

0 – MAIN VOLUME

Investor: **CITY OF KIKINDA**
Kikinda , Trg srpski dobrovoljaca no . 12

Object : Fountain aerators in the area of "Staro Jezero" and the Northern channel at cadastral plot. no. 2828, 2826, 21474, 2809, 2808 KO Kikinda

Type of technical documentation: **IDP - Conceptual project**

For the performance of works: **Installation of fountain aerators on the water surface of "Old Lake" and its peripheral channel**

Designer: **KS Projekt , Nemanjina 75, Kikinda**

Responsible person of the designer: **Slavica Karadžin**

Stamp: Signature:

SLAVICA KARADŽIN PR
AGENCIJA ZA PROJEKTOVANJE
"K.S PROJEKT"
KIKINDA

Slavica Karadžin

Chief designer: **Slavica Karadžin**
License number: **311 M936 13**

Personal stamp: Signature:



Slavica Karadžin

Technical documentation number: **IDP - 1/2023**

Place and date:
Kikinda , 05.04.2023

0.2. CONTENTS OF THE MAIN VOLUME

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- 0.2. Content of the main notebook
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- 0.6. Information about designers
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- 0.8. Brief technical description

0.3. CONTENT OF TECHNICAL DOCUMENTATION

VOLUME NUMBER ACCORDING TO THE RULES	VOLUME NAME	VOLUME NUMBER
0	MAIN NOTEBOOK	1
3	PROJECT OF HYDROTECHNICAL INSTALLATIONS	1
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0.4. DECISION ON THE APPOINTMENT OF THE CHIEF DESIGNER

Based on Article 128a of the Law on Planning and construction (" Official Gazette of the RS", no. 72/09, 81/09 - correction , 64/10 - US, 24/11, 121/12, 42/13 - US, 50/13 - US, 98/13 - US, 132/14, 145/14, 83/18, 31/19 and 37/19 - dr. law) and provisions of Rulebook on content , method and procedure production and way performance controls technical documentation according to class and purpose of facilities, as

PRINCIPAL DESIGNER

for the preparation of the IDP for the installation of fountain aerators on the water surface of the "Staro Jezero" and its peripheral channel at cadastral plots no. 2828, 2826, 21474, 2809, 2808 KO Kikinda is:

Slavica Karadžin, DIG, license number 311 M936 13

Investor : **CITY OF KIKINDA,**
Kikinda , Trg srpski dobrovoljaca no . 12

Responsible person/
representative : **Nikola Lukač**

Signature :

Place and date: Kikikinda , 04/05/2023

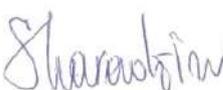
0. 5. STATEMENT OF THE CHIEF DESIGNER OF CONCEPTUAL PROJECT

The chief designer of the conceptual project for the installation of fountain aerators on the water surface of the "Staro Jezero" and its peripheral channel at cadastral plots no. 2828, 2826, 21474, 2809, 2808 KO Kikinda

Slavica Karadžin, DIG, license number 311 M936 13

I DECLARE

that the parts of the conceptual project are mutually agreed upon, that the data in the main notebook correspond to the content of the project and that the project includes appropriate elaborations and studies

IDP Chief Designer:	Slavica Karadžin, DIG
Number licenses :	311 M936 13
Signature :	 
Number technical documentation :	IDP - 1/2023
Place and date:	Kikinda, 04/05/2023

0	Main notebook	1
3	Project of hydrotechnical installation	1
4	Project of electro energy installation	1

0.6. INFORMATION ABOUT DESIGNERS

0. MAIN NOTEBOOK:

Designer: **KS Projekt, Nemanjina 75, Kikinda**
Chief designer: **Slavica Karadžin, Bachelor of Civil Engineering**
License number: **311 M936 13**
Personal stamp: Signature:



Slavica Karadžin

3. PROJECT OF HYDROTECHNICAL INSTALLATIONS:

Designer: **KS Projekt, Nemanjina 75, Kikinda**
Chief designer: **Slavko Vojnić Mijatov , Bachelor of Civil Engineering**
License number: **31 4 K20 6 1 1**
Personal stamp: Signature:



Slavko J. Vojnić Mijatov

4. PROJECT OF ELECTRICAL ENERGY INSTALLATIONS:

Designer: **KS Projekt, Nemanjina 75, Kikinda**
Chief designer: **Boško Vlajkov , dipl.eng.el.**
License number: **3 50 G990 08**
Personal stamp: Signature:



Place and date:
Kikinda, 04/05/2023

0.7. GENERAL INFORMATION ABOUT THE FACILITY AND LOCATION

Object type:	fountains (fountain aerators)	
Object category:	G	
Classification of individual parts of the building:	participation in the total area of the building (100 %):	classification code: 222220
Name of spatial or urban plan:		
Place:	Kikinda	
Cadastral plot number and cadastral municipality:	2828, 2826, 21474, 2809, 2808 KO Kikinda	
Number of cadastral plot and cadastral municipality through which infrastructure connections pass:	2828, 2826, 21474, 2809, 2808 KO Kikinda	
Number of the cadastral plot/ list of cadastral plots and the cadastral municipality where the connection to the public road is located:	-	
INFRASTRUCTURE CONNECTIONS:		
Connection to electrical installation:	<p>Supply the complete system of fountain aerators from the existing external free-standing distribution cabinet (RO-JO) located on the newly built walkway next to the subject location of the aerator installation. The number of the measuring point is 4017072647, the measuring point is 8050157925. This switchboard RO-JO is powered from the LV network in Barska street with a cable type PP00 4x25mm² underground. The existing distribution cabinet of the measuring point POMM 1 is placed on a concrete pillar of the LV network in Barska street. The measuring point in question is designed for a power of 17.25kw with limiters of 25A. The existing maximum power of external lighting is 1.5kw (48 LED lamps 27W). Supply the newly installed SSRO with an underground cable type PP00A 4x35mm² along a suitable route. Connect the power cable inside the existing distribution cabinet RO-JO before the main switch via the appropriate terminal blocks and AICu feet. The main fuses of the new power cable are automatic 20A. The power cable is type PP00A 4x35mm² and is installed underground along a defined route. Five (5) distribution cabinets of floating aerators are fed from the newly installed SSRO. The individual power of each floating aerator is 1.1kw, which in total represents an increase in power by 5.5kw.</p> <p>The complete equipment for turning on, turning off and protecting the water pumps of the aerator is installed in a new free-standing distribution cabinet. The new distribution cabinet is made of polyester with IP65 protection, dimensions 1200x1200x400 (useful dimensions). It is placed on its type foundation in the place as marked on the situational plan. From this free-standing distribution cabinet, five (5) distribution cabinets of the associated aerators are supplied with cable type PP005x4mm².</p> <p>Protection against indirect contact voltage was carried out by the TT system supplemented by the differential current protection device</p>	

	<p>ZUDS25/0.03A. The protective grounder is a strip in the combination of the existing public lighting grounder and the new strip grounder.</p> <p>Apart from aerator pumps and decorative lighting, no other consumers will be installed on the subject new building.</p> <p>This point of connection (Existing RO-JO) is determined by the clear definition of electricity users.</p>
Connection to the water and sewage network	<p>Floating fountains do not require connection to the water or sewage network.</p> <p>At the site in question, a total of five fountain-type aerators, i.e. five floating fountains, are planned to be installed, three of which will be placed on the water surface of the Staro Jezero and two on the water surface of the Northern Canal in the immediate vicinity of the built pedestrian bridge.</p> <p>The basic characteristics of the selected floating fountains are as follows: they are intended for lakes and ponds, they have a nozzle to achieve optimal performance, the pumps have a pre-filter made of stainless material , the simplicity and robustness of the design make them easier to install and prevent problems during maintenance, they have the option of integrating appropriate lighting, they provide perfect supplement for decorating architectural landscapes, they are easy to install, the minimum required depth of accumulation is 60 cm.</p>
Connection to the heating pipe	-
Telecommunication connection	-

