



(1) TIE LIMITED

- and -

(2) PARSONS BRINCKERHOFF LIMITED

**PROVISION OF SYSTEM DESIGN
SERVICES**

relating to

THE EDINBURGH TRAM NETWORK

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tie
Verity House
19 Haymarket Yards
Edinburgh
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AGREEMENT

BETWEEN

- (1) **TIE LIMITED** a company incorporated under the Companies Act with registration number SC230949 and having its registered office at City Chambers, High Street, Edinburgh, Midlothian, EH1 1YJ (the "Client") which expression shall include its successors in title and permitted assignees; and
- (2) **PARSONS BRINCKERHOFF LIMITED** a company incorporated under the Companies Act with registration number 2554514 and having its registered office at Amber Court, William Armstrong Drive, Newcastle Business Park, Newcastle Upon Tyne, NE4 7YQ (the "SDS Provider") which expression shall include its permitted assignees.

WHEREAS

- A. **tie** requires a consultant to perform the Services (as hereinafter defined) in respect of the Edinburgh Tram Network (as hereinafter defined).
- B. Pursuant to a notice published in the Official Journal of the European Union on 28 December 2004 with reference 2004/S252-217951, **tie** invited expressions of interest from appropriately qualified parties for the performance of the Services.
- C. By competitive procurement process, conducted in accordance with Law, **tie** has selected the SDS Provider to perform the Services in accordance with this Agreement.
- D. **tie** has issued a Letter of Appointment (as hereinafter defined) in response to the SDS Provider's Formal Offer (as hereinafter defined).
- E. **tie** intends to appoint an infrastructure provider (the "**Infraco**") to complete the design, and carry out the construction, installation, commissioning and maintenance planning in respect of the Edinburgh Tram Network. It is further intended that the contract which the infrastructure provider will enter into with **tie** will require the infrastructure provider to accept responsibility for design and other work carried out by the SDS Provider for **tie** under the terms of this Agreement.
- F. If required by **tie**, **tie** and the SDS Provider have agreed to the novation of this Agreement upon and subject to the terms of this Agreement to the infrastructure provider to be appointed by **tie**.

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. DEFINITIONS AND INTERPRETATION

- 1.1 In this Agreement (including the recitals and the Schedules), save as otherwise expressly stated or as the context otherwise requires, the following words and expressions shall have the meanings hereby ascribed to them:

"Abortive Work" means any work which cannot be used in relation to the Edinburgh Tram Network (but not including work occurring as part of the iterative process of design);

"AFC" means automatic fare collection;

"Affected Party" means a Party that is unable to comply with all or a material part of its obligations under this Agreement as a direct result of a Force Majeure Event;

"Agreement" means the main body of this document (as may be amended from time to time in accordance with this Agreement) together with the Schedules, and the Formal Offer, and the Letter of Appointment;

"ALARP" means as low as reasonably practicable;

"Approval Bodies" means any Relevant Authorities, planning authorities, roads authorities, HMRI, Network Rail and any other parties who are to issue Consents which may be required for the construction, installation, commissioning, completion and opening of the Edinburgh Tram Network;

"BAA" means BAA plc, a company incorporated under the Companies Act with registration number 1970855 and having its registered office at 130 Wilton Road, London, SW1V 1LQ which expression shall include its successors in title and assignees;

"Background Information" means all and any materials, documents, drawings, plans or other information in paper, electronic or any other form, relating in any way to this Agreement and the Tram Legislation (and the parliamentary process) and made available to the SDS Provider by **tie**, CEC and/or any of their respective members, officers, agents and/or advisers during the procurement competition relative to this Agreement or thereafter;

"Business Day" means any day other than a Saturday, Sunday or a public holiday recognised by CEC;

"CCTV" means closed circuit television;

"CDM Regulations" means the Construction (Design and Management) Regulations 1994 (S.I. 1994/3140) or any Regulations superceding these;

"CEC" means the City of Edinburgh Council and its successors and assignees whomsoever;

"Cess" means safe area at the side of the tram track;

"Change in Control" means any sale or disposal of any legal, beneficial or equitable interest in any or all of the share capital of a corporation or the control over the exercise of voting rights in a corporation or the control over the right to appoint or remove directors of a corporation;

"Change in Law" means the coming into effect after the last date of execution of this Agreement of:

- (a) Legislation, other than any Legislation which on the date of this Agreement has been published:
 - (i) in a draft Bill as part of a Scottish Executive/Scottish Parliament or United Kingdom Government consultation paper;
 - (ii) in a Bill (including the Tram Bills);
 - (iii) in draft subordinate Legislation within the meaning of section 21(1) of the Interpretation Act 1978; or
 - (iv) as a proposal in the Official Journal of the European Communities;

- (b) any Guidance (other than Guidance which on the date of this Agreement has been published (in draft or otherwise) in any Scottish Executive, Scottish Parliament or United Kingdom Government consultation paper (and/or on any Scottish Executive, Scottish Parliament or United Kingdom Government internet site)); or
- (c) any applicable judgement of a relevant court of law which changes a binding precedent;

"Client Change" means any addition, modification, reduction or omission in respect of the Services or any other term of this Agreement instructed in accordance with Clause 7.2, Clause 15 (*Changes*) or Clause 29 (*Novation*);

"Client Change Order" means the written confirmation issued by the Client to proceed with a Client Change on the basis of an Estimate (as modified, if required);

"Client Default" means one of the following events:

- (a) a failure by the Client to make payment of any amount of money that is certified in an Interim Certificate as due and payable by the Client to the SDS Provider under this Agreement exceeding 5% of the value of the Services to be performed under this Agreement (as such value is determined in accordance with this Agreement); or
- (b) a breach by the Client of any of its material obligations under this Agreement which substantially frustrates or renders it impossible for the SDS Provider to perform its obligations under this Agreement for a continuous period of 30 days;

"Client Notice of Change" means a notice served by the Client pursuant to Clause 15.1, setting out the matters specified in Clause 15.2;

"Client Party" means any advisers appointed by the Client or any of the Client's employees, agents, contractors and sub-contractors of any tier and its or their directors, officers and employees (excluding the SDS Provider or any SDS Provider Party);

"Client's Representative" means the person or persons appointed by the Client from time to time and notified to the SDS Provider;

"Code" means the Scottish Ministers' Code of Practice on the Discharge of Functions by Public Authorities under the Freedom of Information (Scotland) Act 2002 as the same may be amended, varied or replaced from time to time;

"Code of Construction Practice" means the code which has been developed in conjunction with all relevant parties with regard to construction practices, environmental issues, safety issues and other aspects relative to the construction, installation and commissioning of the Edinburgh Tram Network;

"Commercially Sensitive Information" means the subset of Confidential Information listed in Schedule 5 (*Commercially Sensitive Information*) comprised of information:

- (a) which is provided by the SDS Provider to the Client in confidence for the period set out in that schedule; and/or
- (b) that constitutes a trade secret;

"Confidential Information" means any information which has been designated as confidential by either Party in writing or that ought to be considered as confidential (however it is conveyed or on whatever media it is stored) including information which relates to the business, affairs, properties, assets, trading practices, goods, services, developments, trade secrets, Intellectual Property Rights, know-how, personnel of either Party, all personal data and sensitive personal data within the meaning of the Data Protection Act 1998, and the Commercially Sensitive Information;

"Consents" means without limitation all permissions, consents, approvals, non-objections, certificates, permits, licences, agreements, statutory agreements and authorisations, Planning Permissions, traffic regulation orders, building fixing agreements, building control approvals, building warrants, and all other necessary consents and agreements from the Approval Bodies, or any Relevant Authority, any other relevant third parties whether required by Law or the Tram Legislation or under contract;

"Construction Panel" has the meaning given to it in Clause 28.19.1;

"Construction Proposals" means the proposals for the construction, installation and commissioning of the Edinburgh Tram Network to be developed by the Infraco;

"Control Room" means a centralised control room within the Depot which will facilitate tram servicing and maintenance;

"Data Radio" means a system that allows two way data communication for monitoring, control and recording between the Control Room and remote equipment eg trams, TPDS, PCC, PHC, sub-station equipment, TVM, PID, UTX and signals;

"DCCB" means direct current circuit breaker;

"DDA" means the Disability Discrimination Act 1995;

"Deliverables" means the Functional Requirements Specifications, the Technical Specifications and the items listed in Appendix 3 to Schedule 1 (*Scope of Services*), and all other documents, information, reports, diagrams, bills of quantities, records, manuals, schedules, databases, reinforcement details, photographs, formulae, consultation materials, plans, designs, specifications, drawings (including as-built drawings), details, calculations, transport and other models and simulations, the outputs and reports based on any models, programmes and all other material created and/or provided by the SDS Provider (and/or any SDS Provider Party or any other third party) in the performance of the Services and the SDS Provider's other obligations under this Agreement;

"Depot" has the meaning given in paragraph 1.1.4 of Schedule 11 (*Requirements Specification for Overall System Operational and Performance Requirements*);

"Design Manual" means the design manual issued by CEC as may be amended from time to time;

"Design and Technical Gateway Process" means the process set out in Clause 7.3 of this Agreement;

"Design and Technical Services" means those services described in paragraph 2 of Schedule 1 (*Scope of Services*) as may be amended from time to time in accordance with this Agreement;

"**Detailed Design Phase**" means the phase described in paragraph 2.6 of Schedule 1 (*Scope of Services*);

"**Detailed Design Phase Milestone Payment**" means the sum of money identified in respect of the milestone payment for Detailed Design Phase in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"**Detailed Design Phase Sub-Milestones**" means the sub-milestones identified as occurring during the Detailed Design Phase in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"**Detailed Design Phase Sub-Milestone Payments**" means the sum of money identified in respect of each Detailed Design Phase Sub-Milestone in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"**Discriminatory Change in Law**" means a Change in Law, the terms of which apply expressly to:

- (a) the Edinburgh Tram Network; and/or
- (b) the SDS Provider and not to other persons;

"**Dispute**" means any dispute, difference or unresolved claim between the Parties in connection with or arising from this Agreement;

"**Dispute Resolution Procedure**" means the procedure set out in Clause 28 (*Dispute Resolution Procedure*);

"**DKE**" means developed kinematic envelope;

"**DNO**" means district network operator;

"**DPOFA**" means the development partnering and operating franchise agreement between **tie** and the Operator dated 14 May 2004;

"**Edinburgh Tram Network**" means Line One and Line Two or either of them, as may be amended from time to time, together with any modification, line extension, spur, interconnection and any additional line which may be instructed by **tie**;

"**Effective Date**" shall have the meaning given in Clause 2.1;

"**E&M**" means electrical and mechanical;

"**EMC**" means electro magnetic current;

"**Environmental Statement**" means the environmental statements supporting each of the Tram Bills;

"**Environmental Information Regulations**" means the Environmental Information (Scotland) Regulations 2004, Scottish SI 2004/520;

"**E & P**" means electrification and power;

"**Estimate**" means the estimate to be provided by the SDS Provider pursuant to Clause 15.3;

"**Final Persistent Breach Notice**" has the meaning given in Clause 24.2;

"**Financial Panel**" has the meaning given to it in Clause 28.19.1;

"**FOISA**" means the Freedom of Information (Scotland) Act 2002 and any subordinate legislation made under this Act from time to time together with any guidance and/or codes of practice issued by the Scottish Information Commissioner in relation to such legislation;

"**Force Majeure Event**" means the occurrence after the Effective Date of:

- (a) war, civil war, armed conflict or terrorism; or
- (b) nuclear, chemical or biological contamination unless the source of the contamination is the result of actions by the SDS Provider or any SDS Provider Party; or
- (c) pressure waves caused by devices travelling at supersonic speeds; or
- (d) a natural disaster.

"**Formal Offer**" shall mean the tender for the Services issued by the SDS Provider and dated 13th May 2005 as the same has been amended and/or supplemented by letters and attachments from Mike Jenkins to Ian Kendall dated 8 June 2005 and 29 June 2005 and letters from David Hutchison to Ian Kendall dated 10 August 2005 and 2 September 2005;

"**4ft**" means the distance between inner sides of the two running rails of the track;

"**Functional Requirements Specifications**" means the Requirements Specification for Civil Engineering Works, the Requirements Specification for Overall System Operational and Performance Requirements, the Requirements Specification for Supervision, Command and Control Suite of Systems, the Requirements Specification for Electrification and Power, the Requirements Specification for Tram Vehicle, and the System-Wide Non-Functional Requirements as may be amended and developed from time to time;

"**Funder's Direct Agreement**" means the direct agreement to be entered into between any funder and the SDS Provider in relation to the Infraco Contract;

"**General Change in Law**" means a Change in Law which is not a Discriminatory Change in Law or a Specific Change in Law;

"**Good Industry Practice**" means using standards, practices, methods and procedures conforming to Law and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably be expected from a large, reputable, professionally qualified, competent and skilled organisation experienced in carrying out activities of a similar nature, scope and complexity to those comprised in the Services, and seeking in good faith to comply with its contractual obligations and all duties owed by it;

"**GSN**" means global structured notation for safety cases;

"**Guarantee Agreement**" means the agreement guaranteeing the due, proper and complete performance of obligations of the SDS Provider and entered into among PB International Inc., PBC International Inc., the SDS Provider and tie dated on or around the date hereof;

"Guidance" means the any applicable guidance, direction or determination issued by any regulatory body with which the Client and/or the SDS Provider is bound to comply;

"HCI" means human computer interface;

"HF" means human factors;

"HMRI" means Her Majesty's Railway Inspectorate;

"HSE" means Health & Safety Executive;

"HVAC" means heating, ventilation and air conditioning;

"IEC" means International Electrotechnical Commission;

"Indemnified Liabilities" means actions, claims (including third party claims), demands, proceedings, losses, damages, liabilities, costs and expenses (including reasonable legal fees and expert witness fees);

"Indemnified Parties" has the meaning given in Clause 27.1;

"Indirect Loss" means any business interruption, loss of profits, loss of business, loss of business opportunity, loss of or damage to or corruption of data or loss of management time or time of other employees;

"Information" has the meaning given under section 73 of FOISA;

"Infraco" means the infrastructure provider to be appointed or appointed by tie in relation to the Edinburgh Tram Network;

"Infraco Contract" means the contract to be entered into or entered into by tie with the Infraco in relation to the completion of the design, and carrying out the construction, commissioning and maintenance planning of the Edinburgh Tram Network;

"Insolvency Event" means any of the following events:

- (a) the SDS Provider is unable to pay its debts as they fall due or is insolvent or admits in writing inability to pay its debts as they fall due;
- (b) the SDS Provider suspends for a period of two months making payments on all or any class of its debts or a moratorium is declared by the SDS Provider in respect of its indebtedness;
- (c) the SDS Provider ceases business or announces an intention to do so;
- (d) the SDS Provider (being an individual), such expression to include single members of a partnership (whether limited or not) becomes bankrupt or makes composition or arrangement with its creditors, or is the subject of an application to the Court for an interim order under the Insolvency Act 1986,
- (e) the following are entered into:

- (i) a voluntary arrangement (other than a solvent one) for a composition of debts of the SDS Provider;
 - (ii) a scheme of arrangement in respect of the SDS Provider pursuant to the Insolvency Act 1986 or the Companies Act 1985; or
 - (iii) a material composition or arrangement other than a solvent one with the SDS Provider's creditors;
- (f) either of the following:
- (i) the winding-up of the SDS Provider (including passing a shareholders' resolution or the presentation of a petition by the SDS Provider for the purpose of winding up the SDS Provider); or
 - (ii) its administration (including where an application is made by the SDS Provider, or petition is presented by the SDS Provider for or any meeting of its directors or members resolves to make an application for an administration order);
- (g) an order for the winding-up or administration of the SDS Provider is made;
- (h) any liquidator, judicial custodian, receiver, administrative receiver, administrator or the like is appointed in respect of the SDS Provider or any material part of the SDS Provider's assets;
- (i) possession is taken of, or any execution or other process (other than on the dependence or inhibition) is levied or enforced upon, any material part of the property (whether real or personal) of the SDS Provider by or on behalf of any creditor or encumbrancer of the SDS Provider;
- (j) anything analogous to any of the events mentioned in paragraphs (a) to (h) above occurs in relation to the SDS Provider under the law of any relevant jurisdiction; or
- (k) in the event that **tie** has made a demand pursuant to the Guarantee Agreement for due, proper and complete performance of any of the SDS Provider's obligations, including indemnification against liabilities incurred by **tie** by reason of the SDS Provider's default under this Agreement and, in the opinion of **tie** (acting reasonably), no substantive action in response to such demand has been taken within a period of 14 days of the date of such demand. For the avoidance of doubt, this provision creates no requirement on **tie** to make such demand prior to any decision by **tie** on the operation of Clause 19 (*Termination on SDS Provider Default*);

"Intellectual Property Rights" means any rights in or to any patent, design right, utility model, trade mark, brand name, service mark, trade name, business name, logo, invention (whether registered or unregistered), domain name, semi-conductor right, topography right, software designs and/or other materials, source code, copyright, moral right, or rights in databases and any other rights in respect of any industrial or intellectual property, whether capable of being registered or not, including all rights to apply for any of the foregoing rights or for an extension, revival or renewal of any of the foregoing rights and any similar or analogous rights to any of the above, whether arising or granted under the law of Scotland or of any other jurisdiction;

"Interim Certificate" means any notice to be issued by the Client in accordance with Clause 12.3;

"Internal Resolution Procedure" means the procedure described in Clause 28.10;

"Joint Revenue Committee" means the consultant or consultants appointed by **tie** to perform transport modelling functions in relation to the Edinburgh Tram Network;

"Key Personnel" means those staff specified as such in Schedule 2 (*Key Personnel*);

"Law" means:

- (a) any applicable Legislation;
- (b) any applicable Guidance; and
- (c) any applicable judgment of a relevant court of law which is a binding precedent,

in each case in force in Scotland;

"Legal Panel" has the meaning given to it in Clause 28.19.1;

"Legislation" means any Act or instruments of the Scottish Parliament or the United Kingdom Parliament or subordinate legislation within the meaning of section 21(1) of the Interpretation Act 1978, any exercise of the Royal Prerogative, and any enforceable community right within the meaning of section 2 of the European Communities Act 1972;

"Letter of Appointment" means the letter from the Client to the SDS Provider dated 6th September 2005 accepting the SDS Provider's Formal Offer;

"Line One" means Sectors DHY6 (excluding the tramstop at Murrayfield and the alignment between that tramstop and the junction at Roseburn), HOT1, HOT2, HOT3, HOT4, HOT5, HOT6, HCT1, CTO1 and CTO2 as may be amended from time to time;

"Line Two" means Sectors ARP1, DHY1, DHY2, DHY3, DHY4, DHY5, DHY6 (excluding the tramstop at Haymarket and the alignment between that tramstop and the junction at Roseburn), and GNB1 as may be amended from time to time;

"Line One and Line Two" means Sectors ARP1, DHY1, DHY2, DHY3, DHY4, DHY5, DHY6, HOT1, HOT2, HOT3, HOT4, HOT5, HOT6, HCT1, CTO1, CTO2 and GNB1 as may be amended from time to time;

"Management Fees" means the sum of money identified in respect of management fees in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Master Project Programme" means the project programme to be prepared, maintained, updated and amended from time to time by **tie** and notified to the SDS Provider and as may be extended in accordance with Clause 7.5 of this Agreement;

"M & E" means mechanical and electrical;

"Milestone Completion Certificate" means the certificate to be issued by the Client in accordance with Clause 7.3 in relation to the completion of the Requirements Definition Phase, the System-Wide Preliminary Design Requirements, the Preliminary Design Phase and the Detailed Design Phase;

"**Network Diagram**" means the diagram identified in the Requirements Specification for Overall System Operational and Performance Requirements;

"**Network Rail**" means Network Rail Infrastructure Limited, a company incorporated under the Companies Act with registered number 2904587 and having its registered office at 40 Melton Street, London, NW1 2EE which shall include its successors in title and assignees;

"**Notice of Adjudication**" has the meaning given in Clause 28.16;

"**Notification**" has the meaning given in Clause 28.10.1;

"**Novation Agreement**" means the novation agreement to be entered into among **tie**, the SDS Provider and the Infracore in the form set out in Schedule 8 (*Novation Agreement*);

"**OLE**" means overhead line equipment;

"**Open Book Basis**" means the availability and disclosure (consistent with operation of Clause 14 (*Audit*)) of all underlying data and calculations used by the SDS Provider to create and justify costings and financial analysis presented to the Client;

"**Operations Panel**" has the meaning given to it in Clause 28.19.1;

"**Operator**" means Transdev Edinburgh Tram Limited, a company incorporated in Scotland under registered number SC267598 and having its registered office at Level 2, Saltire Court, 20 Castle Terrace, Edinburgh EH1 2ET, appointed by **tie** as operator under the DPOFA;

"**ORS**" means operational radio system;

"**PA**" means public address;

"**Panels**" has the meaning given to it in Clause 28.19;

"**Parliamentary Undertakings**" means any undertaking given to a Parliamentary Committee during the passage of the Tram Bills through the Scottish Parliament, and any undertaking or agreement given to any person in consideration of his refraining from opposition to the Tram Bills through the Scottish Parliament;

"**Party**" means each and any of the parties to this Agreement and "Parties" shall be construed accordingly;

"**P3e**" means Primavera 3e;

"**PCC**" means point control cabinet;

"**Permitted Variation**" means a Client Change, a change proposed by the SDS Provider or a Qualifying Change in Law, as agreed or determined to proceed in accordance with this Agreement;

"**Persistent Breach Notice**" has the meaning given in Clause 24.1;

"**PHC**" means point heating cabinet;

"PHP" means passenger help point;

"PID" means passenger information display;

"Planned Service Commencement Date" means the programmed date of service commencement of 31 December 2009 as may be amended from time to time by tie and notified to the SDS Provider;

"Planning Permission" means any planning permission, planning approval, approval of reserved matters, listed building consent, conservation areas consent and/or other consent or approval;

"Position Paper" has the meaning given in Clause 28.10.2;

"Preliminary Design Phase" means the phase described in paragraph 2.4 of Schedule 1 (*Scope of Services*);

"Preliminary Design Phase Milestone Payment" means the sum of money identified in respect of the milestone payment for Preliminary Design Phase in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Preliminary Design Phase Sub-Milestones" means the sub-milestones identified as occurring during the Preliminary Design Phase in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Preliminary Design Phase Sub-Milestone Payments" means the sum of money identified in respect of each Preliminary Design Phase Sub-Milestone in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Programme" means the programme set out in Schedule 4 (*Programme*) (as maintained, updated and amended from time to time by the SDS Provider in accordance with this Agreement) as may be extended in accordance with Clause 7.5 of this Agreement which shall include the Programme Phasing Structure;

"Programme Phasing Structure" means the programme set out in Appendix 2 of Schedule 1 (*Scope of Services*) as may be amended by tie from time to time and notified to the SDS Provider;

"Prohibited Act" means:

- (a) offering, giving or agreeing to give to tie, the Scottish Executive, CEC, or any tie Party or any other public body or any person owned or employed by any of them any gift or consideration of any kind as an inducement or reward:
 - (i) for doing or not doing (or for having done or not having done) any act in relation to the obtaining or performance of this Agreement; or
 - (ii) for showing or not showing favour or disfavour to any person in relation to this Agreement;
- (b) paying commission or agreeing to pay commission to any person in connection with the award of this Agreement;
- (c) committing any offence;

- (i) under the Prevention of Corruption Acts 1889-1916 or section 68(2) of the Local Government (Scotland) Act 1973;
 - (ii) under any Law creating offences in respect of fraudulent acts; or
 - (iii) at common law in respect of fraudulent acts in relation to this Agreement or any other relevant agreement with **tie**, the Scottish Executive, CEC or any other public body; or
- (d) defrauding or attempting to defraud or conspiring to defraud **tie**, CEC, the Scottish Executive or any other public body;

Any references within this Agreement to any "Prohibited Act" shall include acts outwith the United Kingdom and the references within the definition "Prohibited Act" to UK legislation shall be deemed to be amended to refer to legislation in other jurisdictions outside of the United Kingdom.

"Project IPR" means all Intellectual Property Rights in the Deliverables and the Specially Written Software and any other Intellectual Property Rights created in the performance of the Services which are specific in nature to the performance of the Services;

"Qualifying Change in Law" means:

- (a) a Discriminatory Change in Law; and/or
- (b) a Specific Change in Law;

"Referral Notice" has the meaning given in Clause 28.27;

"Referring Party" has the meaning given in Clause 28.16;

"Related Contract" has the meaning given in Clause 28.55;

"Related Dispute" has the meaning given in Clause 28.55;

"Relevant Authority" means any court with the relevant jurisdiction and any local authority, national authority or supra national agency, inspectorate, minister, Scottish Executive, body, official or public or statutory person of the government of the United Kingdom or of the European Union and "Relevant Authorities" shall be construed accordingly;

"Requests for Information" shall have the meaning set out in FOISA or any apparent request for information under FOISA, the Environmental Information Regulations or the Code;

"Required Insurances" means the insurances set out in Part 1 of Schedule 6 (*Required Insurances*) as may be amended from time to time in accordance with this Agreement;

"Requirements Definition Phase" means the phase described in paragraph 2.3 of Schedule 1 (*Scope of Services*);

"Requirements Definition Phase Milestone Payment" means the sum of money identified in respect of the milestone payment for the Requirements Definition Phase in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Requirements Definition Phase Sub-Milestones" means the sub-milestones identified as occurring during the Requirements Definition Phase in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Requirements Definition Phase Sub-Milestone Payments" means the sum of money identified in respect of each Requirements Definition Phase Sub-Milestone in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Requirements Specification for Civil Engineering Works" means the specification set out in Schedule 12 (*Requirements Specification for Civil Engineering Works*) as may be amended and developed from time to time in accordance with this Agreement;

"Requirements Specification for Electrification and Power" means the specification set out in Schedule 14 (*Requirements Specification for Electrification and Power*) as may be amended from time to time in accordance with this Agreement;

"Requirements Specification for Overall System Operational and Performance Requirements" means the specification set out in Schedule 11 (*Requirements Specification for Overall System and Operational Performance Requirements*) as may be amended and developed from time to time in accordance with this Agreement;

"Requirements Specification for Supervision, Command and Control Suite of Systems" means the specification set out in Schedule 13 (*Requirements Specification for Supervision, Command and Control Suite of Systems*) as may be amended and developed from time to time in accordance with this Agreement;

"Requirements Specification for Tram Vehicle" means the specification set out in Schedule 15 (*Requirements Specification for Tram Vehicle*) as may be amended and developed from time to time in accordance with this Agreement;

"Responding Party" has the meaning given in Clause 28.17;

"Retention" has the meaning given in Clause 12.7.1;

"Review Procedure" means the review procedure set out in Schedule 9 (*Review Procedure*);

"RSPG" means Railway Safety Principles and Guidance, issued by HMRI under HSE;

"RVAR" means Rail Vehicle Accessibility Regulations;

"SCADA" means supervisory control and data acquisition system;

"Schedules" means Schedule 1 (*Scope of Services*), Schedule 2 (*Key Personnel*), Schedule 3 (*Pricing Schedule*), Schedule 4 (*Programme*), Schedule 5 (*Commercially Sensitive Information*), Schedule 6 (*Required Insurances*), Schedule 7 (*Draft Collateral Warranties*), Schedule 8 (*Novation Agreement*), Schedule 9 (*Review Procedure*), Schedule 10 (*Panels for the Dispute Resolution Procedure*), Schedule 11 (*Requirements Specification for Overall System Operational and Performance Requirements*), Schedule 12 (*Requirements Specifications for Civil Engineering Works*), Schedule 13 (*Requirements Specification for Supervision, Command and Control Suite of Systems*), Schedule 14 (*Requirements Specification for Electrification and Power*), Schedule 15 (*Requirements Specification for Tram Vehicle*), Schedule

16 (*System-Wide Non-Functional Requirements*), and Schedule 17 (*Agreement between the SDS Provider and the Joint Revenue Committee*), as the same may be amended from time to time in accordance with the terms of this Agreement;

"SDS Provider Default" means the events set out in Clause 19.1;

"SDS Provider IPR" means:

- (a) all Intellectual Property Rights (including Intellectual Property Rights in relation to the SDS Provider Software) in respect of or derived from work product created or services performed by the SDS Provider in relation to the transportation sector (in particular the railway and light rail sectors) which the SDS Provider can demonstrate by documentary evidence were already existing and owned by or licensed to the SDS Provider prior to the Effective Date; and
- (b) any modifications or developments of any of the rights listed in paragraph (a) above which are generic in nature and not specific to the performance of the Services;

"SDS Provider Party" means any sub-consultant, supplier, sub-contractor, specialist and/or any other party appointed by the SDS Provider in accordance with Clause 9 (*Sub-Letting and the Appointment of SDS Provider Parties*) to perform any part of the Services (and "SDS Provider Parties" will be construed accordingly);

"SDS Provider Software" means programs, the Intellectual Property Rights in which are (a) owned by the SDS Provider; and (b) used by the SDS Provider to carry out its obligations under this Agreement;

"SDS Provider's Representative" shall have the meaning given to it in Clause 10.8;

"SDS-JRC Modelling Suite" has the meaning given in paragraph 3.5.1 of Schedule 1 (*Scope of Services*);

"Sector" means each sector identified in the Programme Phasing Structure;

"Services" shall mean those services to be performed by the SDS Provider which are set out in Schedule 1 (*Scope of Services*) and for the avoidance of any doubt, shall include any variations pursuant to the provisions of this Agreement, and shall also include the other obligations which the SDS Provider is required to carry out as expressed under this Agreement;

"Service Commencement Date" means the date the Edinburgh Tram Network goes into passenger carrying service;

"Specially Written Software" means programs which are written by or on behalf of the SDS Provider specifically to enable the SDS Provider to carry out its obligations under this Agreement;

"Specific Change in Law" means any Change in Law which specifically applies to the provision of a service the same as or similar to the Services (but not to the provision of other services) but excluding the making, amendment or revocation of any traffic regulation order;

"Stage Build" means part of the Edinburgh Tram Network that once commissioned can be opened for Trial Operation;

"Sub-Milestones" means those sub-milestones identified in Schedule 3 (*Pricing Schedule*) as may be adjusted from time to time in accordance with this Agreement;

"Submitted Item" has the meaning given in paragraph 1.2 of Schedule 9 (*Review Procedure*);

"Sub-Sector" means each sub-sector identified in the Programme Phasing Structure;

"System-Wide Preliminary Design Requirements" means those high level requirements for the whole of the Edinburgh Tram Network described in paragraph 2.4 of Schedule 1 (*Scope of Services*);

"System-Wide Non-Functional Requirements" means the requirements set out in Schedule 16 (*System-Wide Non-Functional Requirements*) as may be amended and developed from time to time in accordance with this Agreement;

"TBC" means traction/brake controller;

"Technical Specifications" are the specifications to be prepared by the SDS Provider to describe the technical aspects of each part of the Edinburgh Tram Network which shall meet the Functional Requirements Specifications and shall allow all aspects of the Edinburgh Tram Network to be procured, constructed, installed, commissioned and maintained;

"Termination Date" means the date of termination expressed in a notice served in accordance with Clauses 19 (*Termination for SDS Provider Default*), 20 (*Termination, Abandonment or Suspension of the Services by the Client*), 21 (*Termination for the Client Default*), 22 (*Termination for Corrupt Gifts and Payments*), 23 (*Termination by Reason of Force Majeure*) or 24 (*Persistent Breach*) (as appropriate);

"Third Party Software" means programs, the Intellectual Property Rights in which are (a) owned by a third party and (b) used by SDS Provider to carry out its obligations under this Agreement;

"tie" means a company incorporated under the Companies Act with registered number SC230949 and having its registered office at City Chambers, High Street, Edinburgh, Midlothian, EH1 1YJ which shall include its successors in title and permitted assignees;

"tie Party" means any advisers appointed by tie or any of tie's agents, employees, contractors and sub-contractors of any tier and its or their directors, officers and employees (but excluding the SDS Provider, any SDS Provider Party) and statutory undertakers and utilities;

"TLA" means three letter acronym;

"Topics Register" means the central project register of all known issues relating to the design, construction, testing, commissioning, operation and maintenance of the Edinburgh Tram Network;

"TPDS" means tram position and detection system;

"Tram Bills" means the Edinburgh Tram (Line One) Bill and the Edinburgh Tram (Line Two) Bill,

"Tram Legislation" means the Edinburgh Tram (Line One) Bill and the Edinburgh Tram (Line Two) Bill, and after such Bills are enacted means the Edinburgh Tram

(Line One) Act, the Edinburgh Tram (Line Two) Act and such other legislation relative to the Edinburgh Tram Network as may be enacted from time to time;

"Tram Supplier" means the tram supplier to be procured by **tie** in relation to the supply of trams for the Edinburgh Tram Network;

"Tram Supply Contract" means the contract to be entered into by **tie** or other party with the Tram Supplier in relation to the supply of trams for the Edinburgh Tram Network;

"Transport Edinburgh Limited" means Transport Edinburgh Limited, (registered number SC269639) and having its registered office at City Chambers, High Street, Edinburgh, Midlothian, EH1 1YJ which shall include its successors in title and permitted assignees;

"Trial Operation" means the timetabled operation by the Operator of the Edinburgh Tram Network prior to the Service Commencement Date;

"TRTS" means tram ready to start;

"TSS Provider" means the technical support services provider to be appointed by **tie**;

"TVM" means automatic ticket vending machine;

"UPS" means uninterruptible power supply;

"UTC" means urban traffic control;

"UTX" means urban traffic controller device;

"VDV" means vibration dose value;

"WBS" means work breakdown structure;

1.2 Unless the context requires otherwise:

1.2.1 words importing gender include masculine, feminine and neuter;

1.2.2 the singular includes the plural and vice versa;

1.2.3 a reference to any part, Clause, sub-clause or Schedule is, except where it is expressly stated to the contrary, a reference to such part, Clause or sub-clause of or Schedule to this Agreement;

1.2.4 a reference in any Schedule to any part, paragraph or sub-paragraph is, except where it is expressly stated to the contrary, a reference to such part, paragraph or sub-paragraph of that Schedule (as the case may be);

1.2.5 any reference to this Agreement or to any other document shall include any variation, amendment, or supplement to this Agreement or such document as expressly permitted under the terms of this Agreement;

- 1.2.6 any reference to any enactment, order, regulation or other similar instrument (including any EU instrument) (whether specifically named or not) shall be construed as a reference to the enactment, order, regulation or instrument as amended, replaced, consolidated or re-enacted and shall include any orders, consents, regulations, legally binding codes of practice or subordinate legislation (within the meaning of section 21(1) of the Interpretation Act 1978) made thereunder;
- 1.2.7 a reference to a person includes individuals, firms, partnerships, bodies corporate, joint ventures, government departments and any organisation capable of suing or being sued and references to any of the same include the others and their successors and assignees and transferees to the extent that such assignment and transfer are expressly permitted under the terms of this Agreement;
- 1.2.8 headings and the contents list are for convenience of reference only and do not affect the interpretation of this Agreement;
- 1.2.9 the ejusdem generis rule does not apply and the meaning of general words is not to be restricted by any particular examples preceding or following those general words;
- 1.2.10 a reference to a time of day is a reference to the time in Scotland;
- 1.2.11 subject to the restrictions imposed by this Agreement on subcontracting, an obligation to do something includes an obligation to procure it to be done;
- 1.2.12 an obligation not to do something includes an obligation not to wilfully allow it to be done;
- 1.2.13 the word "including" means "including without limitation";
- 1.2.14 a reference to "consent" shall mean consent in writing;
- 1.2.15 any reference to any Deliverable or course of action being reviewed, approved, agreed, consented to or otherwise processed in accordance with this Agreement means that the provisions of Schedule 9 (*Review Procedure*) shall apply except where otherwise agreed in writing by the Client.
- 1.3 This Agreement shall be interpreted and construed as a whole provided that in the event of any inconsistency or conflict between:
- 1.3.1 the main body of this Agreement and the Schedules, the main body of this Agreement shall prevail to the extent of any such inconsistency or conflict over the Schedules
- 1.3.2 the main body of this Agreement and the Schedules and the Formal Offer and/or the Letter of Appointment, the main body of the Agreement and the Schedules shall prevail to the extent of any such inconsistency or conflict over the Formal Offer and/or the Letter of Appointment
- unless expressly stated otherwise by the Client.
- 1.4 In the case of any inconsistency or conflict between or in any of the documents forming the Agreement, or any inconsistency or conflict between the Agreement and any instructions from the Client or the Client's Representative, the SDS Provider shall notify the Client within 3 Business Days and the Client, subject to Clause 1.3, shall

issue in writing such further instructions as the Client considers appropriate in its absolute discretion to resolve the inconsistency or conflict.

