Dłubnia. The end of the designed backwater embankment section is located at chainage km 1+612, i.e. at chainage km 2+140 of the River Dłubnia.

In accordance with application of the Proxy, the assignment is related to the construction of flood defenses based upon the Act of 8 July 2010 on the special preparation rules for flood protection investments, and therefore – in conformity with Article 82 (2) of the *EIA Act* – it is not necessary to identify compliance of its implementation with the valid LSDP.

Furthermore, while analyzing the investment location in terms of hazard to the environment, the following was included:

a) Occurrence of water and muddy areas, other than the area with shallowly occurring ground water, including riparian habitats and river estuaries.

There are no water and muddy areas and areas with shallowly occurring ground water, including riparian habitats, within the investment site.

b) Presence of shores and maritime environment.

The investment is located beyond the area of shore.

c) Possible presence of mountainous or forest areas.

The investment site is neither a mountainous nor forest area.

d) Areas under protection, including protection zones for water intakes and protected areas of in-land water reservoirs.

There are no areas under protection, including protection zones for water intakes and protected areas of in-land water reservoirs, within the planned investment site.

e) Areas requiring special protection due to the presence of plant, animal, and fungi species or their habitats or natural habitats under protection, including Natura 2000 sites and other forms of environmental protection.

Implementation and operations of the planned investment shall adversely affect legally protected areas established based upon the Act of 16 April 2004 on the conservation of nature. The analyzed investment is located beyond the boundaries of European Ecological Network Natura 2000. The closest site – Łąki Nowohuckie PLH120069 – is located in a distance of about 1.5 km south from the closest boundary of the investment site. The area is placed within the Vistula valley (in the former flood terrace). On the south it borders the Vistula's oxbow lake, on the north with the center of Nowa Huta – precinct of Cracow. Łąki Nowohuckie is the last well-kept part of meadows at Vistula in Nowa Huta. One can find over 10 diversified plant groups within a small area. The main objective of protection within the aforementioned area is the protection of meadow habitats (moor-grass meadows and oat-grass meadows) as habitats of butterflies remaining the main subject of protection.

Within the area designated for the investment and within a buffer of about 100 m from its boundaries inventory was done in July 2016 in reference to the occurrence of protected species of animals and their habitats. The research was done using a routing method. Any identified traces of animal presence were noted during the research.

The environmental inventory done within the analyzed area did not prove the occurrence of partially or strictly protected species of plants and animals. There are also no species listed under the Red List of Fung and Plants of Poland and under the Polish Red Book of Plants.

Furthermore, the environmental inventory done within the analyzed area did neither prove the occurrence of protected animal species nor any traces of their presence.

Small water pits were formed in the amelioration ditch crossing the investment area. However, amphibians were not identified there. Marshy sites, which might have remain a breeding and spawning habitat for amphibians have also not been identified within the analyzed area, and in the old channel of Młynówka.

As a result of inspecting old hollow trees (willow *Salix* sp.) no specific traces of feeding of larvae or adult specimens of hermit beetle (*Osmoderma eremita*) were identified.

During the environmental inventory special care was taken in case of any traces, which may prove the occurrence of beavers (*Castor fiber*) on site. However, no old or new traces of those animals' presence were identified. Nonetheless, specimen and traces of roe deer were noted. Those animals find convenient living habitats within the analyzed site. Old, wild orchard with fruit trees and agricultural land provide a feeding basis for them, and shrubs and unmown high vegetation (golden rod *Solidago* sp. mainly) within the embanked area provide shelter. On one of the willows growing at the old Młynówka channel there are hunting devices, so-called hunting raised-hides. The area of investment in question is located in a hunting district no. 69, leased from the PZŁ by KŁ "Orlik" in Cracow. In accordance with data (Appendix: Characteristics of the Hunting District) on the quantity of chase game in the entire hunting district no. 69, in 2016 it amounted to 8 deers, 81 roe deers, 6 boars. Among small game the biggest in number are brown hares (280 pcs), foxes (20 pcs), muskrats (20 pcs), and few pieces of beech marten, ferret, badger, and raccoon dog. Among the listed chase game species boars, hares, foxes, beech martens and ferrets may occur within the analyzed site.

