

URBAN INFRASTRUCTURE PROJECT – 2

**Environmental and Social Management Plan
(ESMP)**
(for B category projects)

**ZHT-ICB-03
ZHT-ICB-04
ZHT-ICB-05**

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LIST OF ABBREVIATIONS

PROJECT	"Second Urban Infrastructure Development Project"
ESMP	Environmental and Social Management Plan
WWPS	Wastewater Pumping Station
WWTP	Wastewater Treatment Plant
DBN	State building standards
EIA	Environmental Impact Assessment
MPC	Maximum Permissible Concentrations
CH	Sanitary norms
ДЧП	State sanitary regulations
SPZ	Sanitary protection zone

INTRODUCTION

This Environmental and Social Management Plan (hereafter - ESMP) was developed by Utility Company “Zhytomyrvodokanal” (hereafter - UC “Zhytomyrvodokanal”) for subproject, funded by the International Bank for Reconstruction and Development (hereafter – World Bank) jointly with the Clean Technology Fund within the framework of the project “Urban Infrastructure Project -2” and it includes procedures and mechanisms, which will be used in order to comply with the safeguards policies of World Bank, national legislative and normative legal acts of Ukraine in the field of environment protection.

The main activity of the UC “Zhytomyrvodokanal” is providing of water supply and sewerage services in Zhytomyr. Thus, UC “Zhytomyrvodokanal” provides water service for more than 245,6 thousand citizens and 2479 consumers, including organizations and enterprises, institutions, establishments, of social objects of the city.

According to World’s Bank Operational Policy 4.01 “Environmental Assessment”, subproject of UC “Zhytomyrvodokanal” refers to the category B projects, because the potential negative impacts of the project implementation will be temporary and can be reduced or completely eliminated due to development and implementation of mitigation measures system.

Utility “Zhytomyrvodokanal” plans to implement the following investment measures in the process of project realization:

- hydraulic analysis and modeling of municipal water supply system, preparation of preliminary designs and terms of reference for reconstruction of water pump stations and water treatment plant and preparation of designs for reconstruction of municipal water network in Zhytomyr;
- reconstruction of wastewater treatment plant in Zhytomyr city (including replacement of mechanical and electrical equipment and sewer pipes) located in Zhytomyr, st. Promyslova, 1;
- reconstruction of water pumping station of second lift and water treatment plant of water supply system of Zhytomyr city in order to improve the quality of potable water located in Zhytomyr, st. Chudnivska 120;
- reconstruction of water supply networks in Zhytomyr city, total length 9758 m .

The subproject’s purpose is the improvement of the quality and efficiency of water supply and sanitation services provided in Zhytomyr city by implementing the number of measures, increasing the energy efficiency of the city's economic sector, improving the sustainability and reliability of the city's water supply and sewerage systems, improving water quality and the overall ecological situation in the region by improving the sewage treatment mechanism.

The purpose of ESMP is to provide environmental and social guarantees and compliance of the planned activities with the current national environmental and social, health and safety legislation of Ukraine and relevant World Bank Policies, as well as the fulfillment of the requirements specified in the loan agreement of the Project for improving the quality and efficiency of services in the water supply and sanitation sector.

ESMP implements the mechanism for ensuring environmental and social sustainability of the subproject throughout its period of implementation and aims at achieving the following objectives:

- analysis, definition and implementation of a set of measures to mitigate the negative impact of social and environmental factors;

- avoidance of identified environmental and social impacts (where feasible), implementation of measures for minimizing impacts mentioned above or minimizing the consequences to an acceptable level;
- analysis of the existing occupation safety management system at the enterprise and implementation of a complex of measures for its modernization in order to comply with the current national legislation and relevant safeguard policies of the World Bank;
- definition of the institutional structure responsible for the implementation of the ESMP;
- analysis of stakeholder of the project implementation and improvement of the mechanisms of interaction with them;
- development of an effective monitoring system for the implementation of this subproject.

Tasks to be solved within the framework of Urban Infrastructure – 2 Project, namely rehabilitation and modernization of water supply and sanitation infrastructure, fully meet the priorities of the housing and utility sector in Ukraine.

1. LEGISLATIVE AND INSTITUTIONAL MECHANISM

This chapter presents an overview of applicable state, Ukrainian and international policies and regulations that guide the implementation of the ESIA.

The relations in the field of environmental protection in Ukraine are regulated by the Law of Ukraine "On Environmental Protection", as well as land, water, forest legislation, mineral protection law, air protection, the protection and use of plant and animal life and other special legislation.

The task of the Ukrainian legislation on environmental protection is regulation of relations in the field of protection, use and renewal of natural resources, ensuring environmental safety, preventing and eliminating the negative impact of economic and other activities on the natural environment, conservation of natural resources, genetic fund of wildlife, landscapes and other natural complexes, unique territories and natural objects connected with historical and cultural heritage.

A general overview of Ukrainian environmental legislative and regulatory base is presented in Annex 10. This Chapter describes issues related to environmental impact assessment issues.

In compliance with the art.31 of the Law of Ukraine "On regulation of urban development activities" the results of environmental impact assessment (materials of the assessment and evaluation reports and public discussions) should be added to the project design documentation of objects, which are the subjects of the environmental impact assessment in a transboundary context. The list of such objects and procedure for assessment are determined by the Cabinet of Ministers of Ukraine. Thereby from 18.12.2017 the results of environmental impact assessment should be added to the project documentation for object construction, which are subject to such assessment. However, according to the clause 3, article 17 of Law of Ukraine "On Environmental Impact Assessment" the conclusions of the state environmental expertise, obtained prior the Law came into the force, remain valid and have the status of the conclusions of the assessment of environmental impact.

Engineering survey, design and construction are regulated by the Ministry of Regional Development and Construction. There exists a whole set of design and construction norms and standards, of these we will mention here DBN A.2.2-3-2012 "Composition and Content of the Design Documentation for Construction", which defines terminology, types of construction activities and objects etc.

DBN A.2.2-3-2012 "Composition and Content of the Design Documentation for Construction" (namely Annexes B, D, E) requires mandatory section on "environmental impacts, measures for their minimization, mitigation and compensation" in all types of design documentation (feasibility study, detailed design etc.) When design documentation is reviewed by the State Civil Engineering Expertiza (Derzhbudekspertyza), this section is also analyzed and approved (or rejected with comments) by the experts.

In abovementioned State Construction Norms DBN A.2.2-3-2012 there are also requirements to justify decision on the necessity to construct (reconstruct) particular object, as well as provision "to ensure accessibility for handicapped persons".

The project documentation should include materials Environmental impact assessment of the planned activities on the environment and human health (OVNS).

Procedure of preparing full-scale environmental impact assessment documentation is described by the State Construction Norms DBN A.2.2-1-2003 "On Conducting Assessment of Environmental Impact".

The assessment is carried out taking into account the requirements of the national legislation in the sphere of environmental protection, the environmental capacity of the territory, the conditions of the environment in the place where the location of objects is planned, environmental forecasts, prospects for socio-economic development of the region, capacity and types of cumulative effects of harmful factors and objects to the environment.

On December 18, 2017 the special Law "On Environmental Impact Assessment" (OVD) came into force. The environmental impact assessment (OVD) includes the requirements of European Directives and established the model for assessment procedure of the environmental impact assessment

In accordance with Law, the environmental impact assessment is obligatory before making decision on implementation of planned activity, defined by parts 2 and 3 of the art.3 of the Law.

The projects "Reconstruction of wastewater treatment plant (including replacement of mechanical and electrical equipment and sewer pipes)" and "Reconstruction of water pump stations and water treatment plant" require development of OVD. Obtaining a decision about planned activity is planned in the third quarter of 2019.

Before approving the construction projects, for their expertise, to the design documentation of the objects which are the subjects of OVD procedure in accordance with the Law of Ukraine "On Environmental Impact Assessment", the results of OVD consideration should be added.

For the objects, which are the subjects of environmental impact assessment (OVD), a report on the environmental impact assessment (OVD) should be developed. In the presence of mentioned report the materials of OVNS are not needed as a part of the design documentation according to Resolution of the Cabinet of Ministers of Ukraine dated 11 of May 2011 №560 (from 29 of January 2019).

In compliance with the requirements of the law the following were adopted:

- criteria for the definition of the planned activity, its expansion and changes which are not subject to an assessment of the environmental impact;
- the procedure for conducting public hearings in the process of environmental impact assessment;
- the procedure for the transfer of documentation to provide the conclusion on the assessment of environmental impact and funding of the environmental impact assessment and the Procedure for maintaining the Unified Register on Environmental Impact Assessment.

In turn the World Bank has established its social and environmental safeguard policies in order to prevent and mitigate potential negative impacts associated with the Bank's. Taking into account the nature of the proposed sub-projects such operational policies as OP 4.01: Environmental Assessment, OP 4.12 – Involuntary Resettlement and OP 4.11 - Physical Cultural Resources are used in the process of project implementation. These three policies are described below.

OP/BP 4.01: Environmental assessment

This policy is applicable in the case if the implementation of project may have the potential (negative) environmental risks and impacts. OP / BP 4.01 covers environmental impacts (air, water and soils); health and safety of the person; material cultural heritage; transboundary and global environmental issues.

As noted earlier, UIP-2 subprojects are classified as Category B projects. The Borrower is responsible for the environmental assessment of the project and the development of the Environmental and Social Management Plans (ESMP).

For Category B projects the Borrower conducts consultations with the affected project groups as well as local non-governmental organizations (NGOs) about the environmental impact of the project and takes into account their point of view. The Borrower should initiate such consultations as soon as possible. The Borrower should place ESMF and detailed ESMP on a public resource and provide access to these documents to anyone willing to conduct public consultations and in a language that is understandable for the groups consulted. These documents should be available in the country and at local levels where subprojects are implemented, in the national language and in public places accessible to groups and non-governmental organizations, prior to the examination of the project.

OP 4.11: Physical Cultural Resources

During the implementation of UIP-2, the World Bank's OP 4.11 "Physical Cultural Resources" is used. If the implementation of a subproject may have potential negative impact on material cultural resources, the borrower/beneficiary of the subproject together with the SPMU, will have to prepare a Plan of Action for the Protection of Cultural Heritage and agree with the local authority responsible for cultural heritage. This plan must comply with the provisions of the Law of Ukraine "On the Protection of the Cultural Heritage" of 08.06.2000 №1805-III. The Plan should be a part of the Environmental and Social Management Plan for subprojects which must include declared historical and cultural objects that could potentially be damaged during the implementation of the subproject.

This question should be described in the contracts. Utilities must ensure that the relevant requirements are included in the sub-borrower's contract, where it assumes the responsibility to implement appropriate mitigation, monitoring and reporting measures as specified in the ESMP, if this occurs.

OP/BP 4.12: Involuntary resettlement

This policy covers not only physical displacement, but also any loss of land or property, which leads to:

- displacement or loss of housing;
- loss of property or access to property;
- loss of a source of income or livelihoods regardless of whether the persons who are negatively affected by the project move to another place or not.

This policy also applies to the restriction of access to officially specified parks and protected areas as a result of the negative impact on the livelihoods of displaced persons.

Resettlement planning is an integral part of the preparation of projects supported by the Bank. At the project identification stage, the Working Group should define all activities related to potential involuntary relocations within the project.

The condition of the projects implementation including the involuntary resettlement is the provision to the Bank of the resettlement plan, a framework document identifying a resettlement policy or a process that meets the requirements of OP/BP 4.12. The draft document covers issues related to resettlement, proposes measures for resettlement, as well as the Borrower's relocation obligations and institutional and financial capacity for resettlement.

Implementation of resettlement activities is monitored throughout the life cycle of the project, and monitoring missions include experts on social, financial, legal and technical issues. The main purpose of

the mission is to check the compliance of the resettlement carried out with the legal principles, including the project implementation plan and resettlement tools.

The environmental, health, and safety (EHS) guidelines

The environmental, health, and safety (EHS) guidelines are technical reference documents with general and industry-specific examples of good international industry practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS guidelines are applied as required by their respective policies and standards. The EHS guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. When host country regulations differ from the levels and measures presented in the EHS guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures than those provided in these EHS guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any presented alternatives is needed as part of the site-specific environmental assessment.

2. CHARACTERISTICS OF THE WATER SUPPLY AND SANITATION SYSTEM OF THE CITY ZHYTOMYR

The Utility Company “Zhytomyrvodokanal” is a communal enterprise, purpose of activity – the water supply and sanitation services of Zhytomyr and its suburbs.

In addition the drinking water is supplied to number of settlements of Zhytomyr region: villages of Zarichany, Stanishivka, Sloboda-Seletz, Teterivka, Perlyavka, Korchak, Denyshi, health center “Denyshi”, district of cottage development on the lands of the Oliivskyi village council (to the streets of Malinskaya- Narodytzka).

The Zhytomyr water supply system is the complex of engineering structures, which provides uninterrupted supply of potable water to consumers.

The surface water intake is carried out from Teteriv river, situated 6 km away from the city boundary, it is used as the source of water supply. The water intake process is carried out from the reservoir “Vidsichne” through the hydro system “Denishi”, which includes spillway concrete dam, which regulates the water supplies and accumulation reservoir "Denish", designed for seasonal adjustment of water volumes (water changes in it approximately 12 times a year).

The analysis of the condition of the drinking water supply and waste water treatment systems, operated by Zhytomyrvodokanal Utility, indicate that they are outdated and in poor operating condition, mostly, due to age. The costs for repairing water supply and sewerage infrastructure is too high.

The high level of water loss due to worn out pipeline infrastructure in the water supply system leads to the critical amount of non-revenue water and it is in average around 56%.

The list of factors which affect the content of priority investment programs to improve the current situation with water supply and sewerage at the water utility is given below:

- most of the equipment is outdated and works with low energy efficiency.
- the spare parts for equipment are not in stock anymore.
- in some cases preventive maintenance is too expensive and does not provide the complete restorative function of equipment.
- the level of tariffs is low and water utility works with losses which are partly compensated by the subsidies from city administration.

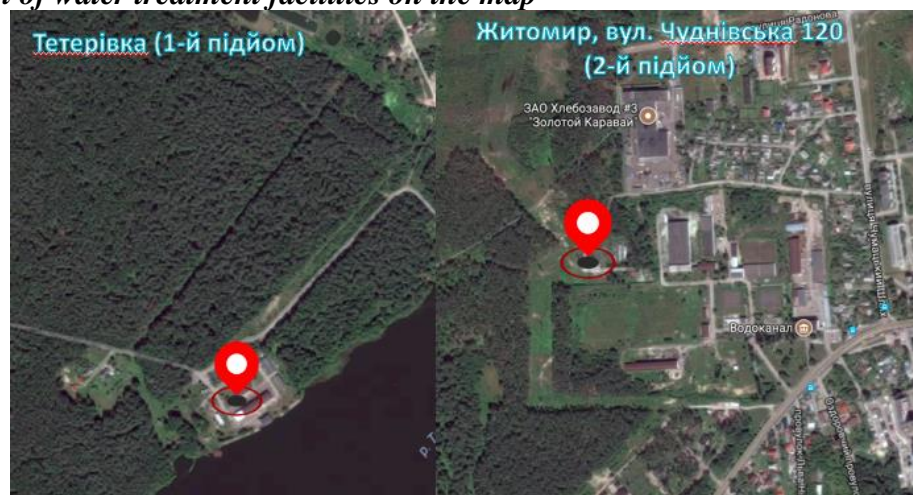
The estimation of preliminary condition determined the following work priorities:

- reconstruction of water treatment plant and water pumping station of the 2–nd lift in Zhytomyr.
- reconstruction of damaged water supply networks in Zhytomyr.
- reconstruction of waste water treatment plant in Zhytomyr.

2.1. Component Reconstruction of water pump stations and water treatment plant

Characteristic of water treatment plant

Fig. 7. Location of water treatment facilities on the map



WTP №1

Station №1 put into operation in 1965, its productivity is around 70 thousand m³/day.

WTP №1 has a two-stage water purification system (advocacy and rapid filtering), which includes the following:

- Dosage of coagulant, flocculant and chlorine (primary chlorination).
- Two vortex mixers.
- Eight cameras return.
- Eight settling tanks (total volume 940 m³).
- Sand filters (high-speed) (16 filters, 25 m³ each).
- Secondary chlorination (disinfection).
- Reservoirs of clean water (2 tanks, 5 000 m³ each)
- The building of the second pumping station.

The main limitations of old water treatment plants (section I) include the following:

- Roofing of the roof and the need for repair.
- Manual treatment of wastewater treatment plants and worn electromechanical equipment.
- The sand in the filters has not changed for several years.
- Tanks stalls 1, 4, 7, 8 need repair
- Steel pipe (Ø 600, length: 60 m) is worn and needs to be replaced.

WTP №2

WTP №2 was put into operation in 1982, its productivity is - 100 thousand m³ / day. And it is a one-stage water purification technology (fast filters), which includes the following:

- Dosage of chlorine (primary chlorination).
- Ventilation chamber (gas removal).
- Dosage of coagulants and flocculants.

- 10 contact tanks (with ascending flow).
- Four speed sand filters (with downstream flow).
- Tanks of clean water (2 tanks, 20 000 m³ each).
- New pumping station of the second lift.
- Chemical Reagent Storage.

The main limitations of water treatment plants are as follows:

- Water treatment plants are not intended to remove high concentrations of iron and manganese, thus, the process as a whole has not been developed for the efficient removal of these chemicals from raw water.
- For this reason, a large amount of chlorine, flocculants and coagulants is required for the preparation of raw water and to ensure compliance with the regulatory requirements for water quality.
- At the treatment facilities there is no ventilation chamber for the oxidation of iron and manganese. Instead, they use chlorine oxidation (chlorination at control points).
- Due to the high content of organic substances in the raw water and turbidity of raw water, the first stage of water treatment should be flocculation and deposition.
- If the facilities were designed properly, their capacity would be sufficient to handle all the water produced (about 100,000 m³/day), so there would be no need for other water treatment plants.
- Before high-speed sand filters there is no settling tank, which often causes clogging and the need to use backflow. About 10-14% of the water produced is used for backflow.
- High-speed sand filters are worn and need to be replaced (upgraded).
- Sand replacement in filters has not been carried out for several years due to lack of financing.
- The roof is in poor condition and leaks.
- Fittings need to be replaced.
- Repairs on contact pylons are required.

The water supply pump station №2 does not meet the technical requirements for energy saving and does not provide a reliable and uninterrupted process.

About 78% of the units of the pumping station have been operating for a normative term of operation and need to be replaced.

2.2. Component Reconstruction of wastewater treatment plant (including replacement of mechanical and electrical equipment and sewer pipes)

Characteristics of the existing wastewater treatment plant system in Zhytomyr

The sewer network in Zhytomyr is separate, that is, sewage and storm water are collected by different systems. Collected municipal wastewater, including domestic and industrial shares, is treated by wastewater treatment plants with full-scale biological treatment: WWTP-1 and WWTP-2 located in the south-east of the city.

There are 2 existing WWTP in Zhytomyr. They treat: $Q_{av.daily} = 54000 \text{ m}^3/\text{d}$ (overall).

Fig.8 Location of WWTP №1 and WWTP №2



WWTP №1.

Treatment plant for wastewater has a capacity up to 76,000 m³/d and is designed to provide a complete biological treatment of municipal and industrial wastewater. The initial capacity of the plant is 20000 m³/d. Over the years the plant has been renovated and extended. Increase of productivity of WWTP1 is achieved by means of three processing units which were constructed in the period 1983-1988. They are identical and consist of primary sedimentation tanks and secondary settling tank.

Fig. 9. WWTP №1.



Table 2. Characteristics of WWTP №1

Equipment	Operating conditions
Measurement of consumption	Incoming flowmeters are absent. Consequently, it is not possible to set the flow rate that can be processed on each of the two WWTP.
Water intake, including grits and mechanical grates	High degree of physical and moral wear. Inefficient, low performance
Leveling pool	Works as a storage tank without air supply.
Sand chamblers	Inoperative facilities
Primary settling tanks	Twelve of the sixteen primary settlers are in operation.
Aerotanks and blowers	One of the Aerotanks was decommissioned indefinitely. Two of the nine blowers were decommissioned indefinitely. The rest of the blower, it seems, is in satisfactory operating conditions, but there are no controls to optimize the air flow rate. Variable speed wire systems for controlling the flow rate of pumps and blowers look like an option to optimize energy use in buildings
Secondary settlers	One of the secondary septic tanks needs preventive repair.
Sludge line	The excess sludge is transferred to the sludge sealer, the sludge centrifuge system does not operate; so the liquid sludge is transmitted to sludge fields.
Laboratory of water quality	Laboratory uses outdated analytical equipment

WWTP №2.

WWTP №2 was built originally as a plant for treatment of wastewater from the industrial area of the town. Construction was completed in 1975. Now, most industrial factories do not work. A large meat processing plant discharges water to the sewerage after local treatment.

The plant is also known as WWTP of a factory for production of chemical fibers. At present, the name of this factory is “EXTRELA”. Chemically contaminated water from the plant is collected in local SPS on the factory site and pumped to an equalization tank with aeration at the inlet of the plant. Capacity of industrial water is approximately 2200m³/d. The equalization tank was owned by the factory. Now it is a property of the WWTP 2 the air needed for aeration is fed by the plant. There is no flow meter. Capacity of WWTP 2 - 27 000m³/d.

Fig. 10. WWTP №2.



Table 2. Characteristics of WWTP №2

Equipment	Operating conditions
Water intake, including hand-operated screens and grates	High degree of physical and moral wear. Manual operation, inefficient, low performance,
Sand chamblers	The four Sand chamblers are in operation, but they have a high degree of physical and moral wear.
Primary settling tanks	Two primary settling tanks, both in operation, but there is possible slippage. Mechanical equipment has a high degree of physical and moral wear
Aerotanks	In operation there is only one of three blowers. Control mechanisms are not available to optimize airflow. Variable speed wire systems for adjusting the flow rate of pumps and blowers look like an option to optimize energy use in buildings.
Secondary settlers	Three secondary settlers, all three are in service, but have obvious physical and moral wear
Sludge line	Excess liquid sludge is transported to sludge fields.
Laboratory of water quality	Laboratory uses outdated analytical equipment

Condition of WWTP №1 and №2 is extremely unsatisfactory, they are completely unsuitable for use.

Existing WWTP №1 and №2 have sufficient capacity to clear all waste waters from the population and industry in Zhytomyr. However, they were designed to remove only organic pollutants, without removing nutrients (nitrogen and phosphorus). Over the years, the objects of treatment of silt were worn. New objects were not built. Currently, the mull is dehydrated without pre-treatment. Existing facilities at both

Stations are extremely outdated both in terms of equipment and in terms of design. In the course of reconstruction of two objects, existing problems remain - the work / maintenance of several objects with a small volume divided into two sites. In general, the existing equipment is very old and wearing out and should be dismantled and replaced with a new one. There are no objects for processing sludge.

WWTP 2 is chosen for reconstruction and modernization.

2.3. Component Reconstruction of water supply network

Characteristics of the existing water distribution system of Zhytomyr

The total length of water main in Zhytomyr is 60 km and it consists of:

- 28% cast iron pipes;
- 55% steel;
- 17% reinforced concrete pipes.

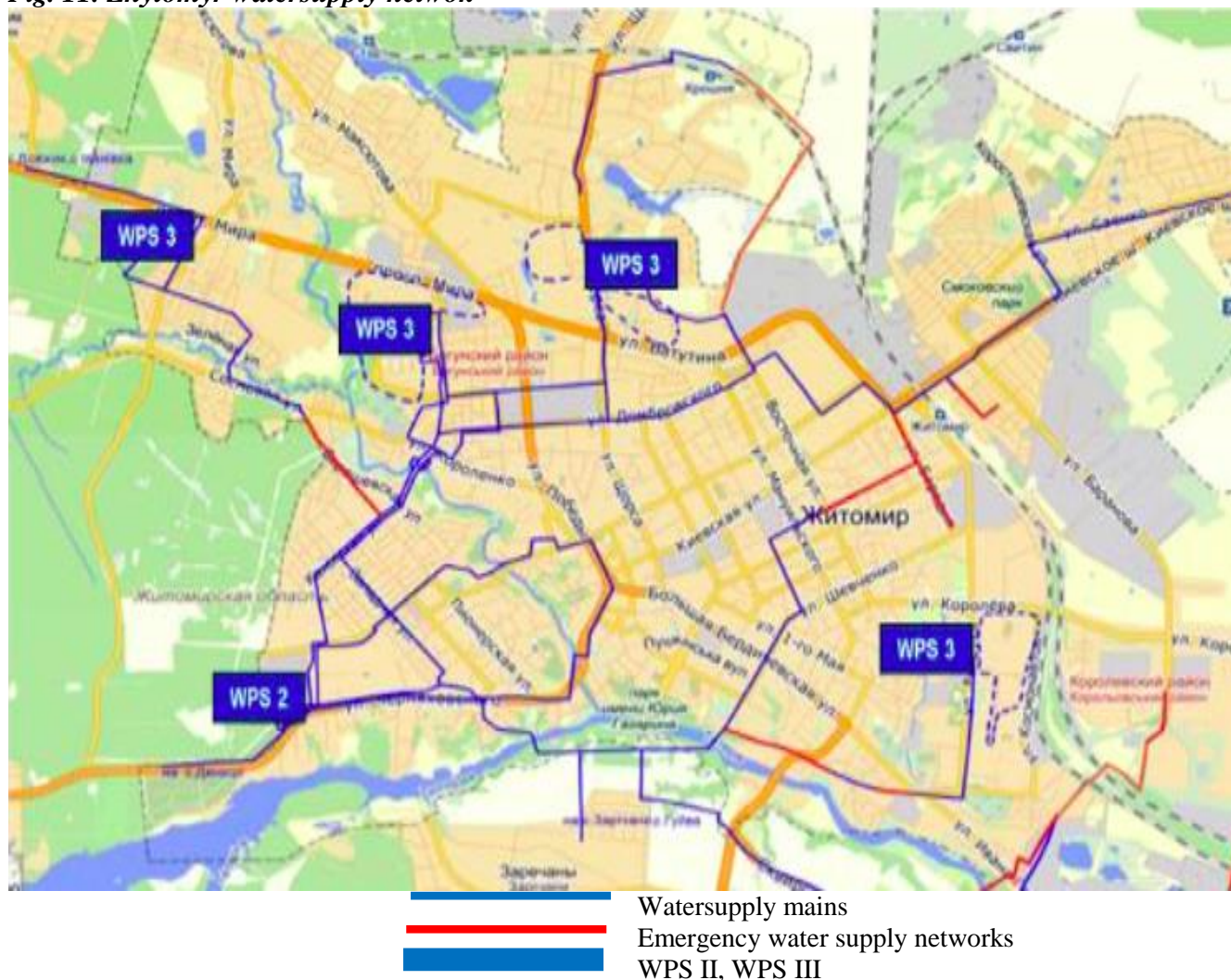
Approximately 30% of water pipelines exhausted their operating period, which exceeds 30 years, most of steel pipes are completely worn out.

The total length of water network is approximately 515 km, 74% of which is made of cast iron. More than 51% of cast iron pipelines were in operation for more than 40 years. Approximately 63 km (16% of cast iron pipes) were in operation for 50 years.

The total length of steel pipes is 129 km (24% from total length), 40% of which exceed the period of standard operation in 30 years and around 71% (88 km) are completely worn out.

The level of breakage on the sections of steel pipelines network is estimated in 8 bursts for the km in a year (with standard index of new pipes laid 0,5 in km a year). Thus, the cost of repairing steel pipes is very high, and a large part of them needs immediate repair.

Fig. 11. Zhytomyr watersupply network



Along these water supply network there are emergency condition sections with strong corrosion and cavities and sinks, which have been repeatedly repaired and require a complete replacement of the pipeline.

Reconstruction of water supply system is envisage the water pipeline capacity, taking into account the prospect of developing the rural zone of the city serviced by these networks.

Design is envisages three basic methods of reconstruction:

- open (trench) gasket along the existing pipe;
- horizontal drilling method along the existing pipe;
- method of "pipe in a pipe" - sanitation.

Objects of water supply are residential, public and industrial buildings and constructions.

The project envisages the reconstruction of plots of water supply networks and syphons in the construction phase. This allows to carry out reconstruction work and commissioning on any sections of the water supply network in any sequence, as well as in parallel at several sites, at the discretion of the customer's technical service.

The project envisages the reconstruction of existing networks by replacing the existing pipelines and inserting into the existing network using modern materials and technologies, which will shorten the construction time, installation and significantly increase the period of operation of the network at the sites.