1.5 Where a Party comprises two or more persons:

1.5.1 any obligations on the part of that Party contained or implied in this Agreement are deemed to be joint and several obligations on the part of those persons; and

1.5.2 references to that party include references to each and any of those persons.

2. TERM OF THIS AGREEMENT

2.1 This Agreement shall come into effect on the last date of execution of this Agreement and shall continue in effect until the date on which the SDS Provider is notified by the Client that the defects liability period for the Infraco Contract has ended in accordance with the terms of the Infraco Contract provided always that the Parties may agree to extend the term of this Agreement.

3. DUTY OF CARE, STANDARDS AND THE SERVICES TO BE PROVIDED

General

3.1 The Client hereby appoints the SDS Provider in accordance with the terms of this Agreement and the SDS Provider hereby accepts full responsibility and agrees to perform the Services and its other obligations under this Agreement fully and faithfully in the best interests of the Client.

3.2 The SDS Provider warrants to the Client that, in the performance of the Services and its other obligations under this Agreement it shall exercise a reasonable level of professional skill, care and diligence to be expected of a properly qualified and competent system design services provider experienced in performing services similar to the Services in connection with projects of a similar size, scope and complexity.

3.3 The SDS Provider shall (each as distinct and separate obligations) perform the Services and its other obligations under this Agreement (exercising the level of skill, care and diligence set out in Clause 3.2):

3.3.1 so as to comply in all respects with this Agreement;

3.3.2 so as to enable the Edinburgh Tram Network to be procured, constructed, installed, tested and commissioned, and thereafter operated and maintained;

3.3.3 in accordance with the SDS Provider's quality management system and plans;

3.3.4 so as to ensure compliance with the Functional Requirements Specifications and the Technical Specifications (as applicable);

3.3.5 in accordance with the Design Manual;

3.3.6 so as to ensure compliance with the Tram Legislation;

3.3.7 so as to ensure compliance with all applicable Law and Consents;

3.3.8 in accordance with the Parliamentary Undertakings;

- 3.3.9 in compliance with the Environmental Statements, and all other applicable environmental regulations and requirements;
- 3.3.10 so as to permit compliance with the Code of Construction Practice and with the Construction Proposals;
- 3.3.11 in accordance with Good Industry Practice;
- 3.3.12 to ensure that the design of the Edinburgh Tram Network is buildable;
- 3.3.13 to assist **tie** in ensuring that best value (pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act 2003) has been secured in the performance of the Services;
- 3.3.14 in such manner so as not wilfully to detract from the image and reputation of **tie**, Transport Edinburgh Limited, CEC, the Scottish Executive or any project related to the performance of the Services;
- 3.3.15 in a manner that is not likely to be injurious to persons or property; and
- 3.3.16 using the Key Personnel and such other staff as may be approved by the Client for that type of work.

3.4 The SDS Provider shall to the extent necessary for the performance of its Services and its other obligations under this Agreement take due and proper account of the risks associated with the Edinburgh Tram Network arising from:

- 3.4.1 ground conditions (including climatic, geotechnical, ecological, environmental, hydrological and sub-surface conditions, any contamination and any archaeological finds);
- 3.4.2 use by third parties of any of the land which will form part of or be associated with or will be adjacent to the Edinburgh Tram Network;
- 3.4.3 the quality of any existing structures;
- 3.4.4 the obligations assumed or the undertakings given in any Parliamentary Undertakings relative to this Agreement; and
- 3.4.5 safety requirements and environmental matters.

3.5 The SDS Provider shall use best endeavours to ensure that the design of the Edinburgh Tram Network:

- 3.5.1 maximises construction productivity by reference to international best practice;
- 3.5.2 minimises disruption to the city of Edinburgh;
- 3.5.3 safeguards efficiency in the obtaining of Consents; and
- 3.5.4 optimises the Infraco's compliance with the Code of Construction Practice

3.6 The SDS Provider shall at all times keep itself fully informed about current professional standards and about all matters relating to, or which might have a bearing on, the performance of the Services and its other obligations under this Agreement.

- 3.7 The SDS Provider's duties and obligations under or pursuant to this Agreement will not be released, diminished or in any other way affected by any independent inquiry into any matter which may be made or carried out by the Client or by any firm, company or party on the Client's behalf nor by any action or omission of any such firm, company or party whether or not such action or omission might give rise to any independent liability of such firm, company or party to the Client.
- 3.8 The SDS Provider is deemed to have satisfied itself that it fully understands the scope and extent of the Services and its other obligations under this Agreement, and that it has sufficient information or will at the relevant time have sufficient information, to enable it to perform the Services and its other obligations under this Agreement.
- 3.9 The SDS Provider acknowledges that the Client will rely upon the skill and judgement of the SDS Provider in connection with all matters for which the SDS Provider is responsible under this Agreement.

Background Information

- 3.10 The SDS Provider acknowledges that certain Background Information has been made available to it in relation to this Agreement. The SDS Provider further acknowledges that **tie** does not give any warranty or undertaking as to the completeness, currency, accuracy or fitness for any purpose of any of the Background Information and, subject to the express provisions of this Agreement, neither **tie**, any **tie** Parties, nor any of its or their employees shall be liable to the SDS Provider in contract, delict (including breach of statutory duty), or otherwise as a result of:
- 3.10.1 any inaccuracy, error, defect, omission, unfitness for any purpose or inadequacy of any kind whatsoever in the Background Information; nor
 - 3.10.2 any failure to make available to the SDS Provider any materials, documents, drawings, plans or other information relating to this Agreement;
- provided that nothing in this Clause 3.10 shall exclude any liability in respect of any statements made or information provided fraudulently.
- 3.11 The SDS Provider acknowledges and confirms that as part of the Services it has conducted its own analysis and review of the Background Information and has before the execution of this Agreement, or upon receipt if received thereafter, satisfied itself as to the veracity, accuracy, reasonableness, scope, materiality, currency (where applicable) and completeness of all such Background Information upon which it places reliance.

Liaison and Compliance with Master Project Programme and Budget

- 3.12 The SDS Provider shall liaise with the Client, any Client Party, **tie**, any **tie** Party, the Tram Supplier, and any other parties as may be required by the Client or **tie** to facilitate the production, by such persons, of any information required from them, in order that the Services and its other obligations under this Agreement can be progressed according to the Master Project Programme and the Programme. The SDS Provider shall liaise with the Client, any Client Party, **tie**, any **tie** Party, the Tram Supplier, and any other parties as may be required by the Client or **tie** as often as is necessary in order to ensure that the Services and its other obligations under this Agreement are performed properly and in accordance with the terms of this Agreement.
- 3.13 The SDS Provider shall collaborate and liaise with the Client throughout the performance of the Services, inter alia, to ensure due consideration is given to the

type of materials and optimum and cost effective construction methods, construction programme and temporary works, as appropriate.

- 3.14 Where the Client, or other bodies or persons involved in related works or services appoint other consultants or use their own staff for purposes related to the Services or the SDS Provider's other obligations under this Agreement, the SDS Provider shall use all reasonable endeavours (including the use of liaison with such other bodies or persons) to ensure that the Services, the SDS Provider's other obligations under this Agreement and these related works are carried out together with the greatest economy and in accordance with the Master Project Programme and the Programme.
- 3.15 In performing the Services and its other obligations under this Agreement, the SDS Provider will have regard to the constraints imposed by the Master Project Programme and the Programme and to the objective of keeping the overall costs of the Services and its other obligations under this Agreement within any budgetary constraints agreed with the Client. If the SDS Provider considers that there may be a conflict between its obligations under this Clause 3.15 and the performance of the Services and/or the performance of any of the SDS Provider's obligations under this Agreement, it will within 3 Business Days give written notice of the same to the Client.

Provision of all labour, goods, materials and services

- 3.16 The SDS Provider shall provide all labour, goods, materials and services whether of a temporary or permanent nature required in and for the execution of the Services and its other obligations under this Agreement so far as the necessity for providing the same is specified in this Agreement or could reasonably be foreseen therefrom by a system design services provider experienced in work of similar nature and scope as the Services.

Prohibited Materials

- 3.17 The SDS Provider warrants to the Client that it has not specified for use and shall use the standard of skill and care provided for in Clause 3.2 not to specify for use and shall use such skill and care consistent with any supervisory and inspection responsibilities to be undertaken as part of the Services to see that there shall not be used, any materials which at the time of specification or use (as the case may be):
- 3.17.1 are known to be deleterious in the particular circumstances in which they are specified to be used (either to health and safety or to the durability of any works on which the SDS Provider is employed by the Client); or
 - 3.17.2 contravene any relevant standard or code of practice issued from time to time by the BSI Group or under a European directive relating to standards; or
 - 3.17.3 do not accord with the guidelines contained in the edition of the publication "Good Practice in Selection of Construction Materials" (Ove Arup & Partners) current at the date of specification of use; or
 - 3.17.4 contravene Good Industry Practice.

CDM Regulations

- 3.18 The SDS Provider warrants to the Client that it shall carry out and fulfil the responsibilities of a "Designer" imposed by the CDM Regulations and shall co-operate with and supply any required information to any planning supervisor appointed by the Client or the Infracore (as appropriate) in the performance by the planning supervisor of its obligations under the CDM Regulations. The SDS Provider shall notify the Client as soon as it becomes aware, or reasonably anticipates that it shall

have insufficient resources or the necessary competence to comply with its obligations under the CDM Regulations.

Mitigation and Open Book Accounting

- 3.19 The SDS Provider undertakes to co-operate with the Client in order to facilitate the performance of this Agreement and in particular will:
- 3.19.1 approach all pricing, estimating and budgeting functions on a collaborative and Open Book Basis;
 - 3.19.2 use reasonable endeavours to avoid unnecessary complaints, disputes and claims against or with the Client;
 - 3.19.3 not interfere with the rights of the Client in performing its obligations under this Agreement, nor in any other way hinder or prevent the Client from performing those obligations or from enjoying the benefits of its rights;
 - 3.19.4 take reasonable steps to mitigate any costs, unnecessary acts, foreseeable losses and liabilities of the Client; and
 - 3.19.5 take all reasonable steps to manage, minimise and mitigate all costs.

Investigations and Surveys

- 3.20 The SDS Provider shall notify the Client of any ground, physical, geophysical investigations or archaeological or ecological surveys or any other investigations or surveys which it intends to carry out.

Procurement Support

- 3.21 The SDS Provider shall make suitable facilities and resources available upon reasonable notice from the bidders for the Infraco Contract and the Tram Supply Contract to permit and facilitate the ability of these bidders to thoroughly examine, check and satisfy themselves as to the adequacy, correctness and suitability of the Deliverables which have been created by the SDS Provider and which the Infraco and the Tram Supplier will be adopting and making use of respectively in the Infraco Contract and the Tram Supply Contract. No additional costs shall be paid to the SDS Provider in respect of the provision of such suitable facilities and resources or the supply to bidders of any Deliverables as part of the procurement process.
- 3.22 The SDS Provider shall permit the bidders for the Infraco Contract and the Tram Supply Contract to carry out a due diligence exercise on this Agreement (including any commercial terms) prior to the award of the Infraco Contract and the Tram Supply Contract provided that **tie** shall procure that such bidders are required to enter into a confidentiality agreement or other agreement incorporating provisions on confidentiality.
- 3.23 The SDS Provider agrees to adhere to the bidding protocols be developed and issued by **tie** relative to the procurement of the Infraco Contract and the Tram Supply Contract which shall cover issues including interaction with the bidders, limits of assistance to be given to the bidders, confidentiality, collusion, development of the design and continuing performance of the Services.

Defects Rectification

- 3.24 The SDS Provider shall assist the Infraco as appropriate in the design and execution of any defects rectification relative to the Edinburgh Tram Network, and in obtaining a defects rectification certificate from **tie**.

System Integration

- 3.25 The SDS Provider shall liaise with the Operator as instructed by the Client in relation to:
- 3.25.1 system operation and related design issues;
 - 3.25.2 commissioning and Trial Operation; and
 - 3.25.3 operational defects.
- 3.26 The SDS Provider shall be responsible for ensuring that all elements of the design relative to the Edinburgh Tram Network are compatible with system integration and the SDS Provider shall make qualified personnel available to support the the Client in the discharge of its responsibilities to ensure system integration.

Traffic Management Protocol

- 3.27 The SDS Provider shall undertake the development of a traffic management protocol (with a view to this document becoming part of the Infraco Contract) and shall attend all meetings with the Client, **tie**, CEC, any other Relevant Authorities and the Operator to discuss traffic management issues.

4. DEVELOPMENT, REVIEW, FINALISATION AND DELIVERY OF THE DELIVERABLES

- 4.1 The SDS Provider shall develop and finalise the Deliverables in accordance with this Agreement, and the Client shall be entitled to review the Deliverables in accordance with Schedule 9 (*Review Procedure*).
- 4.2 The SDS Provider shall submit the design of any changes and any other Deliverables associated with any changes developed pursuant to Clause 15 (*Changes*) to the Client's Representative for review pursuant to Schedule 9 (*Review Procedure*).
- 4.3 The SDS Provider shall allow the Client's Representative, at any time, a reasonable opportunity to view any Deliverable at any stage of development, and this opportunity shall be made available to the Client's Representative as soon as reasonably practicable following receipt of any written request from the Client's Representative.
- 4.4 The SDS Provider shall establish and maintain a computerised database/repository which the Client, the Client's Representative, **tie**, any **tie** Parties and any other party reasonably required by **tie** may access remotely by computer (through an appropriate login/security regime) to view drawings comprised within the Deliverables and electronically store and/or print copies of such Deliverables.
- 4.5 The SDS Provider shall, as soon as reasonably practicable after the Effective Date, submit to the Client's Representative a submittal programme setting out the order in which each Deliverable is to be submitted. The SDS Provider may, as necessary, update such programme and shall submit the same from time to time to the Client's Representative so that the Client has at least 14 days' notice of any revision to the periods shown in the previous submittal programme and the SDS Provider shall submit to the Client's Representative five copies of each Deliverable no later than the end of the period shown in the submittal programme for that Deliverable.

- 4.6 Where the Client's Representative does not consider that the Client will be able to comply with the periods specified in Schedule 9 (*Review Procedure*) for indicating 'no objection' status or the making of objections in relation to any Deliverable because of the volume of documents to be received in accordance with the submittal programme, the Client's Representative may introduce an alternative timetable and the SDS Provider shall comply with such alternative timetable. Provided that, where the Client is unable to comply with the time periods set out in Schedule 9 (*Review Procedure*) and such inability is not due to any breach of this Agreement, omission or fault on the part of the SDS Provider, the introduction of an alternative timetable shall be treated as a Client Change and the terms of Clause 15 (*Changes*) shall apply.
- 4.7 During the preparation of the Deliverables, the Client and/or the Client's Representative shall at its discretion be entitled to call for a meeting to discuss the development of any Deliverable, and the SDS Provider shall give due consideration to any comments made by the Client or the Client's Representative at any such meetings. As soon as reasonably practicable following any such meeting, the SDS Provider will prepare and circulate to those attending the meeting a report listing the Deliverables discussed and any comments made at such meeting.
- 4.8 If it should be found that the Deliverables do not fulfil the requirements of this Agreement or the needs of any Approval Bodies, the SDS Provider shall at its own expense amend the Deliverable. Such amendment shall be made in accordance with Schedule 9 (*Review Procedure*) and such amendment and rectification shall ensure that the Deliverable shall satisfy the requirements of this Agreement and any Approval Bodies.
- 4.9 The SDS Provider shall provide the Client with all Deliverables in accordance with the terms of this Agreement and where no timescale for provision of such Deliverables is specified, such Deliverables shall be provided to the Client as soon as reasonably practicable. The SDS Provider shall provide to the Client, at no cost to the Client, five copies of the Deliverables in hard copy form and one copy in an agreed soft copy form (as appropriate to the format of the Deliverables). In respect of any further copies of a particular Deliverable, the Client may require or which it may require, the SDS Provider agrees to absorb the reasonable copying charges or other reasonable charges for provision of the same to the Client as the Client requires and for the purposes of achieving all Consents.
- 4.10 In addition to the requirements of Clause 4.9, the SDS Provider shall provide to the Client, at no cost to the Client, five copies in hard copy form and one copy in an agreed soft copy form of the as-built drawings and any manuals prepared.
- 4.11 The SDS Provider accepts all risks arising from any conflicts, ambiguities, discrepancies, errors or omissions that subsequently appear within or between any of the Functional Requirements Specifications, the Technical Specifications and any of the other Deliverables, and the SDS Provider shall not be entitled to make any claim against the Client for an extension of time, payment or otherwise in respect of any such conflicts, ambiguities, discrepancies, errors or omissions.
- 4.12 The SDS Provider shall within 3 Business Days notify the Client upon becoming aware of any conflicts, ambiguities, discrepancies, errors or omissions within or between any of the Functional Requirements Specifications, the Technical Specifications, and any of the other Deliverables. Where there are any conflicts, ambiguities, discrepancies, errors or omissions, the SDS Provider shall provide with any notification its proposals for resolving such conflicts, ambiguities, discrepancies, errors or omissions in compliance with this Agreement. Such proposals could include the suggestion that no action is required. The SDS Provider shall proceed with its proposals to resolve any such conflicts, ambiguities, discrepancies, errors or omissions as soon as reasonably practicable. If the proposal from the SDS Provider

is that no action is required or the Client does not agree with the action proposed by the SDS Provider, the Client may notify the SDS Provider, within 10 Business Days of the SDS Provider's notice, to resolve any conflicts, ambiguities, discrepancies, errors or omissions in a different manner (which notification shall be binding on the SDS Provider).

- 4.13 The SDS Provider shall develop the Functional Requirements Specifications and the Technical Specifications using innovative solutions which are in accordance with Good Industry Practice.

5. CONSENTS

- 5.1 The SDS Provider shall (at its own cost and expense):

5.1.1 obtain and maintain in effect all Consents which may be required for the construction, installation, commissioning, completion and opening of the Edinburgh Tram Network as is consistent with, required by or contained within the Services; and

5.1.2 implement each Consent within the period of its validity and in accordance with its terms.

- 5.2 The SDS Provider shall provide copies of such Consents to the Client's Representative. At the request of the SDS Provider, the Client may at its discretion render appropriate assistance, without any obligation, in relation to obtaining any Consent.

- 5.3 Acknowledgement by the Client of the copies of Consents provided to them pursuant to Clause 5.2 shall not in any way affect the SDS Provider's obligations or relieve the SDS Provider from its obligations pursuant to this Clause 5 (*Consents*) or otherwise.

- 5.4 The SDS Provider shall provide the Client with a programme of Consents to be obtained within 30 days of the Effective Date and shall update the programme on a monthly basis showing progress and any new Consents to be obtained. The Client shall be entitled to request information in relation to the progress of the application for any such Consent and the Consent itself and the SDS Provider shall provide the same at no cost to the Client.

6. QUALITY ASSURANCE

- 6.1 The SDS Provider shall operate a quality management system, and comply with such system. Such quality management system shall be reflected in appropriate quality management plans, the standard of which shall comply with BS EN 150 9001:2000. Such plans shall be developed in accordance with the Review Procedure.

- 6.2 If in the opinion of the Client, any Deliverable is not prepared in accordance with the SDS Provider's quality management system or with any other provision of the Agreement, the Client shall so inform the SDS Provider in writing giving reasons. Such non-compliance shall be treated as an error or omission in the performance of the Services and the provisions of Clause 18 (*Errors and/or Omissions in the Services*) shall apply.

- 6.3 Compliance with any such approved quality management system shall not relieve the SDS Provider from any of its other duties, obligations or liabilities under this Agreement.

7. PROGRESS

7.1 Master Project Programme, Programme Phasing Structure and Programme

7.1.1 The SDS Provider shall progress the Services with due expedition and in a timely and efficient manner without delay, to achieve timeous completion of the Services (or any part thereof) and its other obligations under this Agreement in accordance with the Master Project Programme and unless otherwise agreed with the Client, the SDS Provider shall adhere to that Master Project Programme with due diligence.

7.1.2 Within 30 days of the Effective Date, the SDS Provider shall update the Programme with detailed programme information and shall thereafter maintain update and amend the Programme in accordance with the requirements set out in paragraph 4 of Schedule 1 (*Scope of Services*) and/or at additional or other intervals as may be reasonably required by the Client. Any updates or amendments to the Programme shall be approved by the Client in accordance with the Review Procedure or as may be otherwise agreed in writing by the Client.

7.2 The SDS Provider shall carry out the Services required in respect of the Requirements Definition Phase, the System-Wide Preliminary Design Requirements, the Preliminary Design Phase, and the Detailed Design Phase in the order of "criticality" (with "A" being the most critical), sequence and dates shown in the Programme Phasing Structure PROVIDED ALWAYS that the Client may at any time require the SDS Provider to stop, amend and/or accelerate such order of performance in respect of the whole or any part of the Requirements Definition Phase, the System-Wide Preliminary Design Requirements, the Preliminary Design Phase and/or the Detailed Design Phase. Any such stop, amendment or acceleration shall be complied with as soon as reasonably practicably by the SDS Provider subject to the following procedure (unless otherwise agreed by the Parties):

7.2.1 the SDS Provider shall provide an Estimate to the Client for any required stop, amendment or acceleration within 5 Business Days of any request from the Client;

7.2.2 any Estimate provided by the SDS Provider shall include the opinion of the SDS Provider (acting reasonably) on the following matters:

7.2.2.1 whether relief from compliance with any of its obligations under this Agreement is required as a result of the required stop, amendment or acceleration;

7.2.2.2 any impact on the performance of the Services;

7.2.2.3 any impact on the Master Project Programme and the Programme, and any requirement for an extension of time;

7.2.2.4 any amendment required to the Agreement as a result of the required stop, amendment or acceleration,

7.2.2.5 the proposed method of delivery of the required stop, amendment or acceleration;

7.2.2.6 proposals to mitigate the impact of the required stop, amendment or acceleration; and

7.2.2.7 any increase or decrease in any sums due to be paid to the SDS Provider (including any milestone payments and lump sum payments) as a result of the required stop, amendment or acceleration.

7.2.3 the valuation of any required stop, amendment or acceleration shall be added to or deducted from the sums due to be paid to the SDS Provider as the case may be and shall be ascertained, by the Client as follows:

7.2.3.1 by measurement and valuation at the rates and prices for similar work in Schedule 3 (*Pricing Schedule*) insofar as such rates and prices apply;

7.2.3.2 if such rates and prices do not apply by measurement and valuation at rates and prices deduced therefrom insofar as it is practical to do so;

7.2.3.3 if such rates and prices do not apply and it is not practicable to deduce rates and prices therefrom by measurement and/or valuation at fair rates and prices; or

7.2.3.4 if the value of the required stop, amendment or acceleration cannot properly be ascertained by measurement and/or valuation, the value of the resources and labour employed thereon, as appropriate, in accordance with the basis of rates for provisional work set out in Schedule 3 (*Pricing Schedule*);

provided that where any required stop, amendment or acceleration would otherwise fall to be valued under Clauses 7.2.3.1 and 7.2.3.2 above, but the Client's Representative is of the opinion that the instruction therefor was issued at such a time or was of such content as to make it unreasonable for the alteration or addition to be so valued, the value of the required stop, amendment or acceleration shall be ascertained by measurement and/or valuation at fair rates and prices.

7.2.4 The SDS Provider shall include in the Estimate evidence demonstrating that:

7.2.4.1 the SDS Provider has used all reasonable endeavours to minimise (including by the use of competitive quotes) any increase in costs and to maximise any reduction of costs;

7.2.4.2 the SDS Provider has, where required by the Client, sought competitive quotes from persons other than the SDS Provider Parties in pursuance of its obligation under Clause 7.2.4.1 above;

7.2.4.3 the SDS Provider has investigated how to mitigate the impact of the required stop, amendment or acceleration; and

7.2.4.4 the required stop, amendment or acceleration will, where relevant, be implemented in the most cost-effective manner.

7.2.5 As soon as reasonably practicable after the Client receives the Estimate, the Parties shall discuss and agree the issues set out in the Estimate. From such discussions the Client may modify its original instruction in relation to the required stop, amendment or acceleration, and the Client may require the SDS Provider to seek and evaluate competitive tenders. In each case, the SDS Provider shall, as soon as practicable, and in any event not more than

14 days after receipt of such instruction, notify the Client of any consequential changes to the Estimate.

7.2.6 If the Parties cannot agree on the contents of the Estimate, then either Party may refer the Estimate for determination in accordance with the Dispute Resolution Procedure.

7.2.7 As soon as reasonably practicable after the contents of the Estimate have been agreed or determined pursuant to the Dispute Resolution Procedure the Client shall:

7.2.7.1 confirm its instruction in relation to the required stop, amendment or acceleration; or

7.2.7.2 withdraw its instruction in relation to the required stop, amendment or acceleration.

7.2.8 If the Client does not confirm its instruction in relation to the required stop, amendment or acceleration within 30 days of the contents of the Estimate having been agreed or determined pursuant to Clause 7.2.7, then the instruction in relation to the required stop, amendment or acceleration shall be deemed to have been withdrawn.

7.3 Design and Technical Gateway Process

Gateway from the Requirements Definition Phase to the preparation of the System-Wide Preliminary Design Requirements

7.3.1 The SDS Provider shall, within 3 Business Days, notify the Client when the SDS Provider considers that it has completed each of the Services to be carried out pursuant to the Requirements Definition Phase and that all matters to be agreed during the Requirements Definition Phase have been agreed between the SDS Provider and the Client. Without limitation, the SDS Provider shall not serve such notice until the Services described in paragraph 2.3 of Schedule 1 (*Scope of Services*) have been completed.

7.3.2 If the Client agrees that all of such Services have been completed and/or the relevant matters agreed, the Client shall issue a Milestone Completion Certificate and notify the SDS Provider in writing within 10 Business Days that the preparation of the System-Wide Preliminary Design Requirements can commence. Subject to Clause 7.2 and notwithstanding that a Milestone Completion Certificate may have been issued by the Client, the SDS Provider shall not commence the Detailed Design Phase in respect of such Sub-Sector or Sector (as appropriate) until the Client shall have confirmed such commencement by notice in writing to the SDS Provider.

7.3.3 To the extent that the Client considers that any Services have not been completed by the SDS Provider and/or the relevant matters agreed, the Client shall within 10 Business Days notify the SDS Provider in writing accordingly, including details of the further activities to be carried out by the SDS Provider in order to complete such Services.

7.3.4 After receiving any notification from the Client under Clause 7.3.3, the SDS Provider shall within 3 Business Days re-notify the Client when the SDS Provider considers that it has completed each of the Services to be carried out pursuant to the Requirements Definition Phase and that all matters to be agreed during the Requirements Definition Phase have been agreed between the SDS Provider and the Client, and the provisions of Clauses 7.3.1 to 7.3.3 shall apply mutatis mutandis to such re-notification.

7.3.5 To the extent that some but not all of the Services in respect of the Requirements Definition Phase have been completed and/or relevant matters agreed, the Client may, in its sole discretion, notify the SDS Provider in writing that the preparation of the System-Wide Preliminary Design Requirements shall commence and in such circumstances:

7.3.5.1 the Client may direct that some or all of the preparation of the System-Wide Preliminary Design Requirements shall be commenced; and

7.3.5.2 the SDS Provider shall continue to provide the Services in respect of the Requirements Definition Phase until (i) the relevant Services have been completed, and (ii) all matters to be agreed during Requirements Definition Phase have been agreed between the SDS Provider and the Client, or until the Client otherwise directs;

PROVIDED ALWAYS that the Client shall not issue a Milestone Completion Certificate in respect of the Requirements Definition Phase until all of the Services have been completed and/or the relevant matters agreed.