BASIC INFORMATION ABOUT THE OBJECT AND LOCATION

Object dimensions:	Total area of the plot/lots:	89,028.00 m ²
	The length of the projected route of the power cables:	1. PP00A4x35mm ² : 350m' 2. PP00 5x4mm ² : 612m'
Object materialization:		
Percentage of green areas:	(given location conditions)	(accomplished)
Occupancy Index:		
Construction index:	(given location conditions)	
Other features of the facility:		
Estimated value of works:		

Slavica Karadžin, Bachelor of Civil Engineering.
License No.: 311 M936 13

Personal stamp

Signature:



Slavica Karadžin

Place and date :
 Kikinda , 04/05/2023

0. 8. BRIEF TECHNICAL DESCRIPTION

Existing condition

"Števančeva bara" or "Staro jezero" is a sports-recreational complex with an area of ≈ 9.2 ha, which is located on the territory of the settlement of Kikinda and includes cadastral plots 2808, 2809, 2810, 21474 and a smaller part of plot 21473/6 KO Kikinda. It consists of an artificial water reservoir (kp. 2808) with a peripheral canal (kp. 21474 and a smaller part of 21473/6), where there are also green areas and a pedestrian path (kp. 2809 and 2810) within the parameter of the peripheral channel.

The reservoir/lake has an area of $\approx 12,924$ m², a depth of up to 2 m. In it, one prefabricated, free-standing building (soyhouse) was installed, as well as two floating fountain aerators (with associated distribution cabinets and electrical installations). The perimeter canal "Kinda", which extends around the reservoir (lake) itself in two branches, is connected to the reservoir and serves to drain/bring water into the lake, as well as to drain storm water from the nearby part of the town of Kikinda. The length of the peripheral canal is ≈ 1700 m. The transverse channel profile is trapezoidal with a bottom width of 5 to 20 m and a slope of 1:2. The banks are overgrown with reeds and other vegetation. The "Kinda" canal is connected to the Veliki Kikinda canal (part of the DTD system) - the connection is established by a sealed system of atmospheric sewage that stretches along the settlement of Kikinda.

In the immediate vicinity of "Staro jezero", i.e. on the other side of the "Northern branch" of the peripheral canal, there is the "Jezero" Sports Center. Communication (pedestrian traffic) between these two entities is made possible by a bridge about 28 m long, which was built over the "Northern branch" and which, as such, directly connects parcels no. 2828 and 2809.

According to the urban planning documents of the City, this entire part of the settlement of Kikinda is intended for sports, recreational and tourist facilities (Block 9).

Projected state

Five fountain-type aerators need to be installed at the site in question, three of which will be installed in an artificial reservoir, while two will be located in the "Northern branch" of the "Kinda" canal, in the immediate vicinity of the built pedestrian bridge.

Aerators, that is, floating fountains, include floating pumps, additional aeration modules (3 fountains) with decorative LED lighting. Bearing in mind that the goods in question are installed in different water bodies, their characteristics are adapted to the request.

Hydrotechnical installations

Based on the "Study on improving the quality of the surface waters of "Staro jezero" and the peripheral canal in Kikinda", document created as part of the implementation of the project "Rehabilitation of ecosystems and preservation of natural assets in Jimbolia and Kikinda" - ECOLAKES, measures that need to be implemented in order to improve the quality of water in the lake and canal, i.e. improving the quality of the environment can be extracted:

- Water quality monitoring
- Identification of pollutants
- Maintenance and equipment (aerator setting)
- Campaigns and civil activism

Floating fountains decorate the calm surfaces of artificial or natural lakes, ponds and other waters. They are most often installed near rafts, pontoons, restaurants and other facilities on the water, in order to increase the attractiveness of the environment. In addition to beauty, a frequent reason for installing a floating fountain is water aeration.

By aerating the water, the floating fountains enrich it with the necessary oxygen, which has a positive effect on its quality. In addition, floating fountains raise the level of air humidity and therefore lower its temperature in the immediate environment. The micro-space around such fountains is fresher, and the whole ambience is pleasant and very attractive.