3. RECONSTRUCTION PLAN

Reconstruction plan envisages implementation of the following components:

- Component Reconstruction of water pump stations and water treatment plant
- Reconstruction of wastewater treatment plant (including replacement of mechanical and electrical equipment and sewer pipes);
- Reconstruction of water supply networks

3.1. Component Reconstruction of water pump stations and water treatment plant

Fig. 12. Water Treatment Plant



Facilities that should be reconstructed are situated on the territory of the existing Water Treatment Plant

Location of the existing Water Treatment Plant:

Existing facilities are situated in Zhytomyr, str. Chudnivska, 120, in particular:

- In the North - at a distance of 23 m is situated Territory CJSC "Khlibzavod" (industrial zone)
- In the West - at a distance of 20 m - the territory of the electric substation "Karbutovka"
- In the South - 60 m. Reservoirs (territory of "Zhytomyrvodokanal" Utility)
- In the East at a distance of 24 m. - Reagent plant territory (territory of "Zhytomyrvodokanal" Utility)

The reconstruction project of Zhytomyr WTP involves the construction of a new station with using a sand filter.

With this typical reconstruction, water is cleared due to the following processes:

- Physical and chemical purification
- Settling
- Filtration (sand)
- Disinfection

Physical and chemical purification, the using of such reagents is envisaged:

- Coagulant (aluminum polychloride and / or aluminum sulfate) for coagulation.
- Polyelectrolyte for flocculation.

Coagulation process

The process of coagulation or high speed mixing using for rapid and uniform distribution of the coagulant in water to destabilize the colloidal system. High speed mixing occurs due to the vortical motion caused by the turning of the turbine blades, resulting in strong axial flows that have a powerful mixing force.

It is necessary to provide a slight retention time and powerful vortex motion for close contact between reagents and untreated water.

The process of flocculation.

This process is based on the adhesion of coagulated particles into flocculating structures. After the destabilization of the colloidal system, the particles are smoothly stirred to increase the frequency of their collisions, without breaking the pre-formed structures. The flocculation system is a reservoir with a device for slow and smooth mixing for a relatively long time of their containment. Flocculation is performed mechanically using rotor blades.

Settling

The purpose of the settling is to protect the dual-layer filters with the downstream flow and extend the separation process between the washings to reduce the water loss.

It is proposed to use laminar septic tanks, in view of their ease use and compactness comparing to other comparable technologies.

Filtering

The main purpose of filtering is to remove harmful particles to facilitate disinfection, to prevent the destruction of microorganisms. Two-layer filters are supposed to be used.

- Powder activated charcoal will help to reduce the organic matter content.

Disinfection

As a result of disinfection by chlorine pathogens will be destroyed in the water. The role of the reagent is sodium hypochlorite, which is added to a reservoir of clean water in a dose of 50 mg /liter.

The benefits of using chlorine dioxide are:

- High efficiency as a means of disinfection.
- The disinfection process involves the use of relatively low doses of chlorine dioxide and short-term contact.
- Chlorine dioxide does not react with ammonium and chloride ions.
- The use of chlorine dioxide does not result in the formation of TGM;
- Optimal cost of purchasing the product, since chlorine dioxide is cheaper than ozone (but somewhat more expensive than chlorine).

The main advantages of the new technology are:

- Due to the addition of potassium permanganate, this solution can effectively solve the of high content of iron and manganese in water.
- Due to the addition of chlorine dioxide, the problem of the formation of trihalomethanes will be effectively solved.
- This solution involves satisfactory elimination of odor and taste.
- Processes are easy to operate.
- Compact: requires the least space compared to all other options.
- Low water loss during washing, since the rinsing water is filtered and directed to the feed.
- Cost savings for operation and maintenance.

Reconstruction of the water pumping station.

Zhytomyrvodokanal WTP-2, there is planned to perform re-equipment by replacing old pumping units with a voltage of 6 kW on a new pump equipment with a voltage of 0.2 kV:

- installation of four (two working, two standby) pumps and cabinets with frequency converters for each working unit;
- New construction of a transformer substation with two dry transformers for the operation of new pumps.

At the same time, the difference in energy consumption as a result of the implementation of these measures will be approximately 2 225 772 kWh / year.

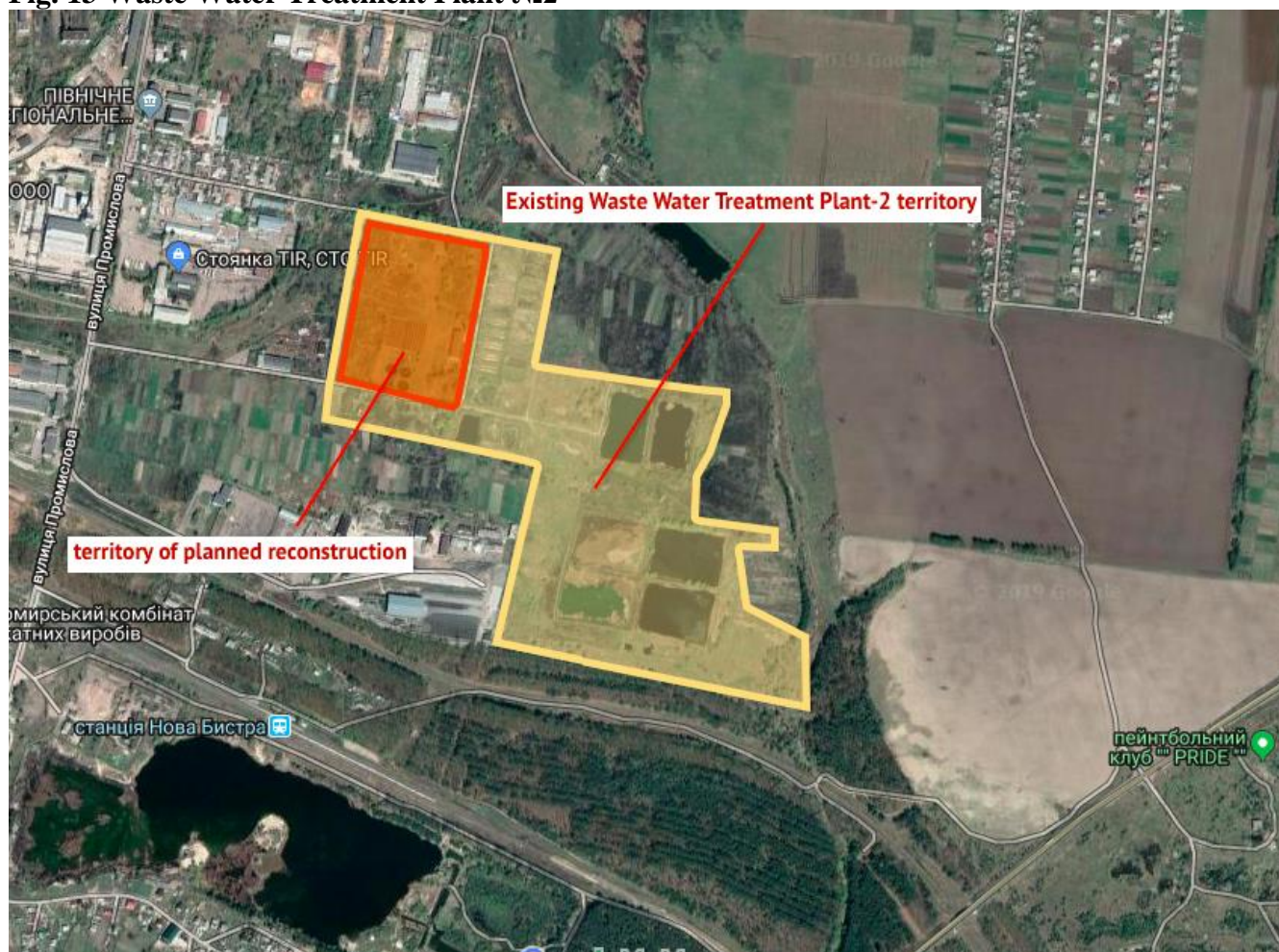
Implementation of these measures will allow to regulate the engine speed and, accordingly, the power of the pump unit depending on the level of water consumption in a specific time period, which will reduce the cost of electricity and prevent the occurrence of such phenomena as pulsation of pressure at the operating frequencies of pump units, vibration, transients (switching, switching on, switching off the pumps), hydrodrums, which inevitably arise when operating hydrosystems, amplify the mechanisms of their deformation, re-accelerate The speed of internal corrosion processes

3.2.Component 2. Reconstruction of wastewater treatment plant (including replacement of mechanical and electrical equipment and sewer pipes)

The main object of reconstruction is WWTP №2, at their site will be unification of all existing waste water treatment facilities from all over the city. At this facility there will be a new modern plant with a capacity of 60 thousand m³ for the complete cleaning of incoming waste water and dewatering sludge, which substantially reduces discharges and the content of harmful particles and nutrients in the receiving reservoir/river. Waste water treatment plant should ensure reliable and stable compliance with

technology that meets Ukrainian and European standards for discharged clean water from urban waste water treatment plants on economically advantageous terms. Existing buildings will be used with the maximum reduction of investment costs.

Fig. 13 Waste Water Treatment Plant №2



Facilities that should be reconstructed are situated on the territory of the existing Waste Water Treatment Plant

Location of the existing Waste Water Treatment Plant:

Existing facilities are situated in Zhytomyr, str.Promyslova, 1

- In the north, it is situated the lands of Zhytomyr city council;
- In the northeast, east and south-east borders with the lands of Levkivska village council;
- In the south on the distance 110 m - with the territory of LLC "Access", LLC "Obio", LLC "Fram", and with the lands of Stanishevsk village council.
- In the west on the distance 40 m. LLC "Metal service" and lands of common use (road).

There are also rehabilitation measures that should only be carried out where it is needed, under conditions of fully extended and reconstructed WWTP №2. The technology is based on a classic scheme that includes mechanical and complete biological purification using an active sludge method.

Lines of sewage treatment provide installation:

- new incoming chamber for incoming wastewater from the WWPS, which will have an overflow board with variable geometry and electric drive. Nurses will control the flow of sewage going to the WWTP in rainy weather. Excess flow of waste water will be dropped into a two-chamber reservoir;
- equalizing tank for waste water from Khimvolokno, which will be equipped with a new aeration system with perforated stainless steel pipes. New blowers will provide the required amount of air. At the input, a flow meter will be installed.
- the mechanical treatment will be carried out using new meshes with small gaps (5 mm gap between the gates). Waste after passing through the grid will be compressed and collected in containers of 4m³. Removal of floating substances, foam and sand will be carried out using lubricating pastes and fat separators (with a delay of fats). The resulting sand will undergo a dewatering stage on the sand classifier. Floating materials and foam will be dehydrated when passing through a sieve with small holes. The final stage of mechanical processing will be the initial settling in the new primary radial settlers. Existing primary reservoirs must be restored and refitted with the possibility of use as a prefabricated tanks in rainy weather.

Biological treatment, designed to remove carbon, nitrogen and phosphorus, will begin with a selector that mixes the waste stream by recycling the precipitate. Further there will be anaerobic reservoirs for bio-degradation of phosphorus (Bio-R). Existing aerotanks should be completely reconstructed in such a way that the processes of nitrification and denitrification occur. This is explained by the fact that the volume of existing aerotanks only partially covers the necessary volume of cleaning of all sewage of the city. Thus, along with the reconstruction of existing ones, the construction of new aerotanks will be carried out. Blowers will be installed to provide aeration. An existing container with relatively new blowers should be close to aerotanks. New blowers should also be delivered to the container. New tanks for iron trichloride (III) with dosing pumps for removal of residual phosphorus will be installed. They will be located in a new home. Biological cleaning will be completed by secondary settlers. Since existing secondary sedimentation reservoirs have limited capacity, it is planned to create new secondary settlers. After passing through the secondary settlers, the purified water will continue to be cleaned in the oxidation pool, after which it enters the collecting tank.

3.3. Reconstruction of water supply networks

The project envisages the reconstruction of existing networks at the pipelines areas by replacing the existing pipelines and by cutting-in in the existing network, using modern materials and technologies, which reduce the construction and installation terms, significantly increase the operational period of the network at the sites.

It is decided to maintain the conveying capacity of waterline in reconstruction project for specified waterline sections taking into account the prospect of developing the rural zone of the city serviced by these networks.

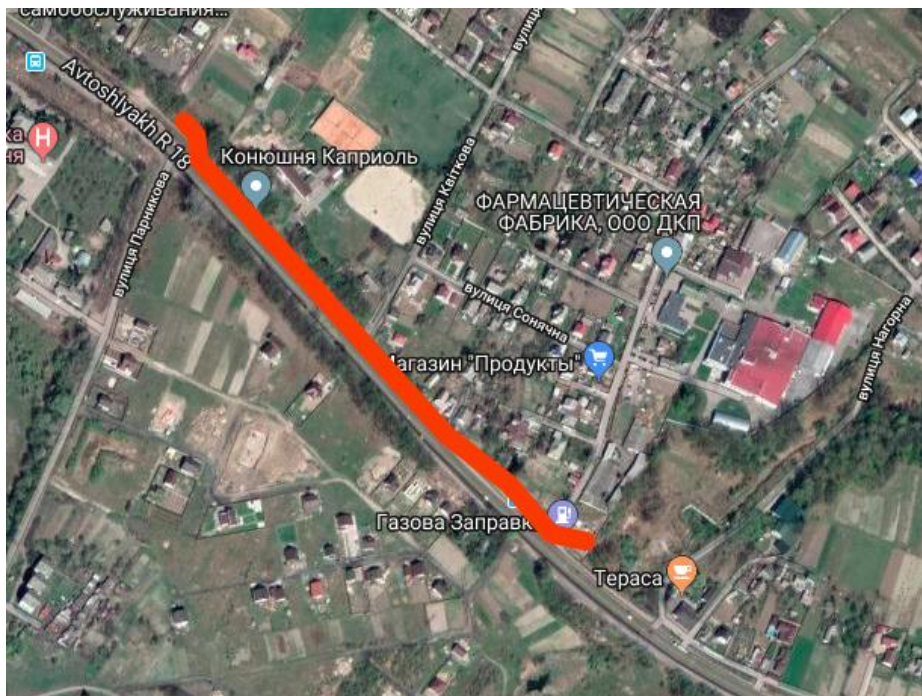
Taking into consideration limited conditions for the construction within the city, technical and economic component, three basic reconstruction methods are foreseen in design consideration:

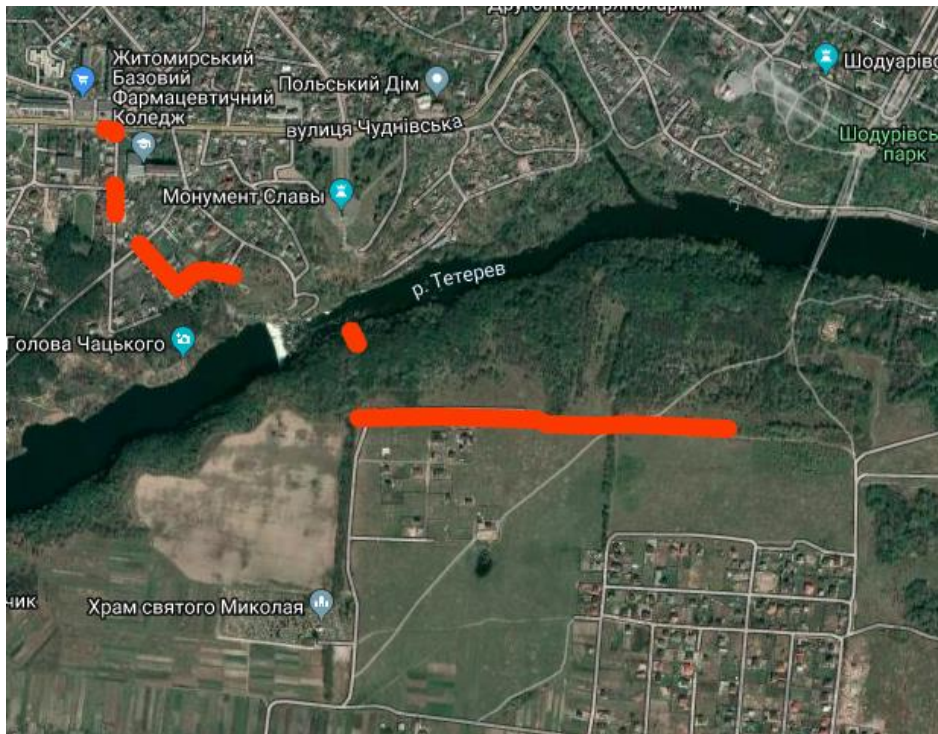
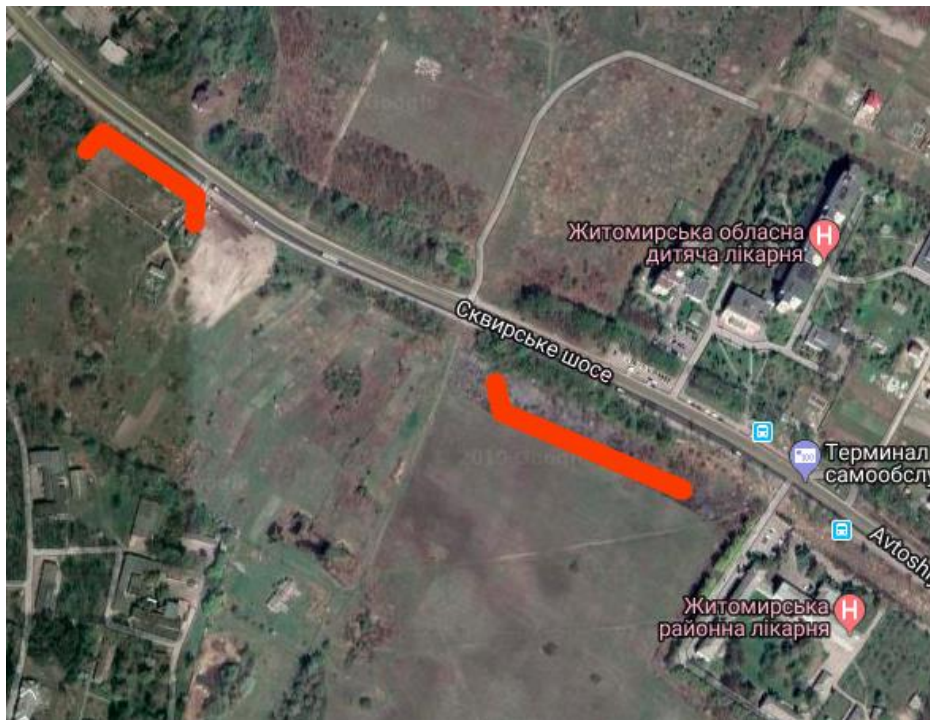
- open laying (trench laying) along existing pipe;

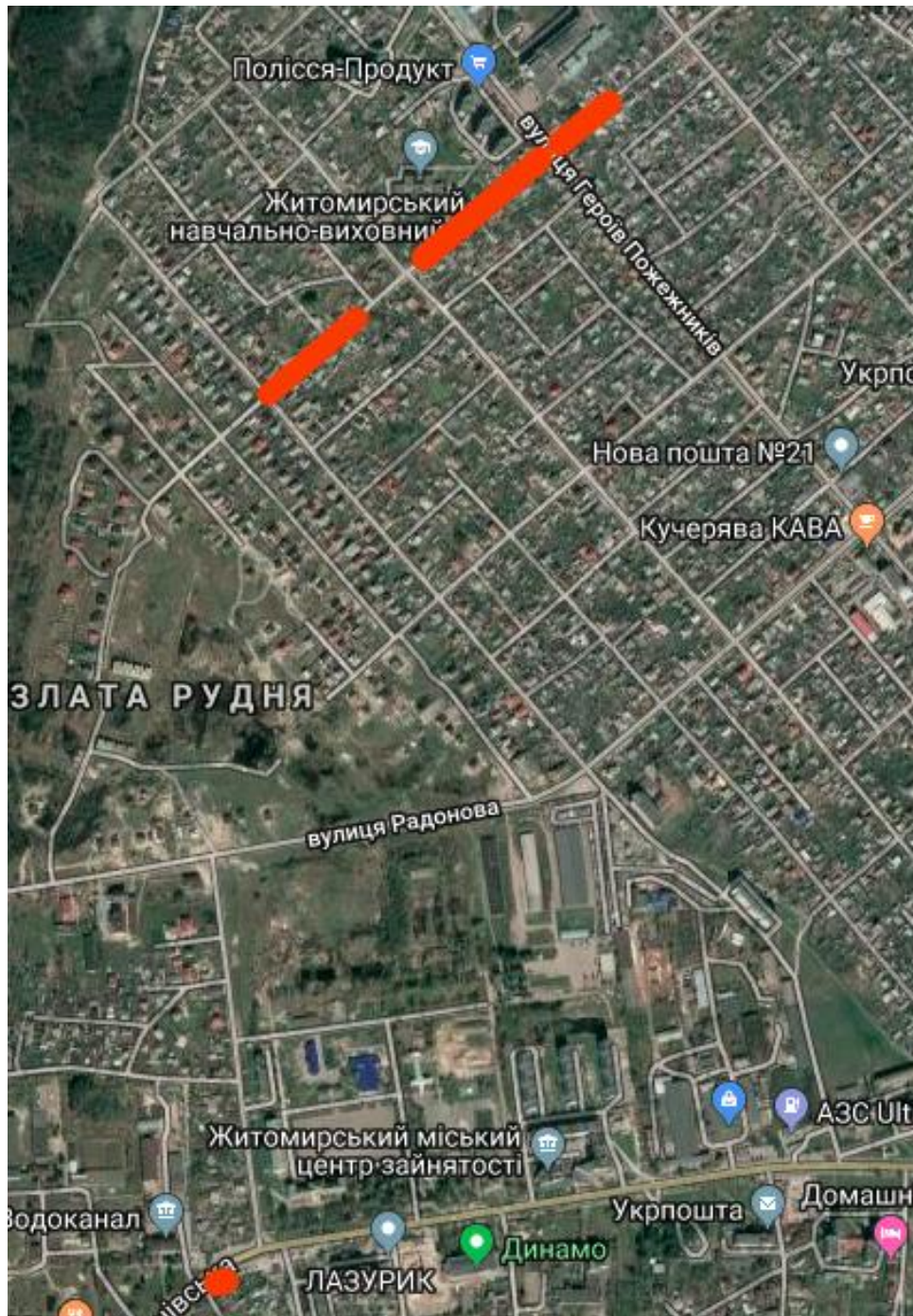
The pipe laying is carried out in the trench with vertical walls and fastening with prefabricated panels. The open method of waterline installation is carried out by digging the trench on the required depth,

preparation and reinforcement of the trench and pipe laying.

Fig 14. The sections of open laying (trench laying) method

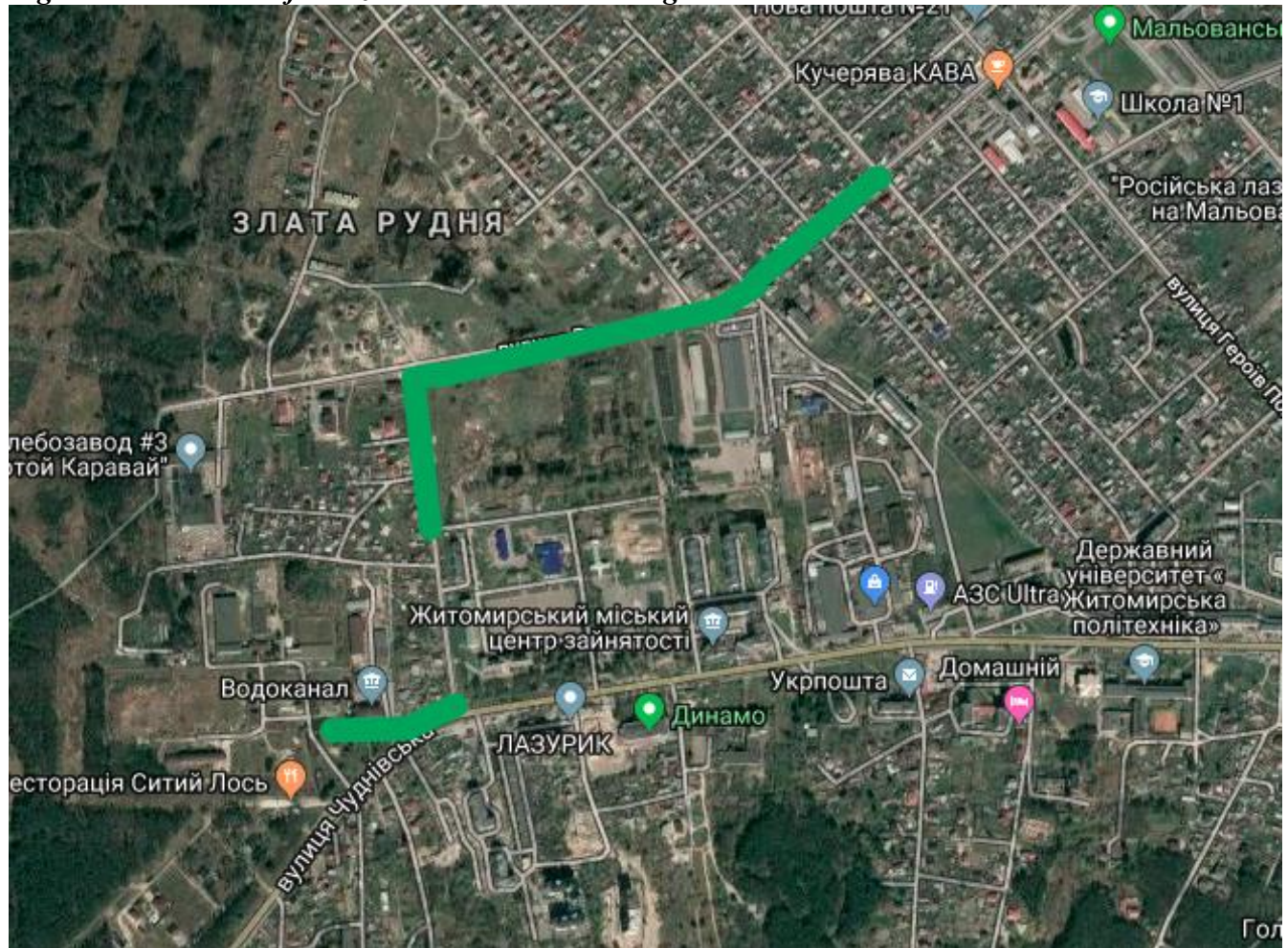






- horizontal directional drilling (HDD) along existing pipe;

Fig 15. The sections of horizontal directional drilling method

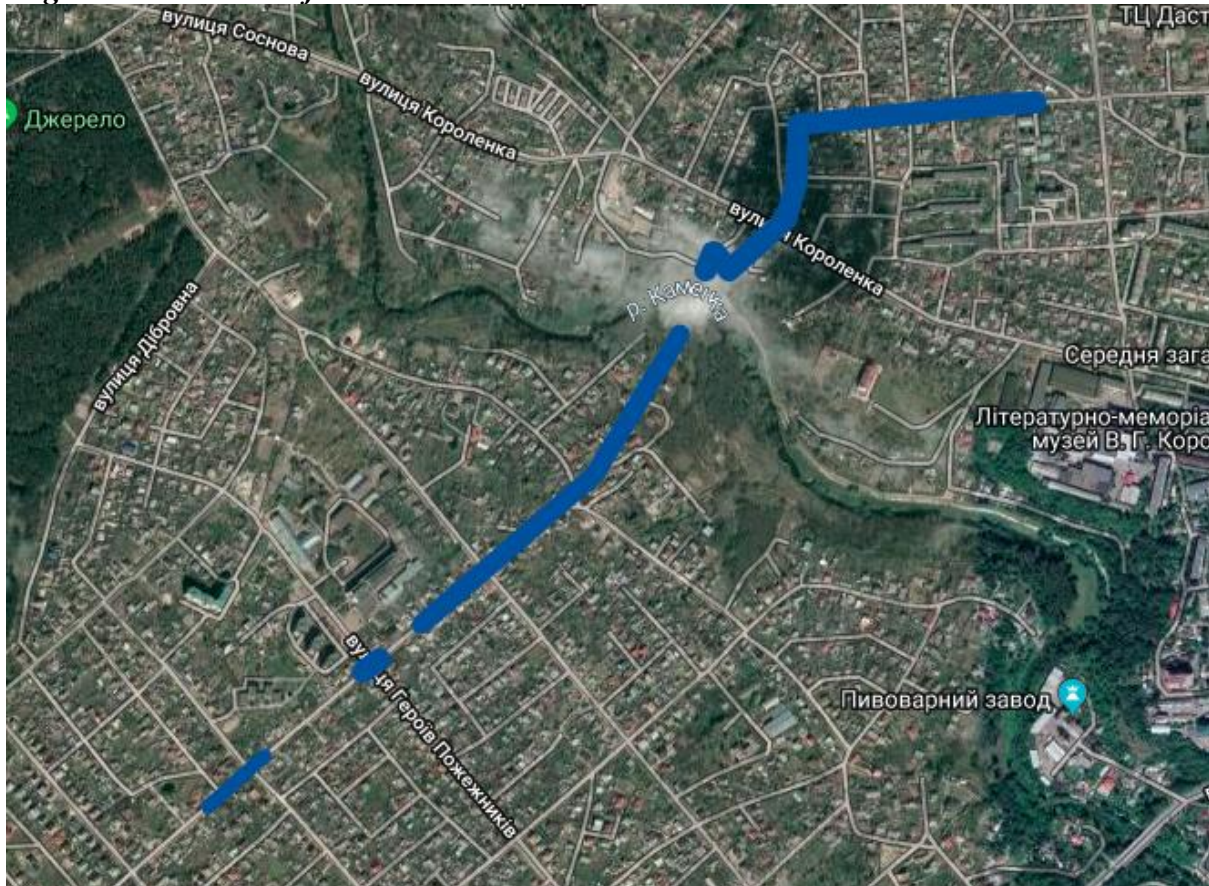


The construction of underground communications using the technology of horizontal directional drilling is carried out in three stages:

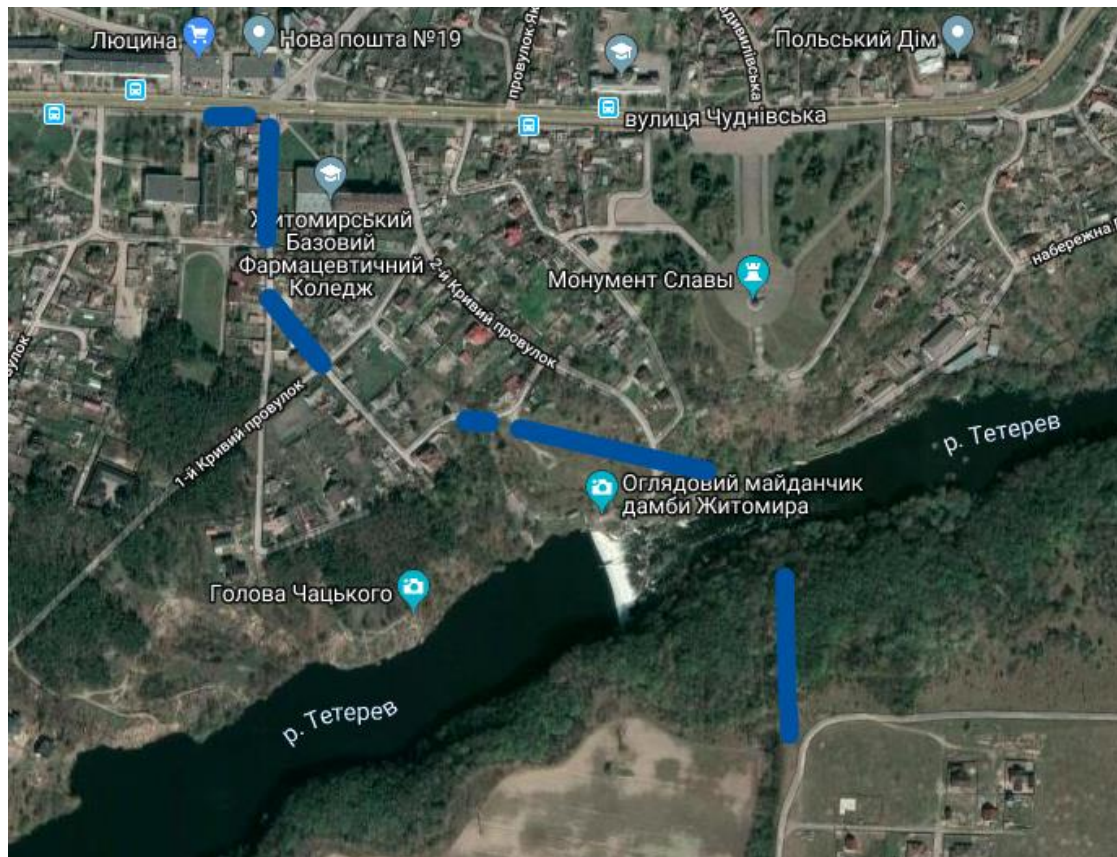
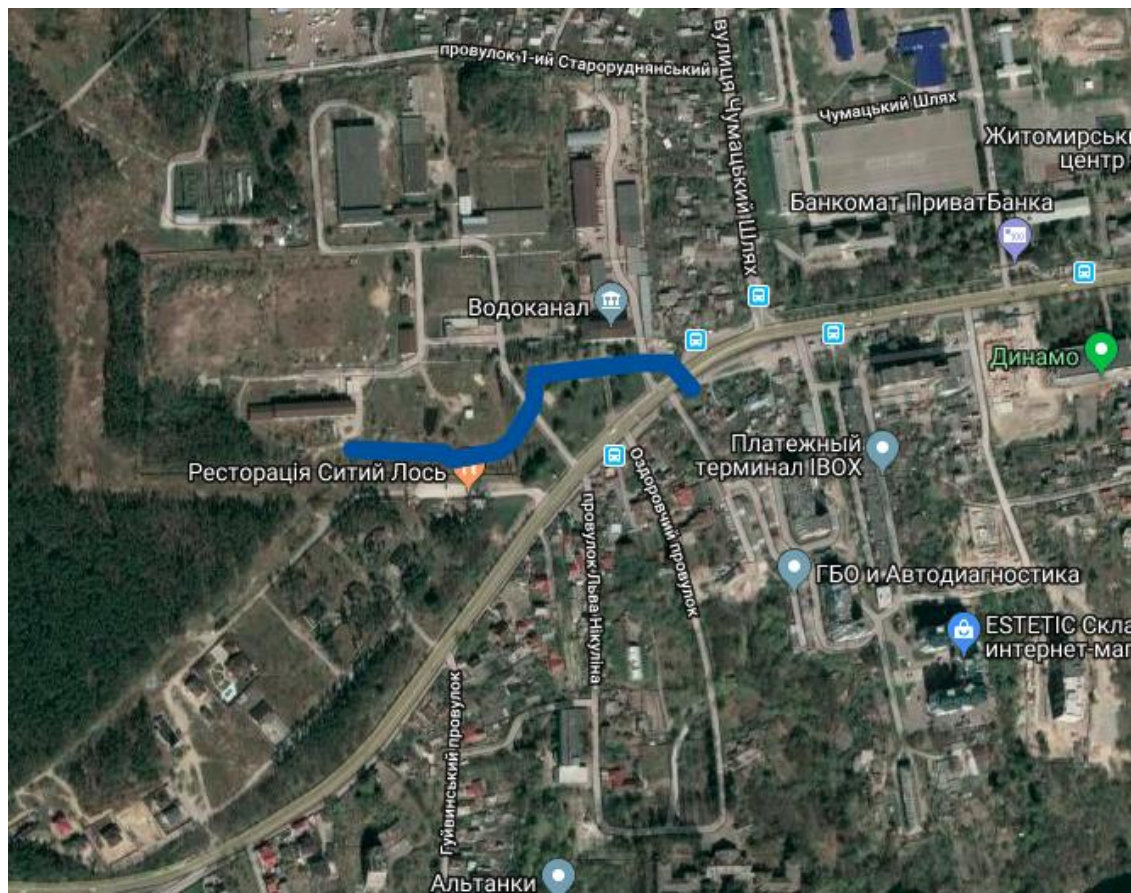
- drilling of a pilot well on a given section;
 - successive expansion of the well;
 - pipeline drainage.
- “pipe-in-pipe” method – sliplining.

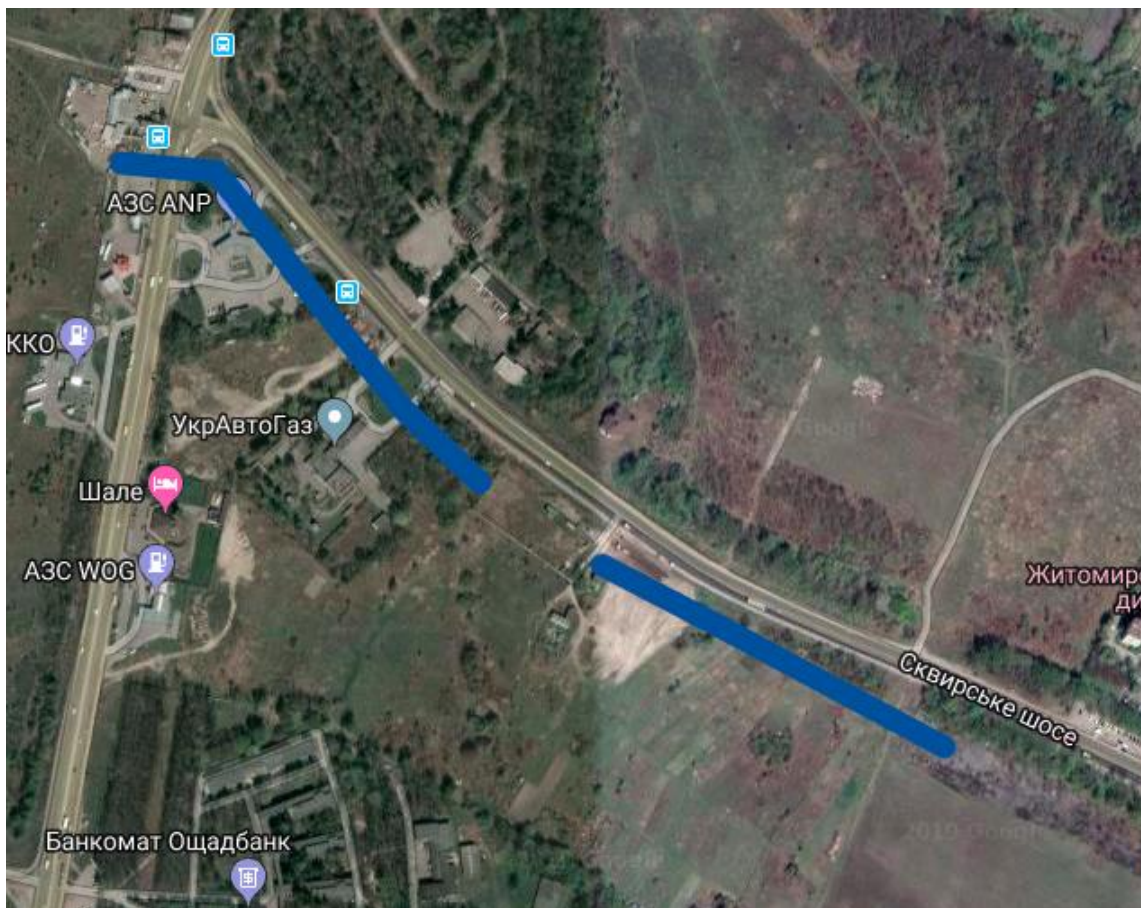
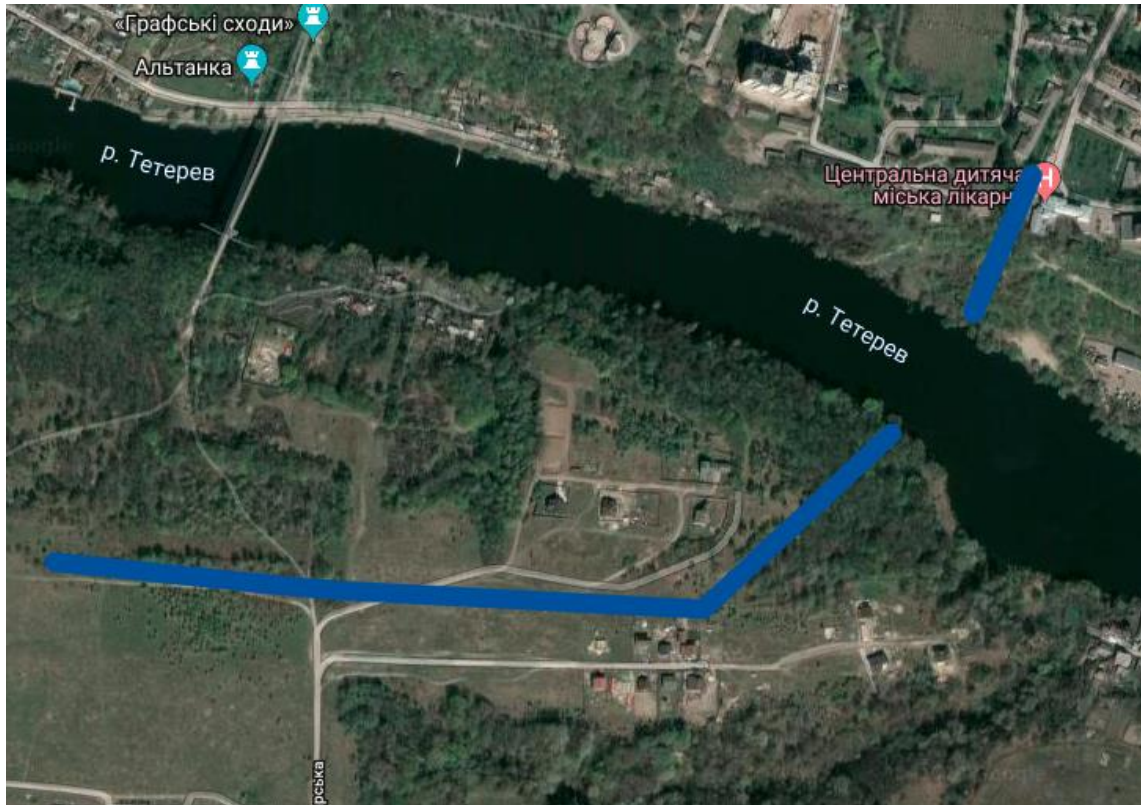
Leading-in new pipes in old ones is carried out through excavated, at the beginning of the area, pit by dragging the pre-welded polyethylene pipes with whim. HD polyethylene pipes with external diameter close to diameter of the sliplining pipeline are delivered to the site. Pipes are welded at the site in sections, due to number of factors. The major factor is the length of the rectilinear on the configuration of sliplining pipeline. Before pulling the pipes, the preliminary TV control is conducted and the cleaning of the pipeline area, which is under sliplining.

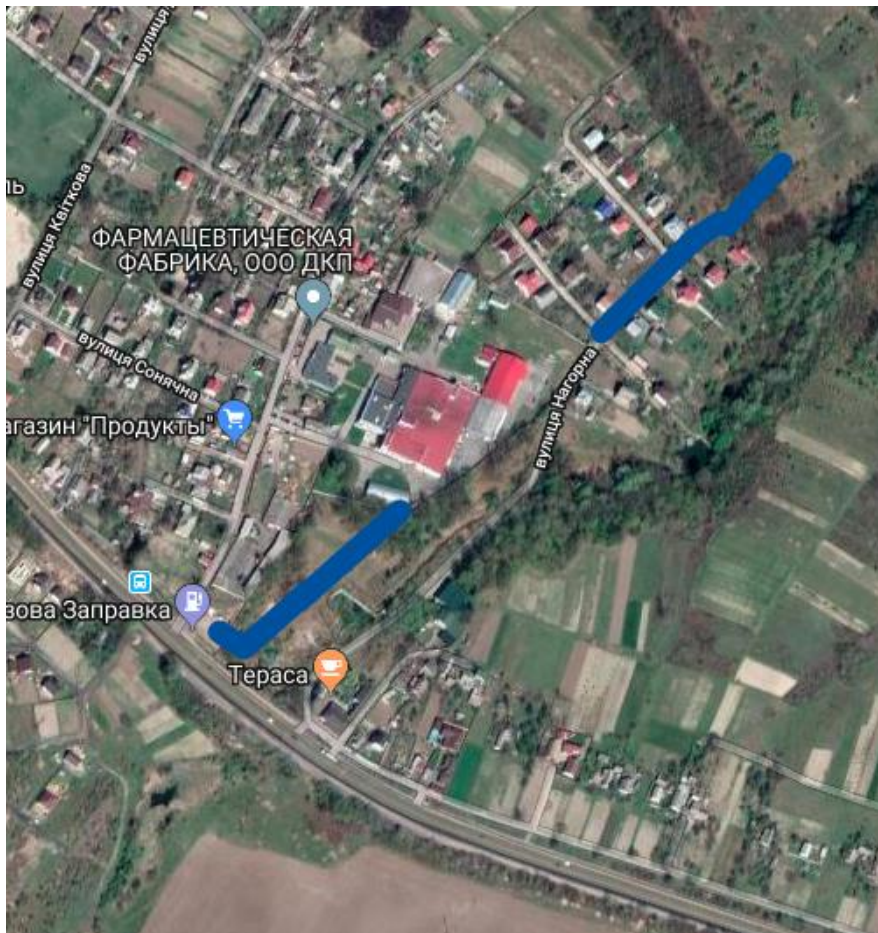
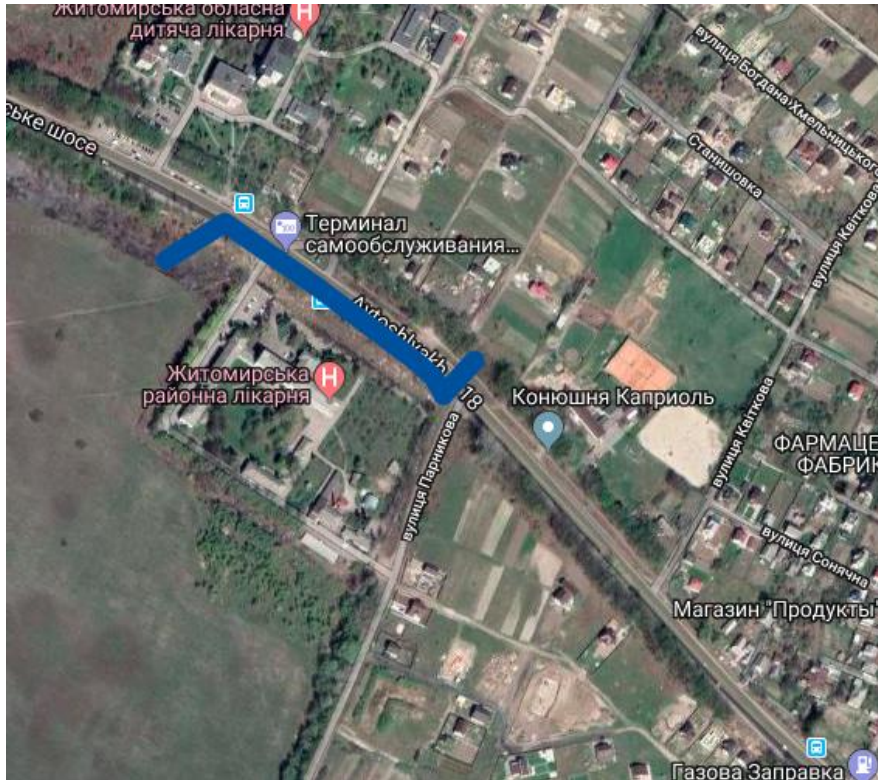
Fig 16. The sections of sanitation method

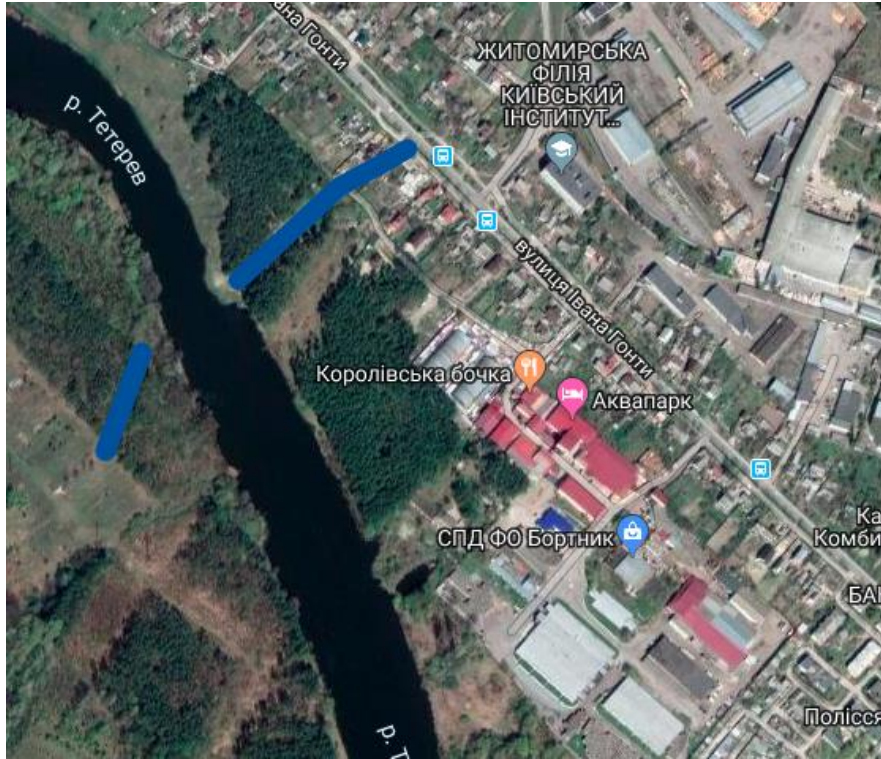


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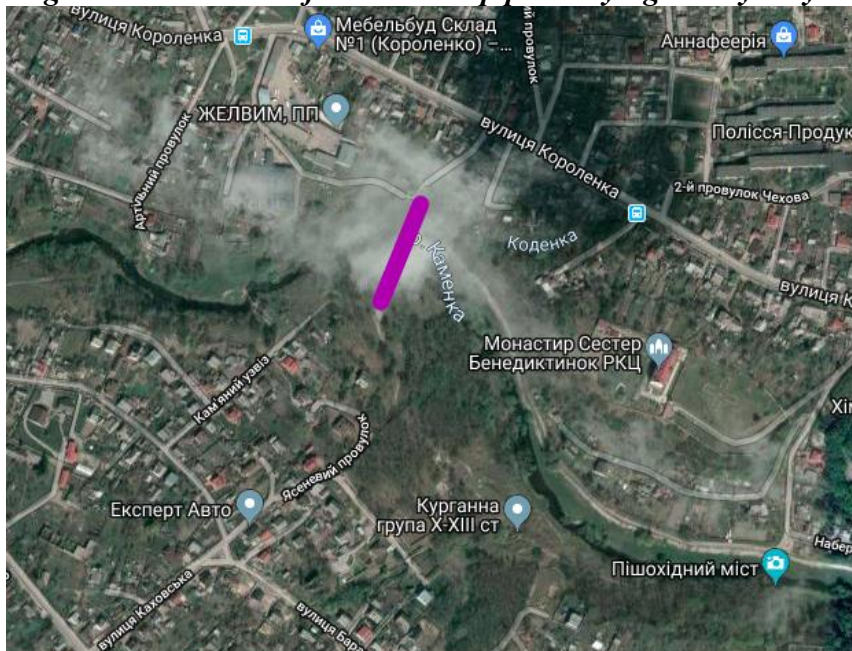


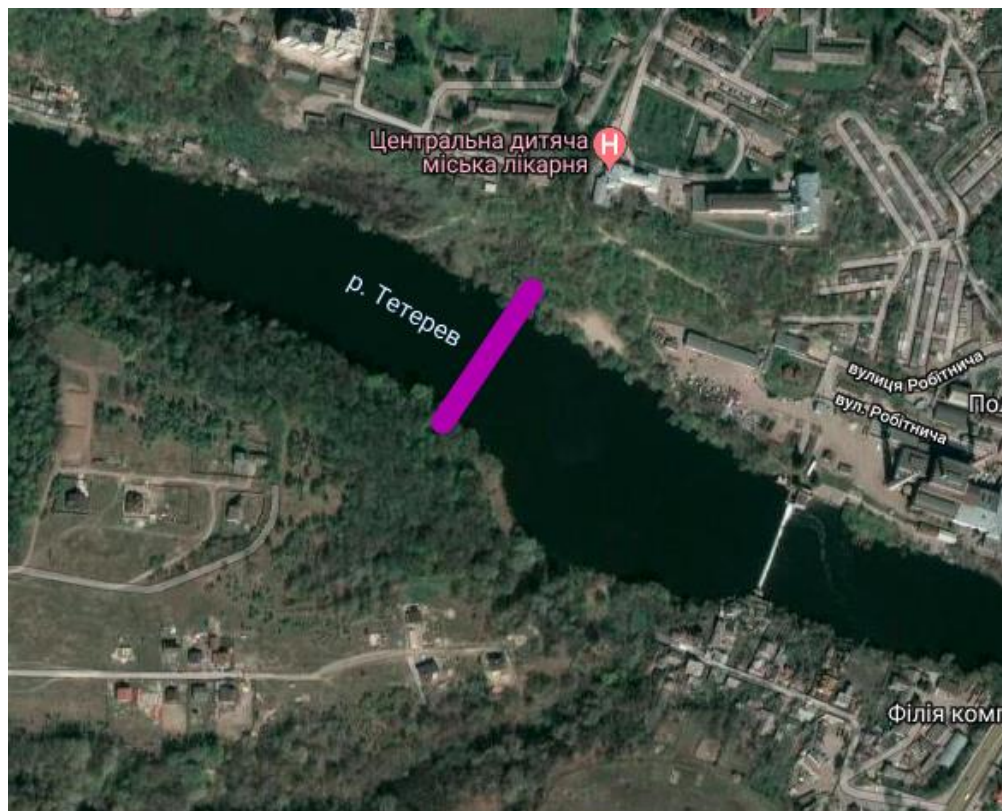
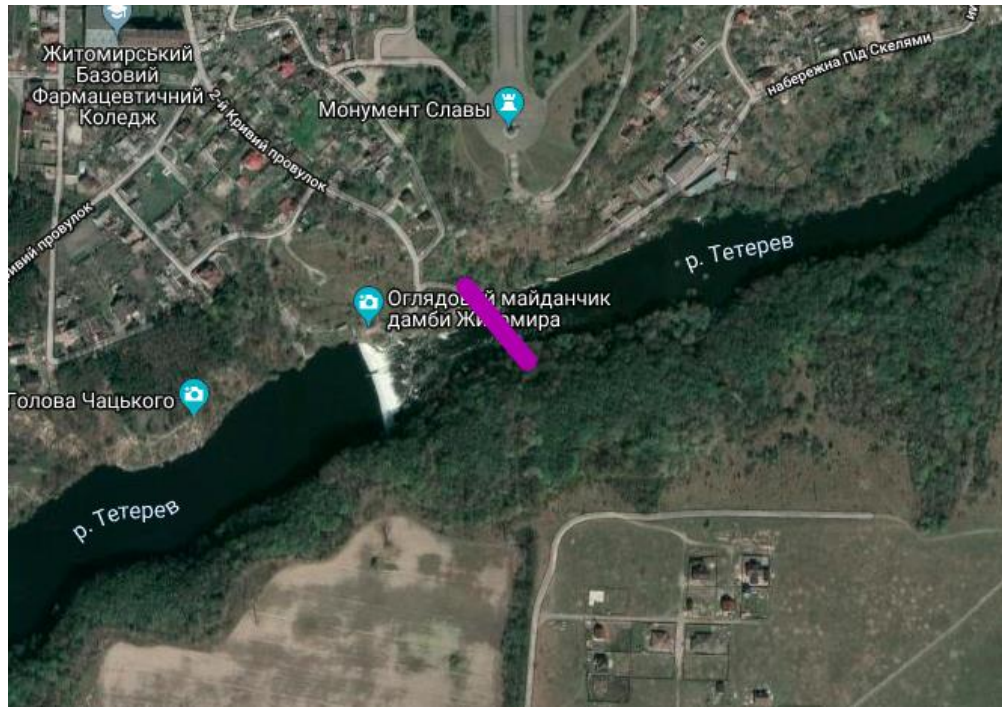


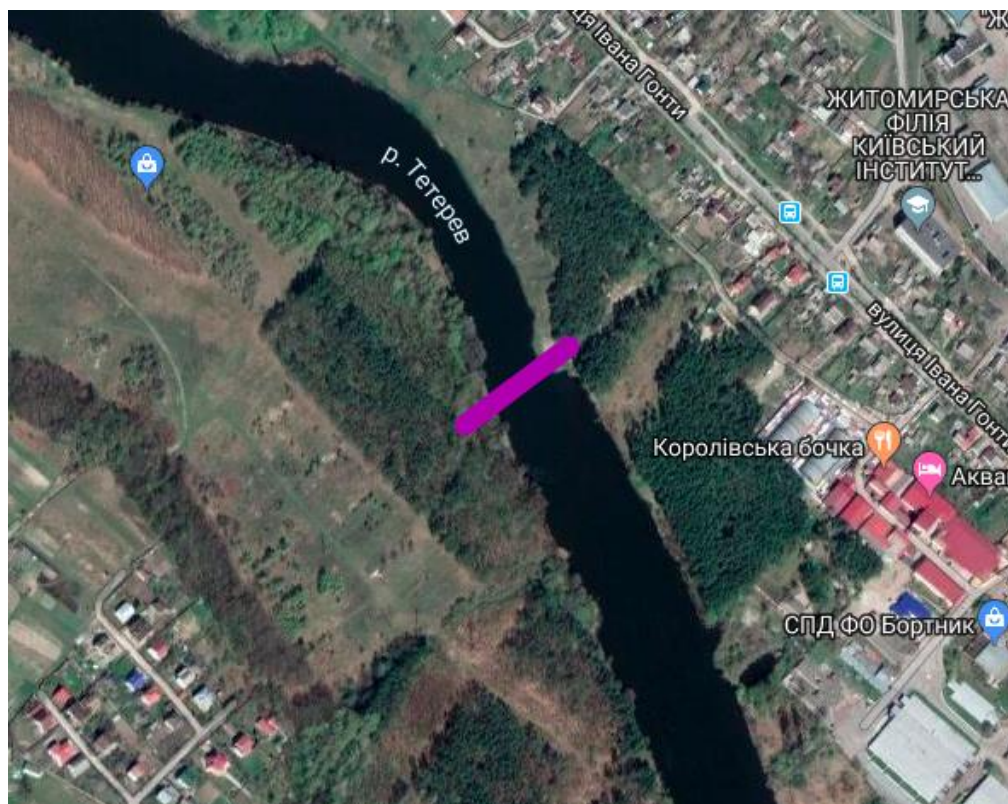


- underwater pipeline

Fig 17. The sections of underwater pipeline lying in Zhytomyr







The object of reconstruction - Zhytomyr water supply network by priority areas approved by the design, the total length - 9758m and including the priority areas:

Table 4. Plan of reconstruction

№	Name of the section	Location	Lenght	Pipe material
1	From WPS-2 to the street. Malynska	from the intersection of the street. Chkalov from the street Kakhovskaya to the syphon	1295	ferroconcrete
		from st. Korolenko to the intersection of the 1st Lyvarny lane. And st. Novosinna	268	ferroconcrete
		from the intersection of the 1st Lyvarny lane. From st. Novosinna to the street. Novosinna, 24	268	ferroconcrete
2	Along the street Chernyakhivska, Nagirny lane, and Along the street. Shelushkova to the street. Gogolovska	Territory of PS II Lift	267	Steel
			19	
			9	
		from st. Chernyakhivskogo, 101 to the intersection of the street. Chernyakhivsky and the Nagirny lane	50	Cast iron
		from the intersection of the street. Chernyakhivsky from the Nagirny lane to the 2nd Kryvy	511	Cast iron

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		lane		
		from 2nd Kryvy lane Curve to syphon	94	Cast iron
		from the syphon (passing through the river Teteriv between the Nagirny lane and Zarychanskiy lands) to the syphon (transition between the Zarichansky lands and the Shevchenko street)	1770	Steel
			308	
		from the syphon to the Central Children's City Hospital	89	Steel
4	To the village Zarichany (along the river) to the District Hospital to the street. Gonty	From the intersection of Berdychivsky and Skvirsky highway to Korolyova St., 1	1910	Steel
		from st. Korolyova, 1 to the syphon	897	Cast iron
		from the syphon to the. Ivan Gonty street, 53	253	Cast iron
14	From st. Chernyakhovskogo along the street. Chumatsky Shlyakh, st. Radonova str. Ostrovsky to the. Zahidna street	from the chamber within the street. Chernyakhivsky, 120 along the street. Chernyakhivskogo street. Chumatsky Shlyakh, Radonova str. Ostrovsky to the intersection of the Zahidna street	1400	Steel
16-1		Syphon Crossing the river Kamyanka between the street. Kakhovska and Korolenko street - 2 units	120	Steel
16-2		Syphon. Crossing the river Teteriv between the Nahirny lane and Zaryachansky lands.	68	Steel
16-2		Syphon Crossing the river Teteriv between. Zarichany lands and street. Shevchenko - 2 units	188,5	Steel
16-4		Syphon. Crossing the river Teterev between Stanishivsky lands and. I. Gonty street -2 units	122,8	Steel
16-5		Syphon. Crossing the river Kamianka between the street. Kakhovska and Korolenko street - 2 units	80	Steel
16-6		Syphon. Crossing the Kamyanka	85	Steel

		River. Along the street. Yakira - 2 units		
16-7		Syphon. Crossing the river Lisna. Between the Sosnova street and. 2nd Chervonoarmiysky lane -2od.	68,5	Steel

3.4.Description of the project activity territory

Component Reconstruction of treatment facilities in Zhytomyr

Execution of works is foreseen on the territory of existing treatment facilities on the Industrialna, 1 street Zhytomyr, without the involvement of new land plots. The objects are built in the industrial part of the city of Zhytomyr.