Gateway from the preparation of the System-Wide Preliminary Design Requirements to the Preliminary Design Phase in respect of each Sub-Sector

7.3.6 The SDS Provider shall within 3 Business Days notify the Client when the SDS Provider considers that it has completed each of the Services to be carried out pursuant to the preparation of the System-Wide Preliminary Design Requirements and that all matters to be agreed in respect of the preparation of the System-Wide Preliminary Design Requirements have been agreed between the SDS Provider and the Client. Without limitation, the SDS Provider shall not serve such notice until the relevant Services described in paragraph 2.4 of Schedule 1 (*Scope of Services*) have been completed to a high level for the whole System.

7.3.7 If the Client agrees that all of such Services have been completed and/or the relevant matters agreed, the Client shall issue a Milestone Completion Certificate and notify the SDS Provider in writing within 10 Business Days that the Preliminary Design Phase in respect of each Sub-Sector can commence. Subject to Clause 7.2 and notwithstanding that a Milestone Completion Certificate may have been issued by the Client, the SDS Provider shall not commence the Detailed Design Phase in respect of such Sub-Sector or Sector (as appropriate) until the Client shall have confirmed such commencement by notice in writing to the SDS Provider.

7.3.8 To the extent that the Client considers that any Services have not been completed by the SDS Provider and/or the relevant matters agreed, the Client shall within 10 Business Days notify the SDS Provider in writing accordingly, including details of the further activities to be carried out by the SDS Provider in order to complete such Services.

7.3.9 After receiving any notification from the Client under Clause 7.3.8, the SDS Provider shall within 3 Business Days re-notify the Client when the SDS Provider considers that it has completed each of the Services to be carried out pursuant to the System-Wide Preliminary Design Requirements and that all matters to be agreed during the System-Wide Preliminary Design Requirements have been agreed between the SDS Provider and the Client, and the provisions of Clauses 7.3.6 to 7.3.9 shall apply mutatis mutandis to such re-notification.

7.3.10 To the extent that some but not all of the Services in respect of the preparation of the System-Wide Preliminary Design Requirements have been completed and/or the relevant matters agreed, the Client may, in its sole discretion, notify the SDS Provider in writing that the Preliminary Design Phase in respect of each Sub-Sector or Sector (as appropriate) shall commence and in such circumstances:

7.3.10.1 the Client may direct that some or all of the Services in respect of the Preliminary Design Phase shall be commenced; and

7.3.10.2 the SDS Provider shall continue to provide the Services in respect of the preparation of the System-Wide Preliminary Design Requirements until (i) the relevant Services have been completed, and (ii) all matters to be agreed in respect of the preparation of the System-Wide Preliminary Design Requirements have been agreed between the SDS Provider and the Client, or until the Client otherwise directs.

PROVIDED ALWAYS that the Client shall not issue a Milestone Completion Certificate in respect of the preparation of the System-Wide Preliminary Design Requirements until all of the Services have been completed and/or the relevant matters agreed.

Gateway from the Preliminary Design Phase in respect of each Sub-Sector or Sector (as appropriate) to the Detailed Design Phase in respect of each Sub-Sector or Sector (as appropriate)

7.3.11 In respect of each Sub-Sector or Sector (as appropriate), the SDS Provider shall within 3 Business Days notify the Client when the SDS Provider considers that it has completed each of the Services to be carried out pursuant to the Preliminary Design Phase in respect of each Sub-Sector or Sector (as appropriate) and that all matters to be agreed in respect of the Preliminary Design Phase in respect of each Sub-Sector or Sector (as appropriate) have been agreed between the SDS Provider and the Client. Without limitation, the SDS Provider shall not serve such notice until the Services described in paragraph 2.4 of Schedule 1 (*Scope of Services*) have been completed.

7.3.12 If the Client agrees that all of such Services have been completed and/or the relevant matters agreed in respect of a Sub-Sector or Sector (as appropriate), the Client shall issue a Milestone Completion Certificate within 10 Business Days. Subject to Clause 7.2 and notwithstanding that a Milestone Completion Certificate may have been issued by the Client, the SDS Provider shall not commence the Detailed Design Phase in respect of such Sub-Sector or Sector (as appropriate) until the Client shall have confirmed such commencement by notice in writing to the SDS Provider.

7.3.13 To the extent that the Client considers that any Services have not been completed by the SDS Provider and/or the relevant matters agreed, the Client shall within 10 Business Days notify the SDS Provider in writing accordingly, including details of the further activities to be carried out by the SDS Provider in order to complete such Services.

7.3.14 After receiving any notification from the Client under Clause 7.3.13, the SDS Provider shall within 3 Business Days re-notify the Client when the SDS Provider considers that it has completed each of the Services to be carried out pursuant to the Preliminary Design Phase in respect of such Sub-Sector or Sector (as appropriate) and that all matters to be agreed during the

Preliminary Design Phase in respect of such Sub-Sector or Sector (as appropriate) have been agreed between the SDS Provider and the Client, and the provisions of Clauses 7.3.11 to 7.3.13 shall apply mutatis mutandis to such re-notification.

7.3.15 To the extent that some but not all of the Services to be carried out pursuant to the Preliminary Design Phase in respect of a Sub-Sector or Sector (as appropriate) have been completed and/or the relevant matters agreed, the Client may, in its sole discretion, notify the SDS Provider in writing that the Detailed Design Phase in respect of such Sub-Sector or Sector (as appropriate) shall commence and in such circumstances:

7.3.15.1 the Client may direct that some or all of the Services to be performed pursuant to the Detailed Design Phase in respect of such Sub-Sector or Sector (as appropriate) shall be commenced; and

7.3.15.2 the SDS Provider shall continue to provide the Services to be carried out pursuant to Preliminary Design Phase in respect of such Sub-Sector or Sector (as appropriate) until (i) the relevant Services have been completed, and (ii) all matters to be agreed in respect of the Preliminary Design Phase in respect of such Sub-Sector or Sector (as appropriate) have been agreed between the SDS Provider and the Client, or until the Client otherwise directs.

PROVIDED ALWAYS that the Client shall not issue a Milestone Completion Certificate in respect of the Detailed Design Phase for such Sub-Sector or Sector (as appropriate) until all of the Services have been completed and/or the relevant matters agreed.

Completion of the Detailed Design Phase in respect of each Sub-Sector or Sector (as appropriate)

7.3.16 In respect of each Sub-Sector or Sector (as appropriate), the SDS Provider shall within 3 Business Days notify the Client when the SDS Provider considers that it has completed each of the Services to be carried out pursuant to the Detailed Design Phase in respect of each Sub-Sector or Sector (as appropriate) and that all matters to be agreed in respect of the Detailed Design Phase in respect of each Sub-Sector or Sector (as appropriate) have been agreed between the SDS Provider and the Client. Without limitation, the SDS Provider shall not serve such notice until the Services described in paragraph 2.6 of Schedule 1 (*Scope of Services*) have been completed.

7.3.17 If the Client agrees that all of such Services have been completed and/or the relevant matters agreed in respect of a Sub-Sector or Sector (as appropriate), the Client shall issue a Milestone Completion Certificate within 10 Business Days.

7.3.18 To the extent that the Client considers that any Services have not been completed by the SDS Provider and/or the relevant matters agreed, the Client shall within 10 Business Days notify the SDS Provider in writing accordingly, including details of the further activities to be carried out by the SDS Provider in order to complete such Services.

7.3.19 After receiving any notification from the Client under Clause 7.3.18, the SDS Provider shall within 3 Business Days re-notify the Client when the SDS

Provider considers that it has completed each of the Services to be carried out pursuant to the Detailed Design Phase in respect of such Sub-Sector or Sector (as appropriate) and that all matters to be agreed during the Detailed Design Phase in respect of such Sub-Sector or Sector (as appropriate) have been agreed between the SDS Provider and the Client, and the provisions of Clauses 7.3.16 to 7.3.18 shall apply mutatis mutandis to such re-notification.

7.4 Delays

- 7.4.1 Within 3 Business Days of the SDS Provider becoming aware of the likelihood of delay to the performance of any element of the Services such that the Master Project Programme and the Programme are unlikely to be met, the SDS Provider shall notify the Client, informing the Client of the reasons, the likely delay and any measures, with estimated costs, which may mitigate the delay.
- 7.4.2 Following such notification, the SDS Provider shall promptly provide the Client with all necessary information to enable the Client to approve any amendments to the Master Project Programme and the Programme which the SDS Provider wishes to make in accordance with Clause 7.4.1.
- 7.4.3 If the Client instructs the SDS Provider to mitigate the delay, any such mitigation shall be at the SDS Provider's expense if the delay was the fault of the SDS Provider, otherwise any costs associated with such instruction will be dealt with as a variation in accordance with Clause 15 (*Changes*).

7.5 Extensions of Time

- 7.5.1 If for any other reason outwith the control of the SDS Provider and not arising out of the SDS Provider's breach of this Agreement or the SDS Provider's negligent or wilful act or omission, the SDS Provider considers that the SDS Provider is entitled to an extension of time for completion of the Services, the SDS Provider shall within 10 Business Days of becoming aware of such possible entitlement to an extension of time, request an extension of time from the Client stating the reason for the request and clearly indicating the length and basis of calculation of the extension of time requested.
- 7.5.2 Subject to Clause 7.5.3, within 10 Business Days of receipt of such notice the Client shall respond, either:
- (i) agreeing to the extension of time and consequent amendment of the Programme or the Master Project Programme; or
 - (ii) granting an amended extension of time and consequent amendment of the Programme or the Master Project Programme; or
 - (iii) clearly stating the further information required before reaching a decision; or
 - (iv) rejecting the request, clearly stating the Client's reason for doing so.
- 7.5.3 The SDS Provider shall not be entitled to any extension of time if and to the extent that the SDS Provider could (where such action is within the power of the SDS Provider and the SDS Provider could be reasonably expected to take such action, having regard to the scope and nature of the Services), by the exercise of the standard of skill, care and diligence provided for in Clause 3.2, have prevented or reduced the requirement for such extension of time.

7.6 Client Decisions & Information

- 7.6.1 Within 3 Business Days of the SDS Provider finding that a Client decision or information essential to the continuity of the Services or to achieving the Master Project Programme and the Programme is likely to be required, the SDS Provider shall give notice of that requirement to the Client with full supporting information including the date by which such decision or information is required to ensure that there is no delay to the continuity of the Services.
- 7.6.2 The Client shall within 7 days, in liaison with the SDS Provider, determine and notify the SDS Provider in writing of the date by which the decision is to be made or the information is to be provided.
- 7.6.3 In the event that the Client's notified date or the Client's actual decision or provision of information results in delay to the continuity of Services the matter shall be treated as an extension of time in accordance with Clause 7.5.
- 7.6.4 Where the SDS Provider makes any recommendation to the Client requiring the decision and agreement of the Client to proceed, any reasonably foreseeable effect of the application of that recommendation not fully described and evaluated by the SDS Provider using the standard of skill, care and diligence provided for in Clause 3.2 to the Client at the time of the recommendation or earlier shall be the full responsibility of the SDS Provider.

7.7 Abortive Work

- 7.7.1 Immediately that the SDS Provider becomes aware that any element of Services is likely to be Abortive Work for any reason, the SDS Provider shall notify the Client of:
- (i) the probable nature of the Abortive Work;
 - (ii) the cause of the Abortive Work being abortive;
 - (iii) the estimated effect of the Abortive Work in terms of cost, of time in completion of the Services and of any other matters in relation to the Agreement; and
 - (iv) any measures to be taken which may mitigate that effect.
- 7.7.2 The SDS Provider and the Client shall jointly investigate, and the Client shall determine the actual extent of any Abortive Work.
- 7.7.3 Payment by the Client to the SDS Provider in respect of any Abortive Work which has been carried out by the SDS Provider shall be determined as a variation in accordance with Clause 15 (*Changes*) of this Agreement provided always that no payment shall be due for Abortive Work which has resulted from any fault of the SDS Provider and/or any breach by the SDS Provider of its obligations under this Agreement.

8. KEY PERSONNEL, STAFF AND PROVISION OF ACCOMMODATION FOR THE CLIENT IN EDINBURGH

- 8.1 The SDS Provider shall ensure that:
- 8.1.1 the Key Personnel shall have day-to-day responsibility for and be involved in the performance of the Services; and
 - 8.1.2 in addition to the Key Personnel, there shall at all times be a sufficient number of staff (including all relevant grades of supervisory staff) available for the provision of the Services in accordance with this Agreement. This obligation shall include ensuring that there are sufficient staff to cover periods of holiday, sickness and other absences and anticipated and actual peaks in servicing the Client's requirements for the Services.
- 8.2 The SDS Provider shall locate staff at such locations as the SDS Provider considers convenient for the Project, provided that:
- 8.2.1 the SDS Provider acknowledges that it will not be entitled to any reimbursement from the Client in relation to the travel of any person to or from Edinburgh, or for the accommodation or subsistence of any person visiting Edinburgh; and
 - 8.2.2 the Client will require the SDS Provider to make the Key Personnel available for meetings in Edinburgh at such times as the Client may, in its sole discretion, direct; and
 - 8.2.3 the SDS Provider's Representative and other members of the SDS Provider's staff (as the Client may reasonably require) shall be required to be located in Edinburgh or such other location as may be reasonably required by the Client.
- 8.3 The SDS Provider shall ensure that there are no changes to the Key Personnel without the Client's prior written consent (such consent not to be unreasonably withheld or delayed in the case of a change necessitated by sickness or reasonable annual, maternity, paternity or compassionate leave or where one of the Key Personnel's employment ceases) and that any replacement persons shall be of at least equivalent status and ability to the person whom they replace.
- 8.4 The SDS Provider shall use all reasonable endeavours to ensure the continuity of the personnel assigned to perform the Services and shall select Key Personnel having careful regard to those persons' existing work load and other planned commitments.
- 8.5 The SDS Provider shall ensure that its Key Personnel and staff shall:
- 8.5.1 have the level of skill, experience and authority appropriate (i) to the Services to which such staff are allocated and (ii) the standards to be achieved pursuant to this Agreement; and
 - 8.5.2 receive such training and supervision as is necessary to ensure the proper performance of this Agreement and compliance with all regulatory requirements appropriate to and required for the performance of the Services in accordance with this Agreement.
- 8.6 All Key Personnel should have a nominated deputy who shall be capable of fulfilling the duties of the person to whom they are deputising in the event of their absence and who shall be kept fully informed of project status in the relevant area.

- 8.7 The SDS Provider shall not, during the period of this Agreement, contract or retain as an adviser or consultant, any person currently or previously employed or engaged as appropriate in the previous 3 months by the Client unless the prior written approval of the Client has been obtained.
- 8.8 The Client shall be at liberty to object to and require the SDS Provider to remove from the performance of the Services any person employed by the SDS Provider (including any person from any permitted SDS Provider Party) who in the reasonable opinion of the Client misconducts itself or is incompetent or negligent in the performance of its duties or persists in any conduct which is prejudicial to safety or health, and such persons shall not be again employed upon the Services without the permission of the Client. No compensation shall be payable by the Client in respect of such objection and removal.
- 8.9 If the Client gives the SDS Provider notice that any member of staff should be removed from involvement in the Services, the SDS Provider shall immediately comply with such notice.
- 8.10 The SDS Provider shall (and shall procure that the Key Personnel, its staff employed in the performance of the Services and the SDS Provider Parties) comply with all regulatory requirements appropriate to and required for the performance of the Services and any rules, regulations and instructions from the Client's Representative.
- 8.11 Unless co-located with tie, the SDS Provider shall provide a dedicated office space at the offices of the SDS Provider for four tie personnel with a meeting table for six, desks, chairs, storage, phones, use of printers, photocopiers, fax, an independent IT connection with a dedicated separate line and the usual welfare facilities.

9. SUB-LETTING AND THE APPOINTMENT OF SDS PROVIDER PARTIES

- 9.1 The SDS Provider shall not sub-let the whole of the Services.
- 9.2 Subject to Clause 9.3, the SDS Provider may sub-let part of the Services with the prior written approval of the Client to a sub-consultant, supplier, sub-contractor, specialist and/or other party for performance of that specific part of the Services.
- 9.3 The SDS Provider shall supply all relevant information (including curriculum vitae, financial and legal information, information on relevant experience and technical capacity, insurance details and the methodology for provision of the sub-let services) required by the Client to enable a decision to be made by the Client on the suitability of the proposed sub-consultant, supplier, sub-contractor, specialist and/or other party to perform the relevant part of the Services. The Client's decision on the use of any sub-consultant, supplier, sub-contractor, specialist and/or other party shall be final.
- 9.4 The SDS Provider shall be wholly responsible for the performance of the Services including any part of the Services carried out by any SDS Provider Party appointed by the SDS Provider.
- 9.5 Within 14 days of any written request from the Client, the SDS Provider shall procure collateral warranties from Corderoy, Halcrow and Ian White Associates, and shall use reasonable endeavours to procure the execution of a collateral warranty by any other SDS Provider Party in the Client's or tie's favour or in favour of such other party as may be reasonably required by the Client, and in a form acceptable to the Client (acting reasonably).

10. MANAGEMENT OF THE SERVICES

- 10.1 The Client's Representative shall:

- 10.1.1 be responsible for the day to day supervision of the Services to be performed by the SDS Provider;
- 10.1.2 exercise the functions and powers of the Client in relation to the Project which are identified in this Agreement;
- 10.1.3 exercise such other functions and powers of the Client under this Agreement as the Client may notify to the SDS Provider from time to time; and
- 10.1.4 be the primary point of contact for the SDS Provider with the Client;

and the SDS Provider shall observe, and shall procure that any SDS Provider Parties observe, all reasonable instructions of the Client and the Client's Representative in relation to this Agreement. The SDS Provider shall not and shall procure that any SDS Provider Parties shall not act upon any instruction from any other party unless confirmed by the Client or the Client's Representative in writing. If the SDS Provider or any SDS Provider Parties shall receive any such instructions, the SDS Provider shall notify the Client or the Client's Representative immediately.

- 10.2 The Client's Representative shall be entitled at any time, by notice in writing to the SDS Provider, to authorise any other persons to exercise the functions and powers of the Client delegated to him, either generally or specifically. Until further notice from the Client, any act of any such person shall, for the purposes of this Agreement, constitute an act of the Client's Representative and all references to "the Client's Representative" in this Agreement (apart from this Clause 10 (*Management of the Services*)) shall be taken as references to such person so far as they concern matters within the scope of such person's authority.
- 10.3 The Client may by notice in writing to the SDS Provider change the identity of the Client's Representative. The Client shall consult with the SDS Provider prior to the appointment of any replacement for the Client's Representative, taking account of the need for liaison and continuity in respect of this Agreement. Such change shall have effect on the date specified in the written notice.
- 10.4 During any period when a Client's Representative has not been appointed (or when the Client's Representative is unable through illness, incapacity or any other reason whatsoever to carry out or exercise his functions under this Agreement), the Client shall carry out the functions which would otherwise be performed by the Client's Representative.
- 10.5 No decision, act or omission of the Client, or the Client's Representative shall, except as otherwise expressly provided in this Agreement:
 - 10.5.1 in any way relieve or absolve the SDS Provider from, modify, or act as a waiver or personal bar of, any liability, responsibility, obligation or duty under this Agreement;
 - 10.5.2 in the absence of an express written instruction or authorisation issued by the Client under Clause 15 (*Changes*), constitute or authorise a variation; or
 - 10.5.3 be construed as restricting or binding the Client in any way save with regard to the specific project matters to which it relates.
- 10.6 The SDS Provider shall be entitled to treat all instructions and directions of the Client's Representative as those of the Client provided always that such instructions or directions of the Client's Representative are in writing, are not in conflict with or are inconsistent with this Agreement or any other express instructions or directions of the Client, and the SDS Provider shall not be required to determine whether an express

authority has in fact been given. The SDS Provider shall, as soon as reasonably practicable, bring to the attention of the Client any instructions or directions that are given to the SDS Provider that are ambiguous or in conflict or are inconsistent, and the Client will verify such instructions in writing.

- 10.7 If for any reason the Client's Representative considers it necessary to give any instructions or directions orally, then, provided that the Client confirms such instruction or direction within five Business Days, such oral instruction or direction shall be deemed to be an express instruction or direction of the Client.
- 10.8 The SDS Provider shall appoint a representative ("SDS Provider's Representative") who shall:
- 10.8.1 act as the principal point of contact for the Client, and the Client's Representative in relation to all matters related to this Agreement;
 - 10.8.2 have full authority to act on behalf of the SDS Provider for all purposes of this Agreement, and the Client and the Client's Representative shall be entitled to treat all instructions and directions of the SDS Provider's Representative as those of the SDS Provider;
 - 10.8.3 manage and co-ordinate the provision of the Services by the SDS Provider (and any SDS Provider Party) and the integration of provision of the Services with the tasks being performed by the Client's internal team and the other advisers appointed by the Client; and
 - 10.8.4 liaise with the Client's Representative in relation to various matters including the scope of the Services to be carried out from time to time.
- 10.9 The SDS Provider may by written notice to the Client change the identity of the SDS Provider's Representative. Where the SDS Provider wishes to do so, it shall by written notice to the Client propose a substitute for approval, taking account of the need for liaison and continuity in respect of the provision of the Services and the Master Project Programme and the Programme when the change is proposed. Such appointment shall be subject to the prior written approval of the Client (not to be unreasonably withheld or delayed).
- 10.10 The SDS Provider shall also nominate a deputy to the SDS Provider's Representative. During any period when the SDS Provider's Representative is unable through illness, incapacity, annual leave or any other reason whatsoever to carry out or exercise his functions under this Agreement, such deputy shall carry out the functions which would otherwise be performed by the SDS Provider's Representative.

11. METHODS OF PAYMENT

- 11.1 The fees for the performance of the Services shall be a combination of:
- 11.1.1 milestone payments incorporating sub-milestone payments, as set out in Schedule 3 (*Pricing Schedule*), or as may be otherwise agreed by the Client in accordance with this Agreement;
 - 11.1.2 a fixed lump sum or sums as set out in Schedule 3 (*Pricing Schedule*), or as may be otherwise agreed by the Client in accordance with this Agreement; and/or

- 11.1.3 a time based fee as may be agreed by the Client in accordance with this Agreement and in accordance with the relevant rates set out in Schedule 3 (*Pricing Schedule*) to this Agreement.
- 11.2 Any applications for payments for sums due under this Agreement shall be made in accordance with the procedure set out in Clause 12 (*Arrangements for Invoicing and Payment*) and any payment which is due to the SDS Provider shall be paid by the Client in accordance with the procedure set out in Clause 12 (*Arrangements for Invoicing and Payment*).
- 11.3 During the Requirements Definition Phase, the SDS Provider shall make applications for Requirements Definition Phase Sub-Milestone Payments in accordance with Clause 12 (*Arrangements for Invoicing and Payment*) for completed Requirements Definition Phase Sub-Milestones up to a cumulative value of fifty per cent (50%) of the total value of the Requirements Definition Phase Milestone Payment. The SDS Provider shall not make application for payment for any incomplete Requirements Definition Phase Sub-Milestones and the Client's decision as to whether any Requirements Definition Phase Sub-Milestone is complete shall be final. The SDS Provider shall make an application for payment of the remaining fifty per cent (50%) of the total value of the Requirements Definition Phase Milestone Payment following the issue of the Milestone Completion Certificate by the Client in respect of the Requirements Definition Phase.
- 11.4 The SDS Provider shall make an application for payment in respect of the System-Wide Preliminary Design Requirements in accordance with Clause 12 (*Arrangements for Invoicing and Payment*) following the issue of the Milestone Completion Certificate by the Client for the System-Wide Preliminary Design Requirements.
- 11.5 During the Preliminary Design Phase, the SDS Provider shall make applications for Preliminary Design Phase Sub-Milestone Payments in accordance with Clause 12 (*Arrangements for Invoicing and Payment*) for completed Preliminary Design Phase Sub-Milestones in respect of each Sub-Sector or Sector (as appropriate) up to a cumulative value of eighty per cent (80%) of the total value of the Preliminary Design Phase Milestone Payment for the relevant Sub-Sector or Sector (as appropriate). The SDS Provider shall not make application for payment for any incomplete Preliminary Design Phase Sub-Milestones and the Client's decision as to whether any Preliminary Design Phase Sub-Milestone is complete shall be final. The SDS Provider shall make an application for payment in respect of the remaining twenty per cent (20%) of the total value of the Preliminary Design Phase Milestone Payment for the relevant Sub-Sector or Sector (as appropriate) following the issue of the Milestone Completion Certificate by the Client in respect of the Preliminary Design Phase for the relevant Sub-Sector or Sector (as appropriate).
- 11.6 During the Detailed Design Phase, the SDS Provider shall make applications for Detailed Design Phase Sub-Milestone Payments in accordance with Clause 12 (*Arrangements for Invoicing and Payment*) for completed Detailed Design Phase Sub-Milestones in respect of each Sub-Sector or Sector (as appropriate) up to a cumulative value of eighty per cent (80%) of the total value of the Detailed Design Phase Milestone Payment for the relevant Sub-Sector or Sector (as appropriate). The SDS Provider shall not make application for payment for any incomplete Detailed Design Phase Sub-Milestones and the Client's decision as to whether any Detailed Design Phase Sub-Milestone is complete shall be final. The SDS Provider shall make an application for payment in respect of the remaining twenty per cent (20%) of the total value of the Detailed Design Phase Milestone Payment for the relevant Sub-Sector or Sector (as appropriate) following the issue of the Milestone Completion Certificate by the Client in respect of the Detailed Design Phase for the relevant Sub-Sector or Sector (as appropriate).

- 11.7 The SDS Provider shall make applications for payment in respect of any fixed lump sum or sums in accordance with Clause 12 (*Arrangements for Invoicing and Payment*) up to the agreed value of the fixed lump sum or sums and the Client shall not be liable to pay the SDS Provider any additional sum of money in relation to the Services to which the fixed lump sum or sums relates, unless agreed expressly in writing by the Client in accordance with this Agreement.

12. ARRANGEMENTS FOR INVOICING AND PAYMENT

- 12.1 Subject to Clause 11 (*Methods of Payment*), the SDS Provider shall submit each application for payment in respect of any sub-milestones, milestones, fixed lump sum or sums and any other fees, costs and/or expenses agreed in accordance with this Agreement, which are being claimed by the SDS Provider for the previous calendar month, to the Client's Representative within three Business Days following the final date of each calendar month
- 12.2 Each application for payment shall:
- 12.2.1 set out the sub-milestone payments claimed;
 - 12.2.2 set out the milestone payments claimed;
 - 12.2.3 include any Milestone Completion Certificates;
 - 12.2.4 set out the proportion of any fixed lump sum or sums claimed in an updated cost loaded programme in electronic form (P3e) together with two hard copies of all supporting documentation
 - 12.2.5 set out the proportion of Management Fees claimed in an updated cost loaded programme in electronic form (P3e) together with two hard copies of all supporting documentation;
 - 12.2.6 set out any other fees claimed in an updated cost loaded programme in electronic form (P3e) together with two hard copies of all supporting documentation;
 - 12.2.7 set out any other costs and/or expenses where it has been agreed in writing that such costs and/or expenses shall be charged to the Client;
 - 12.2.8 a forecast of the fees and any associated costs and/or expenses which the SDS Provider estimates could be claimed for the next two months following the month which is the subject of the application for payment, together with a breakdown of the tasks and workstreams which relate to such forecast.
- 12.3 The Client shall procure that the Client's Representative shall, subject to any clarifications as are in the Client's opinion (acting properly and reasonably) necessary, certify by notice in writing (an "Interim Certificate") to the SDS Provider that part of the sum claimed in the application for payment which is approved by the Client and give reasons why any part of the sum claimed has not been certified and the value of the sums involved no later than 10 Business Days after the date on which application for payment was received by the Client.
- 12.4 Subject to Clause 12.7, the SDS Provider shall submit a VAT invoice to the Client within seven days of the date of the Interim Certificate and to the value of the said Interim Certificate. Payment will become due to the SDS Provider on the date of issue of said Interim Certificate by the Client and subject to Clause 12.5 the final date for payment by the Client of such valid VAT invoice shall be 30 days from the date of issue of the Interim Certificate by the Client.

12.5 If the SDS Provider is late in submitting its application for payment to the Client by more than three Business Days after the required timescales in Clause 12.1, payment in respect of any amount certified in an Interim Certificate, shall become due to the SDS Provider on the date of receipt of the relevant valid VAT invoice by the Client in respect of the late application for payment, and the final date for payment of such valid VAT invoice shall be made by the Client to the SDS Provider within 30 days of the first date of the calendar month following receipt of the valid VAT invoice.

12.6 If the SDS Provider is late in submitting a valid VAT invoice to the Client by more than three Business Days after the required timescales in Clause 12.4, payment in respect of any amount certified in an Interim Certificate, shall become due to the SDS Provider on the date of late receipt of the relevant valid VAT invoice by the Client and the final date for payment of such late valid VAT invoice shall be made by the Client to the SDS Provider within 30 days of the first date of the calendar month following receipt of the late valid VAT invoice.

12.7 Retention

12.7.1 Prior to the date of execution of the Novation Agreement by the SDS Provider and the date of execution of the Funder's Direct Agreement by the SDS Provider, the SDS Provider shall submit a VAT invoice to **tie** for ninety seven per cent (97%) of the sum certified in each relevant Interim Certificate. **tie** shall retain three per cent (3%) of such sums certified in each relevant Interim Certificate (the "**Retention**"). Payment will become due to the SDS Provider on the date of issue of such Interim Certificate by **tie** and subject to Clauses 12.5 and 12.6, the final date for payment of such valid VAT invoice shall be 30 days from the date of issue of the Interim Certificate.

12.7.2 Within 30 Business Days of the date of execution of the Novation Agreement by the SDS Provider and the date of execution of the Funder's Direct Agreement by the SDS Provider or the SDS Provider being notified in writing by **tie** that the Novation Agreement is not to be executed by the SDS Provider and/or that the Funder's Direct Agreement is not to be executed by the SDS Provider, the SDS Provider shall issue a valid VAT invoice to **tie** for one hundred per cent (100%) of the total of all Retentions retained in accordance with Clause 12.7.1.

12.7.3 Payment will become due to the SDS Provider on the date of receipt of the valid VAT invoice by **tie** and the final date for payment of such valid VAT invoice by **tie** shall be 30 days from the date of receipt of such valid VAT invoice.

12.7.4 The SDS Provider shall be entitled to offer, and **tie** may at its sole discretion accept, a retention bond, in lieu of the operation of Clauses 12.7.1 to 12.7.3 above:

12.7.4.1 the SDS Provider shall ensure that the retention bond is available and in full force and effect as from the last date of execution of this Agreement until

(a) the date of execution of the Novation Agreement by the SDS Provider and the date of execution of the Funder's Direct Agreement by the SDS Provider; or

(b) the SDS Provider being notified in writing by **tie** that the Novation Agreement is not to be executed by the SDS Provider and/or that the Funder's Direct Agreement is not to be executed by the SDS Provider;

- 12.7.4.2 the retention bond shall be issued in a form and by a surety acceptable to **tie** and shall be expressed as irrevocable and unconditionally payable forthwith on demand to **tie** in an amount of £500,000 by electronic transfer of funds to an account nominated by **tie**, upon written notification from **tie** to the surety that the SDS Provider has failed to execute the Novation Agreement and the Funder's Direct Agreement, when requested by **tie** pursuant to Clauses 29.1 and 29.7 of this Agreement. Demand for payment under the retention bond shall not be subject to any further action or recourse being taken by **tie**;
- 12.7.4.3 **tie** shall release the original retention bond to the surety on its satisfaction as to due execution of the Novation Agreement and the Funder's Direct Agreement or following the SDS Provider being notified in writing by **tie** that the Novation Agreement is not to be executed by the SDS Provider and/or that the Funder's Direct Agreement is not to be executed by the SDS Provider. In the event that the credit rating of the surety is at any time downgraded, **tie** shall be entitled to require the SDS Provider to arrange for the issue of a replacement retention bond issued at no cost to **tie** by a different surety acceptable to **tie**;
- 12.7.4.4 subject to Clause 12.7.4.5 below, the issue and continued validity of a retention bond shall be a condition precedent to payment by **tie** to the SDS Provider under this Agreement;
- 12.7.4.5 failure by the SDS Provider to provide and maintain an acceptable retention bond (or a replacement therefor) shall constitute a breach and Clauses 12.7.1 to 12.7.3 above shall operate forthwith without further notice from **tie**. Acceptance of a retention bond following failure to provide or maintain shall be at **tie**'s discretion.

