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| **PROJECT** | **HETEROTOPIAS. BOTEVGRAD-LESKOVAC**  Interreg - IPA CBC Bulgaria - Serbia 2014-2020 |
| **OBJECT** | **REALIZATION OF AN OPEN-AIR MUSEUM IN BOTEVGRAD** |
| **PART**  **PHASE** | 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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| Object code: B\_25 – 20180415 – 3E redaction№ 3\_\_B25 – 20200810\_3E |

**EXPLANATORY NOTE**

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| **PROJECT** | **HETEROTOPIAS. BOTEVGRAD-LESKOVAC**  Interreg - IPA CBC Bulgaria - Serbia 2014-2020 |
| **OBJECT** | **REALIZATION OF AN OPEN-AIR MUSEUM IN BOTEVGRAD. AMENDMENT** |
| **PART**  **PHASE** | IN HOSUNG ESTATE 49 CENTRAL CITY PART  BOTEVGRAD, MUNICIPALITY OF BOTEVGRAD, DISTRICT OF SOFIA  ELECTRICAL. FOR PLACEMENT PERMIT  DETAILED DESIGN |

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| Object code: B\_25 – 20180415 – 3E redaction№ 3 B 25 – 20200810\_3E |

The object "Realization of open-air museum" is an integral part of the project "Heterotopias.

Botevgrad - Leskovac. Interreg - IPA for cross-border cooperation Bulgaria - Serbia 2014-2020 ",

as well as the objects "Promotional Center" and "Clock Tower Botevgrad".

In order to realize the investment intention of the Contracting Authority, the Contractor – designer has prepared construction design documentation, representing an investment project within the meaning of the Spatial Development Act.

The present documentation is prepared for the investment intention. The project design for the object "Realization of open-air museum” has been developed in the conceptual design phase in parts “Architectural/ landscape architecture”, “Constructive”, “Electrical”and “Plumbing”.

The current project is part of part “Electrical” and is an integral part of the entire construction

site documentation.

The museum includes three areas - "Permanent Exhibition", "Temporary Exhibition" and "Lecturium"

**TECHNICAL PART**

The power supply of all luminaires is provided by the existing terminals for poles with street lighting and on a completely renovated road surface. The lighting poles are dismantled to their power cable with a socket, and new cables SVT 5x2,5mm2 are connected to the new lighting fixtures. Benchmarks should be put in places with couplings.

The control of the new lighting will be the same as for street lighting.

The excavations for the cables should be done by hand, due to the existing underground communications. Cables are pulled into a corrugated tube with steel tape.

For the exterior lighting, several types of lighting fixtures are installed with LED lighting fixtures installed in the pavement, park lighting fixtures with low columns and custom lighting fixtures will be provided behind the museum.

According to the same principle, power supply of illuminated information boards and showcases is provided.

It is planned to ground part of the lighting fixtures with one earthing pole each.

The transient resistance of the earthing switch must not exceed 10 ohms.

Behind the museum it is planned to install two lockable boards of the KAEDRA type with two sockets each. They are mounted behind the doors of the switchboard and will be used in the presence of the

staff. Their power supply is from a socket for contacts in the museum.

The sizing of the power cables is made according to the load, taking into account

the likelihood of simultaneous operation and existing street lighting, and according to existing Design standards. The cable cross-sections are checked for permissible voltage loss.

All power cords have five wires for lighting control.

**PART Occupational Safety and Health**

When performing the electrical installation, all the requirements for labor protection and safe work will be met.

The object is exterior artistic lighting of open spaces.

The lighting is made with LED luminaires. The degree of protection of all luminaires is IP65. The control of the lighting fixtures is performed in the same way as the control of the street lighting.

Electrical power supply is made with wire SVT 5x2,5mm2, drawn in corrugated pipes with steel strip laid in the trench.

When performing the electrical installation, all requirements for labor protection and safe work and the requirements under Ordinance No. Iz-1971 of 05.06.2010 will be met.

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

- TN-S system according to art. 155 of Ordinance №3 on the construction of electrical installations and power lines

The grounding measures taken in the project correspond to Chapter Seven of Ordinance №3 on the construction of electrical installations and power lines.

All electrical equipment provided in the project to be delivered with a certificate or permanently Indication of the corps guaranteeing the class of reaction to fire or explosion.

Cables with flame-retardant insulation and copper cores have been adopted in the project.

ASSESSMENT OF POSSIBLE HAZARDS

In the mode of operation of the site damage from electric current when touching exposed live parts or burns is possible due to the formation of arcs perforation of insulation or short circuits.

MEASURES FOR PREVENTION OF POSSIBLE HAZARDS

To ensure safety and hygiene at work, as well as fire safety during operation of the site, the following measures will be taken: When working on the electrical installation the relevant branch from the street lighting will be excluded. When using a moveable ladder other additional safety measures will be taken. When performing electrical work compliance with the requirements of the regulations in Ordinance No. Iz-1971, PPSTN and all current regulations for this type of work will be ensured. Electrical work 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 persons, one of whom must have at least a third qualification group. Before starting work, each cable line must be checked for the absence of voltage from both sides, ground and place a plate at the power supply point “Do not switch on! People are working! ”When carrying out the installation and commissioning works on the cable lines, the requirements for operation of the cable lines and underground electrical equipment from the “Regulations on labor safety during operation of the electrical equipment”- sections I, II, III and IV and Ordinance No. 3/2004 on the design of electrical installations and power lines. All persons involved in the installation work (when working with equipment with voltage up to 1000V) must have passed the Occupational safety test to have the necessary qualifications. Before starting work, to conduct instruction on site, obtain the necessary protective equipment, respectively checked for the given voltage, turn off the voltage, check the grounding and put in a visible place the following signs "Do not turn on, people work!" Use tools with insulated handles. Work should necessarily be performed by two people. The equipment should be positioned so that it is convenient to adjust. The connecting wires must be fastened firmly, not tangled and as short as possible.

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

When working with electrical equipment, the installer should familiarize himself with the instructions for working with it. Measurements should be performed with special purpose 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 needs to be used to protect personnel from electric shock are: insulation pliers, dielectric gloves, dielectric mats, Occupational safety signs (such as "Do not switch on! People are working!"). When carrying out the installation works on the site, 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 regulations and regulations valid at the time of construction. The results should be included 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 project.

COMPILED

*(sign and* *stamp for full design capacity of Violetka Atanasova Krysteva)*

/eng. V. Krysteva/

/Ch. Yochkolovska/