Because of all that, they are justifiably used in many lakes and ponds.

Depending on the dimensions of the water surface, the power of the pump and the choice of the nozzle, the water jets of these fountains can be from several meters to several tens of meters high. The construction of the pontoon allows floating fountains so that they do not depend on fluctuations in the water level in which they are located. LED and other underwater lighting make the night scene of the floating fountain irresistible, special and recognizable.

The basic characteristics of the intended floating fountains are as follows: they are intended for lakes and ponds, they have nozzle in order to achieve optimal performance, the pumps are made of high-performance stainless material, they have a pre-filter made of stainless material, the simplicity and robustness of the design make them easier to install and prevent problems during maintenance, they have the option of integrating appropriate lighting, they provide the perfect complement for decorating architectural landscapes, they are easy to mount, the minimum required accumulation depth is 60 cm.

The way and method of anchoring the selected fountains is such that it enables fast and simple assembly and disassembly. An integral part of aerators or floating fountains are floating pumps equipped with decorative LED lighting.

Electric power installations

Supply the complete system of fountain aerators from the existing external free-standing distribution cabinet (RO-JO) located on the newly built walkway next to the subject location of the aerator installation. The number of the measuring point is 4017072647, the measuring point is 8050157925. Connect the power cable inside the existing distribution cabinet RO-JO before the main switch via the appropriate terminal blocks and AICu feet. The main fuses of the new power cable are automatic 20A. The power cable is type PP00A 4x35mm² and is installed underground along the route as shown in the situation. The cable trench measures 0.4x0.8m. Under-drilling the route of the cable trench under the existing sidewalks should be carried out manually, and the cable should be placed in those places through a protective PVC pipe fi 110. At the part where the power cable crosses over the pedestrian bridge, the cable should be placed in a protective galvanized pipe, which is placed on the metal part of the bridge structure through a protective galvanized pipe fi 2".

The complete equipment for turning on, turning off and protecting the water pumps of the aerator is installed in a new free-standing distribution cabinet. The new distribution cabinet is made of polyester with IP65 protection, dimensions 1200x1200x400.

All 5 (five) distribution cabinets of individual aerators are supplied from this external free-standing cabinet.

Power cables are type PP00 5x4mm² route as shown in the situation.

Distribution cabinets of individual aerators are made of polyester with door, lock and key equipped with complete equipment according to the attached single-pole scheme. The dimensions of the cabinets are 400x300x170 (HxWxD). Three such cabinets are placed on appropriate metal supports attached to a metal structure that is placed on the existing concrete "shore" of the Old Lake.

Two distribution cabinets RO-F4.5 on the part of the North Channel are placed directly on the metal structure of the pedestrian bridge. From the switchboards RO-F1,2,3,4,5, the electric power supply of the motor pumps of the aerator and any decorative lighting is carried out.

Protection against indirect contact voltage was carried out by the TT system with the additional use of a differential current protection device.

The complete installation should be carried out according to the applicable regulations for this type of installation and facilities.

After the completion of the works, it is necessary to carry out all the necessary measurements and tests, which proves the effectiveness of protection against indirect contact voltage.

0.9. ESTIMATE OF INSTALATION WORKS

1. ESTIMATION OF HYDROTECHNICAL WORKS

<i>mark</i>	<i>description of positions</i>	<i>unit</i>	<i>quantity</i>	<i>unit price</i>	<i>Amount</i>
A.	PREPARATION WORKS				
A.1	Compaction of the route according to the project. By punching a stake to mark the places of horizontal and vertical breaks, trace the cables as well as the places of the switchgear.				
		m	460		
A.2	Cutting of existing concrete surfaces in with a width of 0.4 m and an average thickness of 12.0 cm re-concreting - returning to the original state after the completion of earthworks. The position includes all the necessary work and material on cutting and restoring to its original state.				
		m2	10		
A.3	Discovering the exact location of the underground installation by flashing on the required number of places perpendicular to the cable laying route in the work performance zone. This position is done depending on the position of the existing installations, at least on every 50 m. The calculation includes 1.0 m3 of manual excavation.				
		pcs	10		
A.4	Manual sub-drilling below the existing footpaths in the width of the trench, average depth 0.8 m. Calculation per meter				
		m	38		
	In total prepare works				
B.	GROUND WORK				
B.1	Soil excavation of II and III category for trenches, trench average width is 0.4 m and				