Preliminary there will not be changes of the existing sanitary protection zones of objects. The objects are located outside the Zhytomyr residential area.

Approximate sanitary protection zones is defined in the development of design documentation.

Component Reconstruction of water pump stations and water treatment plant

Execution of works will be provided on the territory of existing facilities of the water supply system without the involvement of new land plots. Objects are constructed taking into account sanitary protection zones of existing facilities.

Previously there will not be changes in the existing zones of sanitary protection of objects. The objects are located outside the residential building of Zhytomyr.

Approximate SPC is defined in the development of design documentation.

Component Reconstruction of water supply networks

Reconstruction of water supply networks is provided on the existing route of water supply networks of Zhytomyr on the existing line of water supply networks in accordance with the selected territories without changing the existing zones of sanitary protection of the objects.

Execution of works is foreseen on the zone of residential area of city and outside it, in particular:

- in the zone of right of road in the green zone
- on the territory of objects that are in private ownership (permits for works are indicated in the descriptive part “land use regime” in the section "Influence of Forecast Activity")
- green zone of the city of Zhytomyr
- syphons

In the process of work it is planned to cross roads without using an open method of reconstruction. There is also a partial violation of the asphalt cover during the organization of pits due to the reconstruction of the water supply network.

4. EXISTING ENVIRONMENTAL AND SOCIAL CONDITIONS

Information in this section is based on the EIA, results of work visits of Safeguard specialist, open source data.

4.1. General characteristics of the project territory

Zhytomyr city is the administrative center of the Zhytomyr rayon and Zhytomyr region, situated in the northwestern part of Ukraine on the river Teteriv.

At the beginning of 2017 the population of the city was 267 thousand people, and the area of the city is 6100 hectares. The city is divided into Bogunskyi and Korolyovskiy districts.

Fig. 18. Zhytomyr on the map of Ukraine



4.2. Physical-geographical characteristics of the area of work

The city is situated on the border of Polissya (woodland) and forest-steppe zones. Almost from all sides Zhytomyr is surrounded by ancient forests, rivers Teteriv, Kamyanka Lisova and Kamyanka Polyova, Kroshenka, Putytnka flowing through the city.

The surface of the city has a general slope to the valley of the Teteriv River.

Seismicity of the area according to SNiP 11-7-81 is 6 points.

Maximum depth of freezing of soils is 1.08 m.

4.3. Climatic characteristics of the area of work

The object of reconstruction is situated in I northwestern climatic region.

Climatically, the territory of Zhytomyr is related to the temperate continental zone with warm damp summer and mild winters.

The average perennial temperature of the coldest month (January) is minus 6 °, the warmest (July) +18°C. The average annual temperature is + 6.8 ° C. The greatest frosts are in January and February and reach minus 30°.

The duration of frost-free season is 150-170 days. The duration of the period with average daily temperatures above 0° is 240-260 days. Vegetative season (days with average temperature above 5°) lasts from the second decade of April to the third decade of October. The average date for the spring ground frosts are May 5-10, the latest ones are in first half of June. Autumn frosts begin at the end of September - early October.

The average annual precipitation is 550 - 600 mm. The maximum amount of precipitation falls in the summer months and is 40-45% of the annual amount. In the summer, there are often showers, thunderstorms. The amount of precipitation in the period of active vegetation reaches 300 - 350 mm. The snow cover in most cases is even 20-30 cm and lasts for 95-110 days, but it's not stable due to frequent thaws.

The average annual relative humidity is 78%.

The average wind speed is 3.4 m/s.

Unfavorable climatic events are periods without rain up to 60 days, possible drought and dryland, heavy rains, 1-2 days (less often 4-6 days) with hail. Significant damage is caused by late spring and early autumn frosts. In winter, low temperatures are possible for 25 days, ice-covered ground is up to 15 days or more.

Table. 5. Meteorological characteristics and coefficients of the area are given in the table

Name	Value
The coefficient, depending on the stratification of the atmosphere, A	180
Terrain relief coefficient	1
Average maximum temperature of the hottest month, July, T, degree, °C	23,4
Average temperature of the coldest month, January, T, degree, °C	-6,0
Wind velocity on the average long-term data, the repetition of which exceeds 5%, m / s	10,11

Water resources

The main rivers of Zhytomyr are – Teteriv, Lisova, Kamyanka, Kroshenka, Putyatynka, Dovzhyk. The fragments of bed of small rivers Vygadka, Kodenka, Veluka Putyatynka, Stavrovks, Rudavka are still preserved. Partly they pass in pipes, laid underground. Wetlands and wet areas are allocated. Landslide process are among the exogenous geological processes in the region.

Teteriv river is the right feeder of Dnipro river. The length of Teteriv river is 365 km, the area of the basin is 15300 km². River has rocky shores in the area of Zhytomyr city. The main alimentation of the river is snow and rain. The river freezes approximately at the beginning of December and unfreezes in the middle of the March. Spring flood raises the river level in the Zhytomyr region by 2-3 meters. The slope of the river is 0.5 m / km².

According to geological surveys, underground water is phreatic, the established level is fixed at a depth of 0,3 m to 2,5 m from the surface of the ground. The maximum seasonal forecasted groundwater level is higher than that recorded during the exploration period from 0.7 m to 2.0 m depending on the plot.

The territory of Zhytomyr belongs to the zone of excessive humidification. The region belongs to slightly drained according to the level of groundwater drain.

The content of organic substances in the rivers of the region was formed, mainly, under the influence of natural factors and according to the results of observations in recent years, remains constant. Regarding the total ferrum then along with the factor of anthropogenic influence a significant role is played by the

physical and geographical features of the territory. High groundwater levels and weak surface-slope runoff contribute to the process of bogging in the north.

The content of heavy metals (zinc, manganese), petroleum products, phenols is much lower than norms of environmental safety of water consumption.

The mineralization of surface waters of the region during the years of observations does not undergo significant changes, the dry residue remains within the background values and is below the maximum permissible concentration. The average annual dry residue values are in the range of 200.0 - 500.0 mg / dm³ at a norm of 1000 mg / dm³. The smallest values are peculiar to the rivers of the north of the region - Uborti and Uzh, and the biggest - for the river in the south of the region - Gnilopyat and Rostavitsya.

According to the salt composition, the surface waters of the Zhytomyr region are hydrocarbonate calcium waters, hydrocarbons are dominating among the anions, and calcium -among cations.

In general, according to the monitoring results in 2016, the hydrochemical state of surface waters in the region will not undergo significant changes.

4.4. Sanitary protection zones of water supply and sanitation facilities

Requirements for the design of reconstruction and technical re-equipment of existing facilities, networks and individual elements of external water supply of settlements are determined by DBN B.2.5-74: 2013. Water supply external networks and facilities are the main provisions of the design.

The sanitary protection zones are provided for the provision of sanitary and epidemiological safety and protection against accidental or deliberate pollution of surface or underground water supply sources and plumbing structures of the centralized drinking water supply system, as well as the adjacent territories.

The legal status of the sanitary protection zones is determined in accordance with:

- the Resolution of the Cabinet of Ministers of Ukraine "On the legal regime of zones of sanitary protection of water objects" dated 18.12.1998, №2024
- SanPiN 2640-82 "Regulation on the procedure for designing and operating the sanitary protection zones for water supply and water supply systems for commercial and drinking purposes (Provisions on the design and operation of sanitary protection zones of water supply facilities and water supply systems for household and drinking purposes)".

In turn, the size of the sanitary protection zones of waste water treatment plants and waste water pumping stations to the boundary of residential area, public institutions, buildings and facilities, food depots, food industry enterprises (taking into account their perspective expansion) should be taken in accordance with DBN B.2.5 -75: 2013 Sewerage Outdoor networks and facilities.

The approximate sanitary protection zones is determined in the process of design documentation development.

5. CHARACTERISTICS OF THE IMPACTS OF THE PROJECTED ACTIVITIES ON THE ENVIRONMENT AND THE SOCIAL SPHERE

Potential impact of the planned activity on the components of environment and social sphere should be taken into account at the construction and operational stages of the project.

It is expected that the Project will cause some short-term negative impacts on the air, soil, surface, ground waters and noise level, especially during implementation of construction works. However, these negative impact are related to the object of construction and will be of a temporary nature, in addition their impact will be minimized or eliminate at all by the implementation of relevant measures to prevent and (or) mitigate the negative impact of the project implementation.

In general, it's not expected that the Project implementation will have the negative environmental impact, as the result. However, there is a high probability of the threat to workers' safety and health, caused at the construction site and to population at the stages of implementation of construction and operation. These risks will be reduced by implementing relevant measures for their elimination.

In particular cautionary and warning signs should be put up at work places, to pay special attention to the provision of safety measures during performance of work in residential areas near the children's playgrounds, schools, kindergardens. The area should be additionally fenced and lighted.

The equipment should meet established criteria for operational capacity, quality control, warranty period, after-sales service, protective provisions and other aspects.

Building materials will be procured from official suppliers to ensure their security of service and safety for public health.

As the result of project implementation the following types of impact on environment and social environment may occur:

Impact on the air condition

Construction stage

During the execution of works, related to implementation of investment project, the temporary impact on air condition is determined by following technological operations:

- execution of excavation works;
- operation of road vehicles and mechanisms;
- execution of construction and installation work;
- execution of welding works;
- the local increase of the level of gas pollution of ground layers due to increased density of traffic of motor vehicles;
- execution of works using varnish-and-paint substances, works on corrosion prevention treatment, etc.

The execution of mentioned works envisages the emitting to the atmosphere:

- suspended particles (dust during excavation works and removal of the asphalt layer and, accordingly, during subsequent laying of topsoil and asphalt covering);

- carbon oxides (combustion products of the internal combustion engine of motor vehicles, earthmovers and special vehicles) and, as a consequence of the increase in the level of air pollution by emissions of exhaust gases in land transport.
- hydrocarbons during the laying of asphalt covering;
- the pollutants: nitrogen oxides, carbon monoxide, ash, sulfur dioxide will be emitted in the air during usage of local autonomous diesel generators for the supply of electrical construction equipment and lighting of construction sites

The main sources of atmospheric air contamination during water supply system reconstruction will be operations related to excavation works (trench excavation, pits, leveling and thickening of the foundation, back-filling of trench, pits), backfill, and also the engines of motor and construction machinery. The total amount of the pollutants emission to the atmosphere will be 28,5711 t for the period of reconstruction of water supply network.

During the soil excavation and renovation of road surface and arrangement of wells the inorganic dust containing silicon dioxide in amount of 12,6381 t. is emitted to the atmosphere.

Taking into account the straight-line method for carrying out excavation works (backfilling of trench after installation of pipeline, removal of surplus soil and construction waste), and also physical and mechanical properties of the soils (humidity, mass) and dust (speed of precipitation) it can be stated that dust emission will be short and of local nature (having small radius of impact, limited to the place of execution of works).

Waterproofing works during the reconstruction of drain syphon, and also during the renovation of asphalt covering during water supply network reconstruction will cause the emission of interface hydrocarbons to the atmosphere in amount around 7,3747 t.

The toxicity of the exhausted gases, emitted during the operation of road construction machinery determined by the content of carbon oxide (*CO*) and nitrogen oxide (*NO_x*), the amount of which depends on the amount of fuel consumed and technical condition of engines (the possible amount of exhausted gases is 8,5474 t).

During the polyethylene pipes welding, the atmosphere will receive 2.1×10^{-5} t of carbon oxide, 2.4×10^{-5} t acetic acid.

During the metal welding the atmosphere will receive 0,0076 t of iron oxide, 0,0008 t of manganese and its compounds, 0,0012 t of chromium oxide, 0,0012 t of fluorides, 8.2×10^{-7} t fluoride gaseous compounds.

Taking into account temporary and local nature of execution of works, and also the fact that reconstruction is executed at several different areas and at the construction stages, one may state that after the end of reconstruction, the parameters of atmosphere air at the districts of its execution will be back to normal.

Due to the fact that emission of pollutants during the construction is acceptable, due to term of reconstruction execution and its stages, and also to the fact that mostly the pipe-in-pipe method was chosen, which minimized the emission of pollutants and the offered measures are effective and practicable.

Operational stage

At the period of operation of facilities, reconstruction of which is envisaged in the process of implementation of this investment project, the main type of impact on the atmospheric air will be:

- treatment plants, in particular, an open space of technical treatment plants (grit chambers, clarifiers, aerotanks and etc), the surface of sludge sites. The content of major pollutants will remain the same (ammonia, methane, hydrogen sulfide). It's anticipated that the emission of pollutants will not exceed the critical permissible concentration and in general, their amount will be reduced by the increasing the efficiency of the work as a result of the reconstruction.

The impact on the soil cover and landscape

The main impact on the soil and geology will be related to the modernization of the network. The works will involve excavation in order to replace outdated water supply pipes with new ones. The most common types of exposure of soil are:

- morphological influence due to earthworks;
- mechanical influence of transport and construction means, which will be expressed as the compressive effect – increase of the density of upper layers of soil, which is not included in the removable one. (due to the work of large-scale equipment and machinery; trampling down);
- transformational influence – the transformation of the soil is carried out due to admixture of building materials to the soil mass, which influences the morphology (this type of impact is related to the constructions works which may be carried out using the technics of asphalt removal, concrete constructions, which involves the allocation of mechanical particles of asphalt covering in the air during dismantling with its subsequent settling).
- probability of chemical contamination due to:
 - possible emergency spills of fuel and lubricant materials;
 - possible emergency spills of waste waters;
 - emission of exhaust gases and further residue of heavy metals, which are in their composition, in upper layers of soil and possible
- probability of mechanical pollution (domestic waste pollution, construction wastes, black scrap waste, polyethylene pipes, hardened concrete, fittings, etc.)

The amount of soil that is excavated in all stages of reconstruction of water supply network according to calculations presented at design documentation is around 20137 m³.

The impact will have temporary nature due to compliance with the technique of construction processes. The earth works will be distinctly managed and controlled by the designated competent people. Due to the local nature, limited to the territory of work, this impact can be considered as acceptable.

During the construction, the landscape surface is temporary interrupted in the place of the construction. Upon the completion of the construction the micro-relief is renovated and the remediation of disturbed lands is carried out, this is the mandatory requirement of the construction. However, it's important to notice that the works will be conducted at the territories with already changed landscape.

Operational stage

At the operational stage, the reconstruction of which envisages at the process of implementation of the investment project, the major types of impact on the atmospheric air, will be:

- possibility of chemical pollution due to:

- possible accidental spills of fuel and lubricant materials;
- possible accidental spills of waste waters;
- emission of exhaust gases and further residue of heavy metals, which are in their composition, in upper layers of soil and possible
- probability of mechanical pollution (domestic waste pollution)

Impact on flora and fauna

Construction works during the reconstruction envisage the earth works, related to: use of number of special vehicles.

This, in its turn, influences the vegetation:

- possibility of slash of trees and shrubs;
- mechanical impact due to earth works;
- mechanical impact due to anthropogenic trampling down;
- mechanical impact due to arrangement of places for temporary storage of dismantled and ready-to-install equipment;
- mechanical impact due to compressive effect of heavy machinery, which will operate outside the asphalt covering, which will lead to the disruption of vegetation cover of place.

In the case of tree cutting, the relevant data about compensation value will be included to relevant ESMP chapters

The impact on the plant cover at the work site, related to reconstruction of water supply system, also can be expressed as:

- chemical impact due to production of the harmful substances, which are contained in the exhausted gases and have negative impact on the physical state and photosynthetic properties of the plant cover.
- chemical impact due to pollution causes by used combustibles and lubricants, formed as the result of internal combustion engines technic operation, used in the process of works;
- chemical impact due to possible accidental spill of combustibles and lubricants;
- chemical impact due to increase of the concentration of harmful substances in the surface air as the result of the increase of the traffic density, and hence the speed of vehicles due to decrease of road lanes while placing the repair equipment;

As the works will be conducted within the residential areas and at the territory of already operating facilities, the negative impacts will be minimal.

As for the representatives of the vegetation type, which are listed in the Red Book of Ukraine, they are absent at the territory of construction works in the zones of the project implementation.

As for the fauna, the main threat to the existence of city biota is the usage of construction equipment, as it will affect the sedentary organisms and animals, living in upper layers of soil (in particular, rodents). Due to the change in soil density, the probability of survival of soil biota will decrease. Measures for the soil layer removal provide the possibility of saving the part of mesofauna, the representatives of which can migrate to the undisturbed soil after laying. In the case of tree felling, the operation must be carried out not during the period of nesting birds.

Also after constructions such factors of floatation as noise and vibration appear, and negatively affect rodents and some species of birds, which are city inhabitants. As the result their life cycle, related to breeding and nesting and eggs laying (in case with birds) can be disturbed.

The nature reserve fund and Red Book objects are absent at the reconstruction site, and also at the influence zone of the reconstruction facility

Agricultural lands will not be affected during the construction.

The impact of these factors is unavoidable, but due to the precise work planning, their duration will be regulated and the impact will be minimized.

Operational stage

The operation will take place the within residential areas and at the territory of already operating facilities, due to this the negative impacts are nor foreseen, and existing negative impacts will be minimal. As for the representatives of the vegetation type, which are listed in the Red Book of Ukraine, they are absent at the territory of operating facilities and in the zones of this investment project implementation.

During the facilities operation, the reconstruction of which is envisaged in the process of implementation of this investment project, the main type of the impact on the atmosphere air will be minimized.

The impact on land-use mode of Zhytomyr city

Construction process related to this investment project envisages works within existing order of land-use.

As for the reconstruction of Wastewater Treatment Plant (including the replacement of mechanical and electrical equipment and sewage networks) - work will be carried out on the territory of existing Wastewater Treatment Plant without the involvement of additional land plots.

Reconstruction of pumping stations of the water supply and Wastewater Treatment Plant also involves the execution of works on the territory of the existing water treatment plant and water supply pumping stations without the involvement of additional land plots.

Reconstruction of the water supply network envisages the use of privately owned land plots on a temporary basis in accordance with agreements concluded with land owners (copies of agreements are given in the annexes).

As a result of the preliminary survey conducted by the responsible persons of the Utility Zhytomyrvodokanal, it was determined that the sections of the water supply network planned to be reconstructed pass through the following land plots that are privately owned:

1. Barashivska street 48;
2. Kamyanyi spusk str 6;
3. Kamyanyi spusk str 6 b;
4. Kamyanyi spusk str 10;
5. Kamyanyi spusk str 10 b;
6. Kamyanyi spusk str 12;
7. Korolenko str, 6;
8. Korolenko str, 53/1;

9. 3rd Collective Prov., 6/2;
10. 3rd Collective Prov., 4;
11. 3rd Collective Prov., 2;
12. 3rd Collective Prov. 2/2;
13. st. Ivana Gonty 46, 1;
14. st. Ivana Gonty 46, 3;

In accordance with the developed design documentation of the Project "Reconstruction of water supply networks in Zhytomyr", within the framework of the project "Second Project of Urban Infrastructure Development", reconstruction of water supply networks at these sites will be carried out by the method of sanation "pipe in a pipe" without direct use of the land of above indicated privately owned land plots.

This method of reconstruction is a trenchless method of sanitation and restoration of a water supply system, when a new pipeline of smaller diameter is laid inside the existing pipeline without dismantling of the old water supply network.

The process of restoration of the pipeline in this way involves the execution of land works, in particular, the installation of a start and receiving ditch along the pipeline, which is planned to be reconstructed. This is explained by the fact that the lining of new pipes into the old pipes will take place only on the open ground of the ditch. To lining the pipe inside the existing water pipeline, a ditch size of $2.0 \times 8 \times 3.0$ (h) m is planned.

As a result of studying the design documentation, the places of the preliminary temporary arrangement of intermediate pits, which are necessary for carrying out construction works on the reconstruction of water supply networks (by the method of "sanation"), are located within two separate privately owned land plots, namely:

- 1. Tretiy Collective provulok, 2a .;**
- 2. Kamyanyi spusk, 6.**

Owners of land plots granted their permission to conduct land works with the subsequent restoration of fences and remediation after the completion of construction work.

According to the information indicated in the design documentation, the exact location and number of pits will be determined depending on the actual location of the route of the existing water supply system in the development of a project of execution of works, the organization which will perform construction works on the reconstruction of water supply networks after specifying the profile of sections during the inspection of the internal state existing pipeline. Thus, information about privately owned land plots and the need for their involvement will be clarified after an inspection of the internal condition of the existing pipeline.

As a result of negotiations between the owners of privately owned land plots, which are planned to use during the reconstruction of the Zhytomyr water supply network, a Protocols of Intent were concluded and signed. The protocols fully reflect the agreement with the owner of the private land plot, which has been achieved as a result of the negotiations and which are obligatory for both sides to do. Copies of the signed protocols of intent are given in the Annexes (Annex 6-9) to this document.

Works on land with a special status of land use are not anticipated.

According to the information indicated in the design documentation, the exact location and number of pits will be determined depending on the actual location of the route of the existing water supply system in the development of a project of execution of works, the organization which will perform construction works on the reconstruction of water supply networks after specifying the profile of sections during the inspection of the internal state existing pipeline. Thus, information about privately owned land plots and the need for their involvement will be clarified after an inspection of the internal condition of the existing pipeline.

Operational stage

The impact on land use regime is not anticipated during operation of the facilities which are to be rehabilitated in the course of current investment project.

Cultural heritage

The construction works within the object of cultural heritage are not anticipated.

If, during reconstruction, the objects/articles related to cultural and historical legacy would be discovered or there will be the need of affecting the existing material and cultural values, the World Bank Operational Policy 4.11 "Material Cultural Heritage" would be applied. In case of identifying, during the execution of earth works, objects that may have historical value, it is necessary to stop the execution of earth works on this construction site with the subsequent notification of the head of construction and relevant departments of local government.

The borrower/beneficiary of the subproject together with the CPMU will have to prepare a Plan of Action for the Protection of Cultural Heritage and agree with the local authority responsible for cultural heritage. This plan must comply with the provisions of the Law of Ukraine "On the Protection of the Cultural Heritage" dated 08.06.2000 №1805-III. The Plan should be part of the Environmental and Social Management Plan for subprojects where declared buildings and/or other historical and cultural facilities that could potentially be damaged during the implementation of the subproject.

Waste disposal

During the implementation of reconstruction measures for water supply systems the following waste is formed:

- domestic waste (incl. waste after cleaning the territory). Storage place – containers at the site with hard cover. As accumulating will be exported to city dump in accordance with the agreement with specialized enterprise;
- cleaning materials. The temporary storage in metal container with further discard to specialized enterprise will be carried out;
- construction waste mixed (incl. from dismantling and taking down existing wells, pipes and chambers from rubbish and sludge etc.). Places of storage are special sites with hard cover, containers at the sites with hard cover. As accumulating will be exported to city dump in accordance with the agreement with specialized enterprise;
- wastes from public places (liquid wastewater from biotoilet). Storage – metal waterproof container of biotoilet. As accumulating will be delivered to treatment plant in accordance with the agreement with specialized enterprise;
- segments of polyethylene pipes. Temporary storage at the site with hard cover with further disposal to specialized enterprise for utilization will take place;

- scrap of ferrous metals (from dismantling of steel and cast iron pipes and details). Storage place is the specially designated place at the site of temporary storage with further disposal in accordance with the agreement with specialized utilizing enterprise.

Wastes are the 3 and 4 classes of danger and are, accordingly, moderately- and low-risk (according to the sanitary and hygienic standards of Ukraine).

Potential impact of the mishandling waste is related to the possibility of its improper temporary storage and transportation. This can cause the contamination of soil, surface and ground waters, create the danger for public health and environment.

‘When managed responsibly and following mitigation measures outlined in the following chapters, negative impacts from waste generation will be within permissible limits.’ And list all these ‘safety techniques’ in mitigation measures.

Operational stage

During facilities operational period, reconstruction of which is foreseen in the course of realization of this investment project, it is not expected that the ecological situation associated with the formation of waste will deteriorate.

Impact on underground and surface water

Existing water supply network was built with observance of the required distances to the surface water according to the sanitary standards. Work sites will be situated taking into account sanitary requirements in accordance with current legislation of Ukraine according to water supply protection sanitary zone.

There is the risk of accidental leakage of fuel and lubricant materials from machinery and equipment and storage wastes, used at the construction during the dismantling and construction works. These substances can pollute soils and, accordingly, go into ground waters or flow to surface water objects.

Physical pollution of surface water by solid construction and domestic wastes is not excluded. Weighted in the air with finely dispersed particles of soil may also have potential negative impact on the surface water condition.

A rehabilitation of 4 syphons transitions is planned, it may also have a potential negative impact on surface water condition in case of non-compliance with the design requirements of construction works and emergency situations.

There are no tap water facilities located in the close proximity of underwater pipelines rehabilitation zone. Water intake is located upstream of the subject underwater pipelines (on Teteriv river outside the city boundaries). In the area of carrying out of works related to reconstruction of underwater pipelines the drinking water objects are absent – water intake facilities are situated higher than the underwater pipelines (on Teteriv river outside the city boundaries).