Ornithological inventory was also done for the purpose of planned investment, which covered a small area located in the eastern part of Cracow, i.e. between Bardosa Street and the Dłubnia River. Ornithological research was done in July 2016 within the investment boundaries as well as within the

100 m wide buffer from its boundaries. Observations of species and listening watch of bird sounds were done from sunrise for about three hours. The research done allowed for identification of 53 bird species in total. Presence of taxons associated with the following habitats was identified within the inventoried site: woodlots and areas transformed by human, i.e. arable fields, waste-land, and developed areas.

Taxon related to the surrounding woodlots were as follows, e.g.: Syrian woodpecker *Dendrocopos syriacus*, Great spotted woodpecker *Dendrocopos major*, Grey-headed woodpecker *Picus canus*, European green woodpecker *Picus viridis*, Spotted flycatcher *Muscicapa striata*, Eurasian treecreeper *Certhia familiaris*, Willow warbler *Phylloscopus trochilus*, Common chiffchaff *Phylloscopus collybita*, Eurasian wren *Troglodytes troglodytes*, and Song thrush *Turdus philomelos*. Taxons identified within opened habitats (arable fields, waste-land undergoing successive overgrowing) were e.g.: Common pheasant *Phasianus colchicus*, Common whitethroat *Sylvia communis*, Red-backed shrike *Lanius collurio*, European stonechat *Saxicola rubicola*, Eurasian skylark *Alauda arvensis*. Species identified within developed sites were as follows: European greenfinch *Carduelis chloris*, Feral pigeon *Columba livia*, Rook *Corvus frugilegus*, Western jackdaw *Corvus monedula*, House sparrow *Passer domesticus*, Eurasian tree sparrow *Passer montanus*, Black redstart *Phoenicurus ochruros*, Eurasian collared dove *Streptopelia decaocto*. To sum up, no taxons entered to the Red Book of Animals were identified within the analyzed area. However, the presence of species listed under Appendix 1 to the Birds Directive was identified, i.e.: Syrian woodpecker *Dendrocopos syriacus*, Grey-headed woodpecker *Picus canus*, and Red-backed shrike *Lanius collurio*. Observed single specimen used the analyzed site as a feeding ground.

Implementation of the planned investment was associated with logging of about 22 trees (white willow mainly, some white poplars and few fruit trees); also some shrubs shall be removed – basket willow mainly (crack willow, young forms of white willow), within the area of about 0.2 ha. The subject logging shall be done beyond the birds' hatching period, i.e. from 1 September to 28 March.

In ichthyologic terms the Dłubnia River is a very good habitat for Rainbow trout (*Oncorhynchus mykiss*). That species was artificially implemented in the '40s of the 20th century. It was successful and now trout occurs in large number within the entire river, although large specimen is not observed. Additionally, such fish are present in the River Dłubnia as the following: European perch (*Perca fluviatilis*), Common chub (*Squalius cephalus*), Common roach (*Rutilus rutilus*), Gudgeon (*Gobio gobio*), Three-spined stickleback (*Gasterostetus aculeatus*), Grayling (*Thymallus thymallus*), Ide (*Leuciscus idus*), and White bream (*Blicca bjoerkna*). Protected species were not identified in that river so far. The planned investment directly crosses the amelioration ditch existing at chainage km 1+244. Observations were done in 2016 to check if fish species are present in the water-course. No specimens were identified during several observations.

In order to minimize nuisance associated with implementation of the task in question it was proposed to implement the following measures protecting the environment:

- Any work during implementation of the investment shall be performed under constant supervision of environmental team,
- In case of identifying by the environmental team of additional habitats for amphibians, which have not been inventoried before and which collide with the investment to be implemented one shall apply to relevant Authorities for consent to damage the habitat. Works associated with removal of amphibians' breeding grounds shall be done only from the beginning of November until the end of February.