12.8 Adjustments to the Milestone Payments, Lump Sums and Rates

- 12.8.1 Without prejudice to Clause 12.3, any milestone payments, and/or lump sum or sums payments, or other sums set out in Schedule 3 (*Pricing Schedule*) to this Agreement or agreed in accordance with this Agreement will not be adjusted except by the express written agreement of the Client where there has been a variation of the Services in accordance with Clause 15 (*Changes*);
- 12.8.2 The rates set out in Schedule 3 (*Pricing Schedule*) to this Agreement shall not be adjusted;

12.9 Payments to SDS Provider Parties

- 12.9.1 Where, with the agreement of the Client, the SDS Provider has appointed any SDS Provider Parties, no additional payments shall be made over and above any fixed lump sum or sums, and/or any milestone payments and/or sub-milestone payments, or the rates set out in Schedule 3 (*Payment Schedule*) to this Agreement, unless expressly agreed by the Client in writing.

12.9.2 Where the Client has expressly agreed in writing that payment shall be made by the Client for the services of SDS Provider Parties, the SDS Provider shall apply for such payment in accordance with Clause 12.1.

12.10 Interest on Late Payments

12.10.1 In the event of failure of the Client to make payment in accordance with this Clause 12 (*Arrangements for Invoicing and Payment*), the Client shall pay to the SDS Provider interest upon any payment not paid by the final date for payment at a rate per annum equivalent to 2 per cent above the Base Rate of the Royal Bank of Scotland current on the date upon which such payment first becomes overdue adjusted to reflect any changes to the rate during the period over which the payment remains overdue.

12.11 SDS Provider to remain responsible:

12.11.1 The final payment for any Services shall not be interpreted as being the satisfaction of the Client that the Services have been performed in accordance with the Agreement.

12.11.2 The responsibility of the SDS Provider for the Services shall not come to an end solely by reason of the making of any payment therefor.

13. SET-OFF

13.1 Subject to Clause 13.2 and Clause 27.4, the Client may deduct any amount payable by the SDS Provider to the Client whether by way of damages or in respect of any loss or expense sustained by the Client by reason of the SDS Provider's breach of this Agreement from any other payment or payments due to be made to the SDS Provider by the Client under this Agreement.

13.2 Any notice of intention to withhold payment shall be served by the Client at least three days prior to the final date for payment calculated in accordance with Clause 12 (*Arrangements for Invoicing and Payment*) and such notice shall state the sums being withheld and the detailed reason or detailed reasons for such withholding. Where an effective notice of intention to withhold payment is given, but on the matter being referred to the Dispute Resolution Procedure, it is decided that the whole or part of the amount should be paid, the decision shall be construed as requiring payment not later than:

13.2.1 7 days from the date of the decision, or

13.2.2 the date which, apart from the notice, would have been the final date for payment,

whichever is the later.

13.3 The SDS Provider shall be entitled to payment of interest as provided in Clause 12.10.1 in respect of the relevant part of any payments which have been withheld in accordance with Clause 13.2 but are subsequently determined as being payable by the Client to the SDS Provider either by agreement between the Parties or a decision following a referral to the Dispute Resolution Procedure. The interest shall be calculated for the period between the date when the relevant part of the payment should have been paid but for the notice of intention to withhold payment and the date on which payment is made by the Client in accordance with Clause 13.2.

14. AUDIT

- 14.1 The SDS Provider shall produce to the Client any documents or provide any information relevant to the performance of the Services or any part thereof as the Client's auditors may require and shall provide any documents or information reasonably required by the Client in respect of any SDS Provider Parties.
- 14.2 Proper books, vouchers, accounts and records relating to the Services and any services being performed by SDS Provider Parties shall be maintained by the SDS Provider at its place of business and shall be available for inspection by the Client or any officer authorised by the Client at all reasonable times during the duration of the Agreement and for six years after the termination or expiry of this Agreement.

15. CHANGES

Client Changes

- 15.1 Unless expressly stated in this Agreement or as may otherwise be agreed by the Parties, Client Changes shall be dealt with in accordance with this Clause 15 (*Changes*). If the Client requires a Client Change, it must serve a Client Notice of Change on the SDS Provider.
- 15.2 A Client Notice of Change shall:
- 15.2.1 set out the proposed Client Change in sufficient detail to enable the SDS Provider to calculate and provide the Estimate in accordance with Clause 15.3 below;
 - 15.2.2 require the SDS Provider to provide the Client within 18 days of receipt of the Client Notice of Change with an Estimate, and specify whether any competitive quotes are required; and
 - 15.2.3 set out how the Client wishes to pay (where relevant) for any proposed Client Change.
- 15.3 As soon as is reasonably practicable, and in any event within 18 days after having received a Client Notice of Change, the SDS Provider shall deliver to the Client the Estimate. The Estimate shall include the opinion of the SDS Provider (acting reasonably) on:
- 15.3.1 whether relief from compliance with any of its obligations under this Agreement is required during or as a result of the implementation of the proposed Client Change;
 - 15.3.2 any impact on the performance of the Services;
 - 15.3.3 any impact on the Master Project Programme and the Programme, and any requirement for an extension of time;
 - 15.3.4 any amendment required to the Agreement as a result of the implementation of the proposed Client Change,
 - 15.3.5 the proposed method of delivery of the proposed Client Change;
 - 15.3.6 proposals to mitigate the impact of the proposed Client Change; and

15.3.7 any increase or decrease in any sums due to be paid to the SDS Provider (including any milestone payments and lump sum payments) as a result of the implementation of the proposed Client Change.

15.4 The valuation of any Client Changes made in compliance with this Clause 15 (*Changes*) shall be added to or deducted from the sums due to be paid to the SDS Provider as the case may be, and shall be ascertained by the Client as follows:

15.4.1 by measurement and valuation at the rates and prices for similar work in Schedule 3 (*Pricing Schedule*) insofar as such rates and prices apply;

15.4.2 if such rates and prices do not apply by measurement and valuation at rates and prices deduced therefrom insofar as it is practical to do so;

15.4.3 if such rates and prices do not apply and it is not practicable to deduce rates and prices therefrom by measurement and/or valuation at fair rates and prices; or

15.4.4 if the value of the Client Change cannot properly be ascertained by measurement and/or valuation, the value of the resources and labour employed thereon, as appropriate, in accordance with the basis of rates for provisional work set out in Schedule 3 (*Pricing Schedule*);

provided that where any Client Change would otherwise fall to be valued under Clauses 15.4.1 and 15.4.2 above, but the Client's representative is of the opinion that the instruction therefor was issued at such a time or was of such content as to make it unreasonable for the alteration or addition to be so valued, the value of the Client Change shall be ascertained by measurement and/or valuation at fair rates and prices.

15.5 The SDS Provider shall include in the Estimate evidence demonstrating that:

15.5.1 the SDS Provider has used all reasonable endeavours to minimise (including by the use of competitive quotes) any increase in costs and to maximise any reduction of costs;

15.5.2 the SDS Provider has, where required by the Client, sought competitive quotes from persons other than the SDS Provider Parties in pursuance of its obligation under Clause 15.5.1 above;

15.5.3 the SDS Provider has investigated how to mitigate the impact of the Client Change; and

15.5.4 the proposed Client Change will, where relevant, be implemented in the most cost-effective manner, including showing that when such expenditure is incurred Changes in Law that are foreseeable at that time have been taken into account by the SDS Provider.

15.6 If the SDS Provider does not intend to use its own resources to implement any proposed Client Change, it shall:

15.6.1 demonstrate that it is appropriate to subcontract the implementation of such Client Change; and

15.6.2 comply with Good Industry Practice with the objective of ensuring that it obtains best value for money when procuring any SDS Provider Party or Deliverable required in relation to the proposed Client Change.

15.7 As soon as reasonably practicable after the Client receives the Estimate, the Parties shall discuss and agree the issues set out in the Estimate. From such discussions the Client may modify the Client Notice of Change, and the Client may require the SDS Provider to seek and evaluate competitive tenders. In each case the SDS Provider shall, as soon as practicable, and in any event not more than 14 days after receipt of such modification, notify the Client of any consequential changes to the Estimate.

15.8 If the Parties cannot agree on the contents of the Estimate, then either Party may refer the Estimate for determination in accordance with the Dispute Resolution Procedure provided that the SDS Provider shall not be obliged to implement any proposed Client Change where:

15.8.1 the Client does not have the legal power or capacity to require the implementation of such proposed Client Change; or

15.8.2 implementation of such proposed the Client Change would

15.8.2.1 be contrary to Law;

15.8.2.2 not be technically feasible;

15.8.2.3 substantially and materially increases the probability of a substantial non-compliance with this Agreement by the SDS Provider; or

15.8.2.4 be outwith the specific competence of the SDS Provider either in performing the activity required by the Client Change or in supervising a SDS Provider Party to carry out the activity required by the Client Change.

15.9 As soon as reasonably practicable after the contents of the Estimate have been agreed or determined pursuant to the Dispute Resolution Procedure the Client shall:

15.9.1 issue a Client Change Order ; or

15.9.2 withdraw the Client Notice of Change.

For the avoidance of doubt, the SDS Provider shall not commence work until instructed through receipt of a Client Change Order.

15.10 If the Client does not issue a Client Change Order within 30 days of the contents of the Estimate having been agreed or determined pursuant to Clause 15.9, then the Client Notice of Change shall be deemed to have been withdrawn.

Restrictions on Entitlements to Relief for a Client Change

15.11 The SDS Provider shall not be entitled to any extension of time, payment or relief in respect of any Client Change if and to the extent that the SDS Provider could (where such action is within the power of the SDS Provider and the SDS Provider could be reasonably expected to take such action, having regard to the scope and nature of the Services), by the exercise of reasonable foresight and diligence, have prevented or materially reduced the requirement for such Client Change.

15.12 If, having received instructions from the Client or the Client's Representative, the SDS Provider considers that compliance with those instructions would amount to a Client Change, the SDS Provider shall within 10 Business Days of any instructions being received, notify the Client of the same and, if it is agreed by the parties or determined pursuant to the Dispute Resolution Procedure that a Client Change would arise if the

instructions were complied with, the Client may proceed with the instruction in accordance with this Clause 15 (*Changes*).

- 15.13 Any failure by the SDS Provider to notify the Client within 10 Business Days of instructions being received that it considers compliance with such instructions from the Client or the Client's Representative would amount to a Client Change shall constitute an irrevocable acceptance by the SDS Provider that any compliance with the Client's or the Client Representative's comments shall be without cost to the Client and without any entitlement to any extension of time or other relief.
- 15.14 Any failure by the SDS Provider to notify the Client within 10 Business Days of becoming aware of any other matter or occurrence which could amount to a Client Change shall constitute an irrevocable acceptance by the SDS Provider that in being instructed to deal with such matter or occurrence as a Client Change, the SDS Provider shall not be entitled to any costs, extension of time or other relief. in respect of such Client Change.

Changes proposed by the SDS Provider

- 15.15 Within 10 Business Days of the SDS Provider becoming aware of the need or desirability for a variation to the Services, the SDS Provider shall notify the Client of the reasons, consequential effects including any increase or reduction in costs, and options available to mitigate these effects with a recommendation for action by the Client.
- 15.16 If the Client wishes to proceed with a variation proposed by the SDS Provider, the Client shall serve a Client Notice of Change on the SDS Provider and Clauses 15.2 to 15.11 shall be adhered to by the Client and the SDS Provider.

Change Control Register

- 15.17 The SDS Provider shall maintain a change control register which shall detail the status and gives summary information on all withdrawn, potential and confirmed variations under this Agreement.

16. QUALIFYING CHANGE IN LAW

- 16.1 If a Qualifying Change in Law occurs or is to occur, then either Party may write to the other to express an opinion on its likely effects, giving details of its opinion of:
- 16.1.1 any necessary change in the Services;
- 16.1.2 whether any changes are required to the terms of this Agreement to deal with the Qualifying Change in Law; or
- 16.1.3 whether relief from compliance with any obligations under this Agreement is required as a result of the Qualifying Change in Law;

in each case giving in full detail the procedure for implementing the Qualifying Change in Law. Responsibility for any costs of such implementation (and any resulting variation to payments due under this Agreement or other payment method at the Client's discretion) shall be dealt with in accordance with Clauses 16.2 and 16.3 below.

- 16.2 As soon as reasonably practicable after receipt of any notice from either Party under Clause 16.1 above, the Parties shall discuss and agree the issues referred to in Clause 16.1 above and any ways in which the SDS Provider can mitigate the effect of the Qualifying Change in Law and the SDS Provider shall:

- 16.2.1 provide evidence to the Client that the SDS Provider has used and will continue to use all reasonable endeavours (including where appropriate and practicable the use of competitive quotes) to minimise any increase in costs and maximise any reduction in costs;
 - 16.2.2 demonstrate how the effects of the Qualifying Change in Law will be mitigated;
 - 16.2.3 demonstrate that the relevant changes will be implemented in the most cost-effective manner, including showing that when expenditure is incurred or has been incurred, foreseeable Changes in Law at that time have been taken into account by the SDS Provider; and
 - 16.2.4 give evidence as to how the Qualifying Change in Law has affected the fees and/or costs of similar consultants.
- 16.3 As soon as reasonably practicable after the issues referred to in Clause 16.2 have been agreed between the Parties or determined pursuant to the Dispute Resolution Procedure, the Client shall give a Client Notice of Change and the provisions of Clause 15 (*Changes*) shall apply except that the SDS Provider shall be obliged to implement the change in all circumstances (except to the extent that such change is not necessary to implement the Qualifying Change in Law). The Client shall issue a Client Change Order once it has been agreed or determined pursuant to the Dispute Resolution Procedure. In assessing the value of the change, the Client shall pay the agreed amount less the agreed threshold of £15,000 for each and every event. The Client will, at its sole discretion, determine the scope of each and every event.
- 16.4 Except as otherwise expressly provided in this Agreement, the SDS Provider shall be responsible for any increase in its costs and shall not be entitled to any relief from its obligations under this Agreement to the extent that the same is caused as a result of a General Change in Law.

17. REQUIRED INSURANCES

- 17.1 The SDS Provider shall, at its own cost, procure that each of the Required Insurances is taken out, comes into effect and is maintained with reputable insurers authorised to carry out insurance business in the United Kingdom and otherwise in accordance with the requirements of Schedule 6 (*Required Insurances*).
- 17.2 The Required Insurances referred to in this Clause 17 (*Required Insurances*) shall be effected with insurers approved by the Authority, such approval not to be unreasonably withheld or delayed. The SDS Provider shall not make any material alteration to the terms of the Required Insurances without the Client's prior approval (which approval shall not be unreasonably withheld). If any such material alteration to the Required Insurances is made, the SDS Provider shall complete the questionnaire set out in Part 3 of Schedule 6 (*Required Insurances*) duly endorsed by its insurance broker. If the insurer makes or attempts to make any material alteration or purports to withdraw cover, or if the SDS Provider is unable to obtain professional indemnity insurance, the SDS Provider shall promptly give notice of this to the Client.
- 17.3 The SDS Provider shall ensure that its insurance broker gives the Client as soon as reasonably practicable after any of the Required Insurances is taken out, replaced or renewed, a letter of undertaking in the form set out in Part 2 of Schedule 6 (*Required Insurances*).
- 17.4 The SDS Provider shall provide satisfactory evidence to the Client that the Required Insurances have been effected and are being maintained. The SDS Provider shall

upon request produce to the Client confirmation of the payment of current insurance premiums.

- 17.5 The SDS Provider shall confirm to the Client in writing on or around the date of the first and each subsequent anniversary of the Effective Date that the Required Insurances continue to be maintained. The SDS Provider shall, when required by the Client, make available for inspection by the Client, documentary evidence that such Required Insurances are being properly maintained. For the avoidance of doubt, the Client acknowledges that there may be a delay between the renewal date and issue of such evidence and such delay will not be deemed to be a failure of the SDS Provider to provide evidence of cover.
- 17.6 If the SDS Provider shall fail upon request to produce to the Client satisfactory evidence that there is in force the Required Insurances referred to in this Clause 17 (*Required Insurances*) or is otherwise in breach of this Clause 17 (*Required Insurances*), the Client may, on behalf of the SDS Provider, effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the Client as aforesaid from any monies due or which may become due to the SDS Provider.
- 17.7 The SDS Provider shall increase the limit of indemnity and amend the terms of the third party liability insurance set out in Schedule 6 (*Required Insurances*) if required by the Client in order to meet the requirements of any third party including Network Rail and BAA with regard to any of the Services to be performed by the SDS Provider in accordance with this Agreement. Any costs associated with such increase and/or amendment shall be paid by the SDS Provider.
- 17.8 The SDS Provider shall not take any action or fail to take any reasonable action or (insofar as it is reasonably within its power) permit or allow others to take or fail to take any action (including failure to disclose any fact) as a result of which any of the Required Insurances may be rendered void, voidable, unenforceable or suspended or impaired in whole or in part or which may otherwise render any sum paid out under any relevant policy repayable in whole or in part.
- 17.9 The supply to the Client of any insurance policy or insurance certificate or renewal certificate or other evidence of compliance with this Clause 17 (*Required Insurances*) shall not imply, or be taken as, acceptance by the Client that:
- 17.9.1 the extent of insurance cover is sufficient and its terms are satisfactory; or
- 17.9.2 in respect of any risks not insured against, insurable interests or parties not insured, an acceptance by the Client that the same were uninsurable.

18. ERRORS AND/OR OMISSIONS IN THE SERVICES

- 18.1 If during the performance of the Services and/or where the SDS Provider has completed the Services, the Client becomes aware of any error or omission in the performance of the Services or of any other breach of this Agreement, the Client shall notify the SDS Provider, who shall, at its own expense and in liaison with the Client and/or any other party or parties nominated by the Client, rectify any error or omission or breach, or where this is agreed by the Client to be impracticable or undesirable, take such other agreed steps to address the error or omission.
- 18.2 Any direct costs to the Client of remedying any such errors or omissions or breaches shall be paid by the SDS Provider to the Client.

- 18.3 These arrangements shall in no respect diminish the Client's ability to recover damages from the SDS Provider for losses incurred by the Client consequent upon the error or omission or breach in question.

19. TERMINATION FOR SDS PROVIDER DEFAULT

- 19.1 The Client may terminate this Agreement upon giving written notice to the SDS Provider, and this Agreement shall terminate on the date falling 30 days after the service of such notice if:

19.1.1 the SDS Provider breaches any material provision or requirement of the Agreement; or

19.1.2 the circumstances envisaged by Clause 33.7 apply;

19.1.3 following a written warning and the removal of any member of the Key Personnel, any replacement member of the Key Personnel is, in the opinion of the Client, incompetent to perform any of his duties;

19.1.4 the SDS Provider conducts itself in a manner which the Client considers to be incompatible with the performance of the Services, and/or in such manner so as to wilfully detract from the image and reputation of the Client, tie, CEC, Transport Edinburgh Limited, the Scottish Executive or any project related to the performance of the Services, or

19.1.5 any partner or director of the SDS Provider directly involved with this Agreement is expelled from or sanctioned by his relevant professional Institute or Institution, thus compromising the performance of the Services; or

19.1.6 an Insolvency Event occurs; or

19.1.7 the SDS Provider fails to resolve a conflict of interest in accordance with Clause 31 (*Conflict of Interest*) to the reasonable satisfaction of the Client; or

19.1.8 there is a change in legal status of the SDS Provider or a Change in Control of the SDS Provider which is materially prejudicial to the performance of the Services.

- 19.2 The SDS Provider shall immediately notify the Client of

19.2.1 any resolution or decision by the SDS Provider or the board of directors of the SDS Provider or a decision by any director of the SDS Provider to seek legal or financial advice pertaining to the solvency of the SDS Provider; and/or

19.2.2 any presentation of any petition for the purpose of winding up the SDS Provider or any petition for an administration order.

20. TERMINATION, ABANDONMENT OR SUSPENSION OF THE SERVICES BY THE CLIENT

- 20.1 The Client may terminate this Agreement at any time and for whatever reason upon giving written notice to the SDS Provider, and this Agreement shall terminate on the date falling 60 days after the date of service of such written notice.

- 20.2 At any time the Client may decide to postpone or abandon any part of the Services and, if the Client decides to postpone or abandon any part of the Services, the Client may by notice in writing to the SDS Provider seek to vary the Services either by excluding the Services (or any part thereof) to be performed by the SDS Provider, or

by suspending performance of the same, and in such notice the Client shall specify the Services affected.

- 20.3 Unless otherwise notified in writing by the Client, if the Client shall not have required the SDS Provider to resume the performance of Services in respect of the whole or any part of the Services suspended under Clause 20.2 within a period of 12 months from the date of the notice, the Agreement shall forthwith automatically terminate in whole if the whole of the Services has been terminated or in part, if part of the Services has been terminated.
- 20.4 The SDS Provider shall, upon receipt of any notice in accordance with this Clause 20 (*Termination, Abandonment or Suspension of the Services by the Client*) terminating, suspending or abandoning the whole or any part of the Services, proceed in an orderly manner but with all reasonable speed and economy to take such steps as are necessary to bring to an end or suspend (as appropriate) the Services and its other obligations under this Agreement. The Client and the SDS Provider shall meet within 7 days of the said receipt of such notice to assess the costs arising.

21. TERMINATION OR SUSPENSION FOR CLIENT DEFAULT

- 21.1 If a Client Default has occurred and the SDS Provider wishes to terminate this Agreement, the SDS Provider must serve a termination notice on the Client within 30 days of becoming aware of the Client Default. Failure to do so shall be a waiver of the right to terminate.
- 21.2 The SDS Provider shall specify in the termination notice the type of the Client Default which has occurred entitling the SDS Provider to terminate.
- 21.3 Provided the SDS Provider has complied with Clauses 21.1 and 21.2, this Agreement shall terminate on the day falling 60 days after the date on which the Client receives the termination notice, unless the Client rectifies the Client Default within 60 days of receipt of the termination notice.
- 21.4 The SDS Provider shall not be entitled to, and shall not purport to, terminate this Agreement or accept any repudiation of this Agreement, except as expressly provided in this Clause 21 (*Termination for Client Default*) or Clause 23 (*Termination by Reason of Force Majeure*).
- 21.5 If the Client shall fail to pay the SDS Provider in full any amount properly due and payable under this Agreement by the final date for payment in accordance with the requirements of Clause 12 (*Arrangements for Invoicing and Payment*) and no effective notice to withhold payment has been given by the Client to the SDS Provider, the SDS Provider may, after giving the Client 60 days' notice in writing of the same, stating the ground or grounds on which it is intended to suspend performance, suspend the performance of the Services until payment in full is made by the Client.

22. TERMINATION FOR CORRUPT GIFTS AND PAYMENTS

- 22.1 The SDS Provider or anyone employed by it or acting on its behalf (including any SDS Provider Party) shall not commit any Prohibited Act.
- 22.2 If the SDS Provider, or anyone employed by it or acting on its behalf (including any SDS Provider Party), commits any Prohibited Act, then the Client shall be entitled to act in accordance with Clauses 22.3 to 22.7.

- 22.3 If a Prohibited Act is committed by the SDS Provider or by an employee of the SDS Provider not acting independently of the SDS Provider, then the Client may terminate this Agreement by giving notice to the SDS Provider.
- 22.4 If a Prohibited Act is committed by an employee of the SDS Provider acting independently of the SDS Provider, then the Client may give notice to the SDS Provider of termination and this Agreement will terminate, unless within 30 days of receipt of such notice the SDS Provider terminates the employee's employment and (if necessary) procures the performance of the relevant part of the Services by another person.
- 22.5 If a Prohibited Act is committed by anyone acting on behalf of the SDS Provider (excluding employees of the SDS Provider but including any SDS Provider Party, and their employees) and not acting independently of the SDS Provider, then the Client may give notice to the SDS Provider of termination and this Agreement will terminate.
- 22.6 If a Prohibited Act is committed by anyone acting on behalf of the SDS Provider (excluding employees of the SDS Provider but including any SDS Provider Party, and their employees) and acting independently of the SDS Provider, then the Client may give notice to the SDS Provider of termination and this Agreement will terminate, unless within 30 days of receipt of such notice the SDS Provider terminates that party's employment and procures the performance of the relevant part of the Services by another person.
- 22.7 Any notice of termination under this Clause 22 (*Termination for Corrupt Gifts and Payments*) shall specify:
- 22.7.1 the nature of the Prohibited Act;
- 22.7.2 the identity of the person whom the Client believes has committed the Prohibited Act; and
- 22.7.3 the date on which this Agreement will terminate, in accordance with the applicable provision of this Clause 22 (*Termination for Corrupt Gifts and Payments*).

23. TERMINATION BY REASON OF FORCE MAJEURE

- 23.1 Neither Party shall be entitled to bring a claim for a breach of obligations under this Agreement by the other Party or incur any liability to the other Party for any losses or damages incurred by that other Party to the extent that a Force Majeure Event occurs and such party is directly prevented from carrying out such obligations by that Force Majeure Event provided that such prohibition on bringing a claim and exclusion of liability shall not operate if and to the extent that:
- 23.1.1 the Affected Party could, by the exercise of reasonable foresight and diligence, have prevented or reduced the effect of the Force Majeure Event; and
- 23.1.2 the Affected Party could, whether before or after the occurrence of the Force Majeure Event, have reduced or eliminated the resulting breach of its obligations under this Agreement by taking reasonable steps.
- 23.2 On the occurrence of a Force Majeure Event, the Affected Party shall notify the other Party as soon as reasonably practicable, specifying details of the Force Majeure Event and providing evidence of its effect on the obligations of the Affected Party and any action proposed to remove or mitigate its effect.

- 23.3 The Parties shall enter into bona fide discussions with a view to alleviating the effects of such Force Majeure Event, and if the terms or measures to remove the effect of the Force Majeure Event cannot be agreed on or before the date falling 12 months after the date of the commencement of the Force Majeure Event or by the end of such longer period as the Parties may have agreed, or such Force Majeure Event is continuing or its consequence remains such that the Affected Party is unable to comply with all or a material part of its obligations under this Agreement for a period of more than 12 months after the date of the commencement of the Force Majeure Event or by the end of such longer period as the Parties may have agreed, either Party shall have the option to terminate this Agreement by written notice to the other.
- 23.4 The Parties shall at all times following the occurrence of a Force Majeure Event use all reasonable endeavours to prevent and mitigate the effects of any delay to the performance of the Services and the SDS Provider shall at all times during which a Force Majeure Event is subsisting take all steps in accordance with Good Industry Practice to overcome or minimise the consequences of the Force Majeure Event.
- 23.5 The Affected Party shall notify the other party as soon as reasonably practicable after the Force Majeure Event ceases or no longer causes the Affected Party to be unable to comply with its obligations under this Agreement. Following such notification, this Agreement shall continue to be performed on the terms existing immediately prior to the occurrence of the Force Majeure Event.

24. PERSISTENT BREACH

- 24.1 If a breach by the SDS Provider of any of its obligations under this Agreement has occurred more than once then the Client may serve a notice ("Persistent Breach Notice") on the SDS Provider:
- 24.1.1 specifying that it is a Persistent Breach Notice;
 - 24.1.2 giving reasonable details of the breach; and
 - 24.1.3 stating that such breach is a breach which, if it occurs frequently or continues, may result in a termination of this Agreement.
- 24.2 If, following service of such a Persistent Breach Notice, the breach specified has continued or occurred once again after the date falling 30 days after the date of service of the Persistent Breach Notice and before the date falling 365 days after the date of service of such notice, then the Client may serve another notice ("Final Persistent Breach Notice") on the SDS Provider:
- 24.2.1 specifying that it is a Final Persistent Breach Notice;
 - 24.2.2 stating that the breach specified has been the subject of a prior Persistent Breach Notice within the period of 365 days prior to the date of service of the Final Persistent Breach Notice; and
 - 24.2.3 stating that if such failure is not remedied within 7 days or is remedied and occurs once or more within the 180 day period after the date of service of the Final Persistent Breach Notice, this Agreement may be terminated with immediate effect.

25. PAYMENT FOLLOWING TERMINATION OR SUSPENSION

- 25.1 No compensation shall be payable by the Client to the SDS Provider for termination of this Agreement whether under contract, delict (including negligence), breach of (or

compliance with) statutory duty, restitution or otherwise but without prejudice to payments due under Clause 25.3.

25.2 Within 30 days of termination of this Agreement and following receipt of a valid VAT invoice, the Client shall pay to the SDS Provider:

25.2.1 any undisputed sums due from the Client to the SDS Provider pursuant to Clauses 11 (*Methods of Payment*) and 12 (*Arrangements for Invoicing and Payment*);

25.2.2 any entitlement to demobilisation costs pursuant to Clause 25.3; and

25.2.3 any sums due to the SDS Provider in respect of any work in progress which have not been certified in accordance with Clause 12 (*Arrangements for Invoicing and Payment*) provided that the calculation of such sums have been certified as follows:

25.2.3.1 the SDS Provider shall have provided the Client with a valuation of all work in progress in relation to the Services in accordance with the provisions of Clause 15.4 and subject to Clause 11 (*Methods of Payment*) and, for the avoidance of doubt, subject to any agreed milestone or lump sum payments set out in Schedule 3 (*Pricing Schedule*) or as agreed otherwise in accordance with this Agreement;

25.2.3.2 **tie** shall, subject to any clarifications as are in **tie's** opinion (acting properly and reasonably) necessary certify by notice in writing to the SDS Provider that part of the work in progress which is approved by **tie** and give reasons why any part of the work in progress has not been certified and the value of the sums involved no later than 10 Business Days after the date on which such valuation was received. **tie's** valuation of such work in progress shall be final and binding.

25.3 The Client shall make payment to the SDS Provider of any demobilisation costs which have been demonstrably and reasonably incurred by the SDS Provider in respect of:

25.3.1 termination for Client Default pursuant to Clause 21 (*Termination or Suspension for Client Default*); or

25.3.2 termination or abandonment pursuant to Clause 20 (*Termination, Abandonment or Suspension of the Services by the Client*); or

25.3.3 suspension pursuant to Clause 20 (*Termination, Abandonment or Suspension of the Services by the Client*).

25.4 The SDS Provider shall use all reasonable endeavours to minimise and mitigate any such demobilisation costs and the Client shall not be liable to pay the SDS Provider for such demobilisation costs to the extent that the SDS Provider has failed to minimise or mitigate such demobilisation costs or to the extent that such demobilisation costs have arisen out of the SDS Provider's breach of this Agreement or any negligent or wilful act or omission by the SDS Provider.

25.5 Within 30 days of termination of this Agreement, the SDS Provider shall pay to the Client any sums due from the SDS Provider to the Client pursuant to this Agreement.

- 25.6 This Agreement shall terminate automatically on the expiry of this Agreement unless it shall have been terminated earlier in accordance with the provisions of this Agreement. The SDS Provider shall not be entitled to any compensation on expiry of the Agreement.
- 25.7 Within 30 days of expiry of this Agreement, the Client shall pay to the SDS Provider any undisputed sums due from the Client to the SDS Provider in accordance with Clauses 11 (*Methods of Payment*) and 12 (*Arrangements for Invoicing and Payment*).
- 25.8 Within 30 days of expiry of this Agreement, the SDS Provider shall pay to the Client any sums due from the SDS Provider to the Client pursuant to this Agreement.
- 25.9 Either Party may refer any Dispute about disputed sums to the Dispute Resolution Procedure. If it is determined pursuant to the Dispute Resolution Procedure that the whole or part of any disputed amount is due to either the Client or the SDS Provider, the Client or the SDS Provider (as appropriate) shall raise an invoice within 30 days in respect of such determined amount and payment shall be made by the relevant Party within 60 days of the receipt of such invoice.
- 25.10 - In the event of the Agreement being terminated under Clause 19 (*Termination for SDS Provider Default*) or Clause 22 (*Termination for Corrupt Gifts and Payments*) or Clause 24 (*Persistent Breach*), the Client shall be entitled to recover from the SDS Provider all losses, liabilities damages, penalties, fines, forfeitures, and the costs and expenses incident thereto (including without limitation legal costs of defence) sustained by the Client by such termination, and, without prejudice to the generality of this provision, the Client may forthwith employ and pay persons to carry out, manage and complete the Services and recover the costs of so doing from the SDS Provider.
- 25.11 In any case in which the Client has required the SDS Provider to suspend the carrying out of the Services, the Client may at any time within the period of 12 months from the date of the Client's notice served in accordance with Clause 20.2 (or such longer period as may be notified in writing by the Client) require the SDS Provider in writing to resume the performance of such Services. In such event, if the SDS Provider needs to perform any additional services in connection with the resumption of the Services, the Client shall pay the SDS Provider fair and reasonable costs in respect of the performance of such additional services which shall be treated as a Client Change and agreed in accordance with Clause 15 (*Changes*).