Operational stage

The negative impact on surface and ground waters is possible, the probability of which appears in the process operation of the facility because of the possibility of accidental leakage of fuel and lubricant materials from vehicles and accidental spills of wastewater. Contamination of ground water is possible only if technology is not followed or due to staff negligence.

Noise pollution

During the construction stage typical noise effects will appear, which can not be avoided. Such typical noise effects include noise effects, caused by movement of trucks and other construction machinery (excavators, bulldozers, tractors, etc), loading and unloading processes, installation and dismantling works etc..

According to temporary characteristics this noises are related to **non-continuous** and, depending on executing works can be:

- fluctuative according to time (the level of noise constantly changes);
- intermittent (the level of noise gradually changes);
- impulse (consist of one or several noise signals, with duration less than one second each).

The acoustic mode should be provided at the construction sites, according to the hygiene norms, by means of urban planning, construction and design solutions, administrative and organizational measures (cl.8.40 of the section DSP -173-96 “Protection from noise and vibration”). According to the conducted calculations, the expected noise levels from noise sources during the reconstruction at the border with residential construction is below permissible values (taking into account that the reconstruction is carried out during the day time).

Construction works will not require activities, causing significant noise, for example, explosions.

Upon completion of reconstruction, the noise level in this area will return to the existing one.

Operational stage

The noise pollution is insignificant and related to the usage of motor vehicles during the scheduled/unscheduled inspection of water supply networks. Taking into account that the majority of sections water networks are situated at the right-of-way of motor roads, this type of impact is within acceptable limit.

Landslides and erosion

Poor supporting structures during earth works can lead to landslides, causing the risk for workers and adjacent structures.

The plantless soils have tendency to erosion in cases of heavy rains during work commissioning.

Operational stage

Negative impact related to landslides or erosion in the process of facilities operation is not foreseen.

Risk of fires and explosions

During the implementation of investment project, in particular, caring out range of construction works, there is a high probability of non-conformity of equipment, construction machinery and mechanisms with the requirement of fire safety rules. That, in its turn, can cause injuries for employers and citizens of Zhytomyr and damage or complete destruction of property.

Increasing of risk of road accidents

Movement of the construction machinery, transportation of cars, mechanisms, equipment, construction materials and direct execution of construction works can cause the increasing of traffic intensity and, accordingly, its complication. As the result there is a high probability of occurrence of traffic accidents, injury for citizens and workers, involved in construction, damage to physical objects.

Impact of projected activity on social sphere

Potential consequences of the impact of projected activity on social sphere at the construction stage can be viewed in the context of following indicators:

- practice of social management;
- work conditions;
- economic environment;
- public health and safety;

Thus, the potential negative impact in **social management** practice can be expressed through:

- increased number of complaints from the representatives of local community, living in the area of direct construction works, due to level of dust, noise, road traffic violation because of construction works.
- an increase in the number of operations or production processes, which can cause review of the existing organizational structure or review of the production processes.

Thus, the potential negative impact in the field of observance of working conditions can be expressed as:

- the use of construction machinery, which does not comply with its operational instructions, non-compliance with the rules and standards of work safety, improper instructions and, accordingly, improper control can lead to the situations involving injuries of workers and visitors of construction site;
- risk of industrial injuries increases among personnel;
- violation of working conditions due to increased level of noise, vibration and dust.

Temporary use of privately owned land plots involves

- The removal of the fence for the purpose of excavation work for the subsequent rehabilitation of networks by the method of sanation on the territory of Tretiy kolektyvnyi Lane, 2a, Kamyanyi spusk, 6.
- Influence on a fertile layer of soil during work on territory of Tretiy kolektyvnyi Lane, 2a, Kamyanyi spusk, 6 land plots
- Noise in the process of performing work

Thus, the potential negative impact in the field of public health and safety practice can be expressed as:

- disturbance of the comfortable living of local inhabitants (local households), situated directly at the area of construction works, due to increase of level of noise, dust (air pollution), disruption of the schedule of public transport movement;
- increase of the amount of compliance from the representatives of local community, living at the area of direct construction works due to higher level of dust, noise, disruption of public transport movement, caused by construction works.

Transboundary impacts of construction facilities

Transboundary impact means any harmful effects, resulting from the environmental change, due to human agency, the physical source of which is completely or partly at the district, under the jurisdiction of this or other Party. Among such environmental impacts are impacts on public health and safety, flora, soils, air, water, climate, landscape and historical landmarks or other material objects.

This construction objects are not included to the list of activities, requiring the application of Convention in case of significant transboundary impact on the environment Annex 1 to Convention.

According to the sanitary and hygienic standards in force, the SPZ of construction facility is 200 m. so the impact of the facility to the atmospheric air in transboundary context is absent. The excessive level of maximum acceptable concentrations of pollutants outside the sanitary protection zones is not foreseen. Thus, this Convention does not apply to such type of works.

6. MITIGATION MEASURES OF NEGATIVE IMPACT ON THE ENVIRONMENT

Atmospheric air

During process of the investment project implementation, a whole set of measures will be envisaged to ensure compliance of the project with the applicable norms and rules, safe operation and exclude pollution of atmospheric air by harmful substances. During the work, high-quality fuels will be used, adequate ventilation is provided, work will not be carried out in closed or limited space, workers should be provided with respirators in the right amount. The technical condition of the used vehicle fleet should be in satisfactory condition, and all emissions related to the work of internal combustion engines should not exceed the established standards.

In order to avoid an increase in the density of the traffic flow in the it is necessary to inform the owners of vehicles about the possible complications of traffic through the placement of ads in the media.

When transporting dust-forming materials and direct sites for the temporary storage of dust-forming materials, special coating materials should be used and effective dust reduction measures are envisaged in order to reduce material dissipation. Loading and unloading of materials shall be carried out with a minimum height difference. In turn, the transport of dust-forming materials must take place in packages packed in hermetic packaging or using cover materials.

Impact on soil condition

All excavation works, as well as the temporary placement of building materials and construction waste, must be carried out in strict accordance with the design conditions (requirements) in specially designated areas for this purpose, using the appropriate packaging or waterproofing layer.

It is supposed to develop an optimal scheme of construction equipment movement in order to prevent excessive impact and formation of unregulated ways of moving construction equipment. Whenever possible, it is necessary to prevent the movement of equipment away from hard-coated roads or temporarily equipped access roads.

Disposal of household drains should take place in specially designed for this purpose containers in order to prevent their dumping on the relief and the occurrence of erosion violations of the soil.

Temporary storage of liquid waste is provided in specially designated places in sealed containers with appropriate markings. In addition, it is mandatory to provide appropriate training for employees, and obtaining a certificate for the right to carry out work with increased danger, to be briefed before performing work.

Territory clogging and unauthorized disposal of waste, including construction waste, must be prevented.

In the places of roadway asphalt cover damages will be restored.

Impact on flora and fauna

In accordance with the requirements of the Order of the Ministry of Construction, Architecture and Housing and Communal Services of Ukraine "On Approval of the Rules for the Maintenance of Spin Plants in Human Settlements" dated 10.04.2006 №105 during any work on land plots where green plantations remained, the developer should:

- to enclose trees on the construction site;
- during construction of roads, sidewalks, asphaltting of yards, etc., leave space (holes) for planting trees, and also forms holes around existing trees;
- to dig ditches deeper than 1 m for laying underground engineering networks and foundations at a distance of not less than 2 m from a tree and 1,5 m from a shrub;
- do not allow backfilling of shrubs and tree trunks with soil;
- to preserve the upper fertile layer of soil throughout the territory of the building, arrange for its removal, storage and leave for further use or transfer to a specialized enterprise designated by the local authority for use in the creation of green plantations;
- do not allow warehousing of building materials, parking of machines and mechanisms at a distance of not less than 2,5 m from a tree and 1,5 m from a shrub.

Waste management

Waste that are formed during the construction will be stored in specially designated places in accordance with their aggregate state and hazard class near the place of work. The packaging in which the waste is stored must have the appropriate markings. Provision is made for temporary storage of waste and its subsequent transportation for subsequent processing or disposal in accordance with the concluded agreements.

It is envisaged to conclude contracts with a specialized waste removal company. In addition, it is imperative to include in the briefings the issue of waste management.

Impact on the state of surface and groundwater

As noted above, the planned reconstruction measures should not result to deterioration of water quality. It is envisaged that the work will be carried out in strict accordance with the design conditions, which will minimize the risk of adverse effects. It is planned to develop a plan for handling emergency situations in the event of an emergency spillage of fuel and lubricants or the occurrence of accidents on reconstructed water supply networks.

The impact on groundwater status is possible only in case of emergency situations, therefore its prevention is provided for in emergency measures, the elaboration of a reaction plan in the event of emergencies. This allows to guarantee both during the construction period and during operation of the elimination of pollution of surface and groundwater.

Noise

Activity will be limited in the time interval from 8⁰⁰ to 21⁰⁰ on business days. in accordance with the current legislation of Ukraine or in accordance with conditions agreed with the public. In order to reduce noise levels, it is also envisaged to optimize the traffic flow associated with construction work, including the elimination of delivery of goods at night.

Workers should be provided with noise protection equipment.

If necessary, the installation of noise shields near the construction equipment is planned to prevent negative effects.

Emergency warning

For preventing emergencies, compliance with work schedules and regulations on occupational safety is mandatory . All involved workers must receive appropriate training, and obtain a certificate for the right

to perform work with increased danger, to be briefed before the work. At the places of work, appropriate warning and warning signs will be established, appropriate fences and transitional bridges (if necessary) installed in accordance with the requirements of the current legislation of Ukraine.

It is envisaged to develop plans for responding to emergency situations.

It is obligatory to develop a plan for the organization of the construction site along with the scheme of motor transport.

Social Impact Assessment

To reduce the negative social impact and inform the population about planned works during the period of Project implementation, the following set of measures being developed:

1. Publication of information about the planned activity and the current state of works on the Project on the company's website <http> and in workplaces.
2. Information leaflets for all planned interventions under the project to be disseminated in the affected neighborhoods. including consultations with the community.
3. Carrying out public consultation with the population and to identify the places where trees, flowerbeds, playgrounds, rest arenas, and waste collection sites will be moved, if they are situated on the allocated land.
4. Placing information regarding all the components of the Project during the performance of works in public access areas (bulletin boards, etc.) about the following:
 - Start of construction and its completion;
 - Contractors and Subcontractors of the Project;
 - Persons responsible for the works carried out and for technical supervision (with indication of their contact details);
 - Company's phone numbers and focal point information for public appeals and grievances.
5. Information about possible changes of public transport routes is posted by the municipal authorities on the website of the city council in mass media and at public transport stops after the coordination of works performed under the Project, and which may lead to changes in public transport routes around the city.

To prevent accidents on sites during works under the Project's contracts and protect the health of workers performing the works and the population in close proximity to the site, the Contractors must develop and carry out ESMP under each contract.

During construction works and replacement of heat networks could create temporary restrictions for the residents of the city, the following measures will be applied to ensure the safety of the population:

- Workplaces should be protected by a fence;
- Information about the works performed should be posted;
- Temporary public transport routes (detour) should be organized, as well as passages for pedestrians;
- Road signs should be installed;
- Illumination of workplaces should be provided at nighttime;
- Red warning lights should be set up for works performed at nighttime.

Before the start of the construction works and during the construction phase, periodically, once a week, inspections to detect damage of buildings located along the perimeter of the building site should be carried out.

It is possible temporary shutdown of water during reconnection to the new water supply system. This situation will be managed very carefully and people in areas under construction have 24/7 hotline and sign boards to allow emergency calls in case of prolonging water supply cuts or other construction related issues. If necessary, water will be provided by transporting it by special vehicles.

7. MECHANISM OF IMPLEMENTATION OF EXTERNAL COMMUNICATIONS, DISCLOSURE OF INFORMATION AND PROCESSING OF APPEALS OF CITIZENS

An important element is the holding of public consultations and direct participation of the public and, in particular, project concerned parties, who may be negatively affected by the project. This is a condition for reducing the likelihood of occurrence of conflict situations and increasing the benefits during project implementation.

To reduce the negative social impact and inform the population about planned works during the period of Project implementation, the following set of measures will be developed:

- Publication of information about the planned activity and the current state of works on the Project on the company's website <https://vodokanal-zt.org.ua/>
- Information leaflets for all planned interventions under the project to be disseminated in the affected neighborhoods, including consultations with the community.
- Carrying out public consultation with the population and to identify the places where trees, flowerbeds, playgrounds, rest arenas, and waste collection sites will be moved, if they are situated on the allocated land.
- Placing information regarding all the components of the Project during the performance of works in public access areas (bulletin boards, etc.) about the following:
 - Start of construction and its completion;
 - Contractors and Subcontractors of the Project;
 - Persons responsible for the works carried out and for technical supervision (with indication of their contact details);
 - Company's phone numbers and focal point information for public appeals and grievances.

Information about possible changes of public transport routes is posted by the municipal authorities on the website of the city council in mass media and at public transport stops after the coordination of works performed under the Project, and which may lead to changes in public transport routes around the city. Concerned parties refer to physical or legal parties (institutions, organizations) whose state (economic, social, etc.) may change as a result of the implementation of the anticipated project.

The consulting process involves work with all project parties identified as project concerned parties.

Public involvement, in particular, the involvement of concerned parties, to present the project, the essential conditions for its implementation and to define public opinion on this, will be held by UC "Zhytomyrvodokanal" prior to the beginning of construction works.

The mechanism of public consultation of UC "Zhytomyrvodokanal" is implemented through:

- public consultations;
- public hearings;
- providing public consultation (on request);
- GRM.

Public consultations, in particular, public hearings, discussions and consultation of engaged parties individually will minimize the probability of claims, due to processing issues and problem solving, related to the project implementation in working order.

In case of questions, suggestion or complaints, the engaged party can contact UC “Zhytomyrvodokanal”. The communication system with population is following:

- by phone through service desk (0412) 550 552, (0800) 752 553;;
- by written request to UC “Zhytomyrvodokanal”.
- by e-mail request to UC “Zhytomyrvodokanal” vodokanalzt@ukr.net

There will be public disclosure of this ESMP and public consultation with the community and other relevant stakeholders before during and after the project activities. Grievance Redress Mechanism accessible for the project affected people will be established by the Utility.

Project stakeholders will be able to submit questions, complaints and compliments/suggestions through the GRM. The GRM will focus not only on receiving and recording feedback, questions and complaints but also on how complaints are responded to and resolved. GRM focal point should be appointed by the Head of Utility and be responsible for handling GRM log. GRM log needs to be submitted to CPMU on monthly basis.

If no understanding has been reached, or if the person who is experiencing the negative impact will not receive a response, then that person may contact to CPMU, in which the specialist is assigned, who will register complaints and claims and try to solve them at local level, regarding which the World Bank representation will be informed.

At meeting with public the people, who have negative impact, will receive contact information for communication with this specialist. If the person, who has negative impact of the project, will be unsatisfied by the decision received, he can apply to the court of competent jurisdiction as a final instance.

According to the legislation of Ukraine in force, the written request should be sent by mail or delivered by hand by citizen or through person authorized by him, whose authorization is made according to the legislation.

The written request can also be sent through Internet, electronic communications (electronic request). The website of UC “Zhytomyrvodokanal” <http://vodokanal-zt.org.ua> has section “Contacts” with function “Internet reception” <http://vodokanal-zt.org.ua/questions> for this purpose, where everyone can leave his/her message (question, suggestion or complaint), indicating his/her contact information for feedback, in particular, his/her name, surname, patronymic, contact number, e-mail and residence address.

It should be noted that according to the World Bank’s Policy, the appeals, suggestions and complaints from the citizens can be reviewed even without indication of contact information of the person, applying (anonymously), in contrast to the requirements of current legislation of Ukraine.

According to the Article 7 of the Law of Ukraine “On citizens appeal” dated 02.10.1996 № 393/96-BP in case, of issues resolution, indicated in request do not fall within the competence of UC “Zhytomyrvodokanal”, the enterprise should forward the request to the appropriate body or official within five days, with informing the applying citizen.

According to the Article 20 of the Law of Ukraine “On citizens’ appeal” the appeals are processed and resolved within a maximum one month from the receipt date. If it is not possible to solve the issue, the

required term is established for its solving, about which the appealing person should be informed. In this case, the term for solving the issue should not exceed forty-five days.

In order to increase the efficiency in work with appeals to UC “Zhytomyrvodokanal” the personal reception of citizens by head of enterprise and heads of specialized structural units is provided according to the established schedule. The reception schedule and contact phone numbers are also available on the website of UC “Zhytomyrvodokanal” <https://vodokanal-zt.org.ua/kontakti/osobistij-prijom-kerivnikami>.

Appeals, complaints or suggestions, related to the project implementation, will be reviewed through negotiations, main purpose of which is achieving a mutually acceptable solution. In case, if the solution was not found or the applying to UC “Zhytomyrvodokanal” party did not receive the reply, she/he can address an appropriate specialist of local authority (who will be assigned by these functions for the project implementation period). Contact information, time of receipt will be publically announced during public discussions of the Project of this relocation.

The procedure of citizens’ application, complaints handling should be presented at the local level during public discussions or public hearings on issues of announcement of Action plan for relocation.

In case of failure in solving the complaints, related to compensation of damages caused by Project implementation in the process of negotiations, the parties, according to current legislation of Ukraine, have right solve these issues in court.

In turn, the submission of appeal by the citizen, containing slander and invectives, discredit and else of officials of enterprise, proclivity for national, race, religious hatred and other actions, leads to the responsibility, in accordance with current legislation of Ukraine.

According to Article 27 of the Law of Ukraine “On citizens’ appeal” the expenses caused by enterprise, citizen group, mass media related to verification of appeal, containing false information, can be charged from the citizens by court decision.

In order to resolve issues related to informing the public about the planned activities, public hearings were held by the responsible persons of Zhytomyrvodokanal Utility:

- 07/27/2017 concerning acquaintance of land owners with regard to future works (Annex 6)
- 24.08.2017 regarding the general provisions for the implementation of the Second Urban Infrastructure Project (Annex 7)

Information on Public hearings, GRM log, Subproject contact data are provided in Annexes 6-9.

8. OCCUPATIONAL SAFETY

8.1. Occupational safety

The contractor's responsibility regarding compliance with safety rules and regulations during construction, reconstruction, modernization of the objects are provided in the developed procurement documentation and contract terms.

The contractor must:

- to observe all the laws in force in Ukraine in the sphere of the norms and rules of safety in the construction, reconstruction, modernization,
- to observe appropriate labor legislative, including laws and normative acts in the sphere of employment, health, occupational safety, social guarantees, immigration and emigration laws, as well as to provide them with all legally established rights.

Throughout the whole term of the Contract:

- provide accommodation and living conditions for their employees,
- to use all reasonable safety measures and mitigation measures to ensure the health and safety of Contractor's personnel.

In cooperation with local health care providers, the Contractor shall ensure the constant access to medical personnel, first aid, ambulances and ambulances at the polling stations and places of placement of the Contractor's and Customer's personnel, as well as to ensure appropriate measures to comply with all necessary household and sanitary- hygiene requirements and prevention of epidemics. The contractor must assign responsibility for the prevention of accidents at polling stations, safety equipment and accident protection. This employee must have the necessary qualifications to carry out these functions, and should has authority to issue instructions and organisarion preventive work to prevent accidents.

During the contract period, the Contractor must provide the employee with everything necessary to fulfill his duties and authority. The Contractor shall send to the Project Manager detailed information on any accident as soon as possible after the incident. Incident reporting and investigation will be in line with World Bank's Environment and Social Incidence Response Toolkit (ESIRT). The Contractor shall maintain documentation and prepare reports on health care and measures to ensure the safety of workers, as well as reports in case of damage to property that may reasonably be claimed by the Customer. For severe cases (injuries leading to hospitalization, deaths) – withing 24 hours. And the Client shall report to the Bank withing another 24 hours.

Occupational health and safety management provides for the following main tasks:

- ensuring optimal working conditions and rest of workers;
- studying and promoting occupational safety issues;
- guaranteeing the safety of production processes;
- guaranteeing the safety of buildings and structures;
- creation of appropriate psychological support for production;
- the establishment of appropriate sanitary and hygienic working conditions;
- provision of working means of personal protection;
- organization of treatment and preventive maintenance of workers.

During implementation of work envisaged by project, labor protection must be provided by:

- organization of work processes, in accordance with the requirements of sanitary norms;
- mechanization and automation of heavy and hazardous works;

- availability of appropriate personal protective equipment for workers (special overalls, shoes, protective helmets, etc.);
- availability of appropriate means of collective protection of workers (fencing, lighting, ventilation, protective and safety devices and devices, etc.);
- sanitary and domestic service includes the organization of industrial and domestic premises: for the storage of clothing, personal hygiene, rest, heating and cooling of workers, care for overalls and personal protective equipment, medical care and room for meals. Performed in the form of inventory facilities (mobile, container, prefabricated). Sanitary facilities and equipment should be put into operation before the start of construction work;
- organization of sanitary-and-health services (especially preliminary and periodic medical examination) in accordance with the requirements of the applicable norms and specifications of the work performed.

During the period of the Contract (including the Period of Responsibility for Defects), the Contractor:

- provide information, conduct trainings and advisory activities, for all employees employed at the sites (including Contractor personnel, all Subcontractors and Customer, Team Leader team members) and residents of the surrounding areas regarding risks, dangers and types of exposure, as well as measures for the prevention of sexually transmitted diseases (STDs) or transmitting infections Xia (STI) in general and HIV particular;
- provides for all employees on the site, access to a special national program on STI and HIV / AIDS prevention, testing, diagnosis and counseling services (unless otherwise agreed by the Parties).

All personnel involved in the work must successfully complete training in occupational safety and health in accordance with the Law of Ukraine "On Occupational Safety and Health". Before start of work – necessary, next according to the schedule of mentioned trainings training in occupational safety and health in accordance with the Law of Ukraine "On Occupational Safety and Health" developed by Contractor (not less than one time per year). The training should include, in particular, complete information on occupational safety, fire safety and hygiene of personnel involved in the performance of fire hazard operations. It is necessary to receive additional special training before the beginning of the work (documentary evidence must be provided).

The contractor should include in the program a plan of STI, STD, including HIV/AIDS prevention measures, among the employees employed at the construction sites. In the plan of STI, STD, and HIV / AIDS prevention measures, the terms, as well as the methods and means that the Contractor intends to use to fulfill the requirements of this clause, should be specified. Each component of the plan should detail the resources allocated or used, as well as any proposed Subcontract.

For the performance of work, the Contractor shall not employ personnel who may be ill with a disease transmitted by water or being the carrier of a disease transmitted through water. The Customer may require that the Contractor at his own expense send such a person to a medical examination to confirm his health by obtaining a health certificate.

The contractor must not involve children in carrying out works that are exploited in a financially sound manner, may be dangerous or prevent the child from obtaining education, or cause negative consequences for the child's health or physical, mental, spiritual, moral or social development.

Construction sites, workstations, workplaces must be provided with the necessary means of collective and individual protection, primary fire fighting equipment, and communication and signaling equipment. According to Art. 8 of the Law of Ukraine "On Occupational Safety" on work with harmful and dangerous working conditions, and on work related to pollution, unfavorable weather conditions, workers are given free (at the expense of the employer) special clothing, special footwear and other personal protective equipment, in accordance with to NPABO 0.00-4.01, NPABO 45.2-3.01.

Personal protective equipment as provided for in regulatory enactments on labor protection should be provided to employees, depending on kind of work and working conditions for the period of wear, which in any case must not exceed the expiry date specified by the manufacturer's documents (instructions for use, passports etc.). Personal protective equipment must complete the requirements of the standards, in particular GOST 12.4.011-89 "SSBT: means of protection of workers. General requirements and classification".

Personal protective equipment is used only for its intended purpose in accordance with the operating instructions, which must be understandable for workers. Their requirements should be included in the relevant sections of the documents which are required to perform by the employees (instructions for labor protection, technological regulations, etc.).

If necessary, adequate lighting should be organized at the construction site. It should be uniform and sufficient for the construction process and comply with building codes and regulations (DBN V.2.5-28-2006 "Natural and artificial lighting, Normative", GOST 12.1.046-85). Lighting is carried out by means of general uniform or localized lighting and local lighting - inventory risers or portable devices.

Persons Responsible for loading and unloading work, at the time of appointment, must undergo a check of knowledge of the features of the technological process, work safety requirements, devices and the safe operation of lifting equipment, fire safety and industrial sanitation in accordance with their official duties. Loading and unloading operations with heavy and oversized cargo are performed under the guidance of a specially foreseen person.

loading and unloading operations, as a rule, must be mechanized. The loading of motor vehicles by materials and structures is carried out in accordance with its load-carrying capacity, and the existing requirements for the dimensions of the goods transported. In this case, it is necessary to ensure a stable position of goods during their transportation.

Safety of loading and unloading operations is ensured by the correct placement of workers, instruction and training on safe working methods, appropriate selection of load lifting mechanisms, auxiliary and rigging devices.

Employees engaged in loading and unloading work are required to undergo preliminary and periodic medical examinations in accordance with the requirements of the Ministry of Health of Ukraine. Persons admitted to loading (unloading) of dangerous and especially dangerous cargoes must undergo special training with further certification and use of personal protective equipment. Employees when they receive personal protective equipment should be instructed how to use them and familiar with the requirements for their care.

The mechanized loading and unloading operation is mandatory for a mass of cargo of more than 50 kg and lifting them to a height of more than 3 m. Permanent cargo handling points and warehouses are

equipped with mechanized and semi-mechanized equipment: cranes, forklifts, bucket elevators and others. Cars

Persons are allowed to perform electric welding works in case if they are 18 years old or over, and they have passed a medical examination, have trained in the theoretical and practical training program, persons who have passed the examination of the qualification commission and have a certificate of the established sample and who have been assigned the Safety Group II. Female subjects can be allowed to perform manual electric arc welding only on outdoor platforms, not indoors. Each electric welder can be admitted to work only after passing an introductory (introductory) training on safety of work, industrial sanitation and fire safety, instructing in the workplace, which should be carried out at each transition to another job or when working conditions are changed. Repeated training is carried out at least once every three months. An instruction is recorded in a special journal.

Electric welder must be equipped with the necessary means of personal protection - tarpaulin suit, shoes, shields, masks with light filters.

During the welding of the ceiling, in addition to overalls, footwear and gloves, welders should also get a helmet, asbestos or tarpaulin armbands, and during the welding of nonferrous metals and alloys containing zinc, copper, lead - respirators and chemical filter.

Clothing and gloves of a welder should not have traces of oil, fat, gasoline, kerosene and other flammable liquids.

The admission of workers to the roofing work is allowed after inspection by the responsible persons of the suitability of the roof structures. during the work on the roof with a slope of more than 20°, workers must apply safety belts, safety ropes, non-slip shoes. If the roof is wet or covered by frost or snow If the roof is covered with frost or snow for the workers' passage, it is necessary to arrange stairs with a width of at least 0,3 m with transverse bars for the rest of the legs.

Applicants who have been trained in a special program with appropriate certificates may be admitted to plastering work. For work on the preparation of chlorinated solutions allowed persons under 18 years of age who have undergone a medical examination and special training on the safe preparation of chlorinated solutions.

Personnel under the age of 18 years who are trained, certified and having the appropriate certificate may be admitted to the plastering work in a mechanized way; Operators who apply a plaster solution using a nozzle should be provided with protective eyepieces. Workplaces of plasterers-operators, nozzles must be necessarily connected with sound and light signaling with workplaces of motorists plastering machines.

Workers servicing concrete mixing units must use personal protective equipment - overalls, respirators, headphones, etc. When making a concrete mixture using chemical additives it is necessary to comply with the safety requirements for the prevention of burns of the skin and eyes of the workers.

During excavation work on the territory of settlements or on production areas, pits, trenches, etc. (slots) the places where is the movement of people and transport shall be fenced.

In transition areas through the trenches there should be installed transitional bridges with a width of not less than 1,0 m, fenced on both sides with railing.

At the construction sites should be placed relevant information signs and indicators.

At the construction site it is necessary:

- to develop measures to ensure fire safety;
- appoint a person responsible for monitoring fire safety of a person;
- to comply with the requirements of fire safety, all facilities must be equipped with fire fighting equipment, water for fire extinguishing, fire extinguishers, etc. (In accordance with GOST 12.4.009-83).

In accordance with the Law of Ukraine "On Labor Protection" for the control over safety and health of labor in construction companies engaged in construction, a labor protection service should be developed and implemented.

Before entering the construction site, a traffic scheme must be installed, and on the sides of the access roads - the corresponding road signs. The speed of movement in the work area should not exceed 5 km/h.

Storage of materials, structures and equipment must comply with the standards and specifications of materials, products and equipment.

The operation of construction machinery, equipment and tools, as well as construction and installation work should be carried out in accordance with DBN 3.2.2.-2016.

Work on the construction site must be carried out in accordance with the design of the construction organization by companies that have the appropriate permits / licenses in accordance with the current legislation of Ukraine.

