



FAO Tomi Egbo, TfL
Submitted by e-Tendering Portal

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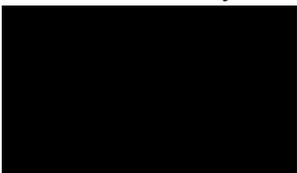
Task 93 – Oakwood P&C Renewal

Dear Tomi,

Further to your Invitation to Tender for Task 93, please find attached our proposal for the provision of design services.

If you require any clarifications or additional information please do not hesitate to contact me.

Yours sincerely,



Engineering Director, DEG Signal Ltd

Understanding of the Project

The purpose of the project is the renewal of points and crossings at Oakwood on the Piccadilly Line. The existing points 9a/9b and 10 are to be replaced with Unistar HR point mechanisms (pending formal product approval by LUL), with a fall-back option if approval not attained being the use of Surelock points. In addition, the diamond crossing 1012 is to be replaced.

The project has a two stage commissioning with the initial commissioning planned for August 2017 with a further commissioning currently planned for August 2018.

The design services include; the review of the pway designs, request of source records from ERM, preparation of correlation packs, on-site correlation including correlation report, update of records, preparation and issue of designs in 2 stages, provision of construction/installation and test prints, commissioning copies, commissioning cover, final record updates and return of records to ERM. In addition, to the design documentation we will provide assurance documentation and attendance at meetings/workshops.

For further details, please refer to the methodology section.

Methodology

The initial task will be to review the pway designs and identify the required source records and request these from ERM. Once records are received, correlations packs will be prepared, including QAF18, with on-site correlation undertaken by our partner NuAspect. Equipment to be correlated includes the affected sheets in the IMR and any trackside kiosks affected by the works. Upon receipt of the correlation packs and report, records will be updated with any identified discrepancies.

One of the early assurance activities will be to produce the Conceptual Design Statement which will be submitted to LU for acceptance.

Our proposal is to design the kiosk for Unistar HR points (all 3 ends) at Stage 1 such that the kiosk can be fully manufactured. However, we propose to highlight circuitry which will be commissioned at Stage 2. Within the design of the kiosk we propose to allow for passive provision of equipment, e.g. transformers, if the fall-back option is invoked due to the non-approval of Unistar HR requiring Surelocks to be utilised. In addition to the Kiosk, IMR designs will be produced along with cable charts, scale plan, bonding plan and power designs. A PMS will also be prepared. All designs will be prepared, checked and approved and issued to TfL for acceptance, along with the Design Compliance. Should any comments be raised against the design, these will be incorporated and resubmitted along with installation and testing copies enabling kiosk manufacture and installation works to commence.

During the manufacture, installation and testing phases we will be available to respond to installation and test logs and prepare modifications as required. At a point nearing the commissioning, we will update source records and prepare commissioning packs including post commissioning wire count packs. On the commissioning weekend, we will be available at our offices to respond to queries raised by the commissioning teams. Following the commissioning we will incorporate any changes into the source records and issue maintenance prints.

We will then prepare the Stage 2 designs in readiness for the stage 2 commissioning which will follow the same process as Stage 1.

Upon the completion of Stage 2 commissioning, we will prepare final record updates, issue maintenance prints and return the records to ERM.

Throughout the project lifecycle, we will support TfL by attending progress and technical meeting/workshops and take ownership actions relating to the signalling designs. We will also liaise with other disciplines, e.g. pway, E&P and civils, throughout the project lifecycle, including the undertaking of a point heating review.

For the sequence of design tasks, please refer to the programme included in Appendix 2.

Quality of Resource

DEG Signal has extensive skills, knowledge, experience and training of LU signalling systems including that deployed on the Piccadilly line. Russell Gell and Doug Green were previously the competent authority for signalling standards by undertaking the role of Signal and Control Asset Engineer in Tube Lines for a combined total of 8 years. At DEG Signal we are currently engaged by LU for the conversion of 22 ends of Style 63 point machines with Surelocks so very familiar with the circuitry requirements but also the design process utilised by LU. To date we have delivered over half of the designs without issue. In addition we have undertaken signalling design via a sub-contract to Atkins for the S7 Signalling solutions Project where we provided scheme design for the introduction of S7 stock on the sub-surface lines and the conversion of 200 33 1/3 Hz track circuits to FS2550 on the Metropolitan Line. We have also undertaken signalling design work direct to LU in connection with the Neasden Depot Upgrade Project producing 'red inks' to recover various depot assets.

We have a detailed working knowledge of the LU design process, undertake risk assessments, rework following DRNs and support IDCs and workshops.

In addition to Russell Gell and Doug Green who will undertake an overarching role, we have engineers to undertake the design roles required for the delivery of the Oakwood P&C Works.

Staff for the delivery of the services:

Russell Gell – F/W Grade Principal Consultant	- Role: Project Manager/Engineer
Kevin Weston – F/W Grade Principal Consultant	- Role: CAT S Approver
Chris Chapman – F/W Grade Principal Consultant (contingency)#	- Role: CAT S Approver
Will Palmer - F/W Grade Senior Consultant	- Role: Checker/Design Manager
Mark Tavener – F/W Grade Consultant	- Role: Designer
Apprentices – F/W Grade Junior Consultant	- Role: Assistant Designers

Chris Chapman is a long standing Technical Associate of DEG Signal

In addition to the DEG Signal staff, we will engage the services of NuAspect for the provision of site correlation work and the production of asset condition reports.

John Moore – Sub-Contract - Role: T&C Manager

Richard Bickle – Sub-Contract – Role: TiC

TBC – Sub-contract – Roles: Functional Tester and Test Assistant

For further details, refer to Appendix 1 for CVs.

Programme & Risk Register

We have developed a project programme for the P&C renewal, please refer to Appendix 2 for the programme. Please note that at DEG Signal we do not have a license for Primavera but use Microsoft Project for programmes.

We have assumed a commencement date of 12/09/16 with each task logically linked. One of the key dates is the delivery of the Stage 1 designs prior to Christmas 2016 to enable the kiosk to be manufactured prior to site installation in the early summer of 2017. From a design perspective, following the issue of the Stage 1 designs, there is float in the programme in summer 2017 in advance of the commissioning. Following the commissioning in August 2017, there is ample float to support the Stage 2 commissioning in August 2018.

The plan is for Russell Gell, who is based in our London office, to lead the work from a Project Management (including commercial) and Project Engineering perspective and attend LU premises as required. The remainder of our staff are UK based in our Warminster office, where detailed designs will be produced. We have the availability to undertake the work based on a mutually agreed programme. NuApect will undertake the pre-design correlation activities including the site packs, issuing of AWCs and production of the correlation report.

We have sufficient resources to deliver the work.

At DEG Signal we work collaboratively with all stakeholders to ensure project objectives are achieved. Our senior team are known throughout the LU Signalling family as being pragmatic and professional engineers who will do all within their gift to ensure a programme is met. Our policy is to have early engagement and set expectations at an early stage such that all parties are aware of the requirement to achieve the objective.

Risks identified to date:

Risk	Mitigation
Non approval of the Unistar HR Point Machine	Passive provision in the designs to take account of the potential change to Surelocks.
Extensive anomalies identified during correlation activities	Review of the anomalies to determine extent of further assessment/functional testing required. Depending on the extent, a variation may be required.
Wire degradation present	Conduct a design review to identify the prime critical circuits affected, which will be subject to a variation at the respective day rates.
Frustrated Access or reduced Engineering Hours to undertake correlation	Addition shifts may be required to complete the correlation, depending on the extent, a variation may be required.

Conflict of Interest

No identified conflicts of interest between this engagement and others with TfL or other clients.

Assumptions

- Client acceptance of assurance documentation and designs 10 days.
- Source records issued in 10 days.
- All records are available and no allowance has been made for parallel working.
- No wire degradation present and hence the requirement for a design review to identify the prime critical circuits is not required. If wire degradation is discovered, this will be subject to a variation at respective day rates.
- Space available in the IMR to mount new relays and terminate new cabling.
- Site Access bookings and Protection Staff provided by the client.
- AWC pads to be provided by the client.
- We have assumed 1 x 12 hours shift for commissioning cover for each of the commissionings.
- During the productive design phases, we would expect 2 days per month for Project Management/Engineering and meeting attendance. However, over the 24 month project duration we have assumed an average of 0.5 days per month i.e. 12 days in total.
- Pway, E&P (400v point machine supply/signalling supply) and Civil design responsibility of the client.
- Assurance documentation included Conceptual Design Statement, Design Compliance Report and Design Check Certificates.
- Clarification and responses as per filename '1_updated Version of Clarifications Qtns V5 and Ans 100816 V6.doc'.

Commercial

For fixed price and other commercial items, please refer to Appendix 3.

Appendices

Appendix 1 – Staff CVs

Please refer to separate PDF, filename 'DEG Signal – CVs'.

Appendix 2 – Programme

Please refer to separate PDF, filename 'DEG Signal – Programme'.

Appendix 3 – Fixed Price and other Commercial Items

Please refer to separate PDF, filename 'DEG Signal – Commercial Response'.