26. EFFECTS OF TERMINATION OR EXPIRY

- 26.1 Subject to Clause 25.2, the SDS Provider shall not have any other right or remedy against the Client on termination of this Agreement.
- 26.2 Subject to any exercise by the Client of its rights to perform, or to procure a third party to perform, the obligations of the SDS Provider, the Parties shall continue to perform their obligations under this Agreement, notwithstanding the giving of any notice of default or breach or termination notice, until the termination of this Agreement becomes effective.
- 26.3 Any termination or expiry of this Agreement shall not prejudice or affect the accrued rights or claims of either Party.
- 26.4 On expiry of this Agreement or any earlier termination of this Agreement for whatever reason, all Deliverables shall be handed to the Client, provided that the SDS Provider may retain one copy of any Deliverable where such copy is required for the purposes of Law or any recognised regulatory requirement or for record purposes (where the Client acting reasonably agrees). The provisions of Clause 33 (*Confidential*

Information) will continue to apply to these Deliverables beyond expiry of this Agreement or any earlier termination for whatever reason.

- 26.5 In order to aid the progress of the performance of the Services, the Client may make available to the SDS Provider various information, materials and documents. On expiry of this Agreement or any earlier termination of this Agreement for whatever reason, all such information, materials and documents shall be returned to the Client provided that the SDS Provider may retain one copy of any information, materials and documents where such copy is required for the purposes of Law or any recognised regulatory requirement. The provisions of Clause 33 (*Confidential Information*) will continue to apply to such information, materials and documents beyond expiry of this Agreement or any earlier termination for whatever reason.
- 26.6 Completion or termination of the Services shall not affect the SDS Provider's obligations under Clauses 3 (*Duty of Care, Standards and the Services to be provided*), 11 (*Methods of Payment*), 12 (*Arrangements for Invoicing and Payment*), 13 (*Set-Off*), 14 (*Audit*), 17 (*Required Insurances*), 18 (*Errors and/or Omissions in the Services*), 25 (*Payment Following Termination or Suspension*), 26 (*Effects of Termination or Expiry*), 27 (*Indemnity by SDS Provider*), 28 (*Dispute Resolution Procedure*), 32 (*Copyright and Intellectual Property*) and 33 (*Confidential Information*). Those obligations shall continue in full force and effect.

27. INDEMNITY BY SDS PROVIDER, LIABILITY AND SOLE REMEDY

- 27.1 The SDS Provider shall indemnify the Client and its officers, agents and employees ("Indemnified Parties") from and against any and all claims, suits, losses, liabilities, damages, penalties, fines, forfeitures, and the costs and expenses incident thereto (including without limitation any legal costs of defence) which any of the Indemnified Parties may hereafter incur, become responsible for, or pay out as a result of or in connection with:
- 27.1.1 any of the SDS Provider's, or its employees' or any SDS Provider Party's negligent or wilful acts or wilful omissions in the performance of the Services; or
 - 27.1.2 breach of any term or provision of this Agreement ; or
 - 27.1.3 breach of any Law; or
 - 27.1.4 any non-performance or delay in performance of the SDS Provider's obligations under this Agreement.
- 27.2 The Parties acknowledge and agree that the only rights available to them to terminate this Agreement are those expressly set out in this Agreement and that neither Party shall be entitled to exercise a right to terminate or rescind or accept the repudiation of this Agreement under any other right whether arising in common law or statute or otherwise howsoever (other than for fraud or a fraudulent misrepresentation).
- 27.3 Nothing in this Agreement shall exclude or limit the liability of either Party for:
- 27.3.1 death or personal injury caused by that Party's negligence or the negligence of anyone for whom that Party is vicariously liable;
 - 27.3.2 fraud or fraudulent misrepresentation; or
 - 27.3.3 any breach of warranty given as to valid and marketable title, freedom from unduly onerous burdens and conditions or entitlement to possession by action of prescription; or

27.3.4 of the SDS Provider, for any breach of this Agreement or any delict (including negligence) or other liability arising prior to termination of this Agreement;

provided that nothing in this Clause 27.3 shall confer on either Party rights or remedies that they would not otherwise have.

27.4 Subject to Clause 27.3, neither party shall be entitled to claim damages for breach of this Agreement, in delict (including negligence), breach of statutory duty or on any other basis whatsoever to the extent that such damages claimed by that Party are for Indirect Losses suffered by that Party provided that for the avoidance of doubt, nothing in this 27.4 shall affect either Party's liability to the other Party, in respect of any claim, action, proceedings or demand against such other Party by a third party in connection with Indirect Loss suffered.

27.5 The SDS Provider shall not be relieved or excused of any responsibility, liability or obligation under this Agreement by the appointment of any SDS Provider Party. The SDS Provider shall, as between itself and the Client, be responsible for the selection, pricing, performance, acts, defaults, omissions, breaches, delict and offences of any SDS Provider Party. All references in this Agreement to any act, default, omission, breach, delict or offence of the SDS Provider shall be construed to include any such act, default, omission, breach or delict of any SDS Provider Party.

27.6 Notwithstanding any other term of this Agreement, except as detailed in Clauses 27.3.1, 27.3.2 and 27.3.3, the SDS Provider's total liability hereunder whether in contract, delict or howsoever arising shall not exceed the sum of £10,000,000 in respect of each and every claim other than in respect of claims arising from pollution or contamination where the limit of indemnity of £10,000,000 applies to any one claim and in aggregate during the policy period.

28. DISPUTE RESOLUTION PROCEDURE

28.1 The Parties agree that this Clause 28 (*Dispute Resolution Procedure*) shall have effect for the resolution of any Dispute.

28.2 Any Dispute shall, in the first instance, be referred to the Internal Resolution Procedure in accordance with Clause 28.10.

28.3 Neither Party shall commence any court proceedings until the procedures in Clauses 28.10 to 28.57.3 have been completed, under exception that Clause 28 (*Dispute Resolution Procedure*) shall not apply so as to prevent either Party seeking an interim order, or interim relief, in the Scottish courts.

28.4 In the event that any court proceedings whatsoever are initiated by either Party against the other, the Parties agree that the Court of Session, Scotland, shall have exclusive jurisdiction.

28.5 Neither Party shall be entitled to suspend the performance of its undisputed obligations under this Agreement merely by reason of the reference of any Dispute to the Dispute Resolution Procedure contained in this Clause 28 (*Dispute Resolution Procedure*).

28.6 Subject to the Client's discretionary rights set out in Clause 28.55 to Clause 28.57.3 to require that a Dispute and a Related Dispute (as defined in Clause 28.55) be dealt with together at an appropriate stage of the Dispute Resolution Procedure, the provisions of this Clause 28 (*Dispute Resolution Procedure*) are mandatory and binding upon the Parties.

- 28.7 Unless a Party refers a Dispute to the Dispute Resolution Procedure contained in this Clause 28 (*Dispute Resolution Procedure*) within three months of the date on which the event, matter or situation giving rise to the Dispute first occurred, such Party shall be deemed to have irrevocably waived any right to refer such Dispute to the Dispute Resolution Procedure, under exception that if such Party was not aware, and could not with reasonable diligence have been aware, that such event, matter or situation had occurred, this Clause 28.7 shall have effect as if for the reference herein to the date on which such event, matter or situation occurred, there was substituted a reference to the date when such Party first became, or could with reasonable diligence have become, aware that such event, matter or situation had occurred. This Clause 28.7 is without prejudice to the right of either Party to raise in defence to any Dispute any defence (including, without prejudice to the foregoing generality, any defence of retention, compensation or set-off) which would otherwise be available to it.
- 28.8 Except in relation to the matters provided for in Clauses 28.15 to Clause 28.54 and subject to the provisions of Clause 28.9, in the event that either Party pursues any Dispute under the Dispute Resolution Procedure, and in the event that such Party fails to observe any time limit or timescale provided for in this Clause 28 (*Dispute Resolution Procedure*) in relation to the pursuit or progression of such Dispute, such Party shall, immediately upon such failure occurring, be deemed to have irrevocably waived any right to pursue or progress such Dispute any further. In that event, such Party shall be deemed to have elected not to have referred such Dispute or to have withdrawn such Dispute from the Dispute Resolution Procedure and shall be deemed to have irrevocably waived any right to refer any Dispute arising from the same or substantially the same Dispute or similar circumstances to the Dispute Resolution Procedure and shall be liable for payment of the whole fees incurred by any mediator or adjudicator who has acted in respect of such Dispute. This Clause 28.8 is without prejudice to the rights of either Party to raise in defence to any Dispute any defence (including, without prejudice to the foregoing generality, any defence of retention, compensation or set-off) which would otherwise be available to it.
- 28.9 Notwithstanding the provisions of Clause 28.8, in the event that a Party who pursues any Dispute under the Dispute Resolution Procedure fails to observe any time limit or timescale provided for in this Clause 28 (*Dispute Resolution Procedure*) in relation to the pursuit or progression of the Dispute, the other Party may elect to waive such failure, in which event the time limit or timescale to which such failure relates shall be extended at the discretion of such other Party and the Dispute shall progress in accordance with the Dispute Resolution Procedure, subject that all other time limits and timescales provided for in this Clause 28 (*Dispute Resolution Procedure*) which are affected by such extension shall be deemed to have been extended to give effect to such extension of the time limit or timescale to which such failure relates.

Internal Resolution Procedure

- 28.10 The following procedure is the Internal Resolution Procedure referred to in Clause 28.2:
- 28.10.1 In the event of any Dispute arising, the SDS Provider's Representative and the Client's Representative shall seek to resolve the Dispute at a meeting to be convened within three Business Days of written notification by either Party to the other that it wishes to initiate the Internal Resolution Procedure in respect of that Dispute ("Notification"). Such Notification shall be given in accordance with the provisions of Clause 36 (*Notices*) of this Agreement.
- 28.10.2 Further meetings may follow the meeting referred to in Clause 28.10.1, but in any event, if the Dispute is not resolved within seven Business Days of Notification, each Party shall, before the expiry of the period of ten Business

Days from Notification, serve, in accordance with the provisions of Clause 36 (*Notices*) of this Agreement, a written position paper ("Position Paper") upon the other Party. Each Party's Position Paper shall state in reasonable detail that Party's position and required objectives in relation to the Dispute, any required redress, and, where possible, any comments on the other Party's position.

28.10.3 Upon such service of a Position Paper by the Party initiating or pursuing the Dispute, the Chief Executive (or equivalent) of the SDS Provider and the Chief Executive (or equivalent) of the Client (or their respective deputies in the event of their unavailability) shall seek to resolve the Dispute by meeting in good faith to discuss and negotiate upon the Dispute without recourse to legal or other proceedings.

28.10.4 In the event that resolution of the Dispute is achieved by the Chief Executive (or equivalent) of the SDS Provider and the Chief Executive (or equivalent) of the Client, the resolution shall be reduced to writing and, once it is signed by the duly authorised representatives of both Parties, shall be binding on the Parties.

28.10.5 Unless concluded by a written legally binding agreement, all discussions and negotiations connected with the Dispute shall be conducted in confidence and without prejudice to the rights of the Parties in any future legal or other proceedings. Nor may such matters be produced or relied upon in evidence in any such proceedings.

28.11 In the event that any Dispute is not resolved by the Internal Resolution Procedure within a period of thirty Business Days from Notification (or longer if so agreed by the Parties) then the following provisions of this Clause 28.11 shall apply;

28.11.1 The Chief Executive (or equivalent) of the SDS Provider and the Chief Executive (or equivalent) of the Client or their respective deputies in the event of their unavailability) shall, within a further period of five Business Days, seek to agree that the Dispute shall be resolved by any one of the following procedures:

28.11.1.1 mediation in accordance with Clauses 28.12 to 28.14; or

28.11.1.2 adjudication in accordance with Clause 28.15 to 28.14 in which event the Referring Party must give its Notice of Adjudication to the other Party within five Business Days of the date of expiry of the period of thirty five Business Days from Notification (or longer if so agreed by the Parties); or

28.11.1.3 litigation before the Court of Session, Scotland, in which event the Summons or Petition in any such litigation shall be signetted and served within ten Business Days of the date of expiry of the period of thirty-five Business Days from Notification (or longer if so agreed by the Parties).

28.11.2 In the event that the Chief Executive (or equivalent) of the SDS Provider and the Chief Executive (or equivalent) of the Client (or their respective deputies in the event of their unavailability) are unable to agree that the Dispute be resolved by the procedures described in Clauses 28.11.1.1 to 28.11.1.3, the Party initiating or pursuing the Dispute shall refer the Dispute to mediation (and thereafter adjudication if necessary) in accordance with Clauses 28.12 to 28.14.

Mediation

28.12 The Parties shall attempt in good faith to resolve the Dispute by a procedure of mediation in accordance with the Centre for Effective Dispute Resolution mediation rules or Model Mediation Procedure in force at the commencement of the mediation, (or in the event that the Centre for Effective Dispute Resolution has ceased to exist as at the time of the commencement of the mediation, mediation rules or a model mediation procedure offered by any other body offering commercial mediation services which shall be selected by the Client), which procedure shall be commenced within five Business Days of the date of expiry of the period of thirty-five Business Days from Notification (or longer if so agreed by the Parties). In the event that any provision of such mediation rules or model mediation procedure conflicts with any provision of this Clause 28 (*Dispute Resolution Procedure*), the provisions of this Clause 28 (*Dispute Resolution Procedure*) shall take precedence. In the event that any timescales contained in such mediation rules or model mediation procedure conflicts with the timescales referred to in this Clause 28 (*Dispute Resolution Procedure*), the timescales contained in such mediation rules or model mediation procedure shall be amended accordingly such that the timescales referred to in this Clause 28 (*Dispute Resolution Procedure*) shall be adhered to.

28.13 In the event that resolution of the Dispute is achieved in consequence of such mediation procedure, such resolution shall be reduced to writing and, once it is signed by the duly authorised representatives of both Parties, shall be binding on the Parties. Unless concluded by a written legally binding agreement, all discussions and negotiations connected with the mediation procedure referred to in Clause 28.12 shall be conducted in confidence and without prejudice to the rights of the Parties in any future legal or other proceedings. Nor may such matters be produced or relied upon in evidence in any such proceedings.

28.14 If any Dispute to which this Clause 28 (*Dispute Resolution Procedure*) relates is not resolved by the mediation procedure referred to in Clauses 28.12 and 28.13 within a period of 55 Business Days from Notification (or longer if so agreed by the Parties), the mediation procedure shall be terminated and, unless the Party initiating or pursuing the Dispute withdraws the Dispute, the Dispute shall within a further 5 Business Days, be referred to adjudication in accordance with Clauses 28.15 to 28.54.

Adjudication

28.15 In the event that either Party refers a Dispute to adjudication in terms of Clause 28.11.1 or 28.14, or exercises a statutory right available to it (if any) under the Housing Grants Construction and Regeneration Act 1996 to raise adjudication proceedings, such adjudication shall be conducted in accordance with Clauses 28.15 to 28.54 wherein any reference to "days" is a reference to calendar days.

Notice of intention to seek adjudication

28.16 Either Party may give written notice (the "Notice of Adjudication") of its intention to refer the Dispute to adjudication and the Party giving such notice shall be the "Referring Party".

28.17 The Notice of Adjudication shall be given to the other Party and the Party receiving the Notice of Adjudication shall be the "Responding Party".

28.18 The notice of adjudication shall set out briefly:

28.18.1 the nature and a brief description of the Dispute and of the parties involved;

- 28.18.2 details of where and when the Dispute has arisen;
- 28.18.3 the nature of the redress which is sought; and
- 28.18.4 the names and addresses of the Parties (including the addresses which the Parties have specified for the giving of notices).
- 28.19 The adjudicator selected to consider the Dispute shall be selected from one of the panels ("Panels") appointed by the Parties in accordance with the following:
- 28.19.1 There shall be four Panels, one in respect of legal matters, ("Legal Panel") one in respect of construction matters and construction/operation interface matters ("Construction Panel"), one in respect of operational and maintenance matters ("Operations Panel") and one in respect of financial matters ("Financial Panel").
- 28.19.2 Each Panel shall be comprised of four members, who are listed in Schedule 10 (*Panels for the Dispute Resolution Procedure*) to this Agreement.
- 28.19.3 If any member of a Panel resigns or dies or becomes incapax or ill to the extent of being unable to reasonably discharge his duties as a member of the Panel, a replacement shall be appointed by the Parties as soon as practicable. Any such replacement shall be wholly independent of the Client, any Client Party, the SDS Provider, any SDS Provider Party, **tie**, any **tie** Party, City of Edinburgh Council or any Relevant Authority, any Approvals Body, the Tram Supplier or any equipment supplier or any party associated with the Edinburgh Tram Network, and any successor to or subsidiary or parent of any of the aforementioned parties. If the Parties are unable to agree on the identity of such replacement(s), the President or Vice President for the time being of The Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers shall appoint such replacement(s) within thirty days of any application for such appointment by either Party.
- 28.20 The Referring Party shall at the same time as giving the Notice of Adjudication to the Responding Party, send to each of the members of the relevant Panel a copy of the Adjudication Notice and a request that each member of the relevant Panel advises both Parties within three days as to whether or not he is able and willing to act. The Parties shall attempt to agree within two further days as to which one of the members of the relevant Panel who responded indicating that they are able and willing to act shall be requested to act as adjudicator. In the event that such agreement is reached, the Referring Party shall, within a further period of one day, request the member of the relevant Panel upon whom agreement has been reached to act as adjudicator. In the event that such agreement is not reached, the Responding Party shall, within a further period of two days, select one of the members of the relevant Panel who responded indicating that they are able and willing to act and the Referring Party shall request that member to act as adjudicator;
- 28.21 If no member of the relevant Panel indicates that he is able and willing to act within three days of receiving a request to act as adjudicator, the Referring Party shall request the Chairman or the Vice-Chairman for the time being of The Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers to select a person to act as adjudicator.
- 28.22 Any person appointed, requested or selected to act as adjudicator in accordance with Clause 28.20, 28.21 and 28.24 shall be a natural person acting in his personal capacity. A person appointed, requested or selected to act as an adjudicator shall be wholly independent of the Client, any Client Party, the SDS Provider, any SDS Provider Party, **tie**, any **tie** Party, City of Edinburgh Council or any Relevant

Authority, any Approvals Body, the Tram Supplier or any equipment supplier or any party associated with the Edinburgh Tram Network, and any successor to or subsidiary or parent of any of the aforementioned parties.

- 28.23 The request referred to in Clause 28.20 shall be accompanied by a copy of the Notice of Adjudication.
- 28.24 The Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers must communicate the selection of an adjudicator to the Referring Party within three days of receiving a request to do so.
- 28.25 Where The Chartered Institute of Arbitrators (Scottish Branch) or the Institution of Civil Engineers fails to comply with Clause 28.24, the Referring Party may:
- 28.25.1 agree with the other Party to the Dispute to request a specified person to act as adjudicator; or
- 28.25.2 request any other adjudicator nominating body to select a person to act as adjudicator. An "adjudicator nominating body" shall mean a body (not being a natural person and not being a Party to the Dispute) which holds itself out publicly as a body which will select an adjudicator when requested to do by a Referring Party.
- 28.26 The person requested to act as adjudicator in accordance with the provisions of Clause 28.20 or 28.21 shall indicate whether or not he is willing to act within two days of receiving the request.
- 28.27 Where an adjudicator has been selected in accordance with Clause 28.20, 28.21 or 28.24, the Referring Party shall, not later than seven days from the date of the Notice of Adjudication, refer the Dispute in writing (the "Referral Notice") to the adjudicator.
- 28.28 A Referral Notice shall be accompanied by copies of, or relevant extracts from the Agreement and such other documents as the Referring Party intends to rely upon.
- 28.29 The Referring Party shall, at the same time as he sends to the adjudicator the documents referred to in Clauses 28.27 and 28.28, send copies of those documents to the Responding Party.
- 28.30 The adjudicator may, with the consent of the Parties to those disputes, adjudicate at the same time on more than one Dispute under the Agreement.
- 28.31 The Parties may agree to extend the period within which the adjudicator may reach a decision in relation to all or any of these Disputes.
- 28.32 An adjudicator may resign at any time on giving notice in writing to the Parties.
- 28.33 An adjudicator must resign where the Dispute is the same or substantially the same as one which has previously been referred to adjudication, and a decision has been taken in that adjudication.
- 28.34 Where an adjudicator ceases to act under Clauses 28.32 or 28.33, or dies or becomes incapax or ill to the extent of being unable to reasonably discharge his duties;
- 28.34.1 the Referring Party may serve a fresh notice in accordance with Clauses 28.16 to 28.19 and shall in accordance with Clauses 28.20 to 28.29 request an adjudicator to act; and

28.34.2 if requested by the new adjudicator, the Parties shall supply him with copies of all documents which they had made available to the previous adjudicator.

28.35 The Parties to a Dispute may at any time agree to revoke the appointment of the adjudicator and in such circumstances the fees and expenses of that adjudicator shall, subject to Clause 28.36, be determined and payable in accordance with Clauses 28.52 to 28.53.

28.36 Where the revocation of the appointment of the adjudicator is due to the default or misconduct of the adjudicator, the Parties shall not be liable to pay the adjudicator's fees and expenses.

Powers of the Adjudicator

28.37 The adjudicator shall:

28.37.1 act impartially in carrying out his duties and shall do so in accordance with any relevant terms of the Agreement and shall reach his decision in accordance with Scots law; and

28.37.2 avoid incurring unnecessary expense.

28.38 The adjudicator may take the initiative in ascertaining the facts and the law necessary to determine the Dispute, and shall decide on the procedure to be followed in the adjudication. In particular, he may:

28.38.1 request either Party to supply him with such documents as he may reasonably require including, if he so directs, any written statement from either Party supporting or supplementing the Referral Notice and any other documents given under Clauses 28.27 to 28.28;

28.38.2 conduct the adjudication in the English language and decide whether a translation of any document is to be provided and, if so, by whom, by when, and at whose cost;

28.38.3 meet and question either Party and their representatives;

28.38.4 subject to obtaining any necessary consent from a third party or the Parties, make such site visits and inspections as he considers appropriate, whether accompanied by the Parties or not;

28.38.5 subject to obtaining any necessary consent from a third party or the Parties, procure the carrying out of any tests or experiments, and make directions as to the conditions for and responsibility for the cost of the same;

28.38.6 obtain and consider such representations and submissions as he requires, and, provided he has notified the Parties of his intention, appoint experts, assessors or legal advisers;

28.38.7 give directions as to the timetable for the adjudication, any deadlines, or limits as to the length of written documents or oral representations to be complied with; and

28.38.8 issue other directions relating to the conduct of the adjudication.

28.39 The Parties shall comply with any request or direction of the adjudicator in relation to the adjudication.

- 28.40 If, without showing sufficient cause, a Party fails to comply with any request, direction or timetable of the adjudicator made in accordance with his powers, fails to produce any document or written statement requested by the adjudicator, or in any other way fails to comply with a requirement under these provisions relating to the adjudication, the adjudicator may:
- 28.40.1 continue the adjudication in the absence of that Party or of the document or written statement requested;
 - 28.40.2 draw such inferences from that failure to comply as may, in the adjudicator's opinion, be justified in the circumstances;
 - 28.40.3 make a decision on the basis of the information before him, attaching such weight as he thinks fit to any evidence submitted to him outside any period he may have requested or directed;
 - 28.40.4 disqualify any part or parts of that Party's submissions affected by the failure to comply; and
 - 28.40.5 grant the other Party proper opportunity to consider and respond to any evidence or representation made late.
- 28.41 Subject to any agreement between the Parties to the contrary, either Party may be assisted by, or represented by, such advisers or representatives (whether legally qualified or not) as he considers appropriate.
- 28.42 The adjudicator shall consider any relevant information submitted to him by either Party and shall make available to them any information to be taken into account in reaching his decision.
- 28.43 The adjudicator and the Parties shall not disclose to any other person any information or document provided in connection with the adjudication which the Party supplying it has indicated is to be treated as confidential, except to the extent that disclosure is required by law or is necessary for the purposes of, or in connection with, the adjudication, or the information is already in the public domain.

Adjudicator's Decision

- 28.44 Unless otherwise agreed in accordance with Clause 28.56.1 or 28.57.1, the adjudicator shall reach his decision not later than:
- 28.44.1 twenty eight days after the date of the Referral Notice mentioned in Clause 28.25;
 - 28.44.2 forty two days after the date of the Referral Notice if the Referring Party so consents; or
 - 28.44.3 such period exceeding twenty eight days after the Referral Notice as the Parties may, after the giving of that notice, agree.
- 28.45 Where the adjudicator fails, for any reason, to reach his decision in accordance with Clause 28.44:
- 28.45.1 either of the Parties to the Dispute may serve a fresh notice in accordance with Clause 28.16 to 28.19 and shall request an adjudicator to act in accordance with Clauses 28.20 to 28.29; and

28.45.2 if requested by the new adjudicator the Parties shall supply him with copies of all documents which they had made available to the previous adjudicator.

28.46 As soon as possible after he has reached a decision, the adjudicator shall deliver a copy of that decision to each of the Parties.

28.47 The adjudicator shall decide the matters in Dispute and may make a decision on different aspects of the Dispute at different times.

28.48 The adjudicator may take into account any other matters which the Parties agree should be within the scope of the adjudication or which are matters under the Agreement which he considers are necessarily connected with the Dispute and, in particular, he may:

28.48.1 open up, review and revise any decision taken or any notice certifying payment given by any person referred to in the Agreement, unless the Agreement states that the decision or notice certifying payment is final and conclusive;

28.48.2 decide that any of the Parties to the Dispute is liable to make a payment under the Agreement (whether in sterling or some other currency) and, subject to the terms of the Agreement, when that payment is due and the final date for payment.

28.49 The adjudicator shall provide written reasons for his decision.

Effect of the Decision

28.50 In his decision, the adjudicator may, if he thinks fit, order either or both of the Parties to comply peremptorily with his decision or any part of it. In the absence of any directions by the adjudicator relating to the time for performance of his decision, the Parties shall be required to comply with any decision of the adjudicator immediately on delivery of the decision to the Parties in accordance with Clause 28.46.

28.51 The decision of the adjudicator shall be binding on the Parties, and they shall comply with it, until the Dispute is finally determined by legal proceedings or by agreement between the Parties.

28.52 The adjudicator shall be entitled to the payment of such reasonable amount as he may determine by way of fees and expenses incurred by him and the Parties shall be jointly and severally liable to pay that amount to the adjudicator.

28.53 Without prejudice to the right of the adjudicator to effect recovery from either Party in accordance with Clause 28.52, the Parties shall each be liable to pay one-half share of the adjudicator's fees and expenses.

28.54 The adjudicator shall not be liable for anything done or omitted in the discharge or purported discharge of his functions as adjudicator unless the act or omission is in bad faith, and any employee or agent of the adjudicator shall be similarly protected from liability.

Related Disputes

28.55 Notwithstanding the terms of Clauses 28.2, 28.3, 28.6, 28.7, 28.8 and 28.9, in the event that a dispute or potential dispute under, or in connection with any contract associated with the Edinburgh Tram Network (referred to in this Clause 28 (*Dispute Resolution Procedure*) as "Related Contracts"), has arisen or arises out of substantially the same issues of fact and/or law (as the case may be) as a Dispute

under this Agreement (a "Related Dispute"), then providing that the Related Contract contains dispute resolution provisions in terms substantially the same as set out in this Clause 28 (*Dispute Resolution Procedure*) (save for necessary changes), the Client may require and direct that the Dispute and the Related Dispute be dealt with together at an appropriate stage of the Dispute Resolution Procedure.

28.56 In the event that a Related Dispute has already been referred to the decision of an adjudicator in accordance with the provisions of the Related Contract, and the Client is of the opinion that a Dispute is to be (but has not yet been) referred to adjudication under this Clause 28 (*Dispute Resolution Procedure*), the Client may refer the Dispute, or may by notice in writing to the SDS Provider require that the Dispute be referred (as the case may be) to the adjudicator appointed under the Related Contract to decide upon the Related Dispute, and:

28.56.1 the adjudicator shall, if practicable, hear the Dispute at the same time as the Related Dispute and shall request such extension of time for producing his decision or award as he may require in order to reach a decision in respect of each of the Dispute and the Related Dispute at the same time. The Parties shall agree to such request for an extension of time, except in the event that the Dispute or the Related Dispute relates to "construction operations" within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the Adjudicator);

28.56.2 except in the event that the Dispute or the Related Dispute relates to "construction operations" within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the Adjudicator), the adjudicator shall have power (if so requested by the Client) to make his decisions or awards in the Dispute and the Related Dispute in such a manner as if the rules applicable in the Court of Session, Scotland as to the joining of one or more defenders or third parties or conjoining actions were applicable to the Parties to the Dispute and the Related Dispute, and to the adjudicator; and

28.56.3 the Client shall procure that, as soon as practicable, the other party or parties to the Related Dispute shall give the SDS Provider copies of the Related Contract, the referral notice in the Related Dispute and any other documentation provided to the adjudicator by any party to the Related Dispute.

28.57 In the event that a Dispute has already been referred to the decision of an adjudicator, and the Client is of the opinion that a Related Dispute is to be (but has not yet been) referred to adjudication, the Client may refer the Related Dispute to the adjudicator appointed under this Clause 28 (*Dispute Resolution Procedure*) to decide upon the Dispute, and:

28.57.1 the Adjudicator shall, if practicable, hear the Related Dispute at the same time as the Dispute and shall request such extension of time for producing his decision or award as he may require in order to reach a decision in respect of each of the Dispute and the Related Dispute at the same time. The Parties shall agree to such request for an extension of time, except in the event that the Dispute or the Related Dispute relates to "construction operations" within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the Adjudicator);

28.57.2 except in the event that the Dispute or the Related Dispute relates to "construction operations" within the meaning ascribed to that term by the Housing Grants, Construction and Regeneration Act 1996 (if applicable) (unless otherwise agreed by the Parties, all parties to the Related Dispute and the Adjudicator), the adjudicator shall have power (if so requested by the Client) to make his decisions or awards in the Dispute and the Related Dispute in such a manner as if the rules applicable in the Court of Session, Scotland as to the joining of one or more defenders or third parties or conjoining actions were applicable to the Parties to the Dispute and the Related Dispute, and to the adjudicator;

28.57.3 as soon as practicable, the Client shall give to the SDS Provider copies of the Related Contract, the referral notice in the Related Dispute and any other documentation provided to the adjudicator by any party to the Related Dispute.

29. NOVATION, COLLATERAL WARRANTY IN FAVOUR OF TIE, FUNDER'S DIRECT AGREEMENT AND AGREEMENT BETWEEN THE JOINT REVENUE COMMITTEE AND THE SDS PROVIDER

Novation

29.1 **tie** intends to enter into an infrastructure supply contract with the Infraco. It is a material condition of this Agreement that the SDS Provider shall, if and at the time requested by **tie**, enter into and execute a Novation Agreement with **tie** and the Infraco in the form set out in Schedule 8 (*Novation Agreement*).

29.2 Notwithstanding the provisions of ~~Clause 15~~ (*Changes*), **tie** may in its absolute discretion require the reduction of the scope of the Services prior to the execution of the Novation Agreement by the SDS Provider. If required, the SDS Provider shall within 5 Business Days of any request from **tie**, carry out a valuation of all work in progress in relation to the Services in accordance with the provisions of Clause 15.4, and subject to Clause 11 (*Methods of Payment*) and, for the avoidance of doubt, subject to any agreed milestone or lump sum payments set out in Schedule 3 (*Pricing Schedule*) or as agreed otherwise in accordance with this Agreement. **tie** shall, subject to any clarifications as are in **tie's** opinion (acting properly and reasonably) necessary, certify by notice in writing to the SDS Provider that part of the work in progress which is approved by **tie** and give reasons why any part of the work in progress has not been certified and the value of the sums involved no later than 10 Business Days after the date on which such valuation was received. **tie's** valuation of such work in progress shall be final and binding.