Responsible person for compliance with labor protection requirements appointed by the Contractor should check compliance with safety rules in accordance with applicable law.

According to the construction organization project, organization of the construction site, areas of work and workplaces should ensure the safety of work at all stages of work.

On the territory of the construction site, zones of permanent or potentially dangerous factors are determined, namely:

- work near uninsulated current-conducting parts of installations, between security zones of air lines of power transmissions, between zones where there is a danger of electric shock;
- work near the non-born transitions in height of more than 1.3 m, storage of materials, moving cars, installation of supports: must be carried out beyond the boundary of the prism of the collapse;
- work in the places of moving machinery and equipment or their working bodies: hazardous areas near the moving parts is 5 m, if there is no other requirements of the manufacturer;
- work in places laying underground communications.

Hazardous areas must be marked with signs in accordance with the requirements of GOST 12.4.026-76 "SSBT. The colors of the signal and the safety signs fenced in accordance with the requirements of GOST23407-78"

Fences for inventory construction sites and sites for construction and installation work.

Begin construction and installation work is allowed only with the presence of a plan of work, agreed with the safety services of construction and installation organizations.

The following are allowed for construction and installation work:

- an introductory briefing (conducted with all workers and employees, regardless of profession, before hiring);
- instruction in the workplace (conducted before admission to work, this type of instruction should be accompanied by a demonstration of safe working methods);
- repeated instruction (conducted with workers, regardless of their qualifications, seniority and work experience at specified intervals);
- unscheduled briefing (conducted in cases of changes in the rules on labor protection, technological process, violation of the rules of safety rules, in case of accident, with breaks in work more than 60 days).

In addition to the instruction, the management organizes compulsory training of workers and engineering workers in safety regulations in the workplace. After training, they carry out certification and issue an appropriate certificate.

At the entrance to the construction site, a scheme of movement of the transport and pedestrians must be established. Road signs and passage signs must be installed on the road construction site. Hazardous areas should be fenced or exposed warning signs and signals.

In the dark time of day, in addition to the fence, must be installed light signals, the places of work should be well lit.

The speed of motor transport near the construction site should not exceed 10 km / h, and at corners and in working areas of cranes - 5 km / h.

The storage of building structures and products in height should not exceed the norms provided by DBN A.3.2-2-2009.

Electrical safety at the construction sites of works and workplaces should be provided in accordance with SNiP 12-03-2001 requirements "Safety of work in construction".

The general organization must develop measures for the protection of labor and draw up a timetable for combined work without which work is prohibited in the case of participating in the construction of subcontractors.

On the site where the installation works are carried out, it is not allowed to perform other works and to find outsiders who are not involved in these works.

At the construction site, fire stations with fire fighting equipment should be organized, as well as identified especially dangerous zones in the fire and operating modes of these zones.

In order to prevent accidents on construction, special attention should be paid to the operation of lifting machines. The rules of their operation are described in the DNAOP 0.00-1.03-02 "Rules of construction and safe operation of load-lifting cranes".

When working with machines and mechanisms, you must adhere to the rules for the use of safety equipment:

- the location of construction machinery is determined in such a way as to provide sufficient space for inspection of the working area and maneuvering, subject to the safety distance near the unclosed slot, piles of goods, equipment;
- Persons who are responsible for the condition of the machines must check their technical condition and the procedure for conducting a review of each change not later than once in 10 days;
- the administration of the organization, which carries out construction and installation work with the use of machines, is obliged to appoint an ITP that is responsible for the safety of the work;
- these workers should be appointed after checking in the organization where they work, knowledge, rules and instructions for the safe production of work with used machines;
- in the working area of the machine, safety signs must be installed in a prominent place, and warning signs on the car;
- leaving unattended car with the engine on is not allowed;

When operating machines, steps must be taken to prevent their re-dumping or unauthorized movement under the influence of wind or in the presence of deviation of the area.

The provision of fire safety is to be carried out in accordance with the requirements of DBN V.1.1-7-2017 "Fire protection. Fire safety of construction sites "and NAPB A.01.001-2004" Rules fire safety in Ukraine ".

Responsibility for fire safety at construction sites, the presence and maintenance of fire-extinguishing facilities, and the timely implementation of fire prevention measures provided by the project are (appointed by the order) chiefs of work in these areas.

Responsibility for the fire safety of domestic, auxiliary and auxiliary premises is carried by officials who are subordinated to the specified premises.

Temporary structures, utility rooms, as well as construction sites should be provided with primary fire extinguishing means (fire extinguishers, sandboxes, bogies, shovels, buckets).

The distances between buildings, cars and places of open storage of building materials, structures must comply with sanitary and fire regulations. Passages and passages should be sufficiently wide for the fare, without the accumulation of foreign objects.

The places of storage of materials that are easy to deal with must be provided with primary fire extinguishing agents.

For heating of inventory buildings, steam and water heaters should be used. The drying of clothes and shoes should be carried out in rooms specially adapted for this purpose, with central water heating or using water heaters. In temporary household and administrative facilities, where it is impossible to install central heating, it is allowed to have a furnace heating that meets the requirements of construction norms.

In case of detection of a fire (signs of burning), every citizen is obliged:

- immediately notify about this by phone to the fire department, at the same time it is necessary to name the address of the object, the place of the fire, the fire situation, the presence of people, as well as the name of his surname;
- take (if possible) measures for evacuation of people, extinguishing (localization) of fires and preservation of material values;
- in case of necessity to call other emergency services (medical, gas-saving, etc.).

Upon arrival on fire, fire units must be provided with unimpeded access to the territory of the facility.

Upon arrival of the fire department, the administration and technical staff at the facility are obliged to take part in the advising of the fire extinguisher on the structural and technological features of the facility where the fire occurred, to arrange for the involvement of the necessary measures related to the elimination of the fire and warning thereof development, forces and facilities of the object.

8.2. Applicable requirements of the EU/World Bank/other requirements and standards

Current national regulations on health and safety at work are based on the principles and approaches of the EU:

- the right to the occupational safety of all workers and the guarantee of its implementation;
- employer's responsibilities to ensure healthy and safe working conditions;
- implementation of state control over compliance with legislation on health and safety;
- the preservation of trade unions' right to participate and exercise control over the observance of working conditions;
- accident and injury insurance.

EU legislation in the field of occupational safety is conditionally divided into two groups:

- EU Directives on the protection of workers;
- EU directives on the release of goods to the market (including equipment, equipment, machinery, collective and personal protective equipment used by workers in the workplace).

The general principles of prevention and health protection are described in Council Directive 89/391 / EEC;

The requirements for occupational safety are set out in the following documents:

- Council Directive 89/654 / EEC on a workplace; Council Directive 92/57 / EEC on temporary or mobile construction sites;
- Council Directive 92/91 / EEC on labor protection in undertakings where minerals are harvested through wells,
- Council Directive 1999/92 / EC of the European Parliament and of the Council on the protection of workers from potentially hazardous substances in potentially explosive atmospheres);

Requirements for occupational safety when using equipment:

- Council Directive 89/655 / EEC on the use by workers of means of employment;
- Council Directive 89/656 / EEC on the use of personal protective equipment at the workplace; COUNCIL DIRECTIVE 90/269 / EEC on the manual movement of goods when there is a risk of injury to the back of the workers;
- Council Directive 90/270 / EEC concerning display screens;
- Council Directive 92/58 / EEC on the use of signs of safety and / or health at work);

Requirements of labor protection during work with chemical, physical and biological substances:

- Council Directive 90/394 / EEC on the protection of workers from the risks related to exposure to carcinogens at work;
- Council Directive 2000/54 / EC of the European Parliament and of the Council on the protection of workers from the risks related to the use of biological working materials during work;
- Council Directive 98/24 / EC on the protection of workers from the harmful effects of chemical agents at work;
- Council Directive 96/82 / EC on the prevention of major-accident hazards involving dangerous substances; Directive 2002/44 / EC of the European Parliament and of the Council on the protection of workers from the risks related to vibration,
- Directive 2003/10 / EC of the European Parliament and of the Council on the protection of workers from the risks related to noise;
- Council Directive 83/477 / EEC on the protection of workers from the risks related to exposure to asbestos at workplaces;

During the execution of construction work, the Contractor must adhere to the following standards and rules:

- Law of Ukraine "On Occupational Safety";
- Law of Ukraine "On Health Care";
- NAPB.03.002-2007 "Standards for determining the categories of premises, buildings and external installations for explosion and fire hazard";
- DBN A 3.2.2-2009 "System of safety standards. Industrial safety in construction. Substantive provisions";
- HIIAOII 0.00-1.01-07 Rules of construction and safe operation of load-lifting cranes;
- NPAOB 0.00-1.13-71 Rules of structure and safe operation of stationary compressor plants, air lines and gas pipelines;
- NAPB A.01.001-2004 Fire safety regulations in Ukraine;
- DSN 3.3.6.037-99 "Sanitary norms of production noise, ultrasound and infrasound";
- DSN 3.3.6.039-99 "State Sanitary Norms for Production General and Local Vibration".
- SNiP Sh-4-80 "Safety in construction".
- "Electrical installation rules" (PUE);
- "Rules for safe operation of electrical installations of consumers" (PBEEP);
- "Rules for the technical operation of electrical installations of consumers" (PTEP). SNiP III-4-80 "Safety precautions during construction work";
- NAPAOP 45.2-1.02-90 "Rules for the protection of work during the construction and repair of housing and communal services";
- IMUU.3.2-218-051-95 "Instructions for ensuring road safety in places of road works on highways";
- GOST 12.1.005-88 General sanitary and hygienic requirements for air in the working area;
- GOST 12.2.003-91 Safety measures on construction sites.

9. CONTROL AND MONITORING MEASURES

In order to ensure the effective implementation of the proposed mitigation measures, including the realization of environmental protection obligations during the project implementation (construction stages and the stage of operation), a corresponding Monitoring Plan developed as a part of the ESMP. The format of the monitoring plan is shown in Annex 5.

It has to be noted that contractors responsible for carrying out of works (with the concluded agreements) must report on the above provisions once a month and once a quarter and submit it to the CPMU for monitoring control.

The CPMU safeguard specialist is obliged to visit in order to monitor the implementation of the requirements of the ESMP not less than one time per month.

During the contract period, the Contractor must provide the employee with everything necessary to fulfill his duties and authority. The Contractor shall send to the Project Manager detailed information on any accident as soon as possible after the incident. Incident reporting and investigation will be in line with World Bank's Environment and Social Incidence Response Toolkit (ESIRT). The Contractor shall maintain documentation and prepare reports on health care and measures to ensure the safety of workers, as well as reports in case of damage to property that may reasonably be claimed by the Customer. For severe cases (injuries leading to hospitalization, deaths) – within 24 hours. And the Client shall report to the Bank within another 24 hours.

The monitoring plan has to have the following objectives:

- confirmation of proper implementation of mitigation measures;
- confirmation compliance with the requirements of the national legislative;
- labor safety measures provided;
- confirmation that the stages of construction and operation within the framework of subprojects do not have an unforeseen impacts in future;
- confirmation that the construction and operation phases of project implementation do not entail future impacts on a larger scale than was anticipated;
- identification in the early stages of unforeseen pre-dangers and taking appropriate measures to eliminate them;
- monitoring the implementation of environmental restoration work after the completion of the construction phase.
- collect grievances received during the implementation of the project related to project-related activities from the affected communities and workers

The plan for monitoring social issues is aimed at achieving the following goals:

- building a positive relationship between the host community and the local communities;
- mitigation (or minimization) of negative social impacts caused by subprojects in accordance with the developed mitigation plan;
- Optimization of potential positive effects of subprojects.

Monitoring during construction / reconstruction

At the stage of construction (reconstruction), when replacing the equipment and carrying out a range of construction works, it is necessary to pay attention to preventing the potential negative effects described in the relevant part of the Plan.

Monitoring during operation

During operation it is necessary to conduct continuous monitoring of:

- prevention of soil and groundwater pollution by fuel and lubricants, noise, dust, accumulation of waste, ultraviolet radiation during welding, exhaust gas control during operation of vehicles, control of harmful vapors during welding, employee safety, leakage of water, quality of water supplied to consumers.;
- implementation in accordance with the established procedure of the permanent recording and control of the qualitative and quantitative composition of the pollutants determined by the design documentation for the emission sources;
- document turnover at the enterprise (submission of environmental statistical reports, payment, timely receipt of permits and declarations, extension of contracts for utilization/removal of waste).

The monitoring plan will be updated during the construction phase (if needed).

Utility company, contractors and the project developer will conduct regular local monitoring during the project operation phase. The local authority responsible for environmental protection will also carry out regular inspections of water supply facilities at the construction and operation stage.

During the operation of the reconstructed water supply facilities, water quality control will be provided (periodically, according to the schedule of analytical control of the laboratory of the Utility), noise level (on demand), water leaks (constantly, servicing personnel of the Utility), as well as safety of service staff.

10. INSTITUTIONAL ABILITIES AND CAPACITY

The development of institutional capacity and training of the Utility "Zhytomyrvodokanal" is carried out with the aim of strengthening and improving the tasks and functions of the Utility by introducing advanced tools and implementing modern technical solutions in the field of water supply and sanitation.

Thus, in order to ensure comprehensive protection of the natural environment, optimization of the social component, ensuring the compliance of the project activity with the requirements of national legislation and the requirements of World Bank, it is envisaged the inclusion and use of provisions on environmental protection, requirements of the protection of workers and local residents, as well as the issues of a mechanism of involuntary resettlement for the purposes of the project

In turn, taking into account the possibility of a negative impact on the environment and the social sphere during the reconstruction process, a plan of mitigation measures and a monitoring plan are added to the ESMP. This will allow monitoring impact on the environment and locals and control the implementation of mitigation measures of negative impacts.

Among other general functions related to the implementation of the Project, in particular, the development of institutional capacity and trainings, the scope of the Customer's competence should include such measures as:

- Selection of the personnel, training and personnel training.
- Preparation and implementation of occupational professional hygiene and occupational safety measures in accordance with current standards and legislation of Ukraine.
- Development and implementation of a plan for internal control and quality management.
- Development and implementation of environmental monitoring programs in accordance with the current legislation.
- Develop and implement a public relations plan to exchange information with the public in order to conduct research and attract clients.

Contractors responsible for the procurement and installation of equipment are responsible for:

- ensuring the general fulfillment of its obligations to the Customer;
- fulfillment of obligations on implementation of environmental protection measures and population;
- reporting and other necessary documents regarding the management of social and environmental measures;
- ensuring the fulfillment of its obligations as part of social and environmental measures by subcontractors.

The plan envisages that state institutions (ie, the State Service for Food Safety and Consumer Protection and the State Inspection for Environmental Protection, Fire Safety Service) will perform their monitoring functions within the limits of their competencies.

In addition, the laboratory of the Utility will carry out constant monitoring of water quality for compliance with state standards both at the stage of execution of works and at the stage of operation.

Regional Project Management Group (Annex 2) is responsible for daily management and implementation of the project at the local level, and it coordinates its activity with CPMU as well.

Annex 1. General information on the project and the site

INFORMATION AND ADMINISTRATIVE DATA				
Country	Ukraine			
Project title	Urban Infrastructure Project - 2			
Scope of project and works	<p>The subproject's purpose is the improvement of the quality and efficiency of water supply and sanitation services provided in Zhytomyr city by implementing the number of measures, increasing the energy efficiency of the city's economic sector, improving the sustainability and reliability of the city's water supply and sewerage systems, improving water quality and the overall ecological situation in the region by improving the sewage treatment mechanism.</p> <p>Utility "Zhytomyrvodokanal" plans to implement the following investment measures in the process of project realization:</p> <ul style="list-style-type: none"> – hydraulic analysis and modeling of municipal water supply system, preparation of preliminary designs and terms of reference for reconstruction of water pump stations and water treatment plant and preparation of designs for reconstruction of municipal water network in Zhytomyr; – construction supervision of WWTP reconstruction, reconstruction of water treatment plant, water pump stations and water networks in Zhytomyr – reconstruction of wastewater treatment plant in Zhytomyr city (including replacement of mechanical and electrical equipment and sewer pipes); – reconstruction of water pumping station of second lift and water treatment plant of water supply system of Zhytomyr city in order to improve the quality of potable water; – reconstruction of water supply networks in Zhytomyr city. 			
Institutional structure (names and contacts)	<i>WB Appointed by WB</i>	<i>Project Management (CPMU) Head Victor Doroshenko</i>	<i>Local colleagues and/or recipients - RPMU according to Annex 2</i>	
Implementation structure (names and contacts)	<i>Supervision over implementation of safety ensuring measuring</i>	<i>Supervision by local experts - to be defined after signing of contract</i>	<i>Local inspector's supervision - according to the national legislation</i>	<i>Contractor - to be determined based on the bidding results</i>
SITE DESCRIPTION				
Site title	<p>Industrial zone</p> <p>Territory of residential development (network)</p>			
Description of site location	Utility "Zhytomyrvodokanal"			
Description of geographical, physical, biological, geological, hydrographic and social-economic aspects	<p>Geomorphologically, the sites of exploration are located within the boundaries of the Slutschino –Teterovskaya sandur plain. The surface of the territory of plain is complicated. The differences in elevation along the lines of the networks reach up to 57 m.</p> <p>Seismicity of the area according to SNiP 11-7-81 is 6 points. Maximum depth of freezing of soils is 1.08 m.</p>			

	<p>Climatic characteristics of the area of work</p> <p>The object of reconstruction is situated in I northwestern climatic region. Climatically, the territory of Zhytomyr is related to the temperate continental zone with warm damp summer and mild winters.</p> <p>The average perennial temperature of the coldest month (January) is minus 6 °, the warmest (July) +18°C. The average annual temperature is + 6.8 ° C. The greatest frosts are in January and February and reach minus 30°.</p> <p>The average annual precipitation is 550 - 600 mm.</p> <p>The average annual relative humidity is 78%.</p> <p>The average wind speed is 3.4 m/s.</p> <p>Meteorological characteristics and coefficients of the area are given in the table</p> <table> <tr> <th>Name</th><th>Value</th></tr> <tr> <td>The coefficient, depending on the stratification of the atmosphere, A</td><td>180</td></tr> <tr> <td>Terrain relief coefficient</td><td>1</td></tr> <tr> <td>Average maximum temperature of the hottest month, July, T, degree, °C</td><td>23,4</td></tr> <tr> <td>Average temperature of the coldest month, January, T, degree, °C</td><td>-6,0</td></tr> <tr> <td>Wind velocity on the average long-term data, the repetition of which exceeds 5%, m / s</td><td>10,11</td></tr> </table>	Name	Value	The coefficient, depending on the stratification of the atmosphere, A	180	Terrain relief coefficient	1	Average maximum temperature of the hottest month, July, T, degree, °C	23,4	Average temperature of the coldest month, January, T, degree, °C	-6,0	Wind velocity on the average long-term data, the repetition of which exceeds 5%, m / s	10,11
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Average temperature of the coldest month, January, T, degree, °C	-6,0												
Wind velocity on the average long-term data, the repetition of which exceeds 5%, m / s	10,11												
Disposition and distance to the sources of materials, especially filling materials, water and stone	The objects are located in the urban area with a developed system of engineering services												
LEGISLATION													
Specify national and local legislation and authorizations required for activity within the project	<p>Start of construction works requires:</p> <ul style="list-style-type: none"> – Declarations on start of construction works; – Authorization from the city authority for start of works; Authorization for trenching, from the City Council' s Planning and Improvement Department; – Contractor' s license for construction works; – Contractor' s licenses for execution of increased-risk works. 												
PUBLIC CONSULTATIONS													
Specify when/where public consultations were held	<p>On July 24, 2017 at 16:00 in the assembly hall of the Utility "Zhytomyrvodokanal" (120 Chudnovska Street) a public discussion was held on the issue of implementation of the project of reconstruction of the water supply network in Zhytomyr. In the course of discussions with invited owners of private land plots which are situated near places of construction works will be carried out , a decision was taken on the need to reconstruct water supply networks in the city of Zhytomyr.</p> <p>(Annex 6)</p>												

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	<p>On August 22, 2017, at the Utility "Zhytomyrvodokanal" an open discussion was held on the issue of the implementation of the project "Development of Urban Infrastructure -2" in order to acquaint with public opinion about the implementation of the planned project (Annex 7). During the discussions, the measures of the project and the estimated deadlines for their implementation were considered in detail,</p>
FORMATION OF INSTITUTIONAL POTENTIAL	
Will there be formation of institutional potential?	<p>The development of institutional capacity and training of the Utility "Zhytomyrvodokanal" is carried out with the aim of strengthening and improving the tasks and functions of the Utility by introducing advanced tools and implementing modern technical solutions in the field of water supply and sanitation.</p> <p>Thus, in order to ensure comprehensive protection of the natural environment, optimization of the social component, ensuring the compliance of the project activity with the requirements of national legislation and the requirements of World Bank, it is envisaged the inclusion and use of provisions on environmental protection, requirements of the protection of workers and local residents, as well as the issues of a mechanism of involuntary resettlement for the purposes of the project</p> <p>In turn, taking into account the possibility of a negative impact on the environment and the social sphere during the reconstruction process, a plan of mitigation measures and a monitoring plan are added to the ESMP. This will allow monitoring impact on the environment and locals and control the implementation of mitigation measures of negative impacts.</p> <p>Among other general functions related to the implementation of the Project, in particular, the development of institutional capacity and trainings, the scope of the Customer's competence should include such measures as:</p> <ul style="list-style-type: none"> – Preparation and implementation of occupational professional hygiene and occupational safety measures in accordance with current standards and legislation of Ukraine. – Development and implementation of a plan for internal control and quality management. – Development and implementation of environmental monitoring programs in accordance with the current legislation.

Annex 2. Members of the RPMU Utility Zhytomyrvodokanal

№	Position	Name	E-mail	Contact
1	Head of RPMU	Gavrilov Alexander Yuriyovych	olexandr.gavrylov@vodokanal-zt.org.ua	+380503176211
2	Financial management specialist	Ogorodnik Olga Petrivna	zvodokanal_uip2@ukr.net	+380952832226 +380634400106
3	Financial management specialist	Vykarchuk Lyudmyla Oleksiivna	zvodokanal_uip2@ukr.net	+380952862015 +380634400080
4	Procurement specialist	Deinekina Natalia Stanislavivna	Natalya.Deinekina@vodokanal-zt.org.ua	+380952834717
6	Technical Specialist	Yeryomin Sergiy Andriyovych	Sergij.Yeremin@vodokanal-zt.org.ua	+380952777992
7	Technical Specialist	Vygivsky Bogdan Vitaliyovych	bogdan.vygovskiy@vodokanal-zt.org.ua	+30952862068
8	Technical Specialist	Ivchenko Volodymyr Vitaliyovych	Volodymyr.Ivchenko@vodokanal-zt.org.ua	+380952862036
9	Technical Specialist	Stupakova Tamara Konstantinivna	vodokanalzt@ukr.net	+380503176232 +380634400103
10	Technical Specialist	Rosenzweig Jacob Lazarovych	vodokanalzt@ukr.net	+380952862084
11	Translator	Kryklyva Katerina Pavlivna	katherine.kryklyva@gmail.com	+380936930785
12	Environmental Engineer	Gorbova Oksana Anatoliivna	eco@vodokanal-zt.org.ua	+380952860052
	General Project mail		vodokanalzt@ukr.net	

Annex 3. Environmental impacts of the planned reconstruction

№	Impacts	Range of impact (H-high, M-moderate, L-low)	Expected impact
Construction stage			
1.	Impact on the state of atmospheric air	L	Impact on the atmospheric air condition: <ul style="list-style-type: none"> – emissions of suspended particles undifferentiated by composition – emissions of carbon monoxide – emissions of hydrocarbons during the laying of asphalt covering – NOx emissions during work of welding equipment;
2.	Contamination of underground and surface water	L	<ul style="list-style-type: none"> – emergency spills of fuel and lubricants; – emergency discharge of residual water; – surface water pollution by solid construction and household waste. – weighed in the air by finely divided particles of soil.
3.	Impact on soils and landscape	L	<ul style="list-style-type: none"> – the risk of mechanical pollution due to inadequate waste management due to the formation of additional volume of waste, construction waste; – the risk of chemical contamination at the expense of possible emergency spills during the operation of the construction technology of fuel and lubricants and residual water – the risk of erosion
4.	Improper waste management	M	<ul style="list-style-type: none"> – The risk of improper temporary storage of waste and its improper transportation

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			<ul style="list-style-type: none"> – Chemical pollution of soils and groundwater. – Physical soil contamination
5.	Impact of noise	M	<ul style="list-style-type: none"> – Increased noise level of noise due to construction and installation work; – Increased noise level of noise as a result of increasing the efficiency of the movement of motor transport and construction equipment
6.	Emergency risk	M	<ul style="list-style-type: none"> – The risk of emergency situations
7.	Securing of appropriate working conditions	L	<ul style="list-style-type: none"> – The risk of non-compliance with the working conditions of the staff; – The risk of using construction equipment that does not comply with the instructions for its operation; – Risk of increasing the number of industrial injuries; – The risk of mismanagement of safety instructions.
8.	Health and safety	M	<ul style="list-style-type: none"> – Increasing of the number of complaints and appeals; – Increasing of the number of injuries among the population; – Violation of the comfort of living.
Operational stage			
1.	Impact on the state of atmospheric air	L	Impact on the atmospheric air condition: <ul style="list-style-type: none"> – emissions of carbon monoxide as a result of work of motor vehicles
2.	Contamination of underground and surface water	L	<ul style="list-style-type: none"> – emergency spillages of fuel and lubricants during departure of equipment for

			preventive examinations and in order to eliminate accidents
3.	Impact on soils and landscape	L	<ul style="list-style-type: none"> – The risk of chemical contamination at the expense of possible emergency spills of fuel and lubricants during the departure of equipment for preventive inspections and for the purpose of the elimination of accidents – The risk of chemical contamination at the expense of possible emergency spills of seamless water obtained as a result of the process of water purification
4.	Improper waste management	L	<ul style="list-style-type: none"> – The risk of improper temporary storage of waste and its improper transportation – The risk of improper transportation of waste (especially sludge) at the places of its permanent storage
5.	Emergency risk	L	<ul style="list-style-type: none"> – The risk of emergency situations as a result of non-observance of the operating conditions of the equipment
6.	Observance of working conditions	L	<ul style="list-style-type: none"> – The risk of non-compliance with the working conditions of the staff; – The risk of mismanagement of safety instructions.
7.	Health and safety	L	<ul style="list-style-type: none"> – The risk of non-compliance with the working conditions of the staff; – The risk of non-conducting / improper training on occupational safety.

