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| **PROJECT** | **HETEROTOPIAS. BOTEVGRAD-LESKOVAC**  Interreg - IPA CBC Bulgaria - Serbia 2014-2020 |
| **OBJECT** | **EXTERIOR AND TECHNOLOGICAL EQUIPMENT OF BOTEVGRAD PROMOTIONAL CENTER** |
| **PART**  **PHАSE** | CENTRAL CITY PART  BOTEVGRAD, MUNICIPALITY OF BOTEVGRAD, DISTRICT OF SOFIA  ELECTRICAL  DETAILED DESIGN |
| **CONTRACTING AUTHORITY** | MUNICIPALITY OF BOTEVGRAD |

**MANAGER:** *(signed and stamped)*

/ARCH. MARIELA ANDREEVSKA/

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| Architecture | L.Architecture | Constructions | Electrical | Water supply and sewerage |
| *(Signature)* | *(Signature)* | *(Signature)* | *(Signature)* | *(Signature)* |
| arch.Mariela Andreevska | l.arch. D. Gincheva | eng. V. Martulkov | eng. V. Krasteva | Eng.K. Kirov |

Object code: B\_25 – 20180415 – 3E redaction№ 0

*(signed and stamped with stamp for full design capacity)*

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| **OBJECT** | **EXTERIOR AND TECHNOLOGICAL EQUIPMENT OF BOTEVGRAD PROMOTIONAL CENTER** |
| **PART**  **PHASE** | IN QUARTER 49 OF CENTRAL CITY PART  BOTEVGRAD, MUNICIPALITY OF BOTEVGRAD, DISTRICT OF SOFIA  ELECTRICAL  DETAILED DESIGN |

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**TEXT PART**

1. Documents certifying the legal capacity of the designer;
2. Copy of insurance policy
3. Explanatory note
4. Bill of quantities

**GRAPHICAL PART**

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| 1. | Situation and el. installations KIOSK | Sheet 1/5 |
| 2. | Lighting installation – inner courtyard | Sheet 2/5 |
| 3. | Power installation, contacts and Enet | Sheet 3/5 |
| 4. | Basement – power cables | Sheet 4/5 |
| 5. | El. Scheme for switchboard | Sheet 5/5 |

*(stamp for for full design capacity; signed and stamped)*

COMPILED BY:

/eng. V. Krasteva/

April 2018, Botevgrad /Ch. Yonkolovska/

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**EXPLANATORY NOTE**

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The present project technical documentation has been prepared by qualified persons in **ANDREW\_05 EOOD** on assignment by the **MUNICIPALITY OF BOTEVGRAD**, in compliance with the current regulations in the country.

**MUNICIPALITY OF BOTEVGRAD** is the holder of the real right of ownership over the Clock Tower in Botevgrad, Municipality of Botevgrad, District of Sofia.

In the sense of the Law on obligations and contracts (LOC) and the respective contractual relations between the parties, **MUNICIPALITY OF BOTEVGRAD** is called the **Contracting Authority** **as per LOC**, and the legal entity **“ANDREW\_05” EOOD** is called the **CONTRACTOR**.

Within the meaning of the Spatial Planning Law (SPL), in its capacity of owner of the property intended for construction works, the **MUNICIPALITY OF BOTEVGRAD** is called the **CONTRACTING AUTHORITY as per SPL**, and the legal entity **“ANDREW\_05” EOOD** - **DESIGNER**.

The investment intention of the Contracting Authority is for construction of exterior and technological equipment of the Promotion Center in the Central part of the city / CPC / of Botevgrad in accordance with his real rights, legitimized by the attached ownership documents.

In order to realize the investment intention of the Contracting Authority, the designer - contractor prepares construction design documentation, representing an investment design in the sense of the Spatial Planning Law. This design is in part electricity and is an integral part of the whole construction documentation for the site.

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**TECHNICAL PART**

The purpose of the promotional center in Botevgrad is to provide an environment for communication between the various cultural and information cores on the territory of the municipality.

The entire population of the municipality and its visitors gain a new understanding of the life of the towns and villages, determining their long-term development.

The design envisages exterior lighting of the inner courtyard, around the library and next to the municipality, as well as power supply of special facilities for the activities of the center.

The switchboard for the center is powered by the main switchboard /there are free terminals/. This switchboard is mounted on a column in the tourist center and is powered by cable CBT 5x6mm2 from the main switchboard. The power cable and part of the output cables to the KIOSK pass through the basement.

The required power for the promotional center is 9kW.

All electrical equipment is for outdoor installation - lighting fixtures, cables, contacts, sockets.

Most of the cables are laid on existing cornices, walls and columns.

The excavation for the cables to the KIOSK should be done by hand, due to the existing underground communications. The cables are to be pulled into a pipe with the necessary shafts.

For exterior lighting, several types of lighting fixtures with LED luminaires will be installed - luminaires mounted in the flooring, on profiles on the cornices and on the wall.

The luminaires are asymmetrical, symmetrical and LED lighting networks.

In the inner courtyard it is planned to install power contacts and sockets RJ 45 for use by visitors. Power supply is envisaged for the installation wall in the yard.

The sizing of the power cables is made according to the load, taking into account the probability of simultaneous operation and the existing street lighting, and according to the existing Design Standards. The cable cross-sections are checked for permissible voltage loss.

All power cables have three and five cores.

**PART Occupational safety and health and fire safety**

When performing the electrical installation to be observed all the requirements for labor protection and safe work.

MAIN PART

The site is exterior artistic lighting of open spaces.

The lighting provided is LED lighting.

The degree of protection of all luminaires is IP65.

The control of the lighting fixtures will be performed as well as the street lighting control.

The electrical power supply is intended to be made is a wire CBT 5x2,5mm2, drawn in corrugated pipes with steel strip laid in a trench.

The performing of the electrical installation should comply with all requirements for labor protection and safe work and the requirements of Ordinance No. 1з-1971 of 05.06.2010

- in terms of electrical power supply the site is the third category;

- TN-S system according to art. 155 of ordinance for construction of electrical installations.

The earthing measures envisaged in the project correspond to Chapter Seven of the ordinance for construction of electrical installations.

All electrical equipment provided in the project shall be delivered with a certificate or permanent marking of the hull, guaranteeing the class of reaction to fire or explosion.

In the project the solution is with cables with flame retardant insulation and copper cores.

ASSESSMENT OF POSSIBLE HAZARDS

In the mode of operation of the site, electric shock is possible when touching exposed live parts or burns due to the formation of arcs in case of insulation breakdown or short circuits.

MEASURES TO PREVENT POSSIBLE HAZARDS

The following measures will be taken to ensure occupational safety and hygiene, as well as fire safety during the operation of the site:

• When working on the electrical installation, the relevant branch of the street lighting should be turned off;

•When using an escalator, take other additional safety measures;

•When performing the electrical installation works, the requirements of the prescriptions in Ordinance № 1з-1971, FIRE CONSTRUCTION TECHNICAL STANDARDS and all regulations in force for this type of work in force shall be observed.

• Electrical works to be performed by professionals with the appropriate qualification and license for this type of work.

• Work on cable lines and electrical installations with voltage up to 1000 V must be performed by at least two people, one of whom must have at least a third qualification group.

• Before starting work, check each cable line for voltage on both sides, ground it and place signs in the power supply area “Do not switch on! People are working!”

• When performing installation and commissioning works on cable lines to comply with the requirements for operation of cable lines and underground electrical equipment of the "Regulations on occupational safety in the operation of electrical equipment" - Section 1, 11, III and IV and Ordinance №3 / 2004 for the design of electrical installations and power lines

• All persons involved in the installation work (when working with equipment with voltage up to I000V) must have passed the technical safety exam and have the necessary qualification

• Before starting work, to conduct on-site instruction, to obtain the necessary protective equipment, respectively checked for the given voltage, to turn off the voltage, to check the grounding and to put in a visible place signs “Do not turn on, work people!”

• Use tools with insulated handles.

• The work must be performed by two people.

• The equipment should be positioned so that it is convenient to adjust it.

• The connecting wires must be fastened firmly, not tangled and as short as possible.

• When working with electrical equipment, the installer should read the instructions for working with it.

• Measurements should be performed with special devices. Measurement with current measuring pliers for cables, to be performed only with dielectric pliers and dielectric boots. During the measurements, the handles of the pliers must be wiped to keep them dry and clean.

• Protective equipment that must be used to protect personnel from electric shock are: insulating pliers, dielectric gloves, dielectric mats, safety plates on technical safety (such as "Do not turn on! People are working!").

**All necessary measures against incorrect supply of voltage to the place where you work should be taken!**

When carrying out the installation works in the site to strictly observe all the rules and requirements of the "Regulations on occupational safety in the operation of electrical installations and equipment", as well as all ordinances and regulations valid at the time of construction.

The results should be formed in a protocol, which should be one of the prerequisites for putting the site into operation.

The results should be formed in a protocol, which should be one of the prerequisites for putting the site into operation.

The CONTRACTOR-DESIGNER expresses readiness for timely and adequate actions in case of establishing omissions, inaccuracies and deviations from the norms in the process of conformity assessment and approval by the competent authorities of the investment design.

*(stamp for for full design capacity; signed and stamped)*

COMPILED BY:

/eng. V. Krasteva/

April 2018, Botevgrad /Ch. Yonkolovska/

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