29.3 If the scope of the Services is reduced by **tie**, then within 30 Business Days of the date of execution of the Novation Agreement by the SDS Provider, the SDS Provider shall submit a valid VAT invoice to **tie** for the work in progress certified by **tie** in respect of the services which have been removed from the Services to be performed by the SDS Provider.

29.4 Payment will become due to the SDS Provider on the date of receipt of the valid VAT invoice by **tie** and the final date for payment by **tie** of such valid VAT invoice shall be 30 days from the date of receipt of such valid VAT invoice.

29.5 Within 10 days of any request from **tie**, the SDS Provider shall provide an Estimate of any changes proposed by the bidders for the Infraco Contract to the scope of the Services or the Deliverables, which have been notified by **tie** to the SDS Provider.

Collateral Warranty in favour of tie

29.6 On the date of execution of the Novation Agreement referred to in Clause 29.1, the SDS Provider shall execute a collateral warranty agreement in favour of **tie** in the form contained in Schedule 7 (*Collateral Warranty Agreement*) and provide the same as executed to **tie** on that date.

Funder's Direct Agreement

29.7 On the date of execution of the Novation Agreement, the SDS Provider shall, if required by **tie**, execute a Funder's Direct Agreement and provide the same as executed to the Infracore on that date.

Agreement between the Joint Revenue Committee and the SDS Provider

29.8 It is a material condition of this Agreement that the SDS Provider shall enter into and execute an agreement with the Joint Revenue Committee substantially in the form set out in Schedule 17 (*Agreement between the SDS Provider and the Joint Revenue Committee*), within 10 Business Days of the appointment of the Joint Revenue Committee by **tie**. Failure to enter into such agreement shall constitute a breach of this Agreement but shall not relieve the SDS Provider of any of its obligations in relation to the SDS-JRC Modelling Suite or otherwise under this Agreement. The SDS Provider shall provide **tie** with a duly certified executed copy of the agreement with Joint Revenue Committee entered into pursuant to this Clause 29.8 within 5 Business Days of its execution.

29.9 The SDS Provider shall be responsible for the development, testing, validation, commissioning and deployment of a transport modelling suite (the SDS-JRC Modelling Suite) as stipulated in Section 3.5 of Schedule 1 (*Scope of Services*), such Deliverable to be approved by **tie** by 31 March 2006.

30. ASSIGNATION, CHANGES IN LEGAL STATUS AND CHANGES IN CONTROL

30.1 Without prejudice to Clause 9 (*Sub-Letting and the Appointment of SDS Provider Parties*), the SDS Provider shall not assign, novate or otherwise transfer the whole or any part of the Agreement without the prior written agreement of the Client.

30.2 In addition to and without prejudice to the provisions of Clause 29.1 and the Novation Agreement to be entered into in accordance with Clause 29.1, the Client shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:

30.2.1 to the Scottish Ministers or any local authority or other body with no worse financial standing than that of **tie** who, as a result of any Change in Law, takes over all or substantially all the functions of **tie**; or

30.2.2 to any other person whose obligations under this Agreement are unconditionally and irrevocably guaranteed (in a form reasonably acceptable to the SDS Provider) by **tie** or a person falling within Clause 30.2.1; or

30.2.3 to CEC or Transport Edinburgh Limited; or

30.2.4 with the prior written consent of the SDS Provider (such consent not to be unreasonably withheld or delayed).

30.3 If the legal status of the SDS Provider shall change in any way, the Client shall be informed by the SDS Provider in writing, immediately.

- 30.4 If there is a Change of Control in the SDS Provider, the Client shall be informed immediately by the SDS Provider in writing.

31. CONFLICT OF INTEREST

31.1 The SDS Provider shall:

- 31.1.1 be responsible for ensuring that no conflict of interest arises in respect of its duties under the Agreement;
- 31.1.2 make all possible enquiries to ensure that there is no conflict of interest prior to its assuming the duties required of it under the terms of the Agreement; and
- 31.1.3 consult and advise the Client if the SDS Provider considers that a conflict of interest arises or if he considers that a conflict of interest may exist or may arise or may be foreseeable and shall furnish the Client with such information as shall enable the Client to determine whether or not a conflict of interest has arisen.

32. COPYRIGHT AND INTELLECTUAL PROPERTY

32.1 All SDS Provider IPR shall continue to be owned by the SDS Provider.

32.2 The SDS Provider hereby:

- 32.2.1 assigns by way of future assignation to the Client with full title guarantee the Project IPR which is created by it and shall procure that Project IPR created by any SDS Provider Party is also so assigned, for all of the residue of the term of such rights and all renewals or extensions thereof and together with all accrued causes of action in respect thereof;
- 32.2.2 grants to the Client a non-exclusive perpetual irrevocable royalty free licence to use such SDS Provider IPR as may be necessary for the Client to use in relation to any projects associated with the Services;
- 32.2.3 grants to the Client the right to grant non-exclusive non-assignable sub-licences to third parties for such lengths of time as the Client may reasonably require and otherwise on the same terms as the licence granted to the Client pursuant to Clause 32.2.2 above, to use the SDS Provider IPR referred to in that Clause (other than in relation to Third Party Software which is subject to the provision of Clause 32.9) in so far as is necessary or desirable for such third party to use such SDS Provider IPR in relation to any projects associated with the Services;

32.3 For the avoidance of doubt, the persons to whom the Client may grant sub-licences pursuant to Clause 32.2.3 above shall include:

32.3.1 any Client Party;

32.3.2 the Operator and any party other than the Operator providing support to **tie** in relation to the Edinburgh Tram Network;

32.3.3 **tie** and any **tie** Party;

32.3.4 bidders for the Infraco Contract and the Tram Supply Contract;

32.3.5 the Tram Supplier;

- 32.3.6 any party providing maintenance in relation to the Edinburgh Tram Network;
- 32.3.7 the Joint Revenue Committee;
- 32.3.8 any party appointed by tie to carry out utilities diversions; and
- 32.3.9 any assignee or transferee under this Agreement.
- 32.4 The Client hereby grants to the SDS Provider a non-exclusive revocable royalty free licence for the duration of this Agreement to use such Project IPR as is owned by it as may be necessary for the SDS Provider to use solely and exclusively for the purpose of performing the Services.
- 32.5 The copyright of this Agreement and any data or software supplied to the SDS Provider by the Client, shall remain solely with the Client.
- 32.6 The SDS Provider shall at any time and from time to time hereafter at the request of the Client execute all such documents and do all such further acts as may be required in order to vest the rights referred to in Clause 32.2.1 in the Client.
- 32.7 The SDS Provider waives any and all moral rights held or to be held by the SDS Provider in the Deliverables and the Project IPR and shall procure that all of the SDS Provider Parties who are authors of the whole or any part of the Deliverables or the Project IPR waive and abandon in writing all moral rights.
- 32.8 The SDS Provider agrees that all rights in the Project IPR shall remain the property of the Client and the SDS Provider shall retain no rights in the Project IPR beyond the licence granted in Clause 32.4 above. The SDS Provider shall be entitled to use such Project IPR only on the terms set out herein and solely for the purpose of the performance of the Services. In particular, otherwise as permitted in this Agreement herein, the SDS Provider shall not disclose, assign, sub-licence, lease, rent or otherwise dispose of the Project IPR.
- 32.9 To the extent that any of the Deliverables are generated by or maintained on a computer or similar system, the SDS Provider shall use all reasonable endeavours to procure for the benefit of the Client, at no charge or at the lowest reasonable fee, the grant of a licence or sub-licence for any relevant Third Party Software on the same terms as the SDS Provider Software is licensed to the Client, to enable the Client or its nominee to access and otherwise use (subject to the payment by the Client of the relevant fee, if any) such Deliverables in connection with this Agreement. As an alternative, the SDS Provider may provide such Deliverables in a format which may be read by software generally available at reasonable prices in the market at the relevant time or in hard copy format.
- 32.10 The SDS Provider shall ensure the back-up and storage in safe custody of the Deliverables in accordance with Good Industry Practice. Without prejudice to this obligation, the SDS Provider shall submit to the Client's Representative for approval its proposals for the back-up and storage in safe custody of the Deliverables and the Client shall be entitled to object if the same is not in accordance with Good Industry Practice. The SDS Provider shall comply, and shall cause all the SDS Provider Parties to comply, with all such proposals to which the Client Representative has given his or her approval. The SDS Provider may vary its procedures for such back-up and storage subject to submitting its proposals for change to the Client Representative, who shall be entitled to object on the basis set out above.
- 32.11 Where a claim or proceeding is made or brought against the Client or its permitted licensees which arises out of the infringement of any Intellectual Property Rights in any Deliverables or other materials provided by the SDS Provider or any SDS

Provider Party to the Client then the SDS Provider shall indemnify and keep the Client indemnified on demand at all times from and against all Indemnified Liabilities arising in connection with such claim or proceedings.

32.12 For the purposes of this Clause 32 (*Copyright and Intellectual Property*), "use" shall include the acts of copying, modifying, adapting and translating the material in question and/or incorporating them with other materials and the term "the right to use" shall be construed accordingly.

32.13 The provisions of this Clause 32 (*Copyright and Intellectual Property*) shall apply during the continuance of this Agreement and after its termination howsoever arising, and immediately following termination howsoever arising, the SDS Provider shall provide the Client with:

32.13.1 a copy of the object code for the Third Party Software and the SDS Provider Software on media that is reasonably acceptable to the Client;

32.13.2 a copy of the source code for the Specially Written Software on media that is reasonably acceptable to the Client; and

32.13.3 a copy of all documentation, manuals and other technical information relating to the Third Party Software, the Specially Written Software and the SDS Provider Software that is reasonably required by the Client to operate, manage and support the Third Party Software, the Specially Written Software and the SDS Provider Software.

32.14 The SDS Provider shall not reproduce or publish any document or matter relating to the Services or this Agreement, either alone or in association with any other body or person, without the prior written consent of the Client.

33. CONFIDENTIAL INFORMATION

33.1 Each Party:

33.1.1 shall treat all Confidential Information belonging to the other Party as confidential and safeguard it accordingly; and

33.1.2 shall not disclose any Confidential Information belonging to the other Party to any other person without the prior written consent of the other Party, except to such persons and to such extent as may be necessary for the performance of the Agreement or except where disclosure is otherwise expressly permitted by the provisions of this Agreement.

33.2 The SDS Provider shall take all necessary precautions to ensure that all Confidential Information obtained from the Client under or in connection with the Agreement:

33.2.1 is given only to such of the staff and professional advisors or SDS Provider Parties engaged to advise it in connection with the Agreement as is strictly necessary for the performance by the SDS Provider of the Services and its other obligations under this Agreement and only to the extent necessary for the performance by the SDS Provider of the Services and its other obligations under this Agreement;

33.2.2 is treated as confidential and not disclosed (without prior approval) or used by any staff or such professional advisors or SDS Provider Parties otherwise than for the purposes of the Agreement.

- 33.3 Where it is considered necessary in the opinion of the Client, the SDS Provider shall ensure that staff or such professional advisors or SDS Provider Parties sign a confidentiality undertaking before commencing work in connection with the Agreement.
- 33.4 The SDS Provider shall not use any Confidential Information it receives from the Client otherwise than for the purposes of the Agreement.
- 33.5 The provisions of Clauses 33.1 to 33.4 shall not apply to:
- 33.5.1 any information which is or becomes public knowledge (otherwise than by breach of this Clause 33);
 - 33.5.2 any information which was in the possession of the receiving Party, without restriction as to its disclosure, before receiving it from the disclosing Party;
 - 33.5.3 any information which is received from a third party who lawfully acquired it and who is under no obligation restricting its disclosure;
 - 33.5.4 any information which is independently developed without access to the Confidential Information;
 - 33.5.5 any disclosure pursuant to a statutory, legal or parliamentary obligation placed upon the Party making the disclosure, including any requirements for disclosure under FOISA, the Code, or the Environmental Information Regulations pursuant to Clauses 33.7 to 33.11 (inclusive);
 - 33.5.6 any disclosure by ~~tie~~ of this Agreement including the SDS Provider's fees and commercial terms, any information relating to the design of any aspect of the Edinburgh Tram Network and such other information as may be reasonably required for the purpose of conducting a due diligence exercise with any bidders for the Infraco Contract and the Tram Supply Contract and their advisers;
 - 33.5.7 any disclosure by ~~tie~~ of the Client of this Agreement and any related information to the TSS Provider;
 - 33.5.8 any information which is required to be disclosed to that Party's insurers and/or legal advisers subject to Clauses 33.2 and 33.3;
 - 33.5.9 any registration of information in respect of the Consents and any property registration required;
 - 33.5.10 any disclosure of information by the Client or ~~tie~~ to Transport Edinburgh Limited, CEC, Partnerships UK Limited, any department, office or agency of the Scottish Executive or the UK government;
 - 33.5.11 any disclosure for the purpose of:
 - 33.5.11.1 the examination and certification of ~~tie~~'s, the Client's or the SDS Provider's accounts; or
 - 33.5.11.2 any examination (pursuant to applicable Law) of the economy, efficiency and effectiveness with which ~~tie~~ has used their resources or funding made available to them including any examination pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act

2003 of whether the Client has secured best value in the performance of its functions

33.5.12 any disclosure of Confidential Information obtained from the SDS Provider:

33.5.12.1 to any government department or any other local government authority or public authority equivalent in status to **tie**. All government departments or any other local government authority or public authority equivalent in status to **tie** receiving such Confidential Information shall be entitled to further disclose the Confidential Information to other government departments or any other local government authority or public authority equivalent in status to **tie** on the basis that the information is confidential and is not to be disclosed to a third party which is not part of any government department or any other local government authority or public authority equivalent in status to **tie**; or

33.5.12.2 to any person engaged in providing any services to the Client for any purpose relating to or ancillary to the Agreement;

provided that in disclosing information under this Clause 33 (*Confidential Information*) the Client discloses only the information which is necessary for the purpose concerned and requires that the information is treated in confidence and that a confidentiality undertaking is given where appropriate.

33.6 Nothing in this Clause shall prevent either Party from using any techniques, ideas or know-how gained during the performance of the Agreement in the course of its normal business, to the extent that this does not result in a disclosure of Confidential Information or an infringement of Intellectual Property Rights.

33.7 In the event that the SDS Provider fails to comply with this Clause 33 (*Confidential Information*), the Client reserves the right to terminate the Agreement by notice in writing in accordance with Clause 19.1.

33.8 The SDS Provider acknowledges that **tie** is subject to the requirements of FOISA and the Environmental Information Regulations and shall assist and cooperate with **tie** (at the SDS Provider's expense) to enable **tie** to comply with these Information disclosure requirements. **tie** agrees that it shall comply with the terms of the Code in respect of the discharge of its obligations under FOISA.

33.9 The SDS Provider shall and shall procure that the SDS Provider Parties shall:

33.9.1 transfer the Request for Information to **tie** as soon as practicable after receipt and in any event within two Business Days of receiving a Request for Information;

33.9.2 provide **tie** with a copy of all Information in its possession or power in the form that **tie** requires within five Business Days (or such other period as **tie** may specify) of **tie** requesting that Information; and

33.9.3 provide all necessary assistance as reasonably requested by **tie** to enable **tie** to respond to a Request for Information within the time for compliance set out in section 10 of FOISA or regulation 5 of the Environmental Information Regulations.

33.10 **tie** shall be responsible for determining at its absolute discretion whether the Confidential Information and/or any other Information:

- 33.10.1 is exempt from disclosure in accordance with the provisions of the Code, FOISA or the Environmental Information Regulations;
- 33.10.2 is to be disclosed in response to a Request for Information, and
- 33.11 in no event shall the SDS Provider respond directly to a Request for Information unless expressly authorised to do so by **tie**.
- 33.12 The SDS Provider acknowledges that **tie** may be obliged, pursuant to the Code, FOISA, or the Environmental Information Regulations to disclose Information:
- 33.12.1 without consulting with the SDS Provider, or
- 33.12.2 following consultation with the SDS Provider and having taken its views into account.
- 33.13 The SDS Provider shall ensure that all information and Deliverables produced in the course of the Agreement or relating to the Agreement is retained for disclosure and shall permit the Client and **tie** to inspect such records as requested from time to time.
- 33.14 The SDS Provider acknowledges that any lists or schedules provided by it outlining Confidential Information are of indicative value only and that **tie** may nevertheless be obliged to disclose Confidential Information in accordance with Clause 33.9.
- 33.15 Any public relations material, press releases, public presentations or conference engagements in relation to this Agreement planned by the SDS Provider requires the Client's and **tie**'s prior written approval.

34. WAIVER

- 34.1 Save where expressly stated, no failure or delay by the Client to exercise any right or remedy in connection with this Agreement will operate as a waiver of it or of any other right or remedy nor will any single or partial exercise preclude any further exercise of the same, or of some other right or remedy. A waiver of any breach of this Agreement shall not be deemed to be a waiver of any subsequent breach.
- 34.2 The SDS Provider agrees that no waiver shall occur or be deemed to have occurred unless or until a clear and unequivocal express waiver of a clearly identified default is contained in a written notice by the Client to the SDS Provider expressly for the purpose of effecting such waiver.
- 34.3 The Parties' rights and remedies under this Agreement are, except where provided otherwise in this Agreement, independent, cumulative and do not operate to exclude one another or any rights or remedies provided by law.

35. ENTIRE AGREEMENT

- 35.1 Except where expressly provided otherwise in this Agreement, this Agreement constitutes the entire agreement between the Parties in connection with its subject matter and supersedes all prior representations, communications, negotiations and understandings concerning the subject matter of this Agreement.
- 35.2 Each of the Parties confirms to the other that it has neither been induced to enter into this Agreement in reliance on, nor has it made, any representation or warranty except those contained or referred to in this Agreement.

- 35.3 Any representations or warranties other than those contained or referred to in this Agreement are superseded and extinguished by this Agreement.
- 35.4 Each Party irrevocably and unconditionally waives all rights and remedies which it might otherwise have had in relation to any representations or warranties other than those contained or referred to in this Agreement.

36. NOTICES

36.1 Any notice or notification required or authorised to be given under this Agreement by one Party to the other shall be:

36.1.1 in writing;

36.1.2 sent by one of the following methods:

(i) pre-paid registered or recorded delivery post or facsimile transmission addressed to the Party to which it is given at:

(a) in the case of notices given to the Client: **tie**, Verity House, 19 Haymarket Yards, Edinburgh EH12 5BH, fax number 0131 622 8301, attention: Projects Director, or such other address or fax number in the United Kingdom as the Client may notify the SDS Provider from time to time for that purpose; or

(b) in the case of notices given to the SDS Provider, Parsons Brinckerhoff Limited, 2nd Floor, 100 Queen Street, Glasgow, G1 3DF, fax number 0141 222 6901, attention: David Hutchison or such other address or fax number in the United Kingdom as the SDS Provider may notify the Client from time to time for that purpose; or

(ii) facsimile transmission addressed to the Client's Representative or the SDS Provider's Representative (as appropriate) at a facsimile number notified to the giving Party by the receiving Party for the service of notices under this Agreement from time to time; or

(iii) personal delivery into the hands of:

(a) in the case of notices given to the Client, the Client's Representative; or

(b) in the case of notices given to the SDS Provider, the SDS Provider's Representative.

(iv) e-mail to:

(a) in the case of notices given to the Client, the Client's Representative; or

(b) in the case of notices given to the SDS Provider, the SDS Provider's Representative.

36.1.3 be deemed duly served:

(i) if sent by pre-paid registered or recorded delivery post, 2 clear Business Days after posting; or

- (ii) if sent via facsimile transmission or personal delivery, on the day of issue of the relevant fax confirmation receipt or such personal delivery (as appropriate), unless that day is not a Business Day in which case it shall be deemed duly served on the next Business Day thereafter; or
- (iii) if sent via e-mail, the date of written acknowledgement by the Party to whom the notice was served.

37. CONSENT AND APPROVAL

- 37.1 The giving of any consent or approval by or on behalf of the Client shall not in any way relieve the SDS Provider of any of its obligations under the Agreement or of its duty to ensure the correctness, accuracy or suitability of the matter or thing which is the subject of the consent or approval.
- 37.2 Failure by the Client to disapprove or object to any matter or thing shall not prejudice its power subsequently to take action under the Agreement in connection therewith.

38. DISCRIMINATION

- 38.1 The SDS Provider shall not (and the SDS Provider shall insert a clause to this effect in each contract with any SDS Provider Party) unlawfully discriminate within the meaning and scope of the provisions of the Equal Pay Act 1970, the Sex Discrimination Act 1975, the Race Relations Act 1976, the Disability Discrimination Act 1995, the Employment Equality (Sexual Orientation) Regulations 2003 and the Employment Equality (Religion or Belief) Regulations 2003.

39. FURTHER ASSURANCE

- 39.1 Each Party shall at the reasonable request and cost of the other (save where it is expressly provided that the cost of such act or execution shall be for that party's account) do any act or execute any document that may be necessary to give full effect to this Agreement.

40. APPLICABLE LAW

- 40.1 This Agreement, any document completed or to be completed in accordance with its provisions and any matter arising from it or any such document shall be governed by and construed in accordance with Scots law.
- 40.2 Subject to Clause 28 (*Dispute Resolution Procedure*), the Parties hereby irrevocably submit to the exclusive jurisdiction of the Court of Session in relation to this Agreement, any such document and any such matter.

41. VARIATIONS TO BE IN WRITING

No variation, or alteration of any of the provisions of this Agreement shall be effective unless it is in writing and signed by both Parties.

42. NO PARTNERSHIP OR AGENCY

- 42.1 Nothing in this Agreement shall be construed as creating a partnership between the Client and the SDS Provider.
- 42.2 The SDS Provider shall not (and shall procure that the SDS Provider Parties shall not) act or purport to act as agent for the Client in relation to any matter unless specifically authorised in writing under this Agreement by the Client. The SDS

Provider shall not be entitled to bind the Client in any way or to create any liability or cause of action against the Client and shall not hold itself out (and shall procure that no SDS Provider Party shall hold itself out) as having any such authority or power

43. INVALID TERMS

If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable:

- 43.1 that term shall to that extent be deemed not to form part of this Agreement; and
- 43.2 the validity and enforceability of the remainder of this Agreement shall not be affected.

44. THIRD PARTY RIGHTS

Subject to any other express provision of this Agreement, a person who is not party to this Agreement shall have no right to enforce any term of this Agreement.

IN WITNESS WHEREOF these presents on this and the preceding 75 pages together with Schedules One to Seventeen (inclusive) which are annexed and signed as relative hereto are executed as follows:

EXECUTED for and on behalf of **TIE LIMITED** at **EDINBURGH**

on **19TH SEPTEMBER** 2005 by

[Redacted Signature]

Authorised Signatory

MICHAEL WILLIAM OAVIS HOWELL

Full Name

[Redacted Signature]

Witness Signature

ALAN MCLEOD CASSELS

Full Name

RUTLAND BUILDING

Address

RUTLAND SQUARE

EDINBURGH

EXECUTED for and on behalf of **PARSONS BRINCKERHOFF LIMITED** at **EDINBURGH**

on **19TH SEPTEMBER** 2005 by:

[Redacted Signature]

Attorney

MICHAEL MAHN JENKINS

Full Name

[Redacted Signature]

Witness Signature

ALAN MCLEOD CASSELS

Full Name

RUTLAND BUILDING

Address

RUTLAND SQUARE

EDINBURGH

**This is Schedule One referred to in the foregoing Agreement between
the Client and the SDS Provider**

SCHEDULE ONE

SCOPE OF SERVICES

1. General

1.1 The SDS Provider shall:

- 1.1.1 perform all Design and Technical Services;
- 1.1.2 give all general technical support described in this Schedule One;
- 1.1.3 perform all management services described in this Schedule One; and
- 1.1.4 assist the Client as may be required in accordance with this Agreement.

2. Design and Technical Services

2.1 General

- 2.1.1 The SDS Provider shall undertake all design and produce the Deliverables necessary to enable the Edinburgh Tram Network to be procured, constructed, tested and commissioned (taking account of the need to fully coordinate these activities, including with other physically-related projects, so as to minimise overall disruption) to meet the requirements of the Master Project Programme, and then operated and maintained.
- 2.1.2 The SDS Provider shall produce a design which shall deliver overall system functionality, capability and achieve the performance requirements of the Edinburgh Tram Network.
- 2.1.3 The SDS Provider shall produce a tram service simulation that will demonstrate the achievement of the required run times and service performance as the design progresses.
- 2.1.4 The SDS Provider shall ensure that the design covers all aspects of the Edinburgh Tram Network and the associated works adjacent to the proposed alignment.
- 2.1.5 The SDS Provider shall undertake all necessary research, surveys and investigations necessary to support the provision of a cost effective design.
- 2.1.6 The SDS Provider is responsible for ensuring that there are no gaps and omissions in the specification and design of the Edinburgh Tram Network.
- 2.1.7 The SDS Provider shall demonstrate that the detailed design has properly considered and adopted the most advantageous whole life cost solutions.
- 2.1.8 The SDS Provider shall deliver designs and/or Technical Specifications which shall include:
 - 2.1.8.1 detailed alignment and associated civil and structural works;

2.1.8.2 specifications of sub system functionality and technical requirements for the following E & M system components:

- trams;
- tram track;
- OLE;
- traction and auxiliary power supply network (including network reinforcement if required);
- signals and control system (for both tram and highway traffic control);
- communication systems;
- integrated fare collection equipment;
- security systems; and
- depot systems and associated maintenance plant and equipment.

2.1.8.3 the infrastructure required to support the above E&M system components, which includes:

- civil and structural engineering works (formation, structures, retaining walls and the like);
- track formation;
- road works;
- traffic management systems;
- tram stops;
- depot, buildings and associated external works;
- substation buildings and associated external works;
- foul and surface water drainage systems;
- building services (M&E) infrastructure;
- building works associated with the Edinburgh Tram Network's E&M systems;
- environmental mitigation measures;
- hard and soft landscaping; and
- stray current and EMC control systems.

2.2 Design Approach

The SDS Provider shall approach the Design and Technical Services in a structured manner using a recognised 'V' life cycle model with regard to the integration of design engineering, systems engineering and safety engineering activities. The SDS Provider shall carry out the Design and Technical Services over three phases:

- Requirements Definition Phase;
- Preliminary Design Phase; and
- Detailed Design Phase.

2.3 Requirements Definition Phase

2.3.1 By the end of the Requirements Definition Phase, the SDS Provider shall have produced a set of Functional Requirements Specifications and the means by which they will be tested that have been agreed with the Client in accordance with the Review Procedure, such that the Preliminary Design Phase can commence.

2.3.2 During the Requirements Definition Phase, the SDS Provider shall:

2.3.2.1 develop the Functional Requirements Specification into full system requirement specifications that broadly align with the WBS;

2.3.2.2 identify and produce a series of management plans including; safety management/engineering, project management, environmental management, configuration management, verification and validation which will inform and direct the preliminary and detailed design processes;

2.3.2.3 undertake technology reviews such that the SDS Provider considers that the selected technologies will meet the requirements developed in this Requirements Definition Phase;

2.3.2.4 produce the initial safety case strategy, using GSN, and define the proposed arguments and the required supporting evidence to be provided;

2.3.2.5 record agreed requirements by a suitable means, such as a requirements database;

2.3.2.6 carry out and conclude early safety engineering activities such that 'safety' requirements are identified, assessed for risk and a hazard log initiated;

2.3.2.7 undertake any surveys required and incorporate relevant findings into the Functional Requirements Specifications and the Technical Specifications to be prepared by the SDS Provider;

2.3.2.8 deliver all Deliverables for the Requirements Definition Phase as are identified in Appendix 3 of this Schedule 1 (*Scope of Services*); and

2.3.2.9 define in detail the format for the drawings and documents to be produced as part of the Services, ensuring that all requirements for manufacture, construction, commissioning, operation, maintenance, land and property agreements, utilities diversions, access,

wayleaves, servitudes and other third party agreements relative to the Edinburgh Tram Network, may be readily provided in appropriate formats from the same source computer files. If required by the Client, the SDS Provider shall also detail the format for drawings and documents which are to be produced outwith the scope of the Services

2.3.3 The SDS Provider shall be responsible for undertaking and reporting on (inclusive of interpretative analysis) the following surveys along with any other surveys necessary to inform the design of the Edinburgh Tram Network including:

- ground penetrating radar;
- ground investigation and geotechnical surveys;
- contamination, pollution, air and water quality surveys;
- photographic surveys;
- topographical surveys;
- hydrographic surveys;
- archaeological surveys;
- structural, building & cellar surveys;
- condition of structure surveys;
- undertake Network Rail asset investigation study and prepare accurate engineering drawings for input into the detailed design process and Network Rail agreements;
- environmental and ecological surveys;
- noise and vibration baseline surveys;
- pre and post construction noise and vibration surveys;
- pre-condition dilapidation surveys of vulnerable third party structures;
- frontager surveys;
- radio surveys;
- traffic & public transport surveys;
- computer traffic/transport modelling; and
- 3-D representational modelling

The resultant analysis and reports from those surveys are to be used to develop the Functional Requirements Specifications and the Technical Specifications and to set base lines against which the impact of the Edinburgh Tram Network can be measured when built.

2.4 Preliminary Design Phase

- 2.4.1 By the end of the Preliminary Design Phase, the SDS Provider shall have produced a preliminary design for each Sector or Sub-Sector (as appropriate) to such a level that the SDS Provider, the Client and the relevant Approval Bodies are satisfied that when progressed, the detailed design in respect of each Sector or Sub-Sector (as appropriate) will deliver the agreed and specified system functionality, be acceptably safe, constructable, will comply with the Design Manual and deliver the Functional Requirements Specification agreed at the end of the Requirements Definition Phase.
- 2.4.2 The SDS Provider shall, initially at a high level for the whole of the Edinburgh Tram Network, and thereafter at a detailed level for each Sector or Sub-Sector (as appropriate) in the order referred to in the Programme Phasing Structure and Clauses 7.2 and 7.3 of the Agreement:
- 2.4.2.1 develop the track alignments and the associated track layout arrangements for the Edinburgh Tram Network;
 - 2.4.2.2 define tramstop and substation locations;
 - 2.4.2.3 propose appropriate technologies and agree the adoption of these for Edinburgh Tram Network with the Client;
 - 2.4.2.4 prepare generic details for each type(s) of tramstop layouts/arrangements, including equipment, lighting, building services and signage;
 - 2.4.2.5 carry out the preliminary design of the depot(s) layout and arrangement including trackwork, maintenance equipment, control centre and staff facilities;
 - 2.4.2.6 develop system architectures for supervisory control and communications and electrification and power elements;
 - 2.4.2.7 demonstrate that all elements of the preliminary design meet the Functional Requirements Specifications, especially those related to run-time, performance/reliability, integrated ticketing and safety;
 - 2.4.2.8 undertake such safety analysis that will allow further development of the safety case concurrent with the design to prove that the Edinburgh Tram Network is acceptably safe;
 - 2.4.2.9 further develop the Functional Requirements Specifications for the infrastructure, systems and the trams such that it is ensured that the preliminary design of the infrastructure, systems and the trams are compatible and meet the Requirements Specification for Overall System Operational and Performance Requirements;
 - 2.4.2.10 prior to the review of the whole preliminary design for the Edinburgh Tram Network (or part thereof), the SDS Provider shall produce for review the foreseen costs of taking that design forward to construction and commissioning;
 - 2.4.2.11 produce a migration plan that shows constructability and commissioning of the design as well as user training and

compliance with programmed dates for entering operational service; and

2.4.2.12 deliver all Deliverables for Preliminary Design Phase as are identified in Appendix 3 of this Schedule 1 (*Scope of Services*).

2.5 Technology Reviews

The SDS Provider shall undertake comparative technology reviews so as to identify the most appropriate ways of delivering the functionality required of the Edinburgh Tram Network and its component parts. This shall include:

- establishing the latest dates for any modification of elements of design where the opportunity exists to change the specification as a result of advances in proven technology;
- investigating the feasibility of proven wireless telecommunication systems such as:
 - monitoring, control and recording of voice radio communications between the control centre and the trams, passenger help points and public address systems;
 - monitoring, control and recording of remote equipment data via radio;
 - monitoring, control and recording of real-time CCTV video images via wireless means; and
 - updating and control of passenger information displays by Data Radio means;
- ensuring the Edinburgh Tram Network has the most relevant ticketing, management and information systems; and
- illustrating the advantages and disadvantages relevant to moving from an Edinburgh Tram Network designed to deliver the operational and performance requirements (stated in the Requirements Specification for Overall System Operational and Performance Requirements) with a 40 metre long 100% low floor tram to a 30 (+) metre long 70% (partial) low floor tram.

The SDS Provider shall conclude the comparative technology reviews during the early part of the Preliminary Design Phase and this shall include:

- a scoping study outlining the areas to be investigated;
- a programme outlining the latest date for modification of any specifications within the overall programme together with interaction of activities; and
- reports and presentations analysing and assessing the options and justifying the final selections of technologies in terms of time, cost, quality, safety, risk and maintainability.

2.6 Detailed Design

2.6.1 By the end of the Detailed Design Phase for each Sector or Sub-Sector (as appropriate) the SDS Provider shall have:

2.6.1.1 produced and delivered to the Client, the detailed design and specification of all the works, associated sub-systems and components and their associated installation drawings/schedules, test specifications, manuals and records (all of which shall have been approved in accordance with the Review Procedure); and

2.6.1.2 produced the detailed design of the Edinburgh Tram Network for each Sector or Sub-Sector (as appropriate), in the order referred to in the Programme Phasing Structure and Clauses 7.2 and 7.3 of the Agreement, such that the detailed design has full approval of the Client and the relevant Approval Bodies and such that the Edinburgh Tram Network as designed can be constructed, installed, tested and commissioned by Infracore and then operated and maintained.

2.6.2 The SDS Provider shall:

2.6.2.1 build upon the work done in the Preliminary Design Phase and produce detailed Deliverables for all elements of the infrastructure and associated systems for the Edinburgh Tram Network from which construction, installation, testing and commissioning activities can commence and be satisfactorily concluded;

2.6.2.2 produce procurement specifications and associated schedules for all E&M systems and sub-systems for the Edinburgh Tram Network;

2.6.2.3 produce a costed programme of the design and its construction;

2.6.2.4 gain all relevant planning and other approvals and consents including traffic regulation orders (during construction and post-opening) to enable construction works to proceed in accordance with the requirements of the Master Project Programme;

2.6.2.5 produce the plan for the installation/testing/commissioning of the Edinburgh Tram Network and associated sub-systems;

2.6.2.6 ensure that E&M system suppliers produce appropriate training plans for operations and maintenance staff (including manuals) and trial running plans;

2.6.2.7 demonstrate that all elements of the detailed design meet the requirements agreed, especially those related to run-time, performance/reliability and safety;

2.6.2.8 undertake such safety analysis that will allow development of the safety case concurrent with the detailed design to prove that the system once constructed and operational will be acceptably safe;

2.6.2.9 finalise the Technical Specifications such that it is ensured that the design of the infrastructure systems and the trams are compatible;

2.6.2.10 at the review of the detailed design for each Sector or Sub-Sector (as appropriate) and prior to the review of the detailed design for the whole of the Edinburgh Tram Network (or part thereof), the SDS

Provider shall produce for review the foreseen cost of taking that detailed design forward to construction and commissioning; and

2.6.2.11 deliver all Deliverables for the Detailed Design Phase as are identified in Appendix 3 of this Schedule 1 (*Scope of Services*).

2.7 Key Design Elements

2.7.1 The SDS Provider shall design:

2.7.1.1 the route from Haymarket to Ocean Terminal via Princes Street so as to:

- provide a look and feel that is at one with its surroundings whilst not detracting from the design elsewhere on the Edinburgh Tram Network;
- provide an efficient and effective means of constructing the tramline(s) with and without centre OLE poles that minimises disruption to Princes Street and Leith Walk and their users;
- provide a satisfactory interaction of trams, buses, pedestrians and other road users; and
- ensure a run time and performance that sustains economic success for the operation of the Edinburgh Tram Network by fully meeting the Functional Requirements Specifications.

2.7.1.2 The SDS Provider shall review the advantages and disadvantages of providing a chord at the south end of St. Andrew Square for use in perturbed circumstances and special events so that tram services from Picardy Place can traverse the chord and return towards Picardy Place on the clockwise track. Such review should contemplate the provision of removable OLE poles and wires and provide outline sketches and costs for providing this facility at St. Andrew Square.

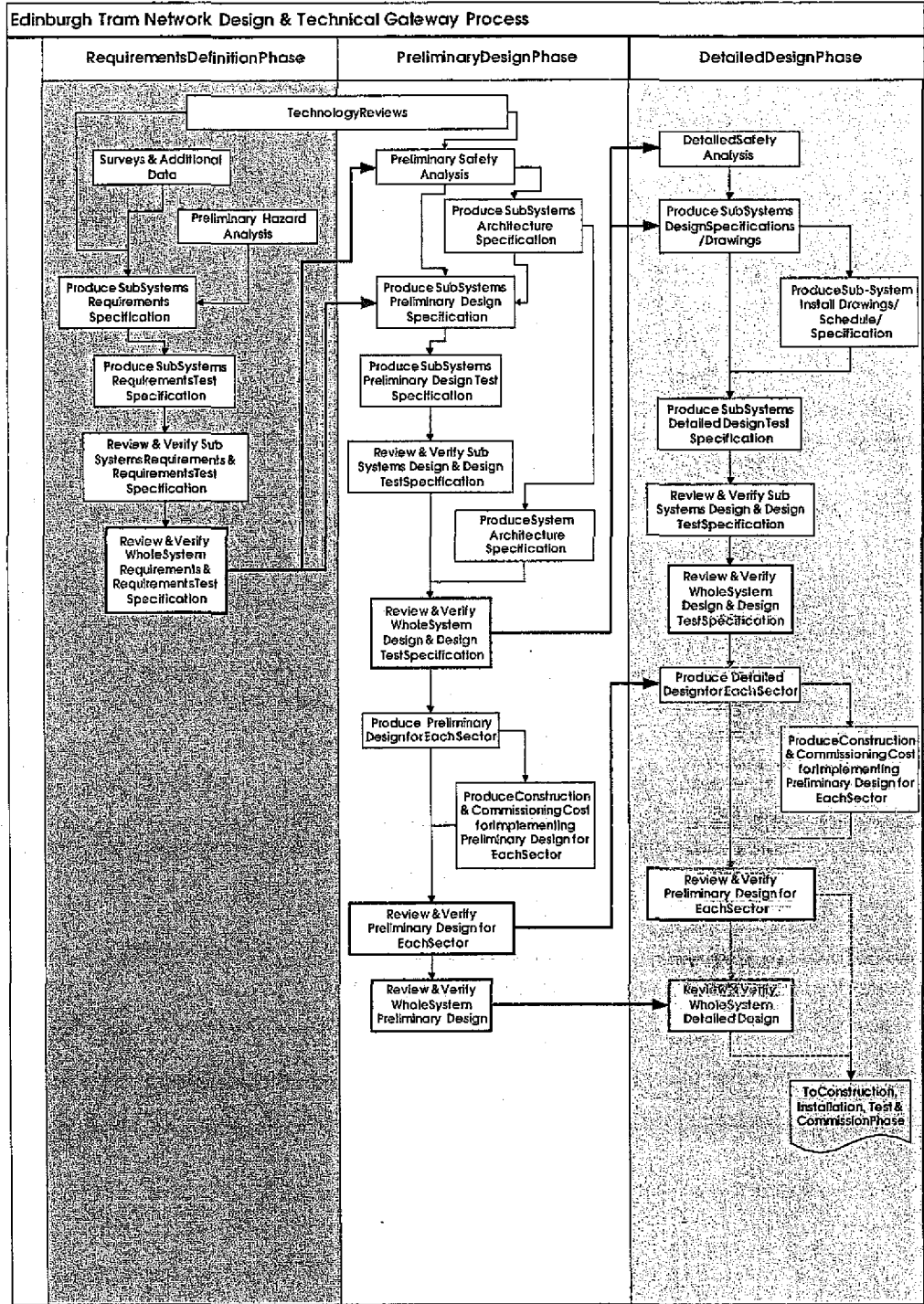
2.7.1.3 The SDS Provider shall establish early in the Preliminary Design Phase the effective use of proven radio communications for voice and data transmission as an early priority as this will influence the design and constructability of the Edinburgh Tram Network.

2.7.1.4 The SDS Provider shall establish early in the Preliminary Design Phase the parameters by which effective harmony of the infrastructure with the tram is achieved and therefore allow the Client to market test the tram manufacturers. Such design harmonisation shall ensure that tram types which meet the requirements are in current production and are likely to remain so at the time of likely procurement.

2.8 Design Review Process

2.8.1 The SDS Provider shall submit his Deliverables for review in accordance with the Review Procedure.

2.8.2 The SDS Provider shall comply with the Design and Technical Gateway Process. An example of how this Design and Technical Gateway Process will operate is set out below:



3. General Technical Support

3.1 Procurement and Construction Support

3.1.1 The SDS Provider shall produce all technical documentation required for the procurement of the Infraco Contract and thereafter technical documentation to facilitate the construction and the commissioning of the Edinburgh Tram Network. This documentation shall be structured to provide the most detailed information for each part of the Edinburgh Tram Network, either as applicable to the technical element, or as is available reflecting the then current status of the design detail of the Sector or Sub-Sector. This documentation shall include drawings, Technical Specifications, bills of quantities, schedules of materials, a maintenance plan (including lifecycle) and schedules, and other items of documentation as may be required for procurement, construction, and pricing purposes.

3.1.2 In relation to the procurement of the Infraco Contract, the SDS Provider shall:

- answer queries/clarifications;
- attend meetings;
- confirm design details and rework any of the SDS Provider's design as necessary;
- assist in the technical review of tenders;
- review programmes and provide variance reports; and
- review cost plans and provide variance reports.

3.1.3 There will be in addition, a period when the SDS Provider, whilst continuing to work for the Client, will need to assist the bidders for the Infraco Contract in the development of their tenders.

3.1.4 The SDS Provider shall produce all technical documentation required for the procurement of the Tram Supply Contract. This documentation shall include drawings, Technical Specifications and other items of documentation as may be required for procurement, construction, maintenance and pricing purposes.

3.1.5 In relation to the procurement of the Tram Supply Contract, the SDS Provider shall:

- answer queries/clarifications;
- attend meetings;
- confirm design details and rework any of the SDS Provider's design as necessary;
- assist in the technical review of tenders;
- review programmes and provide variance reports; and
- review cost plans and provide variance reports.

3.1.6 The SDS Provider shall provide **tie** with expert advice and documentation in relation to other procurement activities for the Edinburgh Tram Network as required, including:

- preparation of tender documentation including bills of quantities and other documentation required for procurement purposes;
- answering queries/clarifications;
- attending meetings;
- confirming design details and reworking any of the SDS Provider's design as necessary;
- assisting in the technical review of tenders;
- maintenance plans (including lifecycle);
- review programmes and provide variance reports; and
- review cost plans and provide variance reports.

3.1.7 For the avoidance of doubt, the SDS Provider shall only be required to provide technical design support for the management and the making good of defects until the date falling one year after the Service Commencement Date.

3.2 Utilities

3.2.1 The SDS Provider shall provide assistance to **tie** with the management of an advanced utilities diversion programme. This shall include:

- assessing the need for and acquiring relevant data relating to the presence and location of all buried and above ground utility services;
- agreeing the need for and extent of diversions;
- undertaking critical design and developing a strategy for all utilities diversions to minimise diversion requirements and out-turn costs;
- ensuring appropriate servitudes for access and possessions management;
- preparing C4 cost schedules;
- preparation of documentation (excluding the contract terms) associated with the proposal to appoint a single service agreement with a specialist contractor to carry out advanced utility diversions;
- activities required to support the utilities diversion process including, but not limited to, traffic management plans/traffic regulation orders, site meetings and all necessary re-designs;
- management of unidentified diversions and design re-work/modifications on an as required basis;
- on-site attendance on an as-required basis; and

- attendance at all meetings on an as-required basis.

3.2.2 The SDS Provider shall be responsible for the determination and design of all other utility diversions which are to be undertaken by Infraco.

3.3 Stakeholder Management

3.3.1 The SDS Provider shall assist the Client to minimise the adverse impact of the implementation of the Edinburgh Tram Network on stakeholders (both statutory and non statutory) and the general public. This shall include:

- securing, implementing and incorporating into the design all necessary Network Rail, BAA and other third party agreements;
- assisting by providing all technical details relevant to the compulsory purchase order process and land acquisition process (including wayleaves and servitudes);
- liaising with CEC, Scottish Executive, Historic Scotland, World Heritage Trust, Scottish Natural Heritage and others as required by the Client in relation to the performance of the Services;
- participating as appropriate in community liaison groups;
- providing input to information initiatives (media releases, newsletters, web site etc);
- assisting with the development and maintaining of a communications protocol for dealing with all stakeholders affected by the design & future construction of the Edinburgh Tram Network;
- assisting with the discharge of all Parliamentary Undertakings in relation to objectors and recording all actions taken in relation to stakeholder management; and
- management of the technical interface with Network Rail, BAA and other third parties.

3.4 Operations Development Support

3.4.1 The SDS Provider shall facilitate unity of the design of the Edinburgh Tram Network with the development of the Infraco Contract which shall include:

- liaising closely with the Operator to ensure consistency with operational aspirations and design constraints;
- providing support to obtain operational approvals and consents in respect of the Edinburgh Tram Network;
- providing technical support on public transport integration;
- providing technical support on systems integration; and
- providing technical support on the development of operational plans and management systems; and

- provide technical support with regard to operational interfaces with CEC traffic management systems.

3.5 Transport Modelling

- 3.5.1 Following the appointment by **tie** of the Joint Revenue Committee ("JRC") provided for pursuant to the DPOFA, the SDS Provider shall engage with the JRC to develop, test and commission a comprehensive and interdependent hierarchical transport modelling suite (the "SDS-JRC Modelling Suite") with the capability to model both wide area and localised impacts of the tram and of the different public transport service integration patterns on patronage.
- 3.5.2 The SDS Provider shall be jointly and severally responsible with the JRC for the planning, production and fitness for purpose of the SDS-JRC Modelling Suite which should demonstrate in simulation (as required under Section 3.5.9 below) that it meets all SDS Provider's individual requirements (both pre and post novation of the SDS Provider's contract) alongside the modelling needs and objectives of the JRC.
- 3.5.3 The SDS-JRC Modelling Suite shall be developed by a dedicated joint team combining equal contribution from both parties' relevant resources and skills and whose first task will be to prepare a composite model specification, work programme and resource submission for **tie's** approval. The joint team shall be located in the same office during the development, calibration and validation works on the SDS-JRC Modelling Suite which shall be capable of withstanding an independent audit at any stage of its life cycle.
- 3.5.4 Before approving the SDS-JRC Modelling Suite, **tie** may notify adjustment or further verification and calibration work following the initial demonstration and the SDS Provider shall make provision for this to be carried out before the SDS-JRC Modelling Suite is deployed.
- 3.5.5 The SDS-JRC Modelling Suite must be fully commissioned and approved by **tie** on or before 31 March 2006. The SDS Provider shall be jointly and severally responsible with the JRC for applying the SDS-JRC Modelling Suite to produce a model forecast scenario approved by **tie** for the first year after entry into public service of the Edinburgh Tram Network.
- 3.5.6 The SDS-JRC Modelling Suite shall be developed in order to produce all required outputs by the simplest functional principles. It shall satisfy the Scottish Executive STAG requirements and conform in all material aspects to the Department for Transport "Transport Analysis Guidance" as set out in the website WebTAG.
- 3.5.7 The outputs from the SDS-JRC Modelling Suite shall be robust and comprehensible and in a form which can subsequently be easily interrogated, using intuition and engineering judgement.
- 3.5.8 Throughout the life of the commission, the SDS Provider shall ensure the SDS-JRC Modelling Suite is regularly calibrated, updated and maintained (including upgrades) to resolve any issues that become apparent during use and to prevent it becoming obsolete.
- 3.5.9 The SDS-JRC Modelling Suite shall be capable of local modelling within the city centre and at key junctions in order to simulate with requisite precision the interaction of capacity, congestion and Edinburgh Tram Network design and operation. The SDS Provider and the JRC should ensure that the

modelling suite is technologically current and that any novel features have been adequately tested. The SDS-JRC Modelling Suite shall function to:

- at a lower level, model the highly complex interaction between competing public transport, traffic movements and Level 1 tram priority in the city centre at multiple junctions and key interchanges;
- at the higher level, model congestion at key junctions in the wider network area and overall travel demands in the surrounding areas;
- iterate until a state of equilibrium is reached between supply and demand.

3.5.10 The SDS Provider and the JRC shall be jointly and severally responsible for ensuring that the SDS-JRC Modelling Suite is capable of supporting the performance of the SDS Provider and of the JRC under their respective mandates with **tie**. The SDS-JRC Modelling Suite shall be configured to include the following applications, in addition to any application the SDS Provider considers necessary to answer its own or **tie's** requirements:

- public transport demand and patronage/revenue forecasting capable of modal disaggregation;
- detailed traffic junction design recognition and evaluation and wider area effect assessment;
- temporary traffic diversion and traffic regulation order impact analysis.

3.5.11 The SDS-JRC Modelling Suite shall be competent and responsive in relation to requested specific inputs for project evaluation tools, financial and economic case analysis (including funding options analysis) and risk assessment. The SDS-JRC Modelling Suite shall be sensitive to the interaction of the SDS Provider's detailed tram line design with vehicular traffic, pedestrians and other urban infrastructure users and capable of generating responses relevant for designing countermeasures to alleviate adverse knock-on affects in the wider area transport network.

3.5.12 The correction of any fault or incapacity in the SDS-JRC Modelling Suite shall be the joint and several responsibility of the SDS Provider and the JRC.

3.5.13 Copyright and all intellectual property rights in (and all related work in progress) the SDS-JRC Modelling Suite shall vest in **tie**. Use of the models by SDS Provider shall be by licence from **tie**.

3.6 Topics Register

3.6.1 The SDS Provider shall participate in the management of the Topics Register.

3.6.2 The Topics Register is used to record all issues as they arise that require to be specifically addressed. The record is then amended as appropriate to track the manner in which issues have been resolved to the satisfaction of project. The SDS Provider is required to add to, or respond to issues as appropriate and attend regular review meetings at which the Topics Register will be updated and actions assigned.

4. Management Services

4.1 Project Management and Programme Requirements

4.1.1 The SDS Provider shall ensure all that Services and any advance works are organised and programmed to meet the overall requirements of the Master Project Programme. This shall include:

- updating the construction strategy for the Edinburgh Tram Network;
- integration with new projects e.g. Capital Streets and CETM;
- identifying long lead time works;
- defining the extent of advance works;
- establishing diversionary works agreements;
- maintaining, managing & updating relevant sub-programmes including all approvals and traffic regulation orders;
- maintaining, managing and updating relevant risk and issue registers; and
- managing all cost reporting including the impact of changes.

4.1.2 The SDS Provider shall prepare, update, maintain and amend (as required) the Programme which will be coincident to and aligned with that of the Client and the Master Project Programme. All programme updates and reports shall be electronically transmitted to the Client's Representative to enable progress monitoring at intervals, which will be agreed, but are likely to be weekly and monthly. This shall include as a minimum:

- initial outline of the Programme in Primavera P3e for detailed implementation;
- Programme to follow the detailed WBS and Programme Phasing Structure as outlined in Appendices 1 and 2 to this Schedule 1 (*Scope of Services*);
- Programme to be cost and resource (named) loaded down to activities;
- all resource reporting / time sheet and cost allocation to be coded to suit the WBS activities. The coding of activities and resources to be agreed with **tie**;
- time sheets to be completed weekly against planned works as generated by Primavera P3e, any deviations to be reported in a weekly slippage report and notification of remedial actions to be authorised by the Client's Representative;
- weekly time sheets are to be submitted by 09:00hrs on the Tuesday following the relevant week;

- Programme to be updated and submitted weekly with all cost and resources;
- monthly progress reporting to include as a minimum and to be issued 3 working days before the progress meeting:
 - planned versus actual cost and resource summary;
 - progress against milestones;
 - earned value report;
 - 4 week forecast;
 - 8 week critical impact notice (any internal or external factor which may affect programme delivery); and
 - labour histograms detailing planned, actual and forecast across all disciplines;
- programming input as required by the Client; and
- attendance at meetings as required by the Client.

4.1.3 Work Breakdown Structure (WBS)

4.1.3.1 The SDS Provider shall structure the project using a suitable WBS in the form as outlined in Appendix 1 to this Schedule 1 (*Scope of Services*) and as is agreed by tie. Sufficient detail shall be included in the WBS to show adequate control of both internal and external resource. Deliverables must be clearly defined and denoted by a milestone which accords with the requirements of the Master Project Programme.

4.1.3.2 The WBS for this project should be designed to run from commencement of the Requirements Definition Phase through to the opening of the Edinburgh Tram Network to public service. The WBS should be segregated into both work type within discipline (in order to assist the SDS Provider and the Infraco to monitor, control and report on their specific roles) and is further divided into Stage Builds, Sectors and Sub-Sectors (as appropriate) to assist in the monitoring of progress along the Edinburgh Tram Network to aid integration of design, construction and commissioning.

4.1.3.3 The following WBS commitments are required from SDS Provider:

- **Requirements Definition Phase:** all documentation, programme costings etc. to be at WBS level;
- **Preliminary Design Phase:** all documentation, programme costings etc. to be at WBS level within each Stage Build, Sector or Sub-Sector (as appropriate);
- **Detailed Design Phase:** all documentation, programme costings etc. to be at WBS level within each Stage Build, Sector or Sub-Sector (as appropriate).

4.1.4 Cost/Spend Curves

The SDS Provider shall submit cost/spend tables and cumulative curves to match the achievement of major deliverables and activities within the WBS.

4.1.5 Critical Path

The SDS Provider shall ensure that tasks within the plans must be logically linked to ensure a critical path is derived, and show clearly any internal and external dependencies, constraints, hold and checkpoints that the SDS Provider believes are required for the successful completion of the project. Actual progress shall detail the named resource/s used.

4.1.6 Resource Assignment

The SDS Provider shall ensure that all tasks on the plan are resourced and coded to an agreed coding structure to show the manpower required to complete the project on time. The manpower is required to be named personnel. However, if this is not possible in all cases, then generic skills and professions that are required for each task shall be clearly stated.

4.2 Risk Management

4.2.1 The SDS Provider shall adopt a process of risk management which shall include providing input to the risk allocation matrices to demonstrate the risk retention, sharing and transfer.

4.2.2 The SDS Provider shall:

Required Action from the SDS Provider	Timing/Duration
Prepare and maintain a project risk management plan which shall confirm the objectives of the plan, the roles and responsibilities of the SDS Provider, the definitions of risk categorisation and impact, the risk management process and how the plan will be applied throughout the scheme development, design, procurement and construction phases of the Edinburgh Tram Network. This plan should indicate the critical success factors, key areas of focus and individuals involved.	To be delivered by the SDS Provider to the Client within 1-month of the Effective Date and shall be maintained by the SDS Provider throughout the term of the Agreement

Required Action from the SDS Provider	Timing/Frequency
<p>Prepare and maintain an assumptions register to record all capex, opex, lifecycle, revenue, programme, quality, functionality and approvability assumptions and consequent risks to the Edinburgh Tram Network throughout scheme development, design, procurement and construction phases.</p> <p>The SDS Provider shall ensure that the assumptions register contributes to the project risk register referred to below.</p>	<p>Agree format with the Client's designated risk manager (as notified to the SDS Provider from time to time) within 1-month of the Effective Date. The register shall be maintained by the SDS Provider throughout the term of the Agreement</p>
<p>Maintain close liaison with the tie project team, the Operator, stakeholders, the Tram Supplier and tie's technical, legal, financial and other advisors, regarding risk matters. The SDS Provider shall facilitate risk management meetings to support the scheme development, design, procurement and construction phases of the Edinburgh Tram Network.</p> <p>Liaison to include assistance with the risk identification procedure which is being carried out by the Client and attendance at management workshops which shall be facilitated by the SDS Provider to allow a sharing of previous experience.</p>	<p>Monthly meeting with the Client and tie's project team (as notified to the SDS Provider from time to time) and ongoing liaison with tie's project team, the Operator, stakeholders, the Tram Supplier and the tie's technical, legal, financial and other advisers throughout the term of the Agreement</p>
<p>Prepare and maintain a project risk register to summarise all capex, opex, lifecycle, revenue, programme, quality, functionality and approvability risks to the Edinburgh Tram Network and their proposed mitigation. The project risk register should include analysis of each risk in terms of 'likelihood' and 'impact' prior to and following mitigation, responsible owner of each risk and graphical summaries of risk profile. The risks to be addressed should include strategic, commercial, economic, legal and regulatory, organisational, environmental, technical, operational and infrastructure risks.</p>	<p>Agree format of the project risk register with the Client's designated risk manager (as notified to the SDS Provider from time to time) within 1-month of the Effective Date. The SDS Provider shall maintain, update and circulate the project risk register to parties designated by the Client from time to time on a bi-monthly basis throughout the term of the Agreement</p>
<p>Prepare and submit a risk progress report to the Client on the status of risk management and mitigation giving a summary of new risks identified, new assumptions, key matters to be resolved and achievements.</p> <p>This report should indicate "Red-Amber-Green" (RAG) status on key components including planning permissions, specification compliance, incomplete design, programme for outstanding work, adequacy of investigations</p>	<p>Agree format with the Client's designated risk manager (as notified to the SDS Provider from time to time) within 1-month of the Effective Date and submit monthly report to the Client's said risk manager throughout the term of the Agreement</p>

Required Action from the SDS Provider	Timing/Frequency
<p>and surveys, constructability, compliance with CDM Regulations, Design Manual compliance, optimisation of run-time, interface design, Parliamentary objector concession, approvals which require to be obtained from the Client or the Client's Representative (for example approvals required in accordance with the Review Procedure), Consents and certification</p>	
<p>Prepare and maintain a cost and programme contingency report indicating the recommended capital cost and programme contingency allowances to be considered.</p> <p>Report should also summarise the recommended mitigation for the construction and installation phase, the commissioning and defects resolution phase under the Infraco Contract (as such terms are defined in the Infraco Contract) and operational phase, including details of any residual development risks.</p> <p>Report should include a detailed quantitative risk analysis using the Monte Carlo simulation (@RISK4.5 and Pertmaster Project Risk or equivalents) for both cost and programme components.</p>	<p>Submit final report to the Client within 1-month prior to publication of OJEU Notice (as notified by the Client to the SDS Provider) for the Infraco Contract. Report to be updated on quarterly basis thereafter throughout the term of the Agreement and submitted to the Client's designated risk manager (as notified to the SDS Provider from time to time)</p>
<p>Prepare and maintain a design construction risk report, indicating the risks to be considered by Infraco during remaining scheme development and construction including construction sequence, construction methodologies, access, quality, approvals, security, safety, public relations and compliance with Parliamentary Bill and objector requirements.</p>	<p>Submit final report to the Client's designated risk manager (as notified to the SDS Provider from time to time) within 1-month prior to the appointment of Infraco.</p>
<p>Prepare and maintain a design operation risk report indicating the risks to be considered by the Operator during remaining scheme development, the construction and installation phase under the Infraco Contract, the commissioning and defects resolution phase under the Infraco Contract and operational phase including maintenance, lifecycle replacement, quality, approvals including HMRI, security, safety, public relations and compliance with Parliamentary Bill and objector requirements.</p>	<p>Submit final report to the Client's designated risk manager (as notified to the SDS Provider from time to time) within 3-months prior to start of commissioning and defects resolution phase under the Infraco Contract.</p>

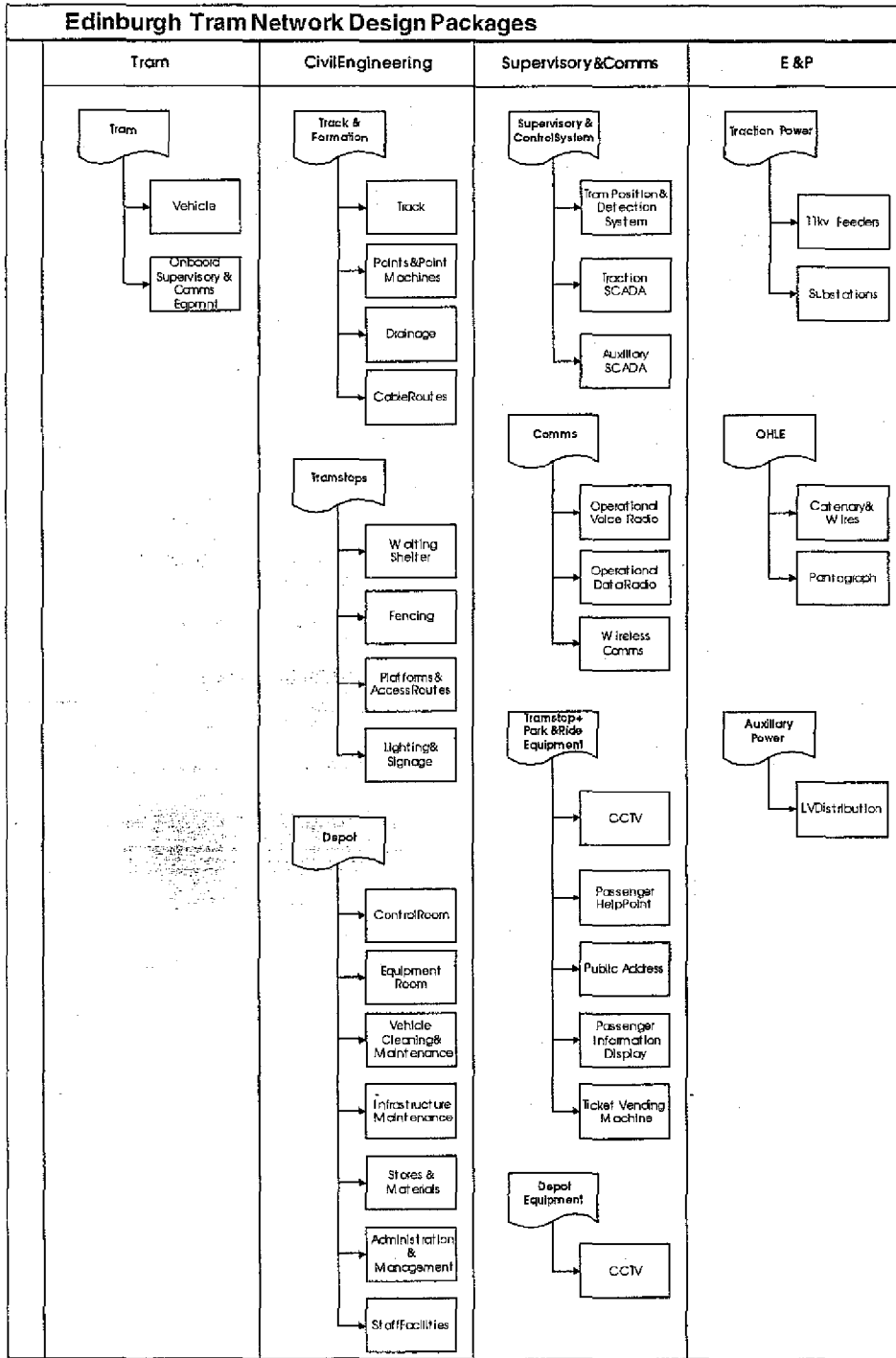
Required Action from the SDS Provider:	Timing/Frequency
Report to include HAZOP risk assessment for the scheme and detail contingency plans.	

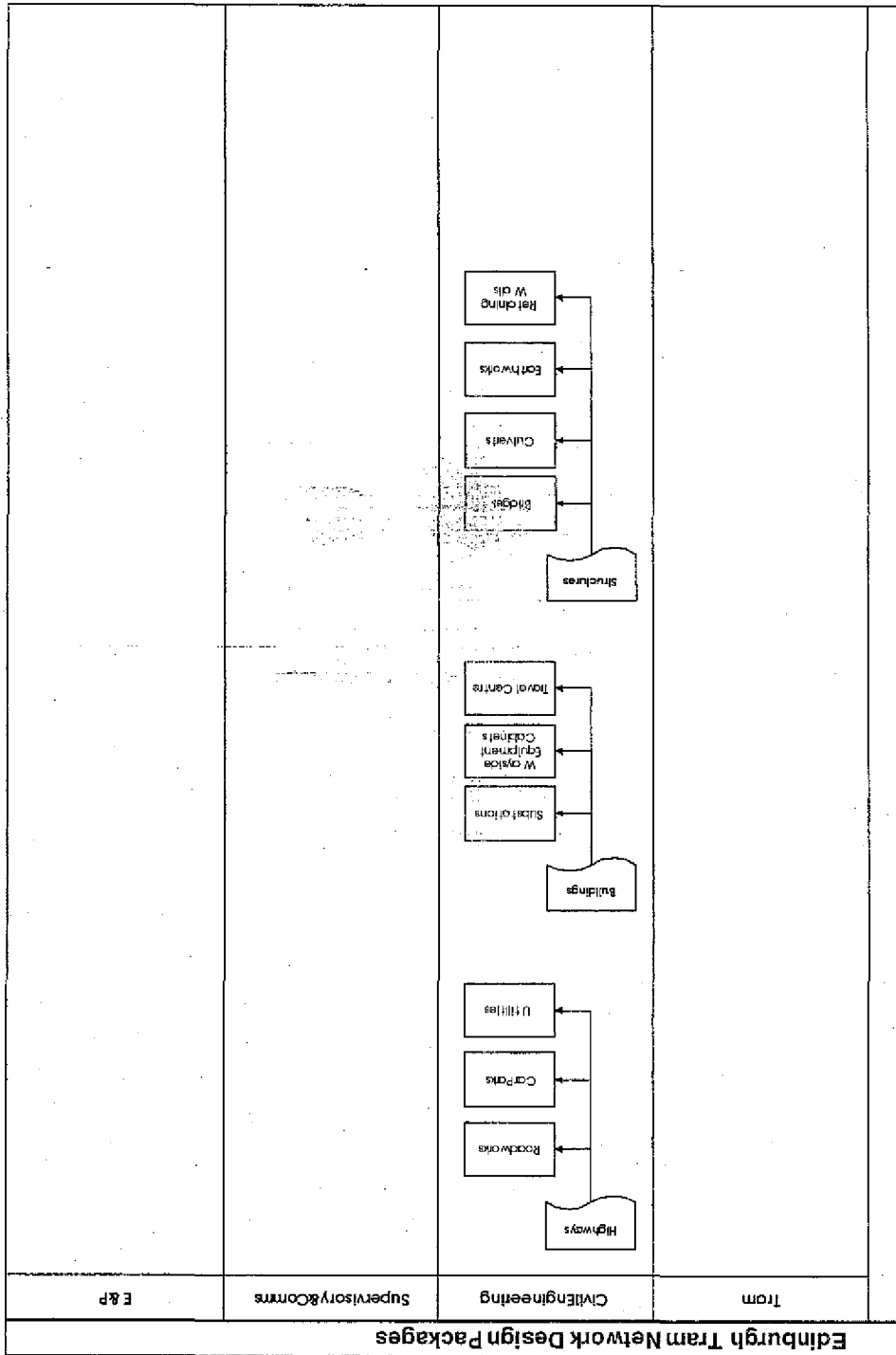
4.3 Financial Modelling

- 4.3.1 The SDS Provider shall provide inputs to the financial modelling process for the Edinburgh Tram Network which shall include capex and opex (including routine maintenance and lifecycle costs) estimates.

APPENDIX 1

WORK BREAKDOWN STRUCTURE





APPENDIX 1
CONT'D

Programme Phasing Structure

APPENDIX 2

Indicative Document Deliverables Listing for SDS Scope of Supply

Function	Deliverables
	Tramway Alignment Drawings (1:500) - topography/plan/horizontal/vertical/trackform
	Tramway Alignment Drawings - Haymarket - St. Andrew Square - Ocean Terminal (1:200) - topography/plan/horizontal/vertical/trackform
	Tramway Alignment Drawings Cross Sections
	Table of Horizontal & Vertical Alignments with Chirgaige
	General Arrangement Drawings (1:500) - surface/underground/site limits/site clearances etc.
	General Arrangement Drawings - Haymarket - St. Andrew Square - Ocean Terminal (1:200) - surface/underground/site limits/site clearances etc.
	Route & Accommodation Drawings (1:500)
	Route & Accommodation Drawings - Haymarket - St. Andrew Square - Ocean Terminal (1:200)
	Structure Drawings (1:100)
	General Arrangement Drawings (1:50) - Existing
	Structural remedial works & methods
	Foundation Drawings
	Structural Arrangement Drawings (1:200)
	Architectural Drawings 1:50 - GA/Elevations/Sections
	Architectural Drawings 1:10 - Doors/Frames/Grilles
	Architectural Drawings 1:100 - Trainstop
	Plans/Elevations/Sections/Equipment/Signage
	Architectural Drawings 1:10 - Trainstop
	Equipment/Handrails/Signs
	Landscaping Drawings (1:500 & 1:100) - Trainstops
	Architectural Drawings 1:100 - Depot
	GA/Elevations/Sections/ext brickwork/bracing/ceiling/settling out
	Architectural Drawings 1:10 - Depot
	Fittings/handrails/pile/cleddim/p/doors/frames, etc.

Documents to be structured by:
Sector within Stage Build

Director/Authorised Signatory
tie Limited

Director/Authorised Signatory
Parsons Brinckerhoff Limited

Indicative Document Deliverables Listing for SDS Scope of Supply

Function	Tramway Alignment Drawings (1:500) - Topology/plan/horizontal/vertical/trackform	Tramway Alignment Drawings - Haymarket - St Andrew Square - Ocean Terminal (1:200) - Topology/plan/horizontal/vertical/trackform	Tramway Alignment Drawings - Cross Sections	Table of Horizontal & Vertical Alignments with Change	General Arrangement Drawings (1:500) - surface/underground/site limits/site clearance etc.	General Arrangement Drawings - Haymarket - St Andrew Square - Ocean Terminal (1:200) - surface/underground/site limits/site clearance etc.	Route & Accommodation Drawings - Haymarket - St Andrew Square - Ocean Terminal (1:200)	Structure Drawings (1:100)	General Arrangement Drawings (1:50) - Existing Structures/retained works & props	Foundation Drawings	Structural Arrangement Drawings (1:200)	Architectural Drawings 1:50 - GA/Elevations/Sections	Architectural Drawings 1:10 - Doors/frames/Gates	Architectural Drawings 1:100 - Trams stop - Plans/Elevations/Sections/Equipment/Signs	Architectural Drawings 1:10 - Trams stop - Equipment/Handrails/Signs	Landscape Drawings (1:500 & 1:100) - Trams stops	Architectural Drawings 1:100 - Depot - GA/Elevation/Section/external work/verandah/celling/setting out etc.	Architectural Drawings 1:10 - Depot - fittings/canopies/panels/cladding/gabbers/frames etc.
Systemwide																		
Tram & Vehicles																		
Civil Engineering																		
Track & Formation																		
Track	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Points & Point Machines/Heaters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Drainage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Cable Routes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Fencing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Highways																		
Roadworks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Pedestrians Areas & Crossings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Car Parks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Road Traffic Management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Utilities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Buildings																		
Substations					✓	✓	✓			1:100 & 1:20	✓	✓	✓					
Travel Centre					✓	✓	✓			1:100 & 1:20	✓	✓	✓					
General					✓	✓	✓			1:100 & 1:20	✓	✓	✓					
Structures																		
Bridges & Subways	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Culverts	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Earthworks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Retaining Walls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Tramstops																		
Waiting Shelter					✓	✓	✓	✓	✓	✓	✓			✓	✓			
Cable Routes					✓	✓	✓	✓	✓	✓	✓			✓	✓			
Platforms & Access	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓			
Lighting & Signage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓			
Fencing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓			
Depot																		
Control Room					✓	✓	✓			1:100 & 1:20	✓	✓	✓				✓	✓
Equipment Rooms					✓	✓	✓			1:100 & 1:20	✓	✓	✓				✓	✓
Vehicle Cleaning & Maintenance					✓	✓	✓			1:100 & 1:20	✓	✓	✓				✓	✓
Infrastructure Maintenance					✓	✓	✓			1:100 & 1:20	✓	✓	✓				✓	✓
Stores & Materials					✓	✓	✓			1:100 & 1:20	✓	✓	✓				✓	✓
Administration & Management					✓	✓	✓			1:100 & 1:20	✓	✓	✓				✓	✓
Staff Facilities					✓	✓	✓			1:100 & 1:20	✓	✓	✓				✓	✓
External Works					✓	✓	✓			1:100 & 1:20	✓	✓	✓			✓	✓	✓
Supervisory/Control & Communications																		
Supervisory & Control System																		
Tram Position & Detection System																		
Traction SCADA																		
Auxiliary SCADA																		
Telecommunications																		
Operational Voice Radio																		
Operational Data Radio																		
Wireless Communications																		
Tramstop Equipment																		
CCTV							✓	✓						✓	✓			
Passenger Help Points							✓	✓						✓	✓			
Public Address Systems							✓	✓						✓	✓			
Passenger Information Displays							✓	✓						✓	✓			
Ticket Vending Machines							✓	✓						✓	✓			
Depot Equipment																		
CCTV																		
Control Room																		
Equipment Rooms																		
Electrification & Power																		
Traction Power																		
11kv Feeders																		
Substations																		
OHLE																		
Catenary & Wires					✓	✓	✓	✓										
Pantograph																		
Auxiliary Power																		
LV Distribution																		

Indicative Document Deliverables Listing for SDS Scope of Supply

Function	Project Management Plan	Quality Management Plan	Safety Management Plan	Configuration Management Plan	Verification & Validation Plan	List of Applicable Standards	System Architecture Spec	System Design Spec	System Design Test Spec	Functional Hazard Analysis	Detailed Cause Consequence Analysis	Hazard Log & Risk Registers	Requirements Spec/Database	Scheme Plan	Power Distribution Schematic	Detailed Layout Drawings/Location Plans	Wiring Schedules & Diagrams	Safety Case (GSN)	Cable Route & Duct Layout	Installation Drawings	Procurement Specifications	Installation Test & Commissioning Plans and Records/Certificates	Training Plans	Bill of Materials	Layout Drawings	Interface Schedules	Planning Approvals	Bonding Plan
	<p style="text-align: center;">← Documents to be structured by Sector within Stage Build →</p>																											

Detailed Design

Edinburgh Tramway
Indicative Document Deliverables Listing for SDS Scope of Supply

Function	
	Project Management Plan
	Quality Management Plan
	Safety Management Plan
	Configuration Management Plan
	Verification & Validation Plan
	List of Applicable Standards
	System Architecture Spec
	System Preliminary Design Spec
	System Preliminary Design Test Spec
	Functional Hazard Analysis
	Preliminary Cause Consequence Analysis
	Hazard Log & Risk Register
	Requirements Spec/Database
	Scheme Plan
	Power Distribution Schematic
	Safety Case (GSN)
	Environmental Management Plan
	System Integration Plan
	Interface Specification
	Planning Approvals
	Signage Specification
	Run Time Simulation
	Tramway Alignment Drawings (1:500) - Topology/plan/horizontal/vertical/trackform
	Architectural Drawings 1:50 - GA/Elevations
	Architectural Drawings 1:100 - Generic Tramstop : Plans/Elevations/Sections/Equipment/Signs
	Architectural Drawings 1:100 - St Andrew Square Tramstop : Plans/Elevations/Sections/Equipment/Signs
	Architectural Drawings 1:100 - Princes St/Leith Walk Style Tramstop : Plans/Elevations/Sections/Equipment/Signs
	Landscape Drawings (1:500) - Generic/Special Tramstops & Depot
	Architectural Drawings 1:100 - Depot : GA/Elevations/Sections/Equipment/Signs

Documents to be structured by:
Sector within Stage Build

Preliminary Design

Indicative Document Deliverables Listing for SDS Scope of Supply

Function	Requirements Definition												
	Requirements Spec	Preliminary R/PA	Project Management Plan	Operational & Performance Spec	Quality Management Plan	Safety Management Plan	Configuration Management Plan	Verification & Validation Plan	Preliminary Safety Case Argument (GSN)	List of Applicable Standards	Requirements Test Spec	Requirements Database Populated	Hazard Log/ Risk Register
Systemwide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tram & Vehicles	✓	✓							✓	✓	✓	✓	✓
Civil Engineering													
Track & Formation													
Track	✓	✓							✓	✓	✓	✓	✓
Points & Point Machines/Heaters	✓	✓							✓	✓	✓	✓	✓
Drainage	✓	✓							✓	✓	✓	✓	✓
Cable Routes	✓	✓							✓	✓	✓	✓	✓
Fencing	✓	✓							✓	✓	✓	✓	✓
Highways													
Roadworks	✓	✓							✓	✓	✓	✓	✓
Pedestrians Areas & Crossings	✓	✓							✓	✓	✓	✓	✓
Car Parks	✓	✓							✓	✓	✓	✓	✓
Road Traffic Management	✓	✓							✓	✓	✓	✓	✓
Utilities	✓	✓							✓	✓	✓	✓	✓
Buildings													
Substations	✓	✓							✓	✓	✓	✓	✓
Travel Centre	✓	✓							✓	✓	✓	✓	✓
General	✓	✓							✓	✓	✓	✓	✓
Structures													
Bridges & Subways	✓	✓							✓	✓	✓	✓	✓
Culverts	✓	✓							✓	✓	✓	✓	✓
Earthworks	✓	✓							✓	✓	✓	✓	✓
Retaining Walls	✓	✓							✓	✓	✓	✓	✓
Tramstops													
Waiting Shelter	✓	✓							✓	✓	✓	✓	✓
Cable Routes	✓	✓							✓	✓	✓	✓	✓
Platforms & Access	✓	✓							✓	✓	✓	✓	✓
Lighting & Signage	✓	✓							✓	✓	✓	✓	✓
Fencing	✓	✓							✓	✓	✓	✓	✓
Depot													
Control Room	✓	✓							✓	✓	✓	✓	✓
Equipment Rooms	✓	✓							✓	✓	✓	✓	✓
Vehicle Cleaning & Maintenance	✓	✓							✓	✓	✓	✓	✓
Infrastructure Maintenance	✓	✓							✓	✓	✓	✓	✓
Stores & Materials	✓	✓							✓	✓	✓	✓	✓
Administration & Management	✓	✓							✓	✓	✓	✓	✓
Staff Facilities	✓	✓							✓	✓	✓	✓	✓
External Works	✓	✓							✓	✓	✓	✓	✓
Supervisory/Control & Communications													
Supervisory & Control System													
Tram Position & Detection System	✓	✓							✓	✓	✓	✓	✓
Traction SCADA	✓	✓							✓	✓	✓	✓	✓
Auxiliary SCADA	✓	✓							✓	✓	✓	✓	✓
Telecommunications													
Operational Voice Radio	✓	✓							✓	✓	✓	✓	✓
Operational Data Radio	✓	✓							✓	✓	✓	✓	✓
Wireless Communications	✓	✓							✓	✓	✓	✓	✓
Tramstop Equipment													
CCTV	✓	✓							✓	✓	✓	✓	✓
Passenger Help Points	✓	✓							✓	✓	✓	✓	✓
Public Address Systems	✓	✓							✓	✓	✓	✓	✓
Passenger Information Displays	✓	✓							✓	✓	✓	✓	✓
Ticket Vending Machines	✓	✓							✓	✓	✓	✓	✓
Depot Equipment													
CCTV	✓	✓							✓	✓	✓	✓	✓
Control Room	✓	✓							✓	✓	✓	✓	✓
Equipment Rooms	✓	✓							✓	✓	✓	✓	✓
Electrification & Power													
Traction Power													
11kv Feeders	✓	✓							✓	✓	✓	✓	✓
Substations	✓	✓							✓	✓	✓	✓	✓
OHLE													
Catenary & Wires	✓	✓							✓	✓	✓	✓	✓
Pantograph	✓	✓							✓	✓	✓	✓	✓
Auxiliary Power													
LV Distribution	✓	✓							✓	✓	✓	✓	✓

Edinburgh Tramway
 Indicative Document Deliverables Listing for SDS Scope of Supply

Requirements Definition		Function
	Requirements Spec	
	Preliminary HIRA	
	Project Management Plan	
	Operational & Performance Spec	
	Quality Management Plan	
	Safety Management Plan	
	Configuration Management Plan	
	Verification & Validation Plan	
	Preliminary Safety Case Arguments GSN	
	Lead Applicable Standards	
	Requirements Test Spec	
	Requirements Database Population	
	Hazardology & Risk Register	

		HOT4	Foot of the Walk (exc) - Ocean Drive (inc)	HOT4a	Foot of the Walk(exc)-Constitution St(inc)	A(3)	6	1	30-Nov-05	30-May-06
				HOT4b	Constitution St(exc)-Ocean Drive(inc)					
		HOT5	Ocean Drive (exc) - Ocean Terminal (inc)			A(3)	6	1	30-Nov-05	30-May-06
		HOT6	Leith Depot & Connections			D	5	1	30-Mar-06	30-Nov-06
HCT	Haymarket - Crewe Toll	HCT1	Haymarket (exc) - Crewe Toll (inc)	HCT1a	Roseburn Jct(exc)-Roseburn(inc)	D	4	4	30-Mar-06	30-Nov-06
				HCT1b	Roseburn(exc)-Ravelston Dykes(inc)				30-Mar-06	
				HCT1c	Ravelston Dykes(exc)-Craigleith(inc)				30-Mar-06	
				HCT1d	Craigleith(exc)-W.General Hosp-Crewe Toll(inc)				30-Mar-06	
CTO	Crewe Toll - Ocean Terminal	CTO1	Crewe Toll (exc) - Granton Square (inc)	CTO1a	Crewe Toll(exc)-W. Granton(inc)	D	5	5	30-Mar-06	30-Nov-06
				CTO1b	W. Granton(exc)-Caroline Pk(inc)				30-Mar-06	
				CTO1c	Caroline Pk(exc)-Granton Waterfront(inc)				30-Mar-06	
				CTO1d	Granton Waterfront(exc)-Granton Sq.(inc)				30-Mar-06	
		CTO2	Granton Square (exc) - Ocean Terminal (inc)	CTO2a	Sea Wall Survey	A1	6	6	30-Nov-05	28-Feb-07
				CTO2b	Granton Sq.(exc)-Lower Granton Rd	E	6	6	30-Mar-06	
				CTO2c	Lower Granton Rd-Newhaven Rd					
				CTO2d	Newhaven Rd-Ocean Terminal(exc)					
GNB	Gogarburn - New bridge	GNB1	Gogarburn (exc) - Newbridge (inc)			F	7		30-Mar-06	28-Feb-07

APPENDIX 2
Programme Phasing Structure

Stage Build	Description	Sector	Sub-sector	Criticality	Commissioning Sequence for Trial Running(Line 1&2 and Line 2only)	Commissioning Sequence for Trial Running(Line 1only)	Preliminary Design Approved By	Detailed Design Approved By	
ARP	Airport - Gogarburn	ARP1	Airport - Gogarburn (inc)		C	3		28-Feb-06 30-Sep-06	
DHY	Depot - Haymarket	DHY1	Gogaburn (exc) - Gyle & Depot (inc)		A1	1		30-Nov-05 30-Mar-06	
		DHY2	Gyle (exc) - Edinburgh Park (inc)		C			28-Feb-06 30-Sep-06	
		DHY3	Edinburgh Park (exc) - South Gyle Access (inc)		C	2		28-Feb-06 30-Sep-06	
		DHY4	South Gyle Access (exc) - Soughton Road North (inc)		C			28-Feb-06 30-Sep-06	
		DHY5	Soughton Road North (exc) - Murrayfield (exc)	DHY5a	Soughton Road(exc)-Balgreen Road(inc)	B			30-Jan-06 30-May-06
				DHY5b	Balgreen Road(exc)-Murrayfield(exc)				30-Jan-06 30-May-06
		DHY6	Murrayfield (inc) - Haymarket (inc)			A(2)	3		30-Nov-05 30-Mar-06
HOT	Haymarket - Ocean Terminal	HOT1	Haymarket (exc) - St.Andrew Square (inc)	HOT1a	Haymarket(exc)-Shandwick Place(inc)	A(1)	4	3 (section now includes Haymarket Tramstop)	30-Nov-05 30-Mar-06
				HOT1b	Shandwick Place(exc)-Princes St West(inc)				
				HOT1c	Princes St West(exc)-Waverley Bridge(inc)				
				HOT1d	Waverley Bridge(exc)-St.Andrew SQ.(inc)				
		HOT2	St.Andrew SQ.(exc)-Picardy Place(inc)			A(2)	4	3	30-Nov-05 30-Mar-06
		HOT3	Picardy Place (exc) - Foot of the Walk (inc)	HOT3a	Picardy Place(exc)-MacDonald Rd(inc)	A(2)	5	2	30-Nov-05 30-Mar-06
				HOT3b	MacDonald Rd(exc)-Balfour St(inc)				
HOT3c	Balfour St(exc)-Foot of the Walk(inc)								

This is Schedule Two referred to in the foregoing Agreement between the Client and the SDS Provider

SCHEDULE TWO

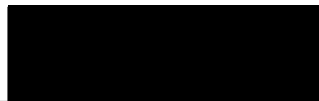
KEY PERSONNEL

David Calver	Project Manager
David Simmons	Deputy Project Manager
Andy Dixon	Chief Engineer
Chris Mason	Deputy Chief Engineer
Rick Finc	Approvals Manager
Colin MacDonald	Construction Manager
Bob Clark	Stakeholder Manager
Billy Johnston	Safety; Quality, Systems Assurance Manager



Director/Authorised Signatory

TIE LIMITED



Director/Authorised Signatory

PARSONS BRINCKERHOFF LIMITED

This is Schedule Three referred to in the foregoing Agreement between the Client and the SDS Provider

SCHEDULE THREE

PRICING SCHEDULE

SDS CONTRACT: PRICING SCHEDULE - OVERALL SUMMARY

SDS Contract Value

Tender amount	£25,472,581
Provisional additional work	<u>£1,702,000</u> dt
	£23,770,581

Deduct

Modelling	£1,215,000	
SDG	£116,400	
	<u>£35,000</u>	<u>£151,400</u> dt
	£1,063,600 + 7%	£1,138,052
Modelling risk	£550,000	
Funding	£100,000	
Mobilisation	<u>£100,000</u>	<u>£1,888,052</u> dt
		£21,882,529

Add

Provisional Additional Work	<u>£1,664,550</u>
Contract Value	£23,547,079
	=====

Deliverables

APPENDIX 3

Programme Phasing Structure

APPENDIX 2

EDINBURGH TRAM NETWORK: PRICING SCHEDULE

The following Schedule is subject to the foregoing Overall Summary

TENDER SUMMARY, LINES 1 and 2 Combined

SDS Management	£6,041,339.00
Design	£13,914,242.00
Further Scope	£2,600,000.00
Provisional Additional Work	£1,702,000.00
Transport Modelling	£1,215,000.00
<i>Tender Summary Carried to Formal Offer, Lines 1 and 2 Combined</i>	£25,472,581.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

TENDER SUMMARY, LINE 1

SDS Management	£4,544,175.00
Design	£10,896,399.00
Further Scope	£1,700,000.00
Provisional Additional Work	£1,702,000.00
Transport Modelling	£972,000.00
<i>Tender Summary Carried to Formal Offer, Line 1</i>	£19,814,574.00

TENDER SUMMARY, LINE 2

SDS Management	£2,910,167.00
Design	£7,164,992.00
Further Scope	£1,700,000.00
Provisional Additional Work	£1,702,000.00
Transport Modelling	£972,000.00
<i>Tender Summary Carried to Formal Offer, Line 2</i>	£14,449,159.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

SDS MANAGEMENT, LINE 1

SDS Management		Time/Lump Sum	£
<p>Tenderers shall price here for all non-quantity related elements of the work. Examples of this would be head office overheads, management required throughout the project, mobilisation, demobilisation, insurance etc., Tenderers shall detail and price each item individually and confirm if the items are time related or lump sum prices. In addition to the above Tenderers shall price separately the following items:</p>			
a	Professional indemnity insurance		£ inc
b	All other insurances		£ inc
c	Co location of core team in offices provided by tie. Number of staff in core team to be confirmed. (14 no.). Potential fee saving £140,000k, subject to space confirmation.		£ nil c/f
d	Infraco Procurement Services		£ inc
e	Allowance for price inflation over the duration of the SDS contract. This item does not remove the liability of the Tenderer to provide a fixed price Tender		£ inc
	Price inflation covered to end 2009		
f	Commissioning support		£ inc
g	SDS support for management of defects		£ exc
	To be paid as Additional Provisional Work		
	Other SDS Management		
	Mobilisation fee	Lump Sum	£300,000.00
	SDS Project and Technical Management	Time	£4,244,175.00
	<i>SDS Management Carried to Tender Summary, Line 1</i>		£4,244,175.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

SDS MANAGEMENT, LINE 2

SDS Management		Time/Lump Sum	£
Tenderers shall price here for all non-quantity related elements of the work. Examples of this would be head office overheads, management required throughout the project, mobilisation, demobilisation, insurance etc.,			
Tenderers shall detail and price each item individually and confirm if the items are time related or lump sum prices.			
In addition to the above Tenderers shall price separately the following items:			
a	Professional indemnity insurance		£ inc
b	All other insurances		£ inc
c	Co location of core team in offices provided by tie. Number of staff in core team to be confirmed. (14 no.). Potential fee saving £140,000k, subject to space confirmation.		£ nil c/f
d	Infraco Procurement Services		£ inc
e	Allowance for price inflation over the duration of the SDS contract. This item does not remove the liability of the Tenderer to provide a fixed price Tender		£ inc
	Price inflation covered to end 2009		
f	Commissioning support		£ inc
g	SDS support for management of defects		£ exc
	To be paid as Additional Provisional Work		
	Other SDS Management		
	Mobilisation fee	Lump Sum	£300,000.00
	SDS Project and Technical Management, including expenses	Time	£2,610,167.00
SDS Management Carried to Tender Summary, Line 2			£2,610,167.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

SDS MANAGEMENT, LINES 1 and 2, Combined

SDS Management		Time/Lump Sum	£
Tenderers shall price here for all non-quantity related elements of the work. Examples of this would be head office overheads, management required throughout the project, mobilisation, demobilisation, insurance etc			
Tenderers shall detail and price each item individually and confirm if the items are time related or lump sum prices.			
In addition to the above Tenderers shall price separately the following items:			
a	Professional indemnity insurance		£ inc
b	All other insurances		£ inc
c	Co location of core team in offices provided by tie. Number of staff in core team to be confirmed. (20 no.). Potential fee saving £200,000k, subject to space confirmation		£ nil c/f
d	Infraco Procurement Services		£ inc
e	Allowance for price inflation over the duration of the SDS contract. This item does not remove the liability of the Tenderer to provide a fixed price Tender		£
	Price inflation covered to end 2009		
f	Commissioning support		£ inc
g	SDS support for management of defects		£ exc
	To be paid as Additional Provisional Work		
	Other SDS Management		
	Mobilisation fee	Lump Sum	£500,000.00
	SDS Project and Technical Management	Time	£5,541,339.00
SDS Management Carried to Tender Summary, Lines 1 and 2 Combined			£0.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN MASTER SUMMARY, LINE 1

Requirements Definition	£1,074,157.00
Preliminary Design	£4,268,697.00
Detail Design	£5,553,545.00
<i>Design Carried to Tender Summary, Line 1</i>	£10,896,399.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN MASTER SUMMARY, LINE 2

Requirements Definition	£1,074,157.00
Preliminary Design	£2,651,483.00
Detail Design	£3,439,352.00
<i>Design Carried to Tender Summary, Line 2</i>	£7,164,992.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN MASTER SUMMARY, LINES 1 and 2 COMBINED

Requirements Definition	£1,074,157.00
Preliminary Design	£5,565,699.00
Detail Design	£7,274,386.00
<i>Design Carried to Tender Summary, Lines 1 and 2 Combined</i>	£13,914,242.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: REQUIREMENTS DEFINITION

PAYMENT MILESTONES (PM)		PM 1
Sub milestone	Indicative Document Deliverable List	REQUIREMENTS DEFINITION £
a	Systemwide	£32,647.00
b	Tram & Vehicles	£21,765.00
	Civil Engineering	
c	Track & Formation	£76,177.00
	Track	
	Points & Point Machines/Heaters	
	Drainage	
	Cable Routes	
	Fencing	
d	Highways	£315,592.00
	Roadworks	
	Pedestrians Areas & Crossings	
	Car Parks	
	Road Traffic Management	
	Utilities	
e	Buildings	£51,206.00
	Substations	
	Travel Centre	
	General	
f	Structures	£370,004.00
	Bridges & Subways	
	Culverts	

	Earthworks	
	Retaining Walls	
g	Tramstops	£32,647.00
	Waiting Shelter	
	Cable Routes	
	Platforms & Access	
	Lighting & Signage	
	Fencing	
	Page Totals £ Carried Forward	£900,038.00

DESIGN WORK: REQUIREMENTS DEFINITION (Continued)

	PAYMENT MILESTONES (PM)	PM 1
Sub Milestone	Indicative Document Deliverable List	REQUIREMENTS DEFINITION
	Page Totals £ Brought Forward	£900,038.00
	Supervisory/Control & Communications	£97,942.00
h	Supervisory & Control System	
	Tram Position & Detection System	
	Traction SCADA	
	Auxillary SCADA	
i	Telecommunications	
	Operational Voice Radio	
	Operational Data Radio	
	Wireless Communications	
j	Tramstop Equipment	
	CCTV	
	Passenger Help Points	

	Public Address Systems	
	Passenger Information Displays	
	Ticket Vending Machines	
	Electrification & Power	£76,177.00
k	Traction Power	
	11kv Feeders	
	Substations	
l	OHLE	
	Catenary & Wires	
	Pantograph	
m	Auxiliary Power	
	LV Distribution	
n	Depot	
	Control Room	
	Equipment Rooms	
	Vehicle Cleaning & Maintenance	
	Infrastructure Maintenance	
	Stores & Materials	
	Administration & Management	
	Staff Facilities	
	External Works	
o	Depot Equipment	£
	CCTV	
	Control Room	
	Equipment Rooms	
	Total Requirements Definition Cost £ Carried to Design Master Summaries for Line 1, Line 2, and Lines 1 and 2 Combined	£1,074,157.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN SUMMARY, LINE 1

Sector	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	All Costs Carried from Tramstop Build Up	£	£
DHY6	Murrayfield/Haymarket	£153,783.00	£200,995.00
HOT1	Haymarket/Shandwick Place	£153,783.00	£200,995.00
HOT1	Shandwick Place/Prince Street West	£153,783.00	£200,995.00
HOT1	Prince Street West/Waverley Bridge	£153,783.00	£200,995.00
HOT1	Waverley Bridge/St Andrews Square	£153,783.00	£200,995.00
HOT1	St Andrews Square/Picardy Place	£153,783.00	£200,995.00
HOT2	Picardy Place/Macdonald Road	£153,783.00	£200,995.00
HOT2	Macdonald Road/Balfour Street	£153,783.00	£200,995.00
HOT2	Balfour Street/Foot of Walk	£153,783.00	£200,995.00
HOT3	Foot of Walk/Constitution Street	£153,783.00	£200,995.00
HOT3	Constitution Street/Ocean Drive	£153,783.00	£200,995.00
HOT4	Ocean Drive/Ocean Terminal	£153,783.00	£200,995.00
HOT 5	Leith Depot and Connections	£153,783.00	£200,995.00
	<i>Page Totals £ Carried Forward</i>	£1,999,179.00	£2,612,935.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
Sector	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	<i>Page Totals £ Brought Forward</i>	£1,999,179.00	£2,612,935.00

HCT	Roseburn Junction/Roseburn (Part Tram Stop)	