



**TITLE OF THE TENDER: “EXPANSION OF THE TRAMWAY DEPOT  
IN THE AREA OF ELLINIKO”**

**RFP-360/19 (Α.Σ. 86960)**

**CLARIFICATIONS DOCUMENT 1**



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This Clarifications 1 Document is issued in line with the provisions of paragraph 2.4 of the Invitation to Tender and contains responses to the questions submitted until 16.10.2020 in Section A, as well as 1 CD with drawings of existing projects and 2 attached files as described in Section B of this document.

The content of the Clarifications 1 Document constitutes an integral part of the Invitation to Tender.

### **A. RESPONSES TO QUESTIONS**

#### **Question 1**

In the document “Design, Performance, Materials and Workmanship Specification for: POWER DISTRIBUTION – LIGHTING / 4.5 PERIMETER LIGHTING OF THE LANDPLOT”, page 12/40, it is stated that:

“As long as the existing electrical installation can support the operation of all lighting fixtures (old and new) of the new fencing, these shall be connected to the existing electrical installation of the perimeter lighting. For this purpose, a design shall be submitted proving the adequacy of the cables, the adherence to the voltage drop limits etc. In this case, the high voltage and earthing networks shall be extended. Otherwise, the lighting fixtures of the new fencing shall be connected to the new switchboard, wherefrom the ON / OFF command shall be given for the lighting fixtures of the existing installation, using a cable other than the cable used to feed the lighting fixtures”.

Please provide us information about the existing Electrical installations (Plan Views, Switchboard Diagrams, Calculations).

#### **Response 1**

As concerns the information available to ATTIKO METRO S.A. until the present date, kindly see the CD (FileASB.LIG.DEPOT). As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.

#### **Question 2**

In the document “Design, Performance, Material and Workmanship Specification for: POWER DISTRIBUTION – LIGHTING / 4.5 PERIMETER LIGHTING OF THE LANDPLOT”, page 16/40, it is stated that:

“a. Switching ON and OFF the lighting fixtures of the atrium lighting and the lighting of the Depot perimeter, as configured in its new form, shall take place along with the lighting fixtures of the existing installation of the perimeter lighting.

b. Switching ON and OFF the lighting fixtures of the general lighting of the shed shall take place by operating 3-position (ON-OFF-AUTO) switches, either from the switchboard (ON and OFF), or remotely via the existing BMS system and/or from another point of operation or automation (position AUTO). To this end, the BMS system shall be extended via a new installation or by modifying the existing BMS system, enabling it to also control – monitor the aforementioned lighting fixtures. The distribution of the lighting fixtures, their separation into different circuits and their controls shall enable the lowering of the shed’s lighting level as a percentage (0.5, 0.25) of the full lighting, maintaining at the same time a satisfactory level of uniformity, either locally or remotely”.

Please provide us details about the existing BMS system (Plan Views, Diagrams, List of control points, Manufacturer, type of equipment etc.).

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**Response 2**

As concerns the information available to ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. until the present date, kindly see the CD (File ASB.BMS.DEPOT.LIG.DEPOT). As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow..

**Question 3**

In the document “Design, Performance, Material and Workmanship Specification for: POWER DISTRIBUTION – LIGHTING / 8 DISTRIBUTION NETWORK – SWITCHBOARDS 8.1 POWER SUPPLY - DISTRIBUTION”, page 22/40, it is stated that:

“A new automatic electronic switch as well as the necessary monitoring and control tools shall be installed on the existing General Low Voltage Switchboard (GLVS)”, similar to or fully compatible with the tools meant to control and monitor the existing lines,.

Please provide details about the existing GLVS (Diagrams, Manufacturer, type of breakers etc.).

**Response 3**

As concerns the information available to ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. until the present date, kindly see the CD (File ASB.LIG.DEPOT). As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.

**Question 4**

In the document “TECHNICAL DESCRIPTION 3.1.12 Connection with the Public Utility Networks (PUOs)”, page 19/47, it is stated that:

“All structures of the Project shall be connected with DEDDIE, OTE, water supply, sewage, etc. networks”.

Our understanding from the above is that the Contractor is responsible to connect the interior network with the respective termination of the network to be brought by the respective PUO to the building line of the Tramway Depot.

Please confirm that the connection costs and fees payable to the respective PUO shall be covered by ΑΤΤΙΚΟ ΜΕΤΡΟ S.A..

**Response 4**

The subject reference in the Technical Description document concerns the permanent connections of the structures -upon their completion- with the respective PUO networks.

In this case, the Contractor is indeed responsible to connect the interior network that he shall construct with the respective termination of the network to be brought by the respective PUO to the building line of the Tramway Depot, while for the respective connection costs and fees applicable shall be the stipulations of the Conditions of Contract document, Article 6 “Lump Sum Price”, paragraph 6.2, iii, (c).

Note that as regards the worksite connections with the PUOs, applicable shall be the stipulations of Article 6 “Lump Sum Price”, paragraph 6.1, ii, (b) and of Article 28 “PUO Connections - Access Roads – Worksite Signage” of the Conditions of Contract.

**Question 5**

In the document “TECHNICAL DESCRIPTION 3.1.14 Irrigation Shaft\_Water Jet Drilling, page 20/47, it is stated that:

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“The area of the Depot to be expanded accommodates the irrigation shaft (well), which serves the water supply related needs of the wider area, along with the needs of STASY S.A.

The scope of this Project includes the construction of a new water-jet drilling, for the irrigation and water supply needs, that shall serve the needs of STASY S.A. at a location to be indicated by ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. in cooperation with STASY S.A. The Contractor shall proceed with all necessary actions with ΑΤΤΙΚΟ ΜΕΤΡΟ S.A.’s support to obtain the required relevant permits for the execution and operation of the subject water-jet drilling by the agencies involved.

Especially, with regard to the execution of the water-jet drilling, a permit is required in accordance with the provisions of the Joint Ministerial Decision No. οik 146896/17.10.2014 “Categories of permits for the use and execution of works using water. Procedure and terms for the issuance of permits, content and duration and other related provisions”, as amended and applicable to the present date.

Moreover, the Contractor shall proceed with all required actions, in accordance with the applicable legislation, related to the procedure for the issuance of environmental permits, if required, for the execution and operation of the subject water jet drilling”.

You are kindly requested to provide us the current irrigation and water supply demand, as well as the technical details (drilling depth, quantity of water draw per year, pumps capacity) for the existing water jet drilling.

### **Response 5**

According to the stipulations in the Technical Description document, specifically in Article 3 “DESCRIPTION OF CIVIL WORKS AND TRACKWORK”, paragraph 3.1.14 “Irrigation Shaft – Water Jet Drilling”, the Contractor shall see to the complete sealing of the subject shaft – height-wise - and then to the creation of a new water jet drilling as described in the subject paragraph, as well as in Article 01052 “Water Jet Drilling” of the document “Materials and Workmanship Specifications for Civil Works”.

For information purposes, it is stated that the depth of the existing shaft is estimated to be approximately 10m from the ground surface, its diameter is approximately 2m and is used to fulfil the Depot needs (train washing, irrigation of green areas etc.).

### **Question 6**

In the document “TECHNICAL DESCRIPTION 3.1.14 Irrigation Shaft\_Water Jet Drilling”, pages 20/47 and 21/47, it is stated that:

“The Contractor shall proceed with all necessary actions with ΑΤΤΙΚΟ ΜΕΤΡΟ S.A.’s support to obtain the required relevant permits for the execution and operation of the subject water-jet drilling by the agencies involved.

Especially, with regard to the execution of the water-jet drilling, a permit is required in accordance with the provisions of the Joint Ministerial Decision No. οik 146896/17.10.2014 “Categories of permits for the use and execution of works using water. Procedure and terms for the issuance of permits, content and duration and other related provisions”, as amended and applicable to the present date.

Moreover, the Contractor shall proceed with all required actions, in accordance with the applicable legislation, related to the procedure for the issuance of environmental permits, if required, for the execution and operation of the subject water jet drilling”.

Our understanding is that the above refer to the Contractor’s assistance and support to ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. in obtaining the relevant permits, while the relevant cost for the issuance of these permits shall be borne exclusively by ΑΤΤΙΚΟ ΜΕΤΡΟ S.A.

Please confirm.

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**Response 6**

Your understanding is not confirmed.

Applicable shall be the stipulations of the document “TECHNICAL DESCRIPTION 3.1.14 Irrigation Shaft – Water Jet Drilling”.

As regards the issuance of any type of permit, applicable shall be the stipulations of the Conditions of Contract, Article 1 “Scope of the Project”, paragraph 1.3, 1.3.1, as well as the stipulations of Article 2 “BRIEF DESCRIPTION OF THE PROJECT SCOPE”, paragraph 2.2 “Preliminary Works” of the Technical Description document.

Therefore, the subject expenses are included in the Lump Sum Price (LSP) and shall be borne exclusively by the Contractor in accordance with the provisions of the Conditions of Contract, Article 6 “Lump Sum Price”, paragraph 6.1.