mark	description of positions	unit	quantity	unit price	Amount
	depth of 0.8 m. The sides of the trench are properly cut off, and dug soil discarded outside the trench up to a distance of 1.0 m. By calculation, 30% of the excavation is machine-made and 70% manual, with fine planning of the trench bottom. 460x0.4x0.8 = 147.20				
	mechanical (30%)	m ³	44,16		
	manual iscom (70%)	m ³	103.04		
B.2	Procurement, transport and installation of sand for installation around the installed cables, at a height of 10 cm. 460x0.4x0.2 = 18.4 Calculation per m3 of embedded sand				
		m ³	18.4		
B.3	Backfilling the trench with soil from the excavation after installation of cables in layers of 30 cm each by tamping. Calculation per m3 of buried trench volume.				
		m ³	128.8		
B.4	Loading, removal and unloading of excess soil and rubble by motor vehicle to the landfill distance to 2.0 km. Calculation per m3 of spontaneous material				
		m ³	18.4		
	In total earth works				
C.	ASSEMBLY WORKS				
C.1	Procurement, transport and installation of floating fountains on the water surface of the Old Lake. The project envisages a fountain with a power of 1500W, voltage 230V/50Hz and decorative lighting The position includes procurement and assembly complete equipment fountains and related waterproof electric cable. Average length of the corresponding electric cable is about 40 meters. For assembly, it is necessary to foresee all the necessary work and material as well as suitable boats so that the equipment is mounted according to given coordinates. Calculation per piece of complete set including appropriate weights and counterweights.				
		pcs	3		

mark	description of positions	unit	quantity	unit price	Amount
C.2	Procurement, transport and installation of floating fountains with decorative lighting on the water surface of the North Branch channel. A fountain pump power is foreseen to be 1500 W, voltage 230V/50Hz				
	The position includes procurement and assembly complete equipment fountains and related waterproof electric cable. Average length of the corresponding electric cable is about 15 meters.				
	For assembly, it is necessary to foresee all the necessary work and material as well as suitable boats so that the equipment is mounted according to given coordinates.				
	Calculation per piece of complete set including appropriate weights and counterweights.				
		pcs	2		
	In total assembly works :				
D.	V. OTHER WORKS				
D.1	Commissioning of the complete floating equipment fountain.				
	Calculation is lump sum .	Lump sum	1		
D.2	Procurement of necessary material for anchoring the floating fountain by making three reinforced concrete blocks of dimensions 40x40x40cm, that needs to be reinforced in all three orthogonal direction with reinforcement Rf10/15cm, with installation of a fi 12 mm hook for stainless steel rope hanging.				
	The position includes all necessary work and material on manufacture and installation of anchor blocks. Anchor blocks with cables are placed in a circle at an angle of 120°. Calculation per piece of made anchor block .				
		pcs	15		
D 3	Procurement, production and installation of ropes from stainless steel, three-pronged 6 mm diameter, maximum load capacity 800kg (for an angle of 0°- 45°) with all the associated equipment (three gutters pieces on each side and on prescribed distance for the selected cable). Rope is provided for the purpose of fixing the floating fountains for anchor blocks. The length is taken in				

mark	description of positions	unit	quantity	unit price	Amount
	depending on the anchoring depth, extended by 40 cm, due to changes in the water level, wind, waves and similar. Calculation by meter of rope .				
		m	40		
	In total the others works :				
	A recap of hydrotechnical works				
	A. PREPARATION WORKS				
	B. GROUND WORK				
	C. ASSEMBLY WORKS				
	D. OTHER WORKS				
	IN TOTAL				
	VAT 20%				
	TOTAL				