- Any locations of back-up facilities shall be placed beyond the area of medium and high ornithological value.
- In case of machine failure any leakage of operating fluid and fuel shall be neutralized with relevant amount of absorbent stored at every back-up facility.
- Tree trunks located within the work site or in its direct vicinity under risk of mechanical damaging shall be protected against damaging at height not smaller than 1.5 m from the ground level, and it is moreover recommended to store materials and to set new delivery routes out in a distance of about 1 m from trunks of trees and shrubs.
- The area of back-up facilities, where machines and trucks would operate, shall be protected on the ground side. Parts of back-up facilities, tightly insulated from the ground, shall be designated for servicing and fueling of the machines.
- Waste produced during implementation of the investment shall be segregated and selectively stored in containers or in separated sites adapted to that purpose, in conditions preventing dusting and blowing light fractions away, and preventing adverse impact on the environment; they should be consecutively taken over by units certified for their further treatment.
- Logging shall be done only before the hatching period for birds, i.e. from 1 October to 28 February.

Considering the: character, location of the investment and its impact mainly during the construction works, and planned mitigation measures, it was identified that its implementation shall not significantly and adversely affect the protected items of the closest Natura 2000 site Łąki Nowohuckie PLH120069 and the cohesion of the European Ecological Network Natura 2000.

On the operational stage no impact of the investment on the environment is anticipated.

f) Areas, where quality standards for the environment were exceeded or there is a possibility of such an exceedance.

Air quality monitoring within the Lesser Poland Voivodship is done by the Provincial Inspectorate for Environmental protection in Cracow. The current status of air quality in the area of planned investment proves that permissible values for dust are exceeded. It is linked to the large scale low emission. In case of the city of Cracow an air protection programme was developed, which assumes reduction of that emission within its priorities. The investment in question does not generate pollution, which might have resulted in deterioration of the environmental quality. The impact of the investment shall be noticeable on the investment implementation stage mainly. The use of planned modernization of embankment sections shall not significantly affect the exceedance of air quality standards.

g) Area, where landscape has a historic, cultural or archaeological meaning.

There are no areas where landscape has a historic, cultural or archaeological meaning within the discussed area.

h) Population density

The designed embankment runs through arable land, developed arable land, pastures, shrubbed and wooded areas, permanent meadows, residential areas, roads. However, directly in reference to the areas split for the development of embankment there are the following: succession shrubs and woodlots within a small area, parts of pastures and waste-land overgrown with golden rod, and arable land. The closest houses are located on the eastern side of the planned embankment in a distance of from about 12 to about 14 m, and those are houses with numbers located at Bardosa Street.

i) Areas adjacent to lakes.

The assignment is located beyond the areas adjacent to lakes.

j) Health-resorts and areas of health-resort protection.

The investment is located beyond the areas of health-resorts and areas of health-resort protection.

k) Water and environmental objectives referring to it.

The planned development of the left embankment section for the Dłubnia River is located within body of surface water BSW Dłubnia od MinóŹki (bez MinóŹki) do ujřcia, with European code PLRW2000921376. In accordance with the water management plan for the Vistula river basin, adopted with a regulation of the Council of Ministers of 18 October 2016 on the Water Management Plan for the Vistula River Basin (OJ of 2016, item 1911), the aforementioned BSW was classified as highly transformed body of water with bad water status. The bad water status for BSW Dłubnia od MinóŹki (bez MinóŹki) do ujřcia is determined by moderate ecological potential, and the determining coefficients are phytobenthos and ichthyofauna. The environmental objective for that BSW is good ecological potential and good chemical status; however, achievement of the aforementioned objective was assumed as under risk, thus time derogation 4(4)-1 was implemented and the deadline for achievement of the environmental objective was rescheduled to 2021. Implementation of derogation was justified by the lack of technical possibilities for removal of reasons for the bad status. Pressure, which may be a reason for exceedance of quality rates, was not identified in catchment of BSW Dłubnia od MinóŹki (bez MinóŹki) do ujřcia. It is necessary to recognize the reasons in details in order to properly plan the recovery measures. Identification of the reasons for not achieving the good status shall be secured by implementation of measures on the national level: development of a state database on hydro-morphological changes, performance of deep pressure analysis in terms of hydro-morphological changes, development of good practices for hydraulic works and maintenance works, including establishment of implementation rules and development of a state renaturalization programme for ground water.