Annex 4. Mitigation measures plan

		Construction	Operation	Construction	Operation
Preparatory work					
	Obtaining a state permission for architectural and construction control for construction work	Not expected	Not expected	–	
Construction stage					
Emissions of suspended particles undifferentiated by composition (dust) as a result of excavation, construction and installation work, transportation of loose materials, work of construction machines and mechanisms,	Organization of dedusting measures: <ul style="list-style-type: none"> – Irrigation (with technical water) only on-site earth-road and temporary allocated entrances for motor vehicles and custom vehicles – Design of optimal traffic pattern for construction machinery; – Speed restrictions for automobile vehicles; – Sites for temporary storage of dust-forming materials should be covered with special covering material or effective dust catching measures should be used during the operation; – Loading, overloading and unloading of the materials shall be conducted with minimal height difference and using windbreaks; – Transportation of dusting materials should take place in prepacked tight packs or using covering materials; – Stocking excavated land mass in side-pilings. 	Minor	Not expected	– Contractor, responsible for work;	Not expected

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<p>Combustion products of internal combustion engines:</p> <ul style="list-style-type: none"> – emissions of carbon monoxide (carbon dioxide, carbon monoxide); – other compounds in the exhaust gases 	<p>– Notification of the vehicles' owners about possible traffic complications by advertising in media, to avoid the high density of traffic flow in the city;</p>	Minor	Not expected	<p>– Contractor, responsible for work;</p> <p>– Utility Zhytomyrvodokanal</p>	<p>Utility Zhytomyrvodokanal (owner of the vehicle)</p>
	<ul style="list-style-type: none"> – Whenever possible, use equipment with electric power; – Whenever possible, minimize the usage of diesel generators in construction. 	Minor	Not expected	<p>– Contractor, responsible for work;</p>	
	<p>Daily inspection of technical condition of construction equipment in process of waybill execution, according to the requirement of number of regulatory legal acts of Ukraine, in particular:</p> <ul style="list-style-type: none"> – LU "On motor vehicles" from 05.04.20001 № 2344-III, «Rules for operation of wheeled», approved by Order of Ministry of Infrastructure of Ukraine 26.07.2013 № 550; – Rules for operating accumulator lead starting batteries of wheeled vehicles and special vehicles, made on wheeled chassis, approved by Order of Ministry of Transport and Communications of Ukraine 02.07.2008 N 795, <p>Technical condition of the used motor pool is in satisfactory condition, and all emissions, related to work of internal combustion</p>	Minor	Minor	<p>– Contractor, responsible for work;</p>	

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	engines should not exceed established standards.				
<p>Impact on soils</p> <ul style="list-style-type: none"> – Mechanical influence of transport and construction means (compressional impact) , distortion of landscape – Transformational impact 	<ul style="list-style-type: none"> – Design of optimal traffic pattern for construction machinery to avoid excessive impact and unregulated routs for construction machinery; – whenever possible avoid the movement of machinery off-road of hard covering or temporary driveways; 	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work; – Utility Zhytomyrvodokanal Representatives of structural division of local council, whose competence includes these functions 	Not expected
	<ul style="list-style-type: none"> – All excavation works and also temporary storage of construction materials and construction waste should be held in accordance with relevant design conditions and within sites. 	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work; 	
	<ul style="list-style-type: none"> – To provide the discharge of household wastewater in specially designed for this purpose tank/storm flow in order to prevent its discharge to relief and formation of soil erosion 	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work; 	
Chemical soil pollution	<p>In process of design and construction of sites the following should be foreseen:</p> <ul style="list-style-type: none"> – water–drain structures to discharge flood and storm water; 	Minor	Not expected	<ul style="list-style-type: none"> – Contractor, responsible for work; 	Not expected
	<ul style="list-style-type: none"> – provide daily inspection of the technical condition of motor vehicles to prevent emergencies (emergency spills of fuel and lubricants); – design of instructions for handling emergency situations in cases of emergency spills of fuel and lubricants or wastewater; 	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work; 	

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	<ul style="list-style-type: none"> – prevention of construction machinery and mechanisms wash outside the specially designated places (with appropriate waterproofing arrangement); 	Minor	Not expected	<ul style="list-style-type: none"> – Contractor, responsible for work; – Utility Zhytomyrvodokanal 	
	<ul style="list-style-type: none"> – temporary storage of liquid waste in specially designated places in sealed container with relevant marking. – present in the instructions the waste management issues 	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work; 	
	<ul style="list-style-type: none"> – provide the organization of temporary sanitary-household objects. – provide the discharge of household wastewater to accumulation tanks (as an option, storages of mobile toilet cabins). The cleaning of such cabins should be carried out by sewage truck. During the boosting the contact with ground surface should be turned off to prevent its contamination and runoffs on soil covering. 	Minor	Not expected	<ul style="list-style-type: none"> – Contractor, responsible for work; 	
Mechanical soil pollution	<ul style="list-style-type: none"> – Temporary storage of waste in specially designated places according to its hazard class. – waste management issues should be outlined in briefings. – prevent the territory contamination and unsanctioned waste disposal, including construction waste 	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work; 	Not expected
Morphological impact	<ul style="list-style-type: none"> – all excavation works, and also temporary disposal of construction materials and waste shall be carried out strictly in 	Minor	Not expected	<ul style="list-style-type: none"> – Contractor, responsible for work; 	Not expected

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	accordance with project conditions and within construction sites in specially designated places, using appropriate container or waterproofing layer				
Deprivation of soil, as valuable natural resource (especially in condition of its low productivity – low-humic soils)	To store carefully the removed top layer in barrows with purpose of its further use.	Minor	Not expected	– Contractor, responsible for work;	Not expected
Landslides and erosion	Construction works should be conducted strictly according to design conditions.	Minor	Not expected	– Contractor, responsible for work;	Not expected
Mechanical impact on vegetation	To provide removal of top layer by means of special equipment and its storage in specially designated places prior to excavation works, to minimize soil exhaustion and later encourage the recovery of grass cover.	Minor	Not expected	– Contractor, responsible for work;	Not expected
	– Design of optimal traffic pattern for construction machinery to avoid excessive impact and unregulated routs for construction machinery, to prevent the destruction of grass cover; – if possible, prevent the movement of equipment within the roads with solid cover or temporary driveways, to prevent the destruction of grass cover	Minor	Minor	– Contractor, responsible for work; – Utility Zhytomyrvodokanal – Representatives of structural division of local council, whose competence includes these functions	
Mechanical impact, in particular removal of trees and shrubs	Conduct the inspection of green plantation to identify trees and shrubs to remove. <i>Note: documents granting rights for execution of preoperational and</i>	Minor	Minor	– Contractor, responsible for work; – Utility Zhytomyrvodokanal	Not expected

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	<i>construction works, received according to the Law of Ukraine “On regulation of urban planning” are the basis for green plantations removal, after inspecting the land plot and drawing up act of inspection of plantation, to be removed. In this case the plantation removal does not require the permit (order). Present value is determined on the basis of inspection act for plantation, to be removed, and should be payed prior to accepting facility for operation. The amount of present value for removed plantations reduces by the amount introduced in project documentation for landscaping.</i>				
Chemical pollution of plant formation	When designing and constructing sites the following should be foreseen: – drainage structures for discharge of flood and storm water;	Minor	Minor	– Contractor, responsible for work;	– Utility Zhytomyrvodo kanal
	– To ensure the daily inspection of technical condition of motor vehicles in order to prevent accidents (accidental spills of fuel and lubricants); – Development of instructions for accidental situations in case of fuel or lubricant spill or wastewater ; – To prevent the washing of construction machinery and gear outside the specially designated places (with appropriate waterproofing);	Minor	Minor	– Contractor, responsible for work;	

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	<ul style="list-style-type: none"> – Temporary storage of liquid waste in specially designated places in sealed containers with appropriate markings. – To foresee waste management issues for briefings/instructions. 	Minor	Minor	– Contractor, responsible for work;	
	<ul style="list-style-type: none"> – To ensure the organization of temporary sanitary-domestic facilities. – To provide the discharge of domestic wastewater to the accumulation tank (as an option, the container of mobile toilet cabins). The cleaning of such cabins should be done with sewage truck. At the process of pumping the contact with ground should be avoided, to prevent its contamination and run offs on soil or plant covering. 	Minor	Not expected	– Contractor, responsible for work;	
Mechanical contamination/damage of plant cover	<ul style="list-style-type: none"> – Temporary storage of waste in specially designated places in accordance with their safety class; – To foresee waste management issues for briefings/instructions. 	Minor	Minor	– Contractor, responsible for work;	– Utility Zhytomyrvodo kanal
	<ul style="list-style-type: none"> – All excavation works and also temporary storage of construction materials and waste should be managed strictly in accordance with design conditions and within site 	Minor	Minor	– Contractor, responsible for work;	
Noise pollution	To conduct construction works according to established schedule	Minor	Not expected	– Contractor, responsible for work;	Not expected
	To improve the traffic system schedule, related to construction works, including elimination of	Minor	Not expected	– Contractor, responsible for work;	

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	night delivery of loads –for reducing the noise level			<ul style="list-style-type: none"> – Utility Zhytomyrvodokanal – Representatives of structural division of local council, whose competence includes these functions 	
	If necessary, install noise screens near construction machinery to prevent negative impact on local biota	Minor	Not expected	– Contractor, responsible for work;;	
Waste management	<ul style="list-style-type: none"> – To develop and implement the detailed plan of waste management grasps all types of waste; – The plan should be updated and controlled from time to time; 	Minor	Minor	– Contractor, responsible for work;	– Utility Zhytomyrvodo kanal
	<ul style="list-style-type: none"> – All works and also temporary placement of construction waste should be carried out strictly in accordance with project conditions and within site with accurate application of places for temporary storage with indication of to type and class of waste; 	Minor	Not expected	– Contractor, responsible for work;;	
	<ul style="list-style-type: none"> – The responsible person for management with hazardous and solid domestic waste should be appointed at the construction, to control and conduct briefings for employers on all issues related to the field of his responsibility. 	Minor	Not expected	– Contractor, responsible for work;;	
	<ul style="list-style-type: none"> – All works related to transportation, utilization and storage of waste should be conducted in presence of permits for implementation of such type of activity. 	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work;; – Utility Zhytomyrvodokanal 	

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				<i>Competent to monitor the compliance with requirements:</i> <ul style="list-style-type: none"> – Local subdivision of State Environmental inspection of Ukraine. – Local subdivision of sanitary and epidemiological service of Ukraine 	
	– Collection and temporary storage of waste is defined separately according to the safety classes.	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work;; – Utility Zhytomyrvodokanal <i>Competent to monitor the compliance with requirements:</i> <ul style="list-style-type: none"> – Local subdivision of State Environmental inspection of Ukraine. Local subdivision of sanitary and epidemiological service	
Social risks					
Emergency risk	– To develop and implement complete plan for Emergency response plan and operation;	Minor	Minor	– Contractor, responsible for work r	Utility Zhytomyrvodokanal
	– conducting briefings and safety trainings	Minor	Minor	– Contractor, responsible for work	
	– all works should be conducted strictly in accordance with project conditions and within sites	Minor	Minor	– Contractor, responsible for work	
	– installation of warning signs and tables, installation of necessary fences and walkways,	Minor	Minor	– Contractor, responsible for work	

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	appropriate lighting for night hours;				
Risk of complaints from locals	– To conduct explanatory works with locals;	Minor	Minor	<ul style="list-style-type: none"> – Contractor, responsible for work; – Utility Zhytomyrvodokanal – Representatives of structural division of local council, whose competence includes these functions. 	Utility Zhytomyrvodokanal
	– all works and also temporary placement of construction materials and waste should be carried out strictly in accordance with project conditions and within sites;	Minor	Not expected	– Contractor, responsible for work;	
	– installation of warning signs and tables, installation of necessary fences and walkways, appropriate lighting for night hours.	Minor	Minor	– Contractor, responsible for work;	
Risk of employees' injury	– all works and also temporary placement of construction materials and waste should be carried out strictly in accordance with project conditions and within sites;	Minor	Not expected	– Contractor, responsible for work;	Utility Zhytomyrvodokanal
	– all works and also temporary placement of construction materials and waste should be carried out in accordance with established work schedule	Minor	Not expected	– Contractor, responsible for work;	
	– conducting briefings and safety trainings	Minor	Not expected	– Contractor, responsible for work;	
Temporary disruption of water supply	– Timely warning affected areas about disruption of water supply	Moderate	Not expected	<ul style="list-style-type: none"> – Contractor, responsible for work – Zhytomyrvodokanal Utility 	Utility Zhytomyrvodokanal

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	– temporary supply of water with help of transportation of drinking water by special cars				
Operational Stage					
	–			–	
Waste management	<ul style="list-style-type: none"> – All works and also temporary placement of waste should be carried out strictly in accordance with current legislative of Ukraine and with accurate application of places for temporary storage with indication of type and class of waste; – All works related to transportation, utilization and storage of waste should be conducted in presence of permits for implementation of such type of activity. 	Minor	Minor		– Utility Zhytomyrvodo kanal
Emergency risk	– To develop and implement complete plan for Emergency response plan and operation;	Minor	Minor		– Utility Zhytomyrvodo kanal
	– conducting briefings and safety trainings	Minor	Minor		–
	– all works should be conducted strictly in accordance with project conditions	Minor	Minor		–
Social risks					
Risk of complaints from locals	– To conduct explanatory works with locals;	Minor	Minor		Utility Zhytomyrvodokanal
	– all works and also temporary placement of construction materials and waste should be carried out strictly in accordance with project conditions and within sites;	Minor	Not expected		

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	– installation of warning signs and tables, installation of necessary fences and walkways, appropriate lighting for night hours.	Minor	Minor		
Risk of employees' injury	– all works and also temporary placement of construction materials and waste should be carried out strictly in accordance with project conditions and within sites;	Minor	Not expected		Utility Zhytomyrvodokanal
	– all works and also temporary placement of construction materials and waste should be carried out in accordance with established work schedule	Minor	Not expected		
	– conducting briefings and safety trainings	Minor	Not expected		
Temporary disruption of water supply	– Timely warning affected areas about disruption of water supply – temporary supply of water with help of transportation of drinking water by special cars	Moderate	Not expected		Utility Zhytomyrvodokanal

Annex 5. Monitoring plan.

Stage	Monitoring parameter	Place of monitoring	Method of monitoring/ type of equipment	Period of monitoring constantly or periodically	Why is this parameter monitored (optional)?	Responsibility for:	
						Construction	Operation
Construction	Noise, vibration	Near socio-sensitive objects (residential houses) during work implementation	in accordance with the current methodological developments	During construction; in cases of complaints from citizens	To provide comfort for citizens, living close to place of works.	Contractor responsible for carrying out works;	Not expected
		In the area of equipment and machinery operation, which are the sources of increased noise level	in accordance with the current methodological developments	During construction; in cases of complaints from citizens	To provide comfort for citizens, living close to place of works. To provide appropriate working conditions	Contractor responsible for carrying out works	
	Dust	At the construction site	Visually	During construction	To prevent environmental pollution and to provide appropriate working conditions for staff	Contractor responsible for carrying out works	Not expected
		Near socio-sensitive objects	Visually	During construction	To provide comfort for citizens, living close to place of works.	Contractor responsible for carrying out works	
	Soil, accumulated after excavations	At the place of works	Visually	During construction. As needed	To prevent environmental pollution	Contractor responsible for carrying out works	Not expected

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				In order to check the storage regulations of topsoil and preservation of fertile properties of topsoil		
				to provide appropriate working conditions		
Surplus water from water pipe and elements of water treatment plant and water pumping stations	At the construction site Directly in pits /trenches	Visually	During construction. As needed	to provide appropriate working conditions for staff	Contractor responsible for carrying out works	Not expected
Domestic waste	At the construction site	Visually	During construction. As accumulated	To prevent environmental pollution	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal
				to provide appropriate working conditions for staff		
				In order to provide the separate waste collection		
Construction waste	At the construction site	Visually	During construction. As accumulated	To prevent environmental pollution	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal
				to provide appropriate working conditions for staff		
				In order to provide the separate waste collection in accordance with safety class		
Ultraviolet irradiation and harmful evaporation during	At the construction site, directly during welding works	Ultraviolet meter	During construction. As needed	to provide appropriate working conditions for staff	Contractor responsible for carrying out works	–

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gas metal-arc welding						
Methane, hydrogen sulfide and other harmful gases in wells	Man holes (inspection shaft)		During construction. As needed	to provide appropriate working conditions for staff	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal
Level of pollution of atmospheric air	At the work place	According to the approved methods	As needed	To prevent environmental pollution and exceeding of permissible limits of atmospheric air pollution	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal
	Near socio-sensitive objects		As needed; after receiving complaints from citizens	to provide appropriate working conditions for staff		
Traffic jams	At the area of construction works	Visually	During construction. As needed	To provide road safety and	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal
				Prevent environmental pollution		
				to provide appropriate working conditions for staff and comfortable movement for locals		
Utility lines	At the area of works	Visually. according to the schemes of location of utility lines	During construction	To prevent accidents, environmental pollution and to ensure appropriate working conditions for staff.	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal
Safety of workers, pedestrians, citizens.	At the area of welding works	With the help of a safety specialist	During construction	To prevent accidents and injuries of citizens	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal

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Operation	Appeals and complaints of the local population	At the construction site and near territory	Verification of information indicated on the log of complaints and suggestions	During operation	To prevent accidents and injuries of citizens	Contractor responsible for carrying out works	Utility Zhytomyrvodokanal
	Water quality Indicators of quality of drinking water are set out in the State sanitary rules and norms DSanPIN 383-96 "Drinking water. Hygienic requirements for the quality of water for centralized drinking water supply	Water supply system in accordance with the water quality control plan	Measurement with the help of devices (physical, chemical, bacteriological, radiological indicators) according to ДСан ПІН 383-96	According to the established schedule	In order to control the quality of drinking water.	Contractor responsible for carrying out works Utility Zhytomyrvodokanal	Utility Zhytomyrvodokanal
	Water leakage	At the distribution network	Visually	During operation; in cases of citizens' complaints and notices.	To prevent environmental pollution and ensure public safety.	Contracting organization responsible for carrying out works;	Utility Zhytomyrvodokanal

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Operation	Safety of workers, pedestrians, citizens.	On the territory of the distribution water supply network On the territory of the water treatment plant On the territory of WTP	Visually. according to the schemes of location of utility lines	During operational	To avoid emergencies and injuries to citizens	Not expected	
Operation	Stability of pumping equipment operation at water pumping stations	WTP	Instrumentally	During operational	To ensure uninterrupted operation of the equipment	Not expected	Utility Zhytomyrvodokanal Contractor/ Equipment Supplier (Performer) in accordance with the terms of the warranty service
Operation	Uninterrupted work of WTP	WTP elements	Visually Instrumentally	During operational	To ensure uninterrupted operation of the WTP and compliance with the technical regulations of the equipment	Not expected	Utility Zhytomyrvodokanal Contractor/ Equipment Supplier (Performer) in accordance with the terms of the warranty service

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Operation	Uninterrupted work of WWTP	WWTP elements	Instrumentally	During operational	To ensure uninterrupted operation of the WWTP and compliance with the technical regulations of the equipment	Not expected	Utility Zhytomyrvodokanal Contractor/ Equipment Supplier (Performer) in accordance with the terms of the warranty service
Operation	Quality of waste water treatment	WWTP	Instrumentally	During operational	To prevent environmental pollution and ensure public safety.	Not expected	Utility Zhytomyrvodokanal
Operation	Appeals and complaints of the local population	Utility Zhytomyrvodokanal	Verification of information indicated on the log of complaints and suggestions	During operation	To prevent accidents and injuries of citizens		Utility Zhytomyrvodokanal

Annex 6.
Protokol №1 dated 22.07.2017

ПРОТОКОЛ №1

Громадського обговорення КП "Житомирводоканал" від 24.07.2017 року

ПРИСУТНІ:

1. Начальник відділу розвитку та модернізації виробництва Вигівський Б.В
2. Юрисконсульт Сокирко А.Ю
3. Спеціаліст по зв'язкам з громадськістю Климчук О.Ю
4. Інженер з охорони навколишнього середовища Горбова О.А
5. Новікова-Ковба Н.О — пров.ІІІ Колективний, 2а
6. Малиновський О.В — Кам'яний Узвіз, 10б
7. Гончарук Л.В — вул.Каховська, 57/2
8. Лісовський В.О — Кам'яний Спуск, 6

ПОРЯДОК ДЕННИЙ :

Реконструкція мереж водопостачання м.Житомира.

Виступав: начальник відділу розвитку та модернізації виробництва Вигівський Б.В.

Розповів про стан мереж на сьогоднішній день, також було показано відеоматеріал аварійної ситуації на мережах водопостачання. Ознайомив присутніх з ділянками, що підлягають реконструкції, методами, які будуть застосовані при реконструкції, тривалістю будівництвом. Ознайомив та наголосив про необхідність вищезазначеної реконструкції та позитивного наслідку для громади міста.

В процесі обговорення було запропоновано та погоджено після завершення реконструкції мереж провести відповідний благоустрій ділянок.

В ході обговорень із запрошеними мешканцями приватних земельних ділянок, біля яких буде проводитись будівництво (реконструкція), прийнято рішення про необхідність проведення реконструкції мереж водопостачання м.Житомира.





Додаток з переліком учасників громадських обговорень додається.

Протокол вела
Архівариус ВТВ



Ускова І.О.

Додаток № 1
до протоколу № _____ громадського
обговорення в КП "Житомирводоканал"
від 24.07.2017 року

П.І.Б.	Адреса	Номер контактного телефону	Підпис
Ковалева - Говда Н.О.	проб. в Коментівській Б.2	067 895 90 24	
Маминівський О.В.	проб. Каміний узвіз	067 594 23 76	
Тонгарук Л.В.	вул. Казарова, 57/2	096 952 62 00	
Лисовський В.О.	проб. Коментівський	098 48 20 75 4	

Annex 7

Protokol №3 dated 24.08.2017

ПРОТОКОЛ №3

Проведення відкритого обговорення щодо реалізації проекту «Розвиток міської інфраструктури -2»

Дата проведення : 22 серпня 2017 року початок о 16.00

Місце проведення: м. Житомир, вул. Чуднівська, 120, приміщення Комunalного підприємства «Житомирводоканал» Житомирської міської ради.

ПРИСУТНІ:

від Житомирської міської ради:		
1	Фещенко О.А.	Заступник міського голови з питань діяльності виконавчих органів ради
2	Гончаренко І.В.	Головний спеціаліст, інженер виробничо-технічного відділу управління комунального господарства міської ради
3	Драга В.І.	Начальник відділу планування та забудови департаменту містобудування та земельних відносин міської ради.
від КП «Житомирводоканал» ЖМР:		
3	Нікітін А.М.	Директор підприємства
4	Огороднік О.П.	Заступник директора з фінансово-економічних питань
5	Корець В.С.	Начальник виробничо-технічного відділу
6	Вигівський Б.В.	Начальник відділу розвитку та модернізації
7	Черниш С.В.	Начальник управління обліку та реалізації послуг
8	Квадрович П.А.	Головний енергетик
9	Гурська О.Р.	Начальник відділу по роботі з фізичними особами
10	Назарчук С.С.	Начальник відділу по роботі з юридичними особами
11	Дейнекіна Н.С.	Начальник відділу тендерних закупівель
12	Бойчук А.С.	Начальник відділу капітального будівництва
13	Ступакова Т.К.	Т.в.о. начальника цеху водоводу
14	Ходирева С.Л.	Провідний технолог

Представники громадськості міста Житомира.

ПОРЯДОК ДЕННИЙ:

Обговорення реалізації проекту «Розвиток міської інфраструктури -2» зокрема, питання укладення додаткових субкредитних угод.

СЛУХАЛИ:

Вигівського Б.В. – начальника відділу розвитку та модернізації виробництва, який ознайомив з проектом «Розвиток міської інфраструктури -2», зокрема доповів про основні напрямки реалізації проекту, дав загальну характеристику передбачених заходів та розповів про очікувані результати від їх впровадження. Також було зазначено про необхідність отримання фінансування в розмірі 40 млн. доларів, необхідних для реалізації вищезазначеного проекту.

Нікітіна А.М. - директора КП «Житомирводоканал» ЖМР, який детально доповів про напрямки використання коштів в розмірі 40 млн. доларів з розбивкою в розрізі запланованих проектів із зазначенням попередньо оціночної вартості. Розповів більш детально про передбачені проектом заходи та про орієнтовні терміни їх виконання, а саме:

- гідравлічний аналіз та побудова моделі міської системи водопостачання, підготовка попередніх проектів та робочої документації на реконструкцію міських мереж водопостачання, підготовка попередніх проектів насосних станцій водопроводу та водоочисної станції;
- технічний нагляд реконструкції КОС, реконструкції водоочисної станції, насосних станцій водопроводу та мереж водопостачання м. Житомир;
- реконструкція каналізаційних очисних споруд (включаючи заміну механічного та електричного обладнання);
- реконструкція насосних станцій водопроводу та водоочисної станції
- реконструкція водопровідних мереж.

Ознайомив з техніко-економічним обґрунтуванням та необхідністю реалізації проекту «Розвиток міської інфраструктури -2»

Пропозиції та зауваження щодо проекту «Розвиток міської інфраструктури -2» від представників органів місцевого самоврядування та громадськості не надходили.

Відкриті обговорення проведені з дотриманням засад гласності.

Враховуючи відсутність зауважень та пропозицій проект «Розвиток міської інфраструктури -2» вважається підтриманим та схваленим.

ЗА РЕЗУЛЬТАТАМИ ОБГОВОРЕННЯ ВИРІШИЛИ:

1. Підтримати та схвалити проект «Розвиток міської інфраструктури.-2».
2. Надіслати протокол проведення відкритого відкритого обговорення щодо реалізації проекту «Розвиток міської інфраструктури -2» до НКРЕКП та розмістити його на офіційному веб-сайті КП «Житомирводоканал».

Директор підприємства



Нікітін А.М.

Секретар



Сітченко С.С.

З протоколом ознайомлені:

Заступник міського голови з питань діяльності виконавчих органів ради



Фещенко О.А.

Головний спеціаліст, інженер виробничо-технічного відділу управління комунального господарства міської ради



Гончаренко І.В.

Начальник відділу планування та забудови департаменту містобудування та земельних відносин міської ради



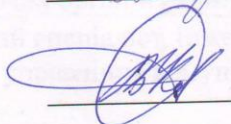
Драга В.І.

Заступник директора з фінансово-економічних питань



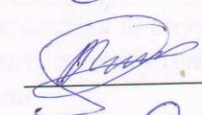
Огороднік О.П.

Начальник виробничо-технічного відділу



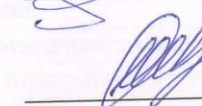
Корець В.С.

Начальник відділу розвитку та модернізації виробництва



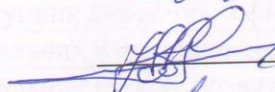
Вигівський Б.В.

Начальник управління обліку та реалізації послуг



Черниш С.В.

Головний енергетик



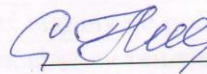
Квадрович П.А.

Начальник відділу по роботі з фізичними особами



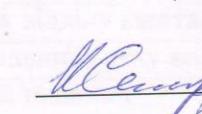
Гурська О.Р.

Начальник відділу по роботі з юридичними особами



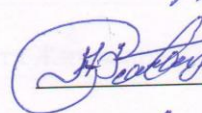
Назарчук С.С.

Начальник відділу тендерних закупівель



Дейнекіна Н.С.

Начальник відділу капітального будівництва



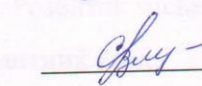
Бойчук А.С.

Т.в.о. начальника цеху водоводу



Ступакова Т.К.

Провідний технолог



Ходирева С.Л.

Annex 8

Protocol of intentions Lisovsky O.M.

Land plot address : Zhytomyr, lane Kamyanyi, 6

**ПРОТОКОЛ
про наміри**

м. Житомир "02" 10 2017 р.

Комунальне підприємство «Житомирводоканал» Житомирської міської ради (надалі іменується "Сторона 1") в особі директора Нікітіна Андрія Миколайовича, що діє на підставі статуту, в особі Вигівського Богдана Віталійовича, що діє на підставі довіреності № 12/1501 від 28.09.2017 року, з одного боку, та громадянина в особі Міовитого Володимир Олександровича (надалі іменується "Сторона 2") (в подальшому разом іменуються "Сторони", а кожна окремо – "Сторона") уклали цей Протокол про наміри (надалі іменується "Протокол") про таке.

- Сторона 1 висловила намір реконструювати водопровідну мережу у місті Житомирі, в тому числі за адресою: м. Житомир, провулок Кам'яний спуск 6.
- Для реалізації намірів Сторони вважають за необхідне здійснити такі дії:
 - В разі здійснення робіт з реконструкції мережі та при необхідності проведення робіт на земельній ділянці: м. Житомир, провулок Кам'яний спуск 6, Сторона 2 не заперечує та надасть вільний доступ до земельної ділянки на підставі укладеного між Сторонами відповідного договору.
 - В ході заключення договору здійснити фотофіксацію первинного стану земельної ділянки.
 - Передбачити в договорі відновлення первинного стану земельної ділянки, а саме: відновлення родючого шару ґрунту.
- Сторони встановлюють наступний строк реалізації положень цього Протоколу 31.12.2019 р.
- У разі, якщо Сторони протягом строку реалізації положень цього Протоколу не здійснять дії, передбачені цим Протоколом, і не складуть додаткового протоколу про встановлення нового строку, цей Протокол втрачає свою чинність.
- Цей Протокол не є попереднім договором у розумінні ст. 635 Цивільного кодексу України та ст. 182 Господарського кодексу України та не покладає на Сторони юридичних наслідків.
- Усі витрати на здійснення дій, визначених цим Протоколом, несе Сторона 1.

МІСЦЕЗНАХОДЖЕННЯ ТА РЕКВІЗИТИ СТОРІН

<p>СТОРОНА 1 КП "Житомирводоканал" Житомирської міської ради</p> <p>Юридична та поштова адреси: Україна, 10005, м. Житомир, вул. Чуднівська, 120 р/р: 26002000018677 в АТ "Укресімбанк", МФО: 322313, код ЄДРПОУ: 03344065</p>	<p>СТОРОНА 2</p> <p><u>Міовитого Володимир Олександровича</u> <u>Олександровича</u></p> <p>Україна, 10014, м. Житомир, пров. Кам'яний спуск 6,</p> <p>Паспорт серія <u>ВМ</u> № <u>036211</u></p> <p>Виданий <u>Богданом РВ ЗАБС</u> <u>Чирієм в Миколаївській області</u> <u>вд 15.08.1995 р.</u></p> <p><u>Лісовий О.В.</u></p>
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Директор Нікітін Андрій Миколайович

М.П. Нікітін Андрій Миколайович

М.П. Лісовий Олександр Віталійович

М.П. Лісовий Олександр Віталійович

Annex 9. Protocol on the intentions Novikova S.F.
Land plot address: Zhytomyr, lane 3rd Collective, 2a

**ПРОТОКОЛ
про наміри**

м. Житомир

"30" 11 2017 р.