**Question 7**

In the document “TECHNICAL DESCRIPTION 3.6 Works inside the Running Shed – Inspection Pits, page 27/47, it is stated that:

“The Contractor shall execute Civil and E/M Works inside the Tramway Depot current Running Shed, in the areas of tracks 2, 5, 6 and 7. More specifically:

A. Track 7

All along the entire length of track 7, a new inspection pit shall be constructed...”

Please provide all technical information on the existing networks of the Running Shed which shall serve the new pits, such as:

- Plan view drawings of the following installations: Water Supply, Compressed Air, Sewage-Drainage of industrial waste
- Electrical plan view drawings showing tray routing, Diagrams of the Switchboards feeding the new pits and Technical details of the Lighting and Earthing equipment.

**Response 7**

As concerns the information available to ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. until the presente date, kindly see the CD (Filesplu.Rev.0 WATER SUPPLY, ASB.DRN.DEPOT RAINWATER DRAINAGE – RAIN WATER SEWAGE, ASB.INDUSTRIAL WASTES, ASB.WAW.DEPOT.SEWAGE, ASB.LIG.DEPOT - LIGHTING, ASB.LVS.DEPOT – LOW VOLTAGE ASB.LVS.LIGHTNING ROD). As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow. .

**Question 8**

In the document “TECHNICAL DESCRIPTION/DESCRIPTION OF THE ELECTROMECHANICAL SYSTEMS” 4.1.9 Fire Protection, page 38/47, it is stated that:

*“The Contractor shall design, install and test an active fire protection system in the new stabling area, which (system) shall include a wet pipe fire fighting system, to be used by the personnel or by the Fire Department, as well as portable fire extinguishers properly located in the new building, as required. The new wet pipe fire fighting system shall be connected with the existing fire fighting collector located at the respective pumping station”.*

Please provide plan views and diagrams of the existing Pumping Station for Fire Fighting.

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**Response 8**

As concerns the information available to ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. until the present date, kindly see the CD (Files ASB.FPS.DEPOT and ASB.FDS.DEPOT). As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.

**Question 9**

Please provide in editable format (DWG) all drawings that you have provided in PDF format. Moreover, please provide document RFP-360-19\_DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR TRACKWORK in English.

**Response 9**

According to article 2.1 of the Invitation “...the Drawings of the Technical Description’s Appendix (item e) shall be made available also in dvd (.pdf and editable format) by ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. and all interested parties can be supplied with same at the postal address referred to in paragraph 1.3 of this Invitation, further to pertinent communication...”. Moreover, as regards the English translation, please be informed that you have already received all available documents translated in English .

**Question 10**

In the document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR E/M AND RAILWAY SYSTEMS / CCTV SYSTEM / 7.7.3 NETWORK INFRASTRUCTURE”, page 146/174, it is stated that:

“The switches shall be of the industrial (outdoor) and modular type and shall accept various types of cards / interface units, providing flexibility in their customization”.

Please confirm that the switches that can be used shall be only of the modular type.

**Response 10**

The Contract documents are clear and are in effect as they stand. The switches – if installed outside building structures – shall satisfy the aforesaid requirements.

**Question 11**

In the document “TECHNICAL DESCRIPTION / DESCRIPTION OF E/M SYSTEMS 4.1.13 Wi-Fi Networks”, pages 41/47 and 42/47, it is stated that:

“The Contractor shall install an independent wireless local network (Wi-Fi technology) in the new vehicles stabling area, in order to ensure communication and a bi-directional data transfer between (old and new) Tramway vehicles to/from the recently installed upgraded Telematics system in the OCC. The wireless network shall be fully compatible with the equipment installed in vehicles and with the central Telematics system. The Contractor shall design and supply all required materials (transmitters, access points etc.) and accessories (cabinet, converters, switches, cables, supports, routing etc.) for smooth connection with the OCC”.

Please provide us technical details on the existing installed Telematics system (Manufacturer, type of equipment, Diagrams etc.).

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### **Response 11**

Sufficient information has already been provided in the Section B of this document describing the existing systems. Besides, the subject system is new and the interfaces with the Telematics system pertain to the requirement for the new system to be of open architecture, so that communication with the Telematics system is facilitated. As concerns the initial information of the Telematics, see the CD.

As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.

### **Question 12**

In the document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR E/M AND RAILWAY SYSTEMS / Wi-Fi SYSTEM / 3 3.12 SPECIFICATIONS FOR OUTDOOR Wi-Fi DEVICES”, on page 120/174, it is stated that:

*“Wi-Fi infrastructure shall give priority to urgent information. For this reason, it shall have data recognition and transmission prioritization mechanisms, so that sensitive information is recognized and receives a higher priority”.*

The “Quality of Service - QoS” mechanisms must be supported end-to-end on the network in order to be implemented. Please clarify whether the existing equipment (Wi-Fi Client, interior network etc.) supports the QoS or not.

If yes, the customization of the existing equipment falls under ATTIKO METRO S.A.’s responsibility or not?

Please clarify.

### **Response 12**

The overall customization and the smooth operation of the equipment constitute the Contractor’s responsibility. Sufficient information has already been provided in Section B of this document describing the existing systems.

### **Question 13**

As known, the Tramway Depot as well as its expansion, which constitute the scope of this Tender, are located within the Elliniko area of investment. Given that the environmental permit for the Tramway construction -which also includes the current expansion- has been approved since 2012 (Ministerial Decision No. 203853/14-12-2012), please inform us if there are any conflicts between the environmental permit for the tramway construction and the environmental permit for the investment in Elliniko area. Any such conflicts shall generate delays and failures in approving the permits required for the completion of the Project.

### **Response 13**

Applicable are the stipulations of the Document “GENERAL SPECIFICATIONS”, GS0180, STUDIES & MEASURES FOR DEALING WITH THE ENVIRONMENTAL IMPACT DURING CONSTRUCTION”, paragraphs 2.4., 2.6 and 2.7.

### **Question 14**

In view of feeding the contact line in the Depot expansion, large cross section cables shall be required to run underground from the area of Substation 15 to the area of this expansion. The subject cables shall have to pass through the turnout assembly in the existing stabling area of the Depot.



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Please clarify whether the subject cable routing shall be constructed by means of an open cut excavation through the turnout assembly area.

### **Response 14**

The required preliminary routing is shown on the contractual drawing S3GFDDRELTDPSTDI001A. At the DFD stage, the Contractor shall examine and evaluate the possibility to use existing in the depot manholes and underground routing of power cables; wherever this is not feasible, this routing shall be implemented by means of an open cut excavation, within in cable ducts to be installed by the Contractor and at a depth to be coordinated with the other networks and infrastructure of the depot. The execution of any works shall not disrupt the operation of the depot.

### **Question 15**

In document TR\_S\_DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", in paragraph 2.2, it is stated that *"In order to implement the aforementioned interventions, an overall upgrade of the SCADA system is required (hardware & software) of Substation No. 15, at a level enabling is to be functionally interfaced with the new and modern SCADA system, which has been designed and shall be installed by the Contractor of the Tramway extension to Piraeus"*. Given the multitude and the importance of the interfaces, a large amount of technical data is required concerning the already installed equipment or the equipment to be installed, in order to determine the technical solution; this type of data are not included in documents provided to us. More specifically, at least the following information is required, which, once provided, may generate additional questions:

- i. Detailed technical description of the already installed SCADA system, or the SCADA system to be installed in the OCC
- ii. Technical details of the OCC equipment related to the communication with the substations, including the following:
  - Network architecture at a local and central level, for the existing SCADA system or the SCADA system to be installed
  - Technical description at a local and central level of the existing SCADA system or the SCADA system to be installed
  - Technical description of the Traction Power equipment communication
  - Detailed technical description and data related to the communication with the substation computer
  - Detailed technical data of the CPUs used for this communication
  - PLC Functional Logic diagrams
  - PLC manufacturer and type
  - Routers / Switches manufacturer and type
  - Protocols of communication between the OCC and the station computer
  - Protocols of communication between the substation Server and the equipment
  - List of signals for substation 15 and each signal's transmission method
  - System expandability
- iii. Detailed data for the software used to display and control the substations' equipment, such as:
  - Software manufacturer and release
  - System operation manuals so as to verify if it is possible (and how) to add new equipment items from/by another manufacturer, or if this can be implemented only by the original manufacturer
  - Protocols of communication with the Server of substation 15

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- Requirements for equipment tagging
  - System expandability
- iv. Constraining technical data related to the interface with the existing system, such as cables, fiber optics, data cables etc. that must be used, based on the SCADA equipment installed or to be installed in the OCC.

### **Response 15**

According to article 4.1.1 of the Technical Description, the SCADA related scope of works constitutes an obligation of the Contractor of the Tramway extension to Piraeus, who shall install in the OCC a new SCADA system, which shall supervise and control the traction system and the traction Substation for the entire Depot. Thus, once the respective design is completed by the Contractor of the Tramway extension to Piraeus it shall then be provided to the Contractor of this contract.