The designed section of left flood embankment at the River Dłubnia shall not deteriorate biological elements – and supporting physical and chemical elements and hydromorphological quality of water – on the operational stage, and it shall not affect the chemical status of BSW Dłubnia od MinóŹki (bez MinóŹki) do ujřcia adversely.

The use of flood embankments shall not cause emission of pollutions, which may affect physical and chemical elements of water quality or their chemical status. Development of the embankment shall not be associated with interference in the Dłubnia riverbed – the embankment route shall run in a distance of from 20 to 110 m from the left bank of the river. The designed embankment shall have earth-fill structure with sealing elements and service roads. Development and use of the embankment in regular hydrological conditions shall not cause concentration and acceleration of the flow. As a result of investment implementation connection with bodies of underground water shall not be disturbed. The designed anti-filtration membrane shall remain a suspended membrane – in the area of the investment non-permeable soil is present on a depth of about 12 m b.g.l., whereas the designed membrane shall reach maximally up to about 3 m b.g.l. In regular hydrological conditions the membrane shall not affect the flow of underground water and its level. Due to implementation of the investment no cross structures shall be developed, which would form migration barriers for water organisms. The designed embankment lock with a spot for mobile pumps shall allow for unconstrained discharge of water through the amelioration ditch at low water levels, whereas in case of high water levels and backflow of Vistula water through the Dłubnia riverbed closing of the lock shall block the possibility of water inflow from the river to the area beyond the embankment through the culvert, and mobile pumping stations with high capacity shall

efficiently pump the water flowing through the amelioration ditch out of the area beyond the embankment.

The investment area is entirely located within the body of ground water BGW no. 131 (European code PLGW2000131). The quantitative status and the chemical status of BGW no. 131 were determined as good and it is not under risk of not achieving the environmental objective. The environmental objective for the bodies of ground water is preventing or limiting implementation of pollution, preventing the deterioration and improvement of their status, protecting and undertaking recovery measures, as well as assuring the balance between the discharge and feeding for that water in order to achieve its good status. The environmental objective for the body of ground water in question is maintenance of its good status.

The use of investment shall not be associated with intake of ground water. Such materials applied for the development of membrane as cement, bentonite and steel shall be attested materials not having adverse impact on ground water.

The designed investment shall not affect the quantity and the quality of water; it shall not change resources of surface water and of ground water. It is not associated with conditions justifying the derogation. Therefore, there is no impact on the achievement of environmental objectives for the aforementioned BSW and BGW.

3. Type, features and scale of the potential impact considered in reference to the criteria listed under items 1 and 2 and under Article 62 (1) item 1, resulting from:

a) Impact reach – geographical area and number of population, which may be affected by the assignment.

The planned investment may cause temporary deterioration of the environmental condition in the direct vicinity of the planned works. Nuisance and adverse impact present during implementation of the investment shall be local and transient – they shall occur in vicinity of the site, where construction and assembly works would be performed.

During implementation of the investment the time of idle machines' and vehicles' engine operations shall be limited to minimum. Traffic speed shall be limited within the site. Works associated with implementation of the investment shall be done beyond the flood hazard period.

b) Transboundary character of investment impact on particular environmental elements.

Location of the investment excludes the possibility of transboundary impact due to a large distance from state boundaries.

c) Character, size, intensity and complexity of impact, including load for the existing technical infrastructure and the expected moment of impact commencement.

The planned investment shall not affect the load for the existing technical infrastructure.

The back-up facilities shall be located between the final part of Bardosa Street and the existing embankment. The back-up facilities shall be insulated from the ground with a tight membrane covered with gravel ballast. Warehouses with hazardous liquid substances, including operating fluids for machines, shall be additionally protected with absorbent material. Relevant quantity of substances neutralizing failure leakage of hazardous substances shall be assured within the backyard.

d) Impact probability.

Minor impact associated with the performance of construction works shall occur during implementation of the investment; however those shall be temporary works. The works shall be done during the day to minimize the adverse impact on the environment.

e) Duration, frequency and reversibility of the impact.