2. ESTIMATION OF ELECTRICAL ENERGY INSTALLATIONS

mark	description positions	j.m. –	quantity	unit price	Amount
E.1	Inserting the power cable of the aerators into the existing one ROJO outdoor lighting distribution cabinet. The cable connection is done before the main switch by means of high-performance series clamps and corresponding AICu feet. The power cable is type PP00A 4x35mm ²	pcs	1		
E.2	Delivery and installation of automatic 20A fuses in the existing wardrobe RO-JO	pcs	3		
E.3	Delivery and installation of power cables PP00A4x35mm ² in a pre-excavated trench. Install the cable according to the applicable regulations for this type of work.	m	350		
E.4	Delivery and installation of power cables PP00 5x4mm ² from the new SS-RO to individual distribution aerators cabinets				

mark	description positions	j.m. –			
			quantity	unit price	Amount
		m	612		
E.5	Delivery and installation of galvanized strip FeZn25x4mm in the previously excavated trench and all according to the attached drawings	m	270		
E.6	Delivery and installation in cable trench: GAL shields Warning tape	m m	300 300		
E.7	Delivery and installation of the freestanding power distribution cabinet SS-RO. The cabinet is polyester, dimensions 1200x1200x400mm, complete with its own typical foundation. Inside the cabinet install a complete set of the following equipment. The cabinet is with door with lock and key: Master switch 4G63-10-PK or similar. ZUJS 40/0.03A Auto fuses 6-16A Contactor 16A Bimetal 4-8A safety light bulb "green" safety light bulb "red" Time relay 0-24h Greb.pre.4G10-51-U LED bulb 6w Apk. 1f, OG, 16A Cabinet design kit, cables for schematic of perforated cable channels, series clamps Hilzne, N and PE busbars and other complete small material and works. Set SS-RO with foundation and fully equipped.	pcs pcs pcs pcs pcs pcs pcs pcs pcs pcs pcs set.	1 1 20 5 5 5 5 1 6 1 1 1		
E.8	Delivery and installation of distribution/connection aerator cabinets, RO-F1,2,3,4,5. Cabinets are polyester with door and matching lock, dimensions (HxWxD) 400x300x170cm, placed on a suitable metal structure. Place the following equipment inside the cabinet: Power switch of light up floating fountains 4G19-90-PK Automatically fuse 6A Rectifier AC/DC 220/12.24V power 200w Ordinary clamps, cables for wiring N and P buses, assembly board, hilzne, cable introductions and the second small material and works Cabinet RO-F	pcs pcs pcs set	1 1 1 5		

mark	description positions	j.m. –			
			quantity	unit price	Amount
E.9	Delivery and installation of a set of materials for crossing of the power cable over the pedestrian bridge. Galvanized pipe 2"/6m anchored	pcs	2		
	Metal ribbed hoses for cable passage P00A4x35mm2 and any additional earthworks, as well as other unforeseen works and material	pcs	1		
E.10	Production of metal structures for installation of the aerators switchboard RO-F with anchoring to concrete shore of the artificial lake. Various metal profiles, 30x30 "L" profiles, with concrete on the 4 places. The weight of the carrier is about 5 kg. Carrier completely repaint with basic and with the final color.	pcs	5		
	Installation of PVC pipe fi 70 after under-drilling	m	40		
E.12	Connection of galvanized strips FeZn25x4mm for existing outdoor lighting grounding devices.	pcs	2		
	The others unforeseen material	lump sum	1		
E.14	Examination of power installations and issue of needed attestation	pcs	1		
	Production of Derived State Project according to valid technical regulations and in accordance with legal regulation	pcs	1		
E.	A recap of electrical part				
	ELECTRICAL ENERGY INSTALLATIONS				
	IN TOTAL				
	VAT 20%				
	TOTAL				

Main recapitulation		
1	HYDROTECHNICAL INSTALLATIONS	
2	ELECTRICAL ENERGY INSTALLATIONS	
IN TOTAL:		
VAT 20%:		
ALL TOGETHER:		

Slavica Karadžin, Bachelor of Civil Engineering.
License No.: 311 M936 13

Personal stamp

Signature:



Slavica Karadžin

Place and date :
 Kikinda , 04/05/2023.