### **Question 16**

In the document TR\_S\_DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", in paragraph 2.1, it is stated that:

- i. A new field for the overhead contact line feed shall be added and connected on the existing General DC Switchboard (750V DC) as an extension of the busbar of the switchboard already feeding the Depot.*
- ii. Additional equipment for the termination and connection of new return cables shall be installed on the Return Current Main Switchboard.*
- iii. Installation and termination of the new feeding and return cables to and from the new stabling lines of the Depot.*
- iv. Modifications and additions of equipment, cabling and software for the connection of the new Traction equipment with the new SCADA system of the Tramway and modifications to the existing SCADA system”.*

Given the multitude and the importance of the interfaces, a large amount of technical data is required concerning the already installed equipment or the equipment to be installed, in order to determine the technical solution; this type of data are not included in documents provided to us. More specifically, at least the following information is required, which, once provided, may generate additional questions:

- i. As regards the General DC Switchboard (750V DC):
  - Technical description of the Traction Power system
  - Technical description of the data transmission system
  - Specifications and MSS of the entire existing equipment of the Traction Power system (manufacturer, technical data etc.)
  - Specifications and MSS of the data transmission system
  - Circuit diagrams for all existing equipment in substation 15, which communicates with SCADA system (DC switchboard, MV switchboard, rectifier, auxiliary voltage supply, transformer etc.)
  - Mechanical drawings of the General DC Switchboard (750V DC)
  - Logic diagrams for all existing equipment of the Traction Power system
  - Logic diagrams and IP addresses assignment for all existing equipment of the SCADA system, both at a local and central levels
  - Logic diagrams for PLCs and/or relays, where used and communicating with the SCADA system
  - manufacturing firm and type of logic controllers (PLC) and/or relays, where used and communicating with the SCADA system

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- manufacturing firm and type of routers (Router / Switches) that may be used
  - Communication protocols of logic controllers (PLC) and/or relays, where used and communicate with the SCADA system.
- ii. For the traction system, in general:
- Drawings for the routing of power supply cables (traction, LV, MV) and control in and out of the substation.
  - Earthing drawings
  - Architectural “AS BUILT” drawings of the Substation.

### **Response 16**

As concerns the information available to ATTIKO METRO S.A. until the present date, kindly see the CD File ASB.EPS.DEPOT. As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow. (

### **Question 17**

In the document Technical Description, in paragraph §4.1.1 (page 34/47), it is stated that: “...so that the Substation of the Depot... both at a local and central level”. Please clarify the point and the limits of the operational interface between the this contract and the contract for the Tramway extension to Piraeus.

### **Response 17**

The Depot Substation is currently supervised and controlled by the old SCADA system. The Contractor of the Tramway extension to Piraeus shall install a new parallel SCADA system (for the extension to Piraeus).

The Contractor of this contract shall prepare all necessary designs and shall execute all necessary works, so that the Substation and the traction system of the Depot (including also the new shed and other items foreseen by this Tender) be supervised and controlled by the new SCADA system, by de-activating the old one.

### **Question 18**

In the document TR\_S\_DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", in paragraph 2.1.1.3, it is stated that "*The following additional equipment shall be installed in the General Return Switchboard:*

- *2 new shunts shall be added and connected on the bus bar*
- *60mV, 2000A*
- *2 additional ammeters 0-2 kA shall be mounted and connected on the face of the switchboard*
- *various fittings for the connection of the new return cables shall be fitted and connected in the cable connection area*
- *updated mimic diagram on the face of the switchboard”.*

Please clarify whether the additional equipment to be installed is foreseen to be fitted on the existing General Return Switchboard, or whether an additional field is required. If a new field is required, please confirm that the existing space in the substation is sufficient. If the equipment is foreseen to be installed on the existing switchboard, please confirm that the required space is available for the installation of the necessary materials.

### **Response 18**

During the preparation of the Detailed Final Design by the Contractor, it shall be decided whether an additional field shall be required or not, for which the existing space in the substation shall be used, following the appropriate modifications and interventions.

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The relevant layout is also shown on the contractual drawing S3GFDDRELTDPTEPSEQ001A.

**Question 19**

In the document TR\_S\_DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", in paragraph 2.1, it is stated that:

*“i. The General DC Switchboard (750V DC) shall be fitted with a new field for the supply of the overhead contact line, as an extension of the busbar of the switchboard already supplying the Depot”.* Please confirm that the available space is sufficient within the substation and near the switchboard, at the point where it should be extended,. Otherwise, please specify the installation conditions.

**Response 19**

Kindly see Response #18.

**Question 20**

In the document TR\_S\_DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", in paragraph 2.1, it is stated that: *“...With the appropriate modification of the software of the existing SCADA system, substation No. 15 shall appear as non existing (or as inactive) and it shall not be possible to further survey or control the subject Substation by the existing SCADA system at local or central level”.* Please confirm that the modification of the existing SCADA system does fall under the scope this contract.

**Response 20**

Kindly see Response #17.

**Question 21**

In the document TR\_S\_DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", examples are given in paragraph 3.12 for the construction/configuration of the console. Please clarify whether the referenced details are indicative and can be modified in accordance with the proposed Detailed Final Design or if they are restrictive.

**Response 21**

The referenced details are indicative and, during the preparation of the Detailed Final Designs, the requested layout shall derive and it shall be approved by ATTIKO METRO S.A..

**Question 22**

In the document TR\_S\_DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", in paragraph 3.12, it is stated that: *“concrete poles of standard construction “PPC type” shall be used”.* Please clarify whether the concrete poles type is restrictive or whether we can use standardized steel poles, HEB or HEA type depending on the Detailed Final Design.

**Response 22**

Specification TR\_S\_ DP342400 "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE", which forms part of the document titled “Design, Performance, Materials and Workmanship Specification for Railway Systems”, is binding.

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### **Question 23**

In the document TR\_S\_DP342400 - "TRACTION POWER SYSTEM AND OVERHEAD CONTACT LINE ", in paragraph 2.1.1.1, it is stated that: "It shall be tested to withstand internal arc at least in the cable connection compartment". Please confirm that this requirement refers only to the new field and is not required to be repeated for the entire switchboard. If there is a relevant certificate, please also clarify whether the subject test should be repeated or whether the submission of such certificate is sufficient.

### **Response 23**

It is confirmed that the subject requirement refers only to the new field. Only if there is a relevant certificate in a similar field, is it sufficient to submit it.

### **Question 24**

Document TR\_S\_DP270002 - CCTV and as regards Article 2.4, please clarify the bandwidth requirements and identify the applications to use the Wi-Fi network. In case on board CCTV recording files must be downloaded, please define the video quality and the size of the files to be received on a daily basis from each train.

### **Response 24**

Currently, the 34 old Tramway vehicles do not feature cameras, while the 25 new ones are equipped with cameras and store video files to an onboard medium. There is no requirement for automatic – wireless downloading of the vehicles' video files. Nevertheless, at a special occasion, the need for downloading a High Definition individual video file may emerge.

### **Question 25**

Document TR\_S\_DP015250 – “SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID”, Article 1.3, please confirm the SIL safety level for signaling and point machines, Depot management and train identification.

### **Response 25**

Signalling and Point Machine Control System: SIL-3  
Depot Management System: SIL0  
RFID: SIL3  
Point Machines: SIL3  
Track Circuits, Mass Detectors: SIL2.

### **Question 26**

Document TR\_S\_DP015250 – “SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID” and in particular Article 1.3.8, please clarify whether the scope of works pertains to the entire Depot, including the existing installations.

### **Response 26**

In Article 1.3.8 of document TR\_S\_DP015250 – “SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID”, reference is made to the installation of one (1) new traffic light and to the repositioning of one (1) existing traffic light. With regard to the scope of works pertaining to the new traffic light, this includes its supply, installation and operation along with all its interfaces (as required) with the new and the existing signaling system. With regard to the scope of works pertaining to the existing traffic light, this includes its removal and re-installation at the new location that shall be defined in the DFD for the

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signaling system. The scope of works also includes, if required, any new interface with the new signaling system of the Depot expansion.

### **Question 27**

Document TR\_S\_DP015250 – "SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID", Article 1.3.9.1, please clarify the term “history and analysis data” and provide more information about the “special application”: is it a part of the scope of this contract or is it provided by third parties? If provided by third parties, please make available detailed data of the application and the required interface.

### **Response 27**

The scope of the contract includes the supply, installation and operation of the Depot Management System (DMS), as well as any necessary interface with the new or the existing signaling and point machine control system.

The DMS shall record the users actions and the field status (where the proper interface is available) in log files – timestamp recording. Moreover, it shall record vehicle details (e.g. covered kilometers) for further processing, to the level of automation permitted by the system.

The scope of the contract includes the supply, installation and operation of a (sub-)system, integrated into the DMS, or a commercial product by a third party, which shall execute the history and data analysis functions, as previously described not restrictively.

### **Question 28**

Document TR\_S\_DP015250 – "SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID", Article 1.3.1, please further clarify the basic signaling principles applied to the Tramway and provide us with a copy of the “Tramway Operation Regulation”.

### **Response 28**

The basic signaling principles applied to the Athens Tramway network are the rules of the “German Regulation for the Construction and Operation of Light Railway Transportation Systems – BOStrab” for driving trams on sight, known as “line-of-sight driving principle” in the international bibliography.

Moreover, all rules are applied concerning the priority of the Tramway vehicles, in cases of mixed and/or exclusive Tramway vehicles’ traffic.

The Tramway Operation Regulation and the approval of the tramway drivers’ shifts regulating document are attached to this document (in Sections B).

### **Question 29**

Document TR\_S\_DP015250 – "SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID", Article 1.3.9.1, please clarify the interfaces with other systems. More specifically, present in detail the communication protocols in terms of hardware and software.

### **Response 29**

The Depot Management System (DMS) shall be interfaced with the RFID and their interface shall be determined by the Contractor/Supplier of the associated systems.

The DMS shall be interfaced with the new Signalling and Point Machine Control System and their interface shall be determined by the Contractor/Supplier of the associated systems.

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The DMS shall be also interfaced with the existing Signalling and Point Machine Control System and their interface shall be implemented by the Contractor based his proposed technical solution. The DMS is expected to receive signals concerning the status of the existing field equipment. As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.

### **Question 30**

Document TR\_S\_DP015250 – "SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID", Article 1.3.9.2, please provide detailed information about the existing train identification system.

### **Response 30**

Currently, there is no automatic train identification system in the Depot. Only some of the 34 old vehicles are equipped on-board with an RFID system (the subject equipment has been either dismantled, or lost or damaged). This system has been designed to operate with terminal stops, while the Contractor shall inspect and utilize it, if so chooses. As regards the 25 new vehicles, the Contractor shall install his own new train identification system on these vehicles. Both these groups of vehicles shall cooperate with the new automatic train identification system to be supplied, installed and commissioned by the Contractor in the Depot. As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.

### **Question 31**

Document TR\_S\_DP015250 – "SIGNALING AND POINT MACHINE CONTROL SYSTEM & DEPOT MANAGEMENT SYSTEM & RFID", Article 1.3.9.2, please clarify the term “optimum flow of manoeuvres and movements in the Depot” and provide details about the interface with the existing train identification system.

### **Response 31**

The term “optimum flow of manoeuvres and movements in the Depot” means the regulation of Tramway vehicles’ movements. The purpose of the DMS is to facilitate the traffic regulators, so that parking and re-routing of vehicles does entail complicated and useless manoeuvres.

Please also note that currently there is no train identification system in the Depot (see also response No. 30).

### **Question 32**

In the Technical Description, Article 4.1.13 “Wi-Fi Networks” it is stated that “The wireless network shall be fully compatible with the equipment installed in the vehicles and with the central Telematics system”. Please provide detailed information about the equipment installed in the vehicles and about the central Telematics system.

### **Response 32**

Kindly see Response #11.

### **Question 33**

TECHNICAL DESCRIPTION (page 4, paragraph 2)

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"... on eleven (11) parallel new ballasted tracks, each one being able to accommodate two (2) vehicles – lengthwise..."

In document TRSDP340000 "DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR TRACKWORK", page 70, the train length that you indicate is 32.64m. Which operational length should we take into account in addition to  $2 \times 32.64 = 65.28\text{m}$ , in order to confirm the correctness of the original design?

### **Response 33**

The minimum length between two (2) consecutive stationary vehicles is 1.5m, as also shown on the relevant drawing.

### **Question 34**

TECHNICAL DESCRIPTION (pages 5-6, paragraph 2.1)

2.1 Survey Works and Designs

"The Contractor shall proceed with further survey work and designs in order to prepare the Detailed Final Design (DFD) of the Project..... The survey work and designs... shall include the following items, as a minimum:"

How will these additional "survey works and designs" be compensated?

### **Response 34**

According to the stipulations of the Technical Description, Article 2 "BRIEF DESCRIPTION OF THE PROJECT SCOPE", paragraph 2.1 "Survey Works and Designs", as well as of the Conditions of Contract, Article 1 "Scope of the Project", paragraph 1.2, the scope of the Project also includes –inter alia- the "Survey Works and Designs".

Therefore, the respective cost is included in the Lump Sum Price in accordance with the stipulations of the Conditions of Contract, Article 6 "Lump Sum Price", paragraph 6.1.

### **Question 35**

TECHNICAL DESCRIPTION (pages 5-6, paragraph 2.1)

2.1 Survey Works and Designs

"The Contractor shall proceed with further survey work and designs in order to prepare the Detailed Final Design (DFD) of the Project..... The survey work and designs... shall include the following items, as a minimum:"

How much binding is the information provided in the Contractual Documents? For example, can the Contractor change the geometry of the turnouts?

### **Response 35**

Paragraph 23.2.3 of the CC reads as follows: ".....It is stressed that the geometrical dimensions and/or quantities foreseen by ATTIKO METRO S.A.'s Tendering Design are indicative and that the final dimensions shall ensue from the approved Detailed Design."

Therefore, modifications are possible to the dimensions, the cross sections of members, etc. which are listed in the Design of ATTIKO METRO SA., during the preparation of the DFD by the Contractor; however, all requirements stipulated in the Contractual Documents must be fulfilled, regarding the configuration, the technical requirements of the bearing structure and the quality of the materials to be utilized.

More specifically, however, with regard to the example of the geometric characteristics of the turnouts, any change whatsoever can be made only after the Contractor has submitted a Request for Technical Deviation, along with the proper documentation of this requirement and after the relevant approval by ATTIKO METRO S.A..



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**Question 36**

TECHNICAL DESCRIPTION (pages 5-6, paragraph 2.1)

2.1 Survey Works and Designs

"The Contractor shall proceed with further survey work and designs in order to prepare the Detailed Final Design (DFD) of the Project..... The survey work and designs... shall include the following items, as a minimum:"

If demonstrated that the vehicles' construction gauge – increased by the respective jerks due to horizontal curves – with the adjacent fixed structures is insufficient, will the contractor be burdened with the anticipated cost of the new designs and of the eventual modifications to the initially foreseen construction works?

**Response 36**

It is the Contractor's obligation to prepare the vehicle gauge control design, which must be prepared prior to the designs of the new structures. Thus, the Detailed Final Designs which specify in detail the subject structures, adapting accordingly the contractual drawings, shall be prepared based on the aforementioned control and this also constitutes the Contractor's responsibility.

**Question 37**

TECHNICAL DESCRIPTION (pages 5-6, paragraph 2.1)

2.1 Survey Works and Designs

"The Contractor shall proceed with further survey work and designs in order to prepare the Detailed Final Design (DFD) of the Project..... The survey work and designs... shall include the following items, as a minimum:"

What do you mean when you state "Inventory of existing features and design for the integration of the new tracks into the existing network"? Our underline.

**Response 37**

We mean any action required for the proper construction of the new tracks to be fully integrated -in terms of operation- into the Depot's track network.

**Question 38**

TECHNICAL DESCRIPTION (pages 5-6, paragraph 2.1)

2.1 Survey Works and Designs

"The Contractor shall proceed with further survey work and designs in order to prepare the Detailed Final Design (DFD) of the Project..... The survey work and designs... shall include the following items, as a minimum:"

Will the contractor pay all required designs for PUO diversions, geotechnical designs, structural designs, designs for soil improvement for temporary and permanent drainage, for floor protection etc. without receiving the respective compensation from ΑΤΤΙΚΟ ΜΕΤΡΟ S.A.? If additional structures are required, how will they be compensated?

**Response 38**

The Scope of the Project includes all required designs and related Civil Works, as well as works related to E/M and Railway systems, as stated in the Technical Description document, Article 2, "BRIEF DESCRIPTION OF THE PROJECT SCOPE", Article 3 "DESCRIPTION OF CIVIL WORKS AND TRACKWORK", Article 4 "DESCRIPTION OF THE

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ELECTROMECHANICAL SYSTEMS”, as well as in the Conditions of Contract document Article 1 “Scope of the Project”. Thus, the referenced designs and the respective resulting works are included in the Lump Sum Price (LSP).

### **Question 39**

TECHNICAL DESCRIPTION (page 7, paragraph 2.3)

“It is stressed that the implementation of the Project calls for the performance of any works that may be deemed necessary for the investigation of the area and the removal of any ammunition.... Both the investigation and removal of the ammunition shall be performed by TENX - the special Greek Army Unit”.

How exactly is the Contractor involved in this procedure and how is the safety of personnel ensured in such special conditions?

### **Response 39**

In areas where TENX – the special Greek Army Unit is involved, the Contractor shall be promptly informed and shall fully comply with ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. instructions/orders, provided in communication with TENX.

### **Question 40**

TECHNICAL DESCRIPTION (page 7, paragraph 2.5)

"In addition, a Track Interconnection Design shall be prepared recording in detail the existing tracks at their connection points with the new ones, aiming at confirming the proposed alignment and determining the construction methodologies, the required adjustments as well as their coordination with the remaining systems".

What exactly do you mean by the phrase "...determining the construction methodologies...?"

### **Response 40**

We mean the determination of the types of tracks and the sequence of construction works at the interconnection points.

### **Question 41**

TECHNICAL DESCRIPTION (p.22 para. 3.2.1.2 Track bedding)

" The ballasted rails at the Depot expansion shall be seated on sleepers of the following types: (a) prestressed concrete monoblock sleepers for plain tracks, and (b) wooden sleepers for turnouts”.

The DESIGN, PERFORMANCE, MATERIALS & WORKMANSHIP SPECIFICATION FOR TRACKWORK reads as follows in p. 103, para 1.3 :DESIGN CRITERIA”: " Turnouts shall have the following main characteristics:...g) In ballasted track, prestressed concrete bearers shall be used. In unballasted track, prestressed concrete bearers or direct fixation design or embedded rails shall be used ....”. Given that there is a great price variation for the procurement of the turnouts and the construction of the line depending on type of sleepers to be finally used, kindly inform us about your intended type of sleeper.

### **Response 41**

Since the Trackwork Specifications concern the entire Tramway Project, the subject question wrongly refers to a clause of the Design and Performance Specifications for the Main Line and not for the Depot. The stipulations in the Technical Description shall be also adhered to.

### **Question 42**

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TECHNICAL DESCRIPTION (p. 25 paragraph 3.3)

Asphalt Road Paving Layers

" The thickness of the road pavement shall be 0.40m, ..."

The layers' description shown two asphalt layers 0.05m thick and two "road base layers" 0.10m thick, i.e.,  $2 \times 0.05 + 2 \times 0.10 = 0.30\text{m}$ . Which of the two road pavement thicknesses is valid?

### **Response 42**

Applicable are the stipulations of the Technical Description document, Article 3 "DESCRIPTION OF CIVIL WORKS AND TRACKWORK", paragraph 3.3 "Roadworks – Perimeter Road to Aghia Paraskevi Church".

#### "...Asphalt Road Paving Layers

Taking into account that no considerable loads are expected, the thickness of the road pavement shall be 0.40m, layered as follows:

- One asphalt layer, 0.05m thick.
- One base asphalt layer, 0.05m thick.
- Two road base layers (bottom and top), 0.10m thick each.
- One road sub-base layer, 0.10m thick..."

i.e.  $2 \times 0.05 + 2 \times 0.10 + 1 \times 0.10 = 0.40\text{m}$ , therefore the thickness of the road pavement was correctly set to 0.40m.

### **Question 43**

SCC (p.4 & 5, Article 1.3)

In addition, in the framework of the implementation of the Project, the following shall be also included:.....

1.3.1 The issuance of any kind of permits, as and where foreseen by the Legislation and deemed necessary for the execution of the Project.

Please clarify the type of permits anticipated to be required, since the documents show an additional need for the renewal of the Environmental Terms Approving Decisions (AEPO), they expire in 2022, and there will be a need for issuance of licenses permits for PUO networks relocations. The above, since the issuance cost and time must be taken into account in the drafting our cost analysis as well as in the time schedule and the volume of the required permits is sizable enough taking also into account the fact that you require them all to be issued by the contractor.

### **Response 43**

The Scope of the Project includes, inter alia, the issuance of any type of permit, in accordance with the stipulations of the Conditions of Contract document, Article 1 "Scope of the Project", paragraph 1.3.1, and of the Technical Description document, Article 2 "BRIEF DESCRIPTION OF THE PROJECT SCOPE", paragraph 2.2 "Preliminary Works".

Therefore, the subject cost is included in the Lump Sum Price in accordance with the stipulations of the Conditions of Contract document, Article 6 "Lump Sum Price", paragraph 6.1.

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Moreover, as regards the preparation of the Time Schedule of the Project, applicable shall be the stipulations of the Conditions of Contract, Article 1 “Scope of the Project”, paragraph 1.3.1, as well as of the “GENERAL SPECIFICATIONS”, GS0180 “STUDIES & MEASURES FOR DEALING WITH THE ENVIRONMENTAL IMPACT DURING CONSTRUCTION”, paragraph 2.7.

### **Question 44**

SPECIAL CONDITIONS (p.10 Article 6.1 & p. 15 Article 9.1)

The expenses related to the investigation works, for the identification of antiquities, including the required retaining and or supporting works and the fees of the archaeological personnel that monitors the investigation activities, as well as the expenses for the fencing of the areas wherein archaeological works are executed are included in the Lump Sum Price in a converted form.

Given the inconsistency noted in the aforementioned articles of the CC and as regards the archaeological works, the PUO related works and works pertaining to the Greek Military Land Minefield Clearance Battalion (TENX), kindly clarify which of the aforesaid works will be compensated on a cost-plus-basis, i.e. in line with article 8, which works will be compensated in line with article 7 (i.e. by contingencies), which works are in a converted form in the LSP and when and in which case the executed works are deducted from the LSP.

### **Response 44**

In paragraph 6.1 of the Conditions of Contract, it is stated that the Lump Sum Price includes...

*”i) The expenses related to the investigation works, for the identification of antiquities, including the required retaining and or supporting works and the fees of the archaeological personnel that monitors the investigation activities, as well as the expenses for the fencing of the areas wherein archaeological works are executed are included in the Lump Sum Price in a converted form”.*

The works mentioned in this specific paragraph are included in the Lump Sum Price and concern only investigation works for the identification of antiquities (including the fencing of the relevant areas) and not archaeological excavation works for which special reference is made in paragraph 6.2 of the same article of the Conditions of Contract.

In point i) of paragraph 6.2 of the Conditions of Contract, the following is clarified: *“It is pointed out that any necessary structure exclusively deriving from the archaeological needs or adjustment to the contractual scope, exclusively deriving from the archaeological needs (piles, retaining concreting works, sheds, etc.) shall be compensated on the basis of article 7 of the CC”.*

This means that the structures required due to archaeological excavations (piles, retaining works, concreting works, sheds etc.) **shall not** be compensated on a cost-plus basis, but based on new unit prices from the amount foreseen for contingencies (article 7 of the Conditions of Contract).

In any case, article 6 of the Conditions of Contract is applicable as is.

### **Question 45**

SPECIAL CONDITIONS (p.10 Article 6.1)

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The following works and expenses concerning the PUO networks are included in the Lump Sum Price in a converted form:

- (a) Expenses for works, including the materials to be used for these works related to
  - i) Investigation works for the identification of PUO networks,
  - ii) temporary or permanent relocations and/or diversions of PUO networks as these are defined in article 3.22 etc., and any retaining and or supporting works, due to traffic arrangements/ diversions regardless of whether ATTIKO METRO S.A. provides information or not. As regards works and materials that are obligatorily provided by the PUOs themselves, applicable is paragraph 6.2.iii (b) herein.
- (b) The works and the connection and operation expenses of the PUO networks related to the worksite installations included those required for the execution of the archaeological works.

Please specify, as regards the archeological works, the PUO works as well as of TENX - since there is an inconsistency in the articles of the Special Conditions that are quoted - which works are paid on a cost-plus basis, i.e. according to article 8, which are paid according to article 7 (therefore from the contingencies), which are included in the LSP in a converted form, when and which of the above executed works are deducted from the LSP?

### **Response 45**

Point ii of article 6.1 of the CC, lists the PUO diversion works which are included in the LSP, with the exception of the works and materials that are necessarily provided by the PUOs themselves.

On the other hand, point iii of article 6.2 of the CC, lists the PUO diversion works which are not included in the LSP. The method of payment is mentioned described specifically for each case, in the relevant article.

In any case, Article 6 of the CC applies as is.

### **Question 46**

Special Conditions (p.16 Article 9.6)

The excavation, loading/ unloading, transportation of the excavation spoil and pumping works to derive from the archaeological excavations in any section of the Project shall be deducted by the equal quantity and by correspondence from the Lump Sum Price. This deduction from the Lump Sum Price shall be effected on the basis of New Work Unit Prices implementing on them the presumed discount and the fixed coefficient (“σ”).

Please specify, as regards the archeological works, the PUO works as well as of TENX - since there is an inconsistency in the articles of the Special Conditions that are quoted - which works are paid on a cost-plus basis, i.e. according to article 8, which are paid according to article 7 (therefore from the contingencies), which are included in the LSP in a converted form, when and which of the above executed works are deducted from the LSP?

### **Response 46**

Article 9.6 of the CC remains in force as is.

### **Question 47**

Special Conditions (p.17 Article 9.7)

During the investigation of the area and the relocation of any ammunition – if so required by TENX – gradual excavation works shall be performed; these works shall be separately

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compensated on a cost-plus basis and the pertinent quantities shall be removed from the Lump Sum Price, in accordance with article 9.6 herein.

Please specify, as regards the archeological works, the PUO works as well as of TENX - since there is an inconsistency in the articles of the Special Conditions that are quoted - which works are paid on a cost-plus basis, i.e. according to article 8, which are paid according to article 7 (therefore from the contingencies), which are included in the LSP in a converted form, when and which of the above executed works are deducted from the LSP?

**Response 47**

Article 47 of the CC remains in force as is.

**Question 48**

Special Conditions (p. 22 & 23 – Article 13.2)

The Contractor's obligations shall also include the following:

i. PUO designs and all works .....

.....

iv. The reinstatement of the temporarily relocated PUO networks ....

Kindly clarify whether the mentioned PUO designs are included in the LSP in a converted form.

**Response 48**

According to article 13.6 of the CC, "All aforementioned obligations of the Contractor shall be implemented at his care and expense, while the relevant cost is included in his Financial Offer in a converted form, unless otherwise specified by article 6 of the CC."

Therefore, the PUO designs are in a converted form in the LSP.

**Question 49**

Special Conditions (p. 39 – Article 20)

Design preparation

Other than the designs described in pages 48, 58 & 59 of the General Specifications?

**Response 49**

We fail to understand the question.

**Question 50**

CONDITIONS OF CONTRACT (page 40 - Article 20.4)

The "As Built" drawings shall depict univocally and precisely the final form of all sections of the Project and, as already stated, all characteristic phases of the Archaeological excavation, constituting at the same time the basis for the unhindered future maintenance, modification or extension of the entire Project or its parts thereof.

Kindly clarify the above, since the reference made to the archeological related matters is vague and the relevant pricing cannot be made. The cost is directly related to the archaeological matters and obviously it is impossible for us to be informed on these matters.

**Response 50**

Article 20.4 of the Specifications refers to "As Built" drawings after the completion of the works. If the question concerns the cost of the drawings, an estimate of this cost must be taken into account in the LSP. If the question concerns archeological works, these are compensated on a cost-plus basis, according to Article 8 of the CC.

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**Question 51**

CONDITIONS OF CONTRACT (page 41 – Article 21.2)

The instruments for the measurements, the accuracy of the measurement their calculation methods and the software to be used shall be in accordance with ATTIKO METRO S.A. specifications and shall be submitted each time for ATTIKO METRO S.A.’s approval.

Kindly communicate to us the relevant specifications.

**Response 51**

Applicable are the stipulations of Article 9 “TOPOGRAPHICAL SURVEYS, WORKS AND ALIGNMENTS” of the document “DESIGN SPECIFICATIONS FOR CIVIL WORKS”.

**Question 52**

CONDITIONS OF CONTRACT (page 45 – Article 24.3.2)

It is stressed that the works not referred to in the allocation and/or description of the works in the aforementioned table are included in a converted form in the Lump Sum Price.

The above is not clear, it is vague, and obviously this could lead to a serious problem in case of unprecedented circumstances. Kindly clarify.

**Response 52**

The Contractor’s Percentage Payments Table (PPT) is the mechanism based on which the Contractor is compensated for the Lump sum Price and does not include works compensated on a cost-plus basis and contingencies. This Table presents the basic breakdown of the works and the Contractor is obliged to periodically submit a more detailed PPT, taking the progress of the works into account in his breakdown.

It is therefore obvious that, the subject Table encompasses works that are not mentioned but are reduced to the LSP.

**Question 53**

CONDITIONS OF CONTRACT (page 48 – Article 25.6)

As regards the worksite fencing, the Contractor is obliged to implement a program for improving the aesthetics of the fencing, to be annually renewed (new message and creative part), in line with the provisions of the Document entitled “Material and Workmanship Specifications for CW”, Article 01535 Worksite Temporary Fencing. The related manufacturing, implementation and maintenance cost shall be borne by the Contractor, while the themes shall be given by ATTIKO METRO S.A. in electronic format.

The content of this article is also vague, no specifications are provided and the relevant pricing cannot be made. Kindly clarify.

**Response 53**

As far as Upgrading of Fencing in terms of aesthetics is concerned, we refer you to Article 01535 of the MATERIALS AND WORKMANSHIP SPECIFICATION FOR CW, and specifically to paragraph 1.1.1 “a. Upgrading of Fencing in terms of aesthetics”.

**Question 54**

CONDITIONS OF CONTRACT (page 50 - Article 26.7)

The Contractor is obliged to dismantle/demolish and remove from the worksites all temporary installations-structures, including any foundations, foundation slabs, etc., debris, tools, scaffolding, redundant useful or useless materials, temporary machinery installations, etc.; he is obliged to repair or reconstruct (...).

Cleaning of the worksite obviously concerns the dismantling of any structure to be constructed in the framework of this project.

**Response 54**

The contents of article 26 of the CC qualify as obligations for the Contractor.

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**Question 55**

CONDITIONS OF CONTRACT (page 51 - Article 26.11)

Prior to the commencement of the contract works, the Contractor shall submit to ATTIKO METRO S.A. a list with the E/M equipment of the worksite; this list shall contain the technical characteristics of this equipment, as well as its guaranteed performance.

It is understood that by the term “guaranteed performance” of the equipment, you mean the provision of the necessary certifications of the manufacturers.

**Response 55**

It is assumed that the term “guaranteed performance” of the equipment concerns the provision of the necessary documentation of the manufacturers, which shall comply with the Project Specifications.

**Question 56**

CONDITIONS OF CONTRACT (page 52 - Article 27.6)

The Contractor is obliged to maintain in the worksite all instruments or devices deemed necessary for the conduct of the daily measurements, as well as the respective specialized personnel.

What are you referring to in this article? Kindly clarify.

**Response 56**

Paragraph 27.6 of Article 27 "Laboratory Tests" of the CC mainly concerns the topographic equipment / instruments and the equipment / devices for the construction of the Trackwork used by the Contractor in the daily on-site measurements.

For all other matter related to the laboratory tests and controls, the provisions of Article 27 "Laboratory Tests" of the CC apply.

**Question 57**

CONDITIONS OF CONTRACT (page 61 - Article 37.7)

The Contractor shall be responsible for the quality of all materials and equipment to be used in the Project based on the above and, in general, for the quality of the Project.

The minimum life cycle of the equipment with the foreseen preventive maintenance shall be twenty-five (25) years, unless a greater duration is required in the specifications of the individual systems. More specifically, with regard to the weak current systems (CCTV, Wi-fi, depot vehicles management system, Scada), the aforementioned minimum life cycle shall be fifteen (15) years.

The guarantee for the materials' life cycle is provided by the suppliers, which means that this does not fall within our responsibility.

Kindly clarify the above.

**Response 57**

The Contractor is responsible for the suppliers he suggests once the project is awarded to him and he ensures to select those that possess products fulfilling the aforesaid project requirements.

**Question 58**

CONDITIONS OF CONTRACT (page 22 Article 12.9 and Article 34.5)

Redundant excavation spoil and demolition related materials

In the documentation, reference is made neither to alternative management nor to the Decision for the Approval of the Environmental Terms (AEPO). Moreover, in article 34.5 it is stated that redundant excavation spoil shall be categorized based on its hazardousness.

Therefore, we deem that there is no need for alternative management and that all excavation spoil/demolition-related materials shall be disposed, as stated in the documents, in suitable areas. Kindly clarify.



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**Response 58**

According to the provisions in article 12 of the CC “Project Construction Conditions”, paragraph 12.9, as well as in article 34 “Aggregates - Inappropriate and Redundant Material dumping areas”, paragraph 34.5 of the same document, alternative management of the redundant excavation spoil and the demolition related materials is not required.

**Question 59**

Decision for the Approval of the Environmental Terms (AEPO) οικ.203853/14-12-2012

High growing trees zone at the perimeter of the Depot.

Has the high growing trees zone at the perimeter of the Depot, as stated in the Decision for the Approval of the Environmental Terms (AEPO), been included in the LSP? Kindly clarify.

**Response 59**

As stipulated in the CC, Article 1 “Project Scope”, paragraph 1.3.4 “The implementation of the terms of the approved Environmental Studies and, in general, the obligations deriving from strict adherence to the environmental terms in the framework of the preparation of the designs and in execution of the construction activities” is included in the project’s scope and is therefore incorporated into the LSP, as per Article 6 “Lump Sum Price” of the same document.

**Question 60**

General Specifications (page 46, para. 2.1.c)

When does revenue service start? Is it upon partial delivery for use or upon final delivery?

**Response 60**

As per Article 44.4 of the CC *“In ATTIKO METRO S.A.’s judgment and according to the relevant provisions of Law 4412/2016, the entire Project or a part thereof can be delivered for use prior to its provisional acceptance and after its administrative acceptance for use, according to article 169, Law 4412/2016....”*.

**Question 61**

General Specifications (page 118, para. 4)

The Contractor shall provide AM with the special tools required to carry out maintenance and repair of the Project.

Which are the special tools that the Contractor must supply? Kindly advise us accordingly so that we may proceed with the pricing.

**Response 61**

If the equipment provided by the Contractor requires special tools for its maintenance, the Contractor must provide these tools.

**Question 62**

General Specifications (page 127 para. 6.2)

ATTIKO METRO retains the right to demanding a specific class certificate for each kind of materials.

Which is the “specific” class per type of material? Does it apply additionally to the applicable specifications? The above must be clarified so that all participants may proceed to pricing.

**Response 62**

The materials of this project fall under the requirements specified in paragraph 6.1 of the GENERAL SPECIFICATIONS, Article GS 0470 “MATERIAL HANDLING, CRATING, STORAGE AND PROTECTION AT THE WORKSITE”.

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**Question 63**

General Specifications (page 163 paras. 5.5 & 5.7)

Worksite ID and installation of electronically controlled access

Do specific specifications or medical examinations apply in order to meet these requirements?

**Response 63**

The certificate for the employee's suitability to work (in relation to the work position) is issued either by the Occupational Doctor (if provided for, based on the number of employees), or by the Insurance Agency (either private or public) if an Occupational Doctor is not provided for. The medical examinations proposed (by the Occupational Doctor/Insurance Agency) are necessary for the issuance of the certificate for the employee's suitability to work. It is understood that the above are applicable for every work crew/employer to be engaged in the Project and that the cost for medical examinations shall be borne by the employer concerned.

With regard to the electronically controlled access, applicable are the stipulations of paragraph 5.5 "WORKSITE ID" of GS0750 "HEALTH AND SAFETY SPECIFICATIONS" of the document entitled "GENERAL SPECIFICATIONS".

**Question 64**

Article 45.2, CONDITIONS OF CONTRACT

As per the detailed provisions of Specification GS0180 - Studies & Measures for dealing with the environmental impact during construction (General Specifications), prior to the commencement of the Project, the Contractor shall prepare an appropriate Program for Monitoring the airborne and ground-borne noise and vibration levels, to be checked by ATTIKO METRO S.A. and approved by the competent Service of YPEN (Ministry of Environment and Energy).

Does the operation period coincide with the guarantee period?

Kindly clarify.

**Response 64**

Applicable shall be the stipulations of the document "CONDITIONS OF CONTRACT", Article 45 "Project Maintenance Period", paragraph 45.2.

**Question 65**

General specifications (page 48 para. 2.1)

Required are: 1. "ENVIRONMENTAL MONITORING PROGRAM DURING CONSTRUCTION" to include *inter alia* (pages 49, 50) measurements of noise and vibration etc. 2. Six-month Environmental Monitoring Reports during construction. 3. Monitoring Program and Measurements of Noise and Vibrations during Project Operation – Reports.

The report concerning the renewal of the Environmental Terms Approving Decisions (AEPO) in 2011 states as follows: 1. Paragraph 6.5.1.1 Impact on the acoustic environment – Impact of air borne noise – Construction Phase: It is estimated that the noise pollution caused by the circulation of heavy duty vehicles is small (page 230). Paragraph 6.5.1.2 Operation phase: it is stated that the calculated value of the parameter Leq(18h) is very small, much lower than the threshold of the 67dB(A) set by the approved environmental terms. Therefore, no negative impact is anticipated on the acoustic environment (page 235). Paragraph 6.5.2.1 Vibration Effects - Construction Phases: In due consideration of the limited construction period, no vibration effect is anticipated it (page 237). Paragraph 6.5.2.2. Operation Phase: Based on the above, it results that the calculated levels of vibrations and air borne noise range to significantly lower levels as compared to the aforementioned thresholds; therefore, the introduction of special measures is not proposed. In view of the above and in due consideration of the approved AEPO, kindly advise us on any changes estimated as having

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occurred which should be taken into account during the compilation of the offers given that the foreseen requirements do not comply with the existing data.

**Response 65**

Applicable shall be the stipulations of the Conditions of Contract document, Article 31 “Protection of the Environment”, as well as of the General Specifications document, GS0180 “STUDIES & MEASURES FOR DEALING WITH THE ENVIRONMENTAL IMPACT DURING CONSTRUCTION”.

All the above are included in the scope of the Project, in accordance with the stipulations of the Conditions of Contract, Article 1 “Scope of the Project”, paragraphs 1.3.4 and 1.4 and, thus, in the Lump Sum Price (LSP), in accordance with Article 6 “Lump Sum Price” in the same Document.

**Question 66**

Design, Performance, Material and Workmanship Specifications for Trackwork (page 12. 1. Introduction, Para. 2.4.3.1)

Rail squeal treatment . Does this also apply to turnouts? Does it only apply for  $R < 80$  m?

As informed by our suppliers, the rail squeal treatment is a process involving intervention work on rails on site and not during the manufacturing process of the rails/ turnouts at the factory. Kindly clarify the above.

**Response 66**

This requirement is not valid for Turnouts/Crossovers. It is valid for curved tracks  $R < 80$ m and their transition curves.

**Question 67**

Design, Performance, Material and Workmanship Specifications for Trackwork (page 17. 1. Introduction, Para. 2.4.8)

Which are the special types of tracks necessary for the Running Shed and where will these apply?

Will the existing rails be used again?

Kindly clarify.

**Response 67**

Kindly refer to paragraph 3.6 “Works inside the Running Shed – Inspection Pits” of the Technical Description.

The rails of the new or re-constructed sections shall be new rails.

**Question 68**

Design, Performance, Material and Workmanship Specifications for Trackwork (page 24. 1. Introduction, Paragraph 2.5.3.7)

Kindly clarify the required type of steel for rails, crossings and switches.

**Response 68**

Kindly refer to the “Design, Performance, Materials and Workmanship Specifications for Trackwork”, Annex C “Materials and Workmanship Specifications”.

**Question 69**

Technical Description (page 28 Para 3.6)

Running Shed

The new rails shall be laid on an adjustable bedding system. Which are the requirements of the system?

Kindly clarify.

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**Response 69**

The track system shall be in accordance with the “Design, Performance, Materials and Workmanship Specifications for Trackwork” (paragraph 2.4.8 etc.) and on condition that the finally delivered track shall be within the allowable tolerances.

**Question 70**

Drawing S3GFDDRARCDPALLGE001A ... Detail A....

Running Shed

According to the drawing:

1. The base of the rail is immersed in an “intermediate layer of rubber”
2. The base of the rail is penetrated by a "345x150 mm steel ribbed bar"
3. The base of the rail penetrates the "steel elbow threaded fasteners of the slab" from the right side
4. It is not understood where the rail is laid and how it is fixed.

Kindly confirm that this detail is correct.

**Response 70**

It is clarified that Detail A of drawing S3GFDDRARCDPALLGE001A is not applicable and shall be developed during the preparation of the Detailed Final Designs by the Contractor.

**Question 71**

Kindly confirm that, during the preparation of the Detailed Final Design, it is possible to modify data of the General Final Design for the steel shed, namely shed dimensions, quality characteristics of some materials, etc. (for example, use of equivalent standard ready-made profiles at the bearing structure etc.)

**Response 71**

The Contractor is responsible for preparing all Designs for the works he shall execute, in accordance with the stipulations of Article 20 “Contractor’s Designs” of the Conditions of Contract in which, inter alia, it is stressed that: “ATTIKO METRO S.A. has prepared the drawings, as shown in the List of Drawings in Annex A’ of the Technical Description. Based on the information data provided to him by ATTIKO METRO S.A., the Contractor has already checked, at his own responsibility and expenses, their entire content, he has accepted it in full and without any reservation whatsoever, and has taken it into consideration in the compilation of his Financial Offer. On the basis of the aforementioned data, the Contractor is fully responsible for the compilation of all Designs for the works he will execute in accordance with the stipulations of the Technical Description and the remaining Contract Documents”.

Furthermore, in paragraph 23.2.3 of the same Document, it is stated that: “..... It is stressed that the geometrical dimensions and/or quantities foreseen by ATTIKO METRO S.A.’s Tendering Design are indicative and that the final dimensions shall ensue from the approved Detailed Design”.

Therefore, during the preparation of the Detailed Final Design by the Contractor, modifications to the dimensions, the cross sections of members etc. of the metal shed, as shown in ATTIKO METRO S.A.’s tendering design (for example, structural drawings S3GFDDRSTRDPALLPL001A and S3GFDDRSTRDPALLSE001A) shall be possible; however, all requirements of the Tender Documents (Design Specifications for Civil Works, Materials and Workmanship Specifications for Civil Works, General Specifications, Technical Description etc.) referring to the configuration, the technical requirements of the bearing structure and the quality of materials to be used, must be satisfied.

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### **Question 72**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (pages 157/174 (11/28) para. 1.3.9.1)

The Contractor shall install a Depot Management System will all its interfaces with the remaining systems. The System shall integrate the entire existing and new equipment of the Depot in terms of vehicle routing, the presentation of the status of the field equipment, connection with the Complete Vehicle Identification System for existing and new parking positions.

Which is the “Complete Vehicle Identification System”? Kindly clarify.

### **Response 72**

The Vehicle Identification System shall recognize the unique "identity" of each vehicle, so that the most appropriate -in the Regulator's judgment- parking or passing-through procedure shall take place via the new Depot Management System.

The system will be RFID technology or other equivalent reliable technology suitable for a railway environment.

It is clarified that the "Complete Vehicle Identification System" is the new Vehicle Identification System mentioned above.

### **Question 73**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 157/174 (11/28) para. 1.3.9.1).

The Contractor shall install a Depot Management System will all its interfaces with the remaining systems. The System shall integrate the entire existing and new equipment of the Depot in terms of vehicle routing, the presentation of the status of the field equipment, connection with the Complete Vehicle Identification System for existing and new parking positions.

Does the existing equipment support the transmission of data to external systems? if not, is their conversion included in the LSP?

Kindly clarify.

### **Response 73**

It is initially stated that the existing Depot Management System does not support open interfacing with new external systems and, in any case, it shall be decommissioned and replaced by the new Depot Management System.

It is also stated that the point machine equipment is capable of communicating and exchanging data with a central system. It is, however, stressed that the interface of the new Depot Management System with the existing point machine equipment is included in the scope of this tender and falls within the LSP (along with all required hardware and software).

As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.

### **Question 74**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 157/174 (11/28) para. 1.3.9.1)

The Contractor shall install a Depot Management System will all its interfaces with the remaining systems. The System shall integrate the entire existing and new equipment of the Depot in terms of vehicle routing, the presentation of the status of the field equipment, connection with the Complete Vehicle Identification System for existing and new parking positions.

Is the management system currently used an open-source software? Are intervention possibilities available? Which is the communication protocol? Kindly clarify.

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**Response 74**

Please see Response 73.

**Question 75**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 157/174 (11/28) para. 1.3.9.1)

The Contractor shall install a Depot Management System will all its interfaces with the remaining systems. The System shall integrate the entire existing and new equipment of the Depot in terms of vehicle routing, the presentation of the status of the field equipment, connection with the Complete Vehicle Identification System for existing and new parking positions.

Do the installed circulation control devices allow communication with external systems? If not, is the conversion likely to be required included in the LSP?

Kindly clarify.

**Response 75**

Please see Response 73.

**Question 76**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 157/174 (11/28) para. 1.3.9.1)

The Contractor shall install a Depot Management System will all its interfaces with the remaining systems. The System shall integrate the entire existing and new equipment of the Depot in terms of vehicle routing, the presentation of the status of the field equipment, connection with the Complete Vehicle Identification System for existing and new parking positions.

Will the entire equipment of the depot or the equipment of the new shed be displayed on the control panel of the Depot Management System?

Kindly clarify.

**Response 76**

The Depot Management System shall display the entire equipment of the Depot.

**Question 77**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 158/174 (12/28) para. 1.3.9.2)

Basic functions

How will the routing command be transmitted to the system? Is it through the operator at the OCC, automatically or will both options be available? Kindly clarify.

**Response 77**

The routing command shall be transmitted by the traffic regulator in the OCC.

**Question 78**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 158/174 (12/28) para. 1.3.9.2)

Basic functions

Keeping a history is required. Will it be possible to retrieve them from the local control panel? Will it be possible to customize the routing from the local control panel or is the local control panel simply executing the already scheduled ones?

**Response 78**

In case of inability to route from the OCC, the local control panel shall execute the locally preset available routing, whenever required by an employee of STASY – Operation, with the OCC’s concurrence. Therefore the local control panel shall not be able to customize the routing scenarios.

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No history data is recorded in the local control panel; nevertheless, the activation via local control is recorded to the Depot Management System.

The local control history data is recorded based on the results on the local Controller of the Signaling and Point Machines Control System.

### **Question 79**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 158/174 (12/28) para. 1.3.9.2)

Basic functions

Interface with all the systems is required in view of ensuring that the OCC personnel is advised accordingly. Kindly clarify which are these systems and their communication protocols.

### **Response 79**

The Depot Management System is expected to have an interface in order to monitor the principal operating parameters of the depot systems referred to in that Article 1.3.9.2 of the “Design, Performance, Materials and Workmanship Specifications for E/M and Railway Systems”, i.e., the Point Machines Control System with its associated field equipment, as well as the Vehicle Identification System.

### **Question 80**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 161/174 (15/28) para. 1.4.1.1, 1.4.1.3)

... from this point onwards, the operation shall follow the existing routing management if the new vehicle management system controls the entire depot equipment, why is reference made to the “existing routing management?” Is the relevant data maintained, replaced or used? if the last case applies, the relevant data should be made available.

Kindly clarify.

### **Response 80**

The reference to the existing routing management is related to the local routing control by the route controller of the respective Signaling and Point Machines Control System (existing or new) and not to the Depot Management System in the OCC.

### **Question 81**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 94/174 (7/25) para 2.2)

SCADA Remote Control System

The communication protocol used by Secheron relays is no longer supported, while the existing conversion card does not have drives for windows 10 (which is the operating system of the SCADA PC). If it is required to replace the relays of the fields, is the replacement included in the LSP?

Kindly clarify.

### **Response 81**

It is included in the Lump Sum Price.

### **Question 82**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 94/174 (7/25) para. 2.2)

SCADA Remote Control System

In order to modify the existing SCADA system, both the source code and the Administrator credentials should be delivered. Is this data available?

If it is not possible to modify the existing system, are those changes required to be made in the software/equipment included in the LSP?

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Kindly clarify.

**Response 82**

They are included in the Lump Sum Price.

**Question 83**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 93/174 (6/25) para. 2.1.1.1)

Mechanical interlocking shall prevent access to the field, in which any item is under voltage. The proper sequence of operations combined with the necessary mechanical interlocking shall ensure the safety of the personnel.

Will the mechanical interlocking required be the same with the interlocking applied to the existing fields?

Kindly clarify in order to estimate the relevant cost.

**Response 83**

The mechanical interlocking required shall be the same with the interlocking applied to the existing fields and the access thereto shall be ensured by strictly adhering to the procedures of STASY S.A.

**Question 84**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 137/174 (8/17) para. 3.4)

They must be digital, for day-night operation, for outdoor areas, near the sea.

Does the indication “near the sea” imply cameras made of stainless steel?

Kindly clarify.

**Response 84**

As per paragraphs 3.3 and 3.4, Article 3 “Specifications for Cameras” of specification TR\_S\_ DP270002 “CLOSED CIRCUIT TV (CCTV) of the document “Design, Performance, Materials and Workmanship Specifications for E/M and Railway Systems”, the indication “near the sea” means cameras made of stainless steel protection category IP66 (and not type 316L).

**Question 85**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 137/174 (8/17) para. 3.4)

They must have an integrated dehumidifier.

By the “integrated dehumidifier” you mean “thermal resistance”?

Kindly clarify.

**Response 85**

The reference to “integrated dehumidifier” means “thermal resistance”.

**Question 86**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 117/174 (5/17) para. 2.3)

... The Telecommunications Wireless Network System (Wi-Fi) shall consist at least of the following items:

Will the equipment to be installed in the OCC for the management of the system be independent of the equipment that has already been installed (including software)?

Kindly clarify.

**Response 86**

Yes, it shall be independent, it shall not necessarily be installed at the same point and shall have an autonomous operation. As concerns the remaining data that are still pending, you will be relatively informed through a Clarifications Document to follow.



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**Question 87**

Design, Performance, Material and Workmanship Specifications for E/M and Railway Systems (page 120/174 (8/17) para. 3.10)

The Contractor should ensure compatibility with the existing Wi-Fi system.

In order to ensure compatibility with the existing equipment and then estimate its cost accordingly, all relevant information must be provided to us, along with the network topology. Kindly clarify.

**Response 87**

Kindly see Response #86.

In addition, sufficient details and information have already been provided in the chapter of the document describing the existing systems. Besides, the subject system is new and the interfaces with the existing WiFi system concern the requirement for the new system to be of open architecture, so as the communication between them be facilitated, if so required. Further information available by ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. shall be provided to the Contractor during the design phases of the project.

**Question 88**

Financial Offer Form

The tender documents include two different Financial Offer Forms: the “E.S.I.D.I.S. FINANCIAL OFFER FORM” and the “FINANCIAL OFFER FORM”.

Kindly clarify which is the right Form.

**Response 88**

The Tender Documents include two Financial Offer Forms, namely One Form of the System and one Form of ΑΤΤΙΚΟ ΜΕΤΡΟ S.A. The Contractor ought to fill them in, in line with the stipulations of article 22.3 of the Invitation to Tender.

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**SECTION B**

**CD WITH DRAWINGS OF THE EXISTING PROJECTS**

The interested parties may take delivery the CD with the files containing drawings of the existing projects at the address referred to in paragraph 1.3 of the Invitation, further to pertinent communication.

**ATTACHED FILES**

The following files, as referred to response 28 herein, are attached hereto.

1. THE TRAMWAY OPERATION REGULATION OF TRAM S.A.
2. THE APPROVAL OF THE TRAMWAY DRIVERS' SHIFTS – TRAM (FEK 1106/21.07.2004)