Due to character of the task, its implementation time shall be relatively short. After completion of the construction works its impact and potential nuisance caused by the traffic of vehicles and machines used as the works shall end.

During the use the investment shall not be a source of fixed, liquid or gas pollutions exceeding the standards.

f) Connection with other investments, and especially accumulation of impact of investments in progress and of complete investments, for which a decision on environmental conditions was issued, which are located on sites where it is planned to implement the investments, and on investment impact site or on sites, where impact is contained within the impact area for the planned investment – in the scope in which their impacts may lead to accumulation of impacts with the planned investment.

Development of the new left backwater embankment at the Dłubnia River forms a continuation for the designed adjacent investment comprising redevelopment of the Dłubnia river embankments (titled: “Completion of construction of Vistula flood embankments in Cracow: Section 1 – the left embankment of the Vistula River from the Wandy Bridge to the Przewóz Barrage with backwater embankment for the River Dłubnia”). Development of the designed extension of the backwater embankment shall not cause accumulation of impact with the planned investment comprising redevelopment of the embankment. Both investments link at embankment chainage km 1+136 and at River Dłubnia chainage km 1+577.

g) Possibilities to limit the impact.

The application of such solutions protecting the environment as: performance of the works at daytime, application of efficient mechanical equipment, shortening of performance time to the necessary minimum, selective collection of waste, its removal away from the construction site and transfer to units authorized for recycling or treatment; shall result in short-term, transient and local impact of the investment on the environment, and shall therefore limit the possibility of adverse impact on the environment.

In case of the investment in question it is not obligatory to provide an environmental impact assessment.

The investment given in the application is not classified as an assignment, for which an area of restricted use is formed, as provided under provisions of the Act of 27 April 2007 Conservation of Nature Law.

The analysis of materials attached to the application on the issuance of a decision on environmental conditions for the subject investment proved that the most of conditions determined under Article 63 (1) of the Act of 3 October 2008 on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments, shall not occur in case of the investment in question, and the remaining ones shall have minor impact. As a consequence it was assumed that the planned investment shall not significantly affect the environment, thus it is not necessary to provide an environmental impact assessment.

Considering the statement given above the Regional Director for Environmental Protection in Cracow, while taking into account a sanitary opinion of the State District Sanitary Inspector in Cracow dated 07/17/2017, ref. no.: NZ-PG-420-261/17, stated in a decision dated 08/08/2017, ref. no.: OO.4233.1.2017.BM, that there is no obligation of providing an environmental impact assessment for the subject investment. The parties could not have appealed against that decision; it may be appealed against through appealing against this decision only. Information on the issued decision

was placed in a publicly available data register at the website of the Center on Information on the Environment.

The announcement dated 08/08/2017, ref. no.: OO.4233.1.2017.BM, on the issued decision and on the completion of evidence hearing in case of issuing this decision and on the possibility of acknowledging and commenting the collected evidence and materials and raised claims was efficiently placed on the noticeboard of the RDOŚ in Cracow from 08/08/2017 to 08/22/2017, and on the noticeboard of the City Office of Cracow – from 08/09/2017 to 08/24/2017. Furthermore, information on the issued decision and on the completion of evidence hearing was also included in the Public Information Bulletin at the website of the Regional Directorate for Environmental Protection in Cracow, and in the publicly accessible data register at the website of the Center on Information on the Environment.

None of the parties commented the subject case and provided remarks. As an obligation of providing an environmental impact assessment was not determined, it was not necessary to secure the possibility of public participation in the proceedings, in accordance with provisions under Article 79 (1) of the Act of 3 October 2008 on access to information on the environment and its protection, public participation in environmental protection and environmental impact assessments.

The Investor's Proxy applied in the note dated 08/09/2017 (reception date: 08/10/2017) to the Regional Director for Environmental Protection in Cracow for making the decision immediately enforceable. The Proxy justified his request with important interest of the party. The designed investment shall be implemented as flood protection for the city of Cracow. During the flood of 2010 the unprotected land in the area of Bardosa Street in the city of Cracow was flooded several times by backwater of the River Vistula. As a consequence of those floods severe damage was suffered in case of municipal facilities, and huge financial and material losses were suffered by the inhabitants. The designed left embankment shall assure flood protection for the described area and shall prevent occurrence of flood damage resulting from flooding of areas not covered with flood protection. The planned investment is a continuation of flood protection for the entire Vistula River in the area of Cracow. Efficiency of the designed embankment system depends on implementation of all of its elements, including development of embankments for the River Dłubnia, on its left bank. The rationale given above justifies the presence of important interest of the party, i.e. the Investor. Considering the aforementioned arguments, and deeming that rationale given under Article 108 of the Administrative Proceeding Code are met, and the investment is factually important due to interest of the party, the Regional Director for Environmental Protection in Cracow accepted the application of the Proxy and made this decision immediately enforceable.

Analysis of the provided application and of information on the planned investment proves that the intended investment shall not cause nuisance exceeding the standards to the environment.

As a result it was decided as given in the conclusion.

Instruction

One may appeal against this decision to the General Director for Environmental Protection in Warsaw (00-922 Warsaw, 52/54. Wawelska Street) through the Regional Director for Environmental Protection in Cracow within 14 days from its serving date.

This decision is released from an administrative fee, in accordance with the Act of 16 November 2006 on the administrative fee (OJ of 2006 no. 225, item 1635, as amended).

Regional
Director for Environmental Protection
in Cracow
Rafał Rostecki MSc

Recipients:

1. Mr. Michał Węgrzyn, Habitat Selection s.c. Mateusz Kolecki, Michał Węgrzyn, Sławkowice 305, 32-020 Wieliczka – Investor's Proxy – 2 copies,
2. Remaining parties of the proceeding notified in the mode under Article 49 APC,
3. OO.BM file.

CC:

1. State District Sanitary Inspector in Cracow, 9. Makuszyńskiego Street, 31-752 Cracow (*in accordance with Article 74 (4) of the Act on access to information on the environment and its protection*).

CHARACTERISTICS OF THE INVESTMENT

The subject of the investment is the development of the left backwater embankment over a length of about 476 m. The investment shall comprise the development of a backwater embankment with necessary redevelopment and construction of accompanying facilities (embankment lock with an intake port, maneuvering yard as a station for mobile pumps, and protection of the existing ditches) and redevelopment of collisions with the embankments (power and gas network, sewerage). The investment to be implemented forms a continuation of an investment designed in vicinity, which comprises redevelopment of the embankment at the River Dłubnia.

In administrative terms the investment in question is located within the Municipality of Cracow, on the left bank of the River Dłubnia. The designed new section of the backwater embankment shall be located at chainage km 1+577 – 2+140 of the Dłubnia River. It starts at the ending of the existing left embankment, which gently turns east in a form of a small embankment. The new embankment with a total length of about 476 m starts at register plots no.: 380, 381, and 379, and it forms a straight-line extension for the existing embankment in its initial section. As an amelioration ditch exists at chainage km 1+244, it is designed to develop an embankment lock with a channel diameter of about 0.8 m. The lock shall have an intake port, failure valves on the embankment crest, and a maneuvering yard and a station for mobile pumps. Then the embankment, at the maneuvering yard, turns north-east and runs as a straight section to the slight bend and joins the high bank of the Dłubnia valley. Due to the development of the embankment, the left-bank embanked area shall be formed with a width of from about 20 to 110 meters. The land area under the application is about 1.3 ha.

Due to the development of the embankment it shall be necessary to locally redevelop or protect such facilities as the following:

- Overhead neSD line located at chainage km 1+432.20 (due to too extensive droop of the line it is necessary to place an additional post on the landside of the embankment),
- Combined sewer system ko 1200/1950 located at chainage km 1+630.80 (MPWiK Kraków does not raise remarks related to the redevelopment of the protection of sewerage and accepts the designed raising of the embankment body),
- Low pressure steel gas piping with a diameter of 100 mm, working pressure of up to 10 kPa, located at chainage km 1+291.90 (in case of the low pressure gas piping it is expected to replace the section made of steel with a diameter of 100 mm over a length of 52 m with 160 mmPE, including protection of the piping with a protective tube in a reach running underneath the designed embankment. Redevelopment of the gas piping shall be done at the existing route and on the same depth).

Additionally, an amelioration ditch runs at chainage km 1+244 of the planned embankment, and its mouth reaches the Dłubnia River.

The scope of construction works under the planned investment shall include the following, e.g.:

- Removal of the top layer of top-soil from the subbase over a width of the planned embankment;
- Development of an anti-filtration membrane in the subbase;
- Development of a soil bank;

- Placement of bentomat;
- Finishing and shaping of the embankment;
- Placement of a transient layer made of mineral soil;
- Placement of top-soil with sowing using a grass mix.

Basic technical parameters of the designed embankment shall be as follows:

- Length of the designed embankment: - about 1 = 476 m, at chainage km 1+136 to 1+612 (River Dłubnia chainage km 1+577 – 2+140),
- Hydraulic Class II,
- Embankment crest datum: – from about 200.91 m a.s.l. to about 200.95 m a.s.l.,
- Crest width: - about $b = 4.0$ m
- Feet width: - from about 8.08 m to about 23.79 m,
- Riverside slope grade: - 1:2.5,
- Landside slope grade: - 1:2.0,
- Height of the embankment in reference to the embanked area: - from about 0.95 m to about 3.56 m,
- Height of the embankment in reference to the area beyond the embankment: - from about 0.95 m to about 2.40 m,
- Embankment platforms at chainage km 1+186, 1+309, 1+604,
- U-turn (maneuvering yard) at chainage km 1+366,
- Grade of embankment platforms: 1:12,
- Embankment lock with diameter of 800 at chainage km 1+244,
- Maneuvering yard in the area of the lock at chainage km 1+252.

The analyzed flood embankment shall be designed as an earth structure with elements of sealing and with service roads. Traffic on the embankment and access to the lock with a pumping station shall be secured by service roads located in the embankment crest and on the footstrip at the embankment with a course composed of KSO filled in with breakstone. The KSO system shall be arranged on geotextile. Embankment platforms shall have a surface made of open-work reinforced-concrete road slabs. Their application is necessary to protect the embankment crest against damaging. Along with the development of new flood embankment works associated with the development of a new embankment lock – ended on both sides of the embankment with reinforced-concrete abutment, descend roads and crossings through the embankment shall be performed. Embankment crossings and descend roads shall be made of reinforced-concrete open-work road slabs. Grade of all descend roads shall amount to 1:12. First two descend roads to both sides of the embankment are located at chainage km 1+186. From that place the roads shall run on the embankment crest and on the crest of strip at the embankment. A strip of greenery with a width of about 4 meters (so-called green road) is designed on the embanked area's side, whereas the road located on the other side shall be hardened, and it shall lead to the pumping station, and then to the maneuvering yard. Another descend road from the embankment crest shall be located before the maneuvering yard at chainage km 1+252. At the end of the designed embankment all three roads shall join on the embankment crest reaching the high bank.

The assumed flood protection effect shall be achieved through the development of a flood embankment forming a continuation for the existing flood embankment. Furthermore, increasing the tightness of the designed flood embankment shall be achieved through embedding a bentonite mat

in its riverside slope and through the development of a cement and bentonite membrane in the subbase of the riverside embankment foot.

Neither emission of pollution to air nor noise emission shall occur during the use. Minor nuisance caused by the investment shall occur on the implementation stage only, and those shall be minor, short and transitory impacts, associated with the construction stage only.

In order to reduce adverse investment impact on the environment it is planned to apply the following minimizing measures, e.g.: the construction works shall be done during the daytime only (from 6.00 am to 6.00 pm), machines and devices shall have commanding power plant and power-supply system, the operating time for diesel machines and idling vehicles shall be limited to the minimum through application of effective work organization, and the construction works shall be performed beyond the flood hazard period.

Regional
Director for Environmental Protection
in Cracow
Rafał Rostecki MSc