Комунальне підприємство «Житомирводоканал» Житомирської міської ради (надалі іменується "Сторона 1") в особі Вигівського Богдана Віталійовича, що діє на підставі довіреності № 12/1501 від 28.09.2017 року, з одного боку, та громадянина в особі Новикова Віталія Франківича (надалі іменується "Сторона 2") (в подальшому разом іменуються "Сторони", а кожна окремо – "Сторона") уклали цей Протокол про наміри (надалі іменується "Протокол") про таке.

1. Сторона 1 висловила намір реконструювати водопровідну мережу у місті Житомирі, в тому числі за адресою: м. Житомир, провулок 3-й Колективний 2а.
2. Для реалізації намірів Сторони вважають за необхідне здійснити такі дії:
 - 2.1. В разі здійснення робіт з реконструкції мережі та при необхідності проведення робіт на земельній ділянці: м. Житомир, провулок 3-й Колективний 2а, Сторона 2 не заперечує та надасть вільний доступ до земельної ділянки на підставі укладеного між Сторонами відповідного договору.
 - 2.2. В ході заключення договору здійснити фотофіксацію первинного стану земельної ділянки.
 - 2.3. Передбачити в договорі відновлення первинного стану земельної ділянки, а саме: відновлення в разі пошкодження огорожі та родючого шару ґрунту.
3. Сторони встановлюють наступний строк реалізації положень цього Протоколу 31.12.2019 р.
4. У разі, якщо Сторони протягом строку реалізації положень цього Протоколу не здійнять дії, передбачені цим Протоколом, і не складуть додаткового протоколу про встановлення нового строку, цей Протокол втрачає свою чинність.
5. Цей Протокол не є попереднім договором у розумінні ст. 635 Цивільного кодексу України та ст. 182 Господарського кодексу України та не покладає на Сторони юридичних наслідків.
6. Усі витрати на здійснення дій, визначених цим Протоколом, несе Сторона 1.

МІСЦЕЗНАХОДЖЕННЯ ТА РЕКВІЗИТИ СТОРІН

СТОРОНА 1
КП "Житомирводоканал"
Житомирської міської ради

Юридична та поштова адреси:
 Україна, 10005, м. Житомир,
 вул. Чуднівська, 120
 р/р: 26002000018677 в АТ "Укресімбанк",
 МФО: 322313,
 код ЄДРПОУ: 03344065

Директор


 А.М. Нікітін/
 Начальник ВРМВ
 /Вигівський Б.В.

СТОРОНА 2

Новикова Віталія Франківича

Україна, 10014, м. Житомир,
 пров. 3-й Колективний 2а

Паспорт серія ВН № 142156

Виданий Житомирським МВ

ЗМВС України в Житомирській

області
С.Ф. Новикова

Annex 10. Legal bases for assessing and managing environmental impacts

The legal and regulatory framework, regulating legal basis for assessment and management on environmental impacts is presented by following regulatory documents:

Constitution of Ukraine

The main place among the laws regulating environmental relations on territory of Ukraine belongs to Constitution of Ukraine (Constitution, Law of Ukraine dated June 28, 1996, № 254к/96-BP, hereinafter referred to as the Constitution of Ukraine). Constitution of Ukraine has the highest legal force, norms specified therein are norms of direct action.

Fundamentals of regulation of environmental relations are enshrined in Articles 13, 14, 16, 50, 66, 85, 92, 116, 119, 137.

Thereby the article 13 of the Constitution of Ukraine declares that the land, its subsoil, atmospheric air, water and other natural resources, situated within the territory of Ukraine, the natural resources of its continental shelf, and the exclusive (marine) economic zone are objects of the property rights of the Ukrainian people.

According to the article 16 of the Constitution of Ukraine, provision of environmental safety and maintenance of environmental balance on the territory of Ukraine is the obligation of the state.

The Constitution of Ukraine guarantees the right of everyone to a safe environment for life and health and for compensation for damage caused by violation of this right. In its turn article 66 entrusts everyone with duty not to harm nature, cultural heritage and to compensate the caused damage.

Law of Ukraine "On Environmental Protection"

Regulation of relations in the area of protection, usage and renewal of natural resources, assurance of environmental safety, prevention and elimination of the negative impact of economic and other activities on the natural environment, conservation of natural resources, legal, economic and social basis of the organization of environmental protection, in particular, water resources of Ukraine is carried out by the Law of Ukraine "On Environmental Protection" dated 25.06.1991 No. 1264-XII (hereinafter referred to as the LU "On Environmental Protection").

The relations in the field of environmental protection in Ukraine are regulated by the aforementioned Law of Ukraine, as well as land, water, forest legislation, subsoil legislation, air protection legislation, legislation in the field of protection and usage of flora and fauna, and other special legislation.

Article 38 of the Law of Ukraine emphasizes that the procedure for the special usage of natural resources of Ukraine by citizens, enterprises, institutions and organizations, which are provided with the ownership, usage or lease of natural resources, should take place on the basis of special permits registered in a special order.

Legislation in the field of water supply and drainage

The purpose of legislation in the field of water protection is the regulation of legal relations with purpose to provide the conservation of scientifically-grounded, balanced use of water for population needs and sectors of the economy, reproduction of water resources, protection of water from pollution, clogging and depletion, the improvement of the state water bodies, and also the regulation of operations and protection of water right for enterprises, institutions, organizations and citizens.

Water supply and sanitation activities are regulated by several codes:

- Administrative code contains the list of administrative violations in regards to environment, including misappropriation of natural resources and locations of cultural heritage;
- Water code regulates legal relations with purpose to provide conservation, scientifically-grounded balanced use of water for population needs and sectors of the economy. Code contains the list of objects, the usage of which it regulates, and also the competence of state authorities and municipality in the field of management and control of usage and protection of water and reproduction of water resources. The outlined by code fee for special water use applies with purpose to encourage efficient use and water protection and reproduction of water resources and includes fee for usage of water from water bodies and for pollution discharge. Violation of water legislation causes disciplinary, administrative, civil or criminal liability in accordance with the legislation of Ukraine.
- Natural resources code
- Criminal code stipulates responsibility for environmental crime including environmental damage.

The main directions of the state policy in the sphere of water resources management to meet the needs of the population and branches of national economy in water resources, preservation and reproduction of water resources, implementation of the integrated water resources management system are described in relevant program documents. In particular:

National program of water sector development and ecological improvement of the Dnipro river basin for the period up to 2021.

National purpose-orientated program of water sector development and ecological improvement of the Dnipro river basin for the period up to 2021, approved by Law of Ukraine dated 24.05.2012 № 4836-VI (hereinafter - National purpose-orientated program of water sector development) aims on solving a number of problems which have arisen, in particular, in water sector management through the introduction of efficient, well-founded and balanced mechanism for the usage, protection and reproduction of water resources, assurance of sustainable development of the state monitoring system in accordance with international norms and upgrade of technological level of water usage, implementation of low water using and waterless technologies, development of more sustainable standards of water usage, construction, reconstruction and modernization of the water supply and sanitation systems.

National purpose-orientated program “Drinking water of Ukraine” for 2011-2020

National purpose-orientated program “Drinking water of Ukraine” for 2011-2020 was approved by Law of Ukraine dated 03.03.2005 №2455-IV.

The purpose of the program is to assure the rights of citizens on adequate standard of living and environmental safety, guaranteed by the Constitution of Ukraine, by providing with drinking water in required amounts and according to established standards.

Program provides the implementation of state policy in the field of the development and reconstruction of centralized water supply and sanitation systems; protection of drinking water supply sources; bringing the quality of drinking water to the requirements of state standards; regulatory support in the sector of drinking water supply and sanitation; development and implementation of scientific-research and developing works, using the present-day materials, technology, equipment and devices.

Law of Ukraine “On drinking water and drinking water supply”

The basic law in the field of drinking water supply and sanitation is the Law of Ukraine “On drinking water and drinking water supply” dated 10.01.2002 №2918-III. It defines legislative, economic and organizational principles of the functioning of the drinking water supply system, aimed at guaranteed assurance of population with a high quality and safe for human health drinking water.

This Law applies to all economic entities, producing potable water, providing cities, other settlements, separately situated bodies with potable water by centralized potable water supply and through water bottling stations (including mobile), the use of facilities (devices), other means of decentralized water supply, provide sanitation services, and also to state authorities and local governments, which regulate, supervise and control the quality of potable water and/or services for sanitation, source state, potable water system and sanitation, and also consumers of potable water and/or sanitation services.

Article 4, Law of Ukraine “On drinking water supply and sanitation” determines subjects in the sphere of drinking water supply and sanitation.

According to Law of Ukraine dated 18.05.2017 local governments are authorized to approve the rules of waste water collection, establish waste water accounting and responsible for environmental pollution. Thus, the Law is supplemented with Article 131 "Local Rules for Wastewater Collection", which are developed and approved by self-governing authorities on the basis of and taking into account requirements of rules of waste water collection and method for determining the charge for excessive discharges of industrial and other waste waters in sanitation systems, approved by the central executive body.

The rules of waste water collection, approved by NEURC (National Energy and Utilities Regulatory Commission), are applied in case if the relevant village, settlement, city council failed to make the decision on the approval of local rules.

The responsibility of consumers and enterprises of water supply and sanitation is established. Thus, the enterprises of water supply and sanitation, which violated the legislation in the sphere of drinking water, drinking water supply and sanitation, which caused diseases, poisonings, prolonged or temporary disability, are obliged to compensate for loss to consumers and compensate additional expenditures to the bodies of the State Sanitary and Epidemiological Service on carrying out sanitary measures and expenditures of health care institutions for providing medical care to victims. The compensation of potable water supply and sanitation of moral (non-property) damage is also stipulated.

According to the Article 46 of Water Code of Ukraine, the water consumption (usage of water (water bodies) to meet the needs of population, industry, agriculture, transportation and other branches of economy, including the right on collection of water, waste water discharge and other kind of water usage (water bodies) can be of two types: general and special.

General water consumption derives from the general nature management and therefore is carried out by citizens (individuals) to meet their needs (bathing, boating, amateur and sports fishing, watering animals, collection of water from water bodies without the use of structures or technical devices and from wells) free of charge, without reserving water bodies for individuals and without granting relevant permits.

The ***special water consumption*** means the water collection from water bodies, using constructions and technical devices, water usage and pollutants discharge in water bodies, including water collection and pollutants discharge with wastewater, using conduits.

The special water consumption is carried out by legal entities and individuals primary for satisfying need of the population for drinking water, and also for household, medical, recreational, agricultural, industrial needs; and for transport, energy, fishing (including for aquaculture purposes) and other national and public needs.

According to the art.49 of Water Code of Ukraine the Special water consumption is chargeable and it is carried out on the basis of the permit for special water consumption.

The permit for special water consumption is the document that gives right to the enterprises, institutions, organizations and citizens to use the specific water bodies (their parts) within established limits (the limit for water collection, limit of water consumption, limit of pollutants discharge. In case of water shortage these limits can be reduced by the authority, which issued the permit, without adjusting the permit for special water consumption).

According to the art.43 of Water Code of Ukraine the enterprises, institutions, organizations and citizens of Ukraine, and also foreigners and individuals without citizenship, foreign legal bodies can be water consumers.

Whereas, water consumers can be primary and secondary.

- primary water consumers are those who have their own intake facilities and appropriate equipment for water intake.
- secondary water consumers (abonents/subscribers) are those who don't have their own water intake facilities and get water from water intake facilities of primary consumers and discharge waste waters in their systems on the basis of water supply agreement (supply of water) and/or of sanitation without permit on special water consumption.

Secondary water consumers discharge wastewater in water bodies also on the basis of special water consumption permits.

Permit for special water consumption is issued by local authorities of central authority of executive branch, which implements the state policy in field of water sector with the consent of:

- in case of ground water usage – to central authority, which implements state policy in field of geological study and rational use of subsoil;
- in case of water bodies usage, which are classified as medicinal, -to central authority, which provides the formation and implements state policy in field of health care.

Before 04.06.2017 central executive body on issues of environmental protection was responsible for issuing the permit for special water consumption of water bodies of state property, and local authorities in agreement with State water agency in case of surface water usage – for water bodies of local property; State geological natural resources – in case of subsoil usage; with Ministry of Health – in case of medicinal water usage.

When issuing permits the terms of water consumption are established in accordance with the procedure stipulated in Article 50 of the Water Code of Ukraine.

The priority type of special water consumption is the usage of water bodies to meet drinking and household needs of population and other utility needs. The enterprise of drinking water supply carries

out its activity in accordance with special water consumption, related to water supply networks, facilities, technical devices for water intake directly from water bodies.

According to the art.13 of Law of Ukraine “On potable water supply and sanitation” the enterprise of potable water consumption carries out its activity on the basis of following documents:

- permit for special water usage or permit for subsoil usage (in case of using ground waters);
- license for economic operation on centralized water supply and sanitation;
- state act on right of permanent usage or land ownership;
- technical project for the placing of water supply networks, facilities and equipment, agreed and approved in the established order.

If water bodies are the sources of drinking water supply, they should have Passports issued in accordance with the procedure established by the legislation. The list of water quality indicators in the passport of the source of potable water supply should correspond with the list determined by the state standard for potable water.

The main document to determine the procedure for issuing permit for special water consumption is Resolution of the Cabinet of Ministers of Ukraine dated March 13, 2002, No. 321. The permit for special water consumption has the usage limit, collection limit, and also pollutants discharge with return waters in water bodies limit (if necessary).

The form of special consumption permit is approved by the decree of Ministry of environment and mineral resources dated 23.06.2017 №234.

In accordance with the article 18 of the Law of Ukraine “On drinking water, drinking water supply and sanitation” The economic activity for centralized water supply and sanitation is subject to licensing in accordance with the procedure established by law.

From 19.05.2017 licensing provisions for conducting economic activity on centralized water supply and sanitation were adopted by the National Commission, which is responsible for state regulation in the fields of energy and utilities (**NEURC Regulation dated 22.03.2017 №307**).

Thus, according to the new licensing provisions, specified in clause 1.4 of these provisions, National Commission, which carries out the state regulation in fields of energy and utilities (hereinafter- NEURC), conducts the licensing of economic activity on centralized water supply (the production and/or transportation and/or supply of potable water to consumers) and/or sanitation (drainage and/or waste water treatment) in case if the systems of centralized water supply and/or sanitation of economic entities are located in one or several settlements within the territory of one or more regions (including Kiev city), total population amount of which is more than one hundred thousand person and functional scope of services is respectively: for centralized water supply – more than three hundred thousand cubic meters per year; for centralized water sanitation – more than two hundred thousand cubic meters per year.

Regional and Kyiv city state administrations are licensing economic activities for centralized water supply (production and / or transportation and / or supply of drinking water to consumers) and / or drainage (drainage and / or wastewater treatment) for economic entities, which do not fall under the criteria of NERCP regulation, specified in Clause 1.4 of these Licensing Terms.

Before 19.05.2017 the licensing was conducted according to NEURC Regulation dated 31.08.2012 №279.

Permit for special water consumption provides for:

- Justification of the need for water with the monthly normative calculation of water use and sanitation;
- Development of projects of permissible discharges into water bodies with return water (with the calculation for each issue (discharging) separately) and their approval;

In accordance with the article 33 Law of Ukraine “On environmental protection”, environmental standards establish the maximum permissible discharges and emissions of the chemical pollutants into environment, levels of the permissible harmful effects of physical and biological factors.

Environmental standards are developed and implemented by the central executive body, which ensures the establishment of state policy in field of environmental protection, and by other authorized state authorities in compliance with the Ukrainian legislation.

The development of projects and calculation of maximum permissible discharges (MPD) of substances, which enter the water bodies with return waters, is carried out in accordance with “Instruction on the procedure of the development and establishment of maximum permissible level of pollutants in wastewater, which are discharged in surface water” the **order of Ministry of natural environmental protection and nuclear security of Ukraine, dated 15.12.1994 №116**. The main requirements for regulation of the maximum permissible discharge of pollutants, formed in the process of operations of water consumers are established in accordance with **Resolution of Cabinet of Ministers of Ukraine, dated 11.09.1996 №1100**.

The norms for MPD of pollutants are established with purpose to gradually achieve the ecological norms of water quality, i.e scientifically based concentration of pollutants and water quality indicators (general physical, biological, chemical, radiation) and sanitary and hygienic norms in the locations of sources of water supply and water consumption, to ensure ecological safety of human life and water ecosystems.

The form of water consumption and sanitation demand is approved by **Resolution of Ministry of environment and mineral resources of Ukraine, dated 23.06.2017 №234**.

The main regulatory acts to regulate the direct activity of enterprises of this sector in water supply field are the following:

- Law of Ukraine “On housing and utility services” №1875 from 24.06.2004 .
- Law of Ukraine “On national-level program for reforming and development of housing and utility economy on 2009 -2014” from 11.07.09 №1511-VI.
- “Use specifications for centralized utility water supply and sanitation in Ukrainian settlements” approved by order № 190 of Ministry of housing and utilities, dated 27.06.2008
- “Rules for providing services on centralized heating cold and hot water supply and sanitation”, approved by the resolution of CM of Ukraine, dated 21.07.2005 № 630
- Resolution of Cabinet of Ministers of Ukraine “On approval of the procedure of development and approval of norms for potable water supply” №1107, from 25.08.2004
- Resolution of CM of Ukraine “On ensuring the unified approach for the establishing of tariffs for housing and utility services” № 869 from 01.06.2011

- Resolution of Cabinet of Ministers of Ukraine “On approval of the procedure for establishment temporary norms of consumption, quality standards and modes for provision of housing and utility services”, № 481, from 16.06.2005

The main legal acts to regulate the direct activity of enterprises in this sector in field of sanitation are the following:

- Law of Ukraine “On housing and utility services” №1875 from 24.06.2004 .
- Law of Ukraine “On national-level program for reforming and development of housing and utility economy on 2009 -2014” from 11.07.09 №1511-VI.
- “Use specifications for centralized utility water supply and sanitation in Ukrainian settlements” approved by order № 190 of Ministry of housing and utilities, dated 27.06.2008
- “Rules for waste water collection from enterprises in utility and departmental sewerage systems of settlements of Ukraine”, approved by Order No. 37 of the State Construction Committee of Ukraine of 19.02.2002.
- “Instructions on establishing and collection of fees for industrial and other waste water discharge in sewerage systems of settlements”, approved by Order No. 37 of the State Construction Committee of Ukraine of 19.02.2002.

Legislation in the field of health and safety

The basic regulatory acts in the system of legislation of Ukraine on labor protection are the following:

Constitution of Ukraine

Article 43 of the Constitution of Ukraine establishes the human right to proper, safe and healthy labor conditions, and the article 45 – to right for rest, provided by the days for weekly rest, payed leave, establishment of a reduced working day for certain occupations and industries, reduced working hours at night.

According to the article 43 of the Constitution of Ukraine the labor service for women and minors at works dangerous for their health is prohibited. In turn, article 24 stipulates special measures to protect labor and health of women.

Other articles of Constitution establish the right of citizens on the social security, including the right for their support in case of full, partial or temporary disability (article 46); health care, medical assistance and medical insurance (article 49); right to know their rights and obligations (article 57) and other general right of citizens.

Labor Code

The Code of Labor Laws from 10.12.1971 №322-VIII (hereinafter – CLL) regulates the labor relations of all employers, establishes the high level of labor conditions, and a comprehensive protection of workers' labor rights (section XI “Labor protection”). The norms on labor protection are described in the relevant chapters of CLL: “Labor agreement”, “Working hours”, “Time for rest”, “Women’ labor”, “Youth labor”, “Labor unities”, “Supervision and control over labor statutory compliance”. In addition, CLL comprises the provisions on collective and labor agreements.

Law of Ukraine “On labor protection”

The law of Ukraine “On the labor protection” 14.10.1992 № 2694-XI (hereinafter – LU “On the labor protection”) determines the major provisions for implementation of the constitutional right of workers for their life and health protection in their working process, for proper, safe and healthy work conditions, regulates the relationship between the employer and the employee on the issues of safety, work and working environment hygiene (with help of relevant state authorities) and establishes the common procedure for labor protection in Ukraine.

On the basis of above-mentioned laws the **Law of Ukraine “On the mandatory state social casualty insurance at the production site and occupational disease insurance which caused disability”** from 23.09.99 № 1105-XIV. This Law, in accordance with the Law of Ukraine “Bases of legislation of Ukraine on mandatory state social insurance 14.01.1998 №16/98-VR, defines legal, financial and organizational principles of mandatory state social insurance, working citizens guarantees for their social protection in case of temporary disability, pregnancy and childbirth, in cases of accident on at the production site and occupational diseases, for their health and life protection.

The Law of Ukraine “Fundamentals of Health Care Legislation” from 19.11.1992 №2801-XII defines legal, organizational, economic and social principles of health care in Ukraine, regulates social relations in this field, in particular, in order to ensure high working efficiency and elimination of the factors which are harmful for health, prevents and reduces morbidity, disability.

According to the article 28 the fundamentals of the legislation on health care stipulates the establishment of unified sanitary and hygienic requirements to manufacturing and other processes related to human activities and also to quality of the machinery, equipment, buildings and such objects that can be harmful for human’s health, in particular, according to the article 27 the unified sanitary and hygienic requirements are set for the organization of water supply. The medical examination is required for certain categories of people, including workers employed in hazardous and risky jobs according to the article 31, and the legal basis for medical and social examination of disability are established according to the article 69.

In addition, the **Law of Ukraine “On ensuring the sanitary and epidemiological well-being of population”** from 24.02.1994 № 4004-XII should also be among the main legislative acts which regulate the sphere of labor safety. The law regulates the social relations, which arise in the field of ensuring sanitary and epidemiological well-being, determines relevant rights and obligations of state bodies, enterprises, institutions, organizations and workers in the field of ensuring sanitary and epidemiological well-being.

This legislative act establishes the necessity for hygienic regulations of dangerous and harmful factors of physical, chemical and biological nature, which are present in the environment. According to the article 30 the enterprises, institutions and organizations are obliged to ensure the well-timed mass preventive vaccinations, disinfection, deratization and insecticidal and other necessary sanitary and anti-epidemiological measures.

In addition, enterprises, institutions and organizations are obliged to develop and perform sanitary and anti-epidemiological measures: to provide laboratory sanitary norms implementation control regarding the levels of harmful factors for health of the production environment: to inform organs and institutions of state sanitary and epidemiological service about emergency events and situations that pose a danger to the health of the population; to compensate the workers and citizens, in the established manner, for the losses caused to their health as a result of violation of the sanitary legislation.

The Law of Ukraine “On increased security objects” defines legal, economic, social and organizational fundamentals of activity related to increased security objects, and aims at protection of human’s life and health and environmental protection from harmful effects of accidents on this objects by preventing it from occurring, limitation (localization) of development and eliminating consequences.

The list of such basic normative-legal acts and documents on labor protection:

- Resolution of Cabinet of Ministers of Ukraine “On Procedure for Workplace Assessment with respect to Working Conditions” from 01.08.1992 №442;
- Resolution of Cabinet of Ministers of Ukraine “Some Issues of Investigation and Accident record, Occupational Diseases and Accidents at the Enterprise” from 30.11.2011 №1232;
- The Order of the State Committee of the Ukraine for Supervision of Labor Protection "On Approval of the Regulation on the State Register of Regulatory Legal Acts on Occupational Safety" from 08.06.2004 №151;
- The Order of the State Committee of the Ukraine for Supervision of Labor Protection "On Approval of the Modal Provision on Labor Protection Service” from 15.11.2004 №255;
- The Order of the State Committee of the Ukraine for Supervision of Labor Protection "On Approval of the Modal Provision on Training and Testing of Knowledge on Occupational Safety and List of Hazardous Work Environment” from 26.01.2005 №15;
- The Order of Ministry of Labor and Social Security of Ukraine Supervisory Committee on Occupational Safety “ On Approval of the Provision on Development of Guidelines for Occupational Safety" from 29.01.1998 №9
- State Committee of Ukraine for the Supervision on Occupational Safety “The List of Hazardous Work Environment” from 26.01.2005 №15;
- Order of the Committee of Ukraine for Supervision on Occupational Safety “On Approval of Works where the Professional Selection is needed” from 23.09.1994 №263/121;
- Order of the Ministry of the Health Care of Ukraine “On Approval of the Critical Norms for Lifting and Moving of the Hard Objects by Women” from 23.09.1994 №263/121;
- Order of the Ministry of the Health Care of Ukraine “On Approval of the Procedure for Medical Examination for Workers of some categories” from 21.05.2007 №246;
- Order of the State Committee of Ukraine on Supervision for Labor Safety “ On Approval of the Modal Provision on Training and Testing of Knowledge on Occupational Safety and List of Hazardous Work Environment” from 26.01.2005;
- Order of the State Committee of Ukraine on Supervision for Labor Safety “On the Procedure and Approval by the Employer of the Regulatory Acts for Labor Safety which are in force at the Enterprise” dated 21.12.1993 №132;
- Order of the State Committee of Ukraine on Supervision for Labor Safety “On the Approval of Provision on procedure for providing the workers with special clothes, special shoes and other means of individual protection” from 23.04.2008 №53;
- Order of the State Committee for Industrial Safety, Labor Protection and Mining Supervision “On Approval of Modal Provision on the Commission for Labor Protection” from 21.03.2007 №55.

4.1.Legislation in the field of waste management

The considerable concentration of household, industrial and certain kinds of waste, related to the category of hazardous for human’s life and health, creates the danger in places of its formation and leads to the environmental pollution. Due to this fact a significant number of laws and regulations, on the issues for regulation of the waste management process at all stages of their life cycle, have been adopted at the national and international levels.

The legal field in this area is formed, first of all, by the following laws and regulations:

- Law of Ukraine “On Environmental Protection” dated 19.06.1991 p.;
- Law of Ukraine “On Waste” dated 05.03.1998;
- Law of Ukraine “On Radioactive Waste Management” dated 30.06.1995;
- Law of Ukraine “On national-level Program on Toxic Waste Management” dated 14.09.2000;
- Law of Ukraine “On waste metal” dated 05.05.1999;
- Resolution of the Verkhovna Rada of Ukraine “On the state of implementation of legislation in the field of waste management in Ukraine and ways of its improvement” dated 06.10.2005 №2967-IV;
- Ordinance of the Cabinet of Ministers of Ukraine “On the Approval of the Concept of National Program for Waste Management for 2013-2020” dated 03.01.2013 № 22-p
- Law of Ukraine “On the National Program of Adaptation of the Ukrainian Legislation to the European Union Legislation. List of Acts of Ukraine and the acquis of the European Union in the Priority Areas of Adaptation (Sections 8-12)”

There are number of the directives which regulate the relations of the waste management in current European legislation. In its turn, the policy of European countries is aimed at:

- optimization of production;
- determination and regulation of toxicity and hazardous waste;
- control of transportation of waste;
- establishing obligations of the waste producer and ownership of waste;
- separation of household waste for disposal and processing of certain kinds in different ways;
- dumping only the waste that, at this stage of development of science and technology, can not be disposed or eliminated.

The legislation of the European Union is presented by the following documents:

- Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, dated 22.03.1989.
- Basic waste legislation: :
 - Directive on Waste 2008/98/EU
 - Directive on hazardous waste 91/689/EEC
- Waste management operations:
 - Directive on waste incineration 2000/76 / EU
 - Directive on disposal of waste at landfills 99/31/EU
- Separate types of waste:
 - Directive on batteries and accumulator 2006/66/EU;
 - Directive on packaging and packaging waste 94/62/EU;
 - Directive on waste of electrical and electronical equipment 2002/96/EU;
 - Directive on the sewage sludge 86/278/EEC;
 - Directive on the waste management on the extractive industry 2006/21/EU

The main normative legal act in the regulation of the relations in the field of waste management is the Law of Ukraine “On Waste”. It regulates the relations related to the formation, collection and preparation, sorting, transportation, storage, processing (recycling), utilization, removal, disposal and burial of waste

originating in Ukraine, transported through its territory, exported from it, as well as transportation, treatment and utilization of waste imported into Ukraine as secondary raw materials.

In accordance with the clause “c” of the article 17 of the Law of Ukraine “On Waste” the economic entities in the field of waste management are required to determine the composition and properties of generated waste, as well as their safety level for environment and human’s health, according to the agreement with designated executive authorities on the issues of environmental protection.

In its turn, the household waste is the waste generated in the process of live and activity of the person in residential and non-residential buildings (solid, large-sized, repair, liquid, except the waste, related to the production activities of enterprises) and not used at the place of its accumulation.

So, waste management is action, aimed at preventing waste generation, its collection, transportation, sorting, storage, processing, recycling, disposal, removal, sterilization and burial, including control of this operations and supervision.

Storage and burial of waste is carried out in the specially designated places. According to the Law of Ukraine “On Waste” specially designated places are places or objects (places of waste locations, storage, landfills, complexes, constructions, subsoil areas etc).

Storage and disposal of waste is performed at the places, determined by the local governments, taking into account land and environmental legislation, in the presence of the permit for the activities in the field of waste management, which defines types and amounts of waste, general technical requirements, security measures, information on the formation, designation, methods of waste treatment in accordance with established requirements for their storage.

The places or objects that have been designated for storing and disposal of waste should only be used for the waste types declared in the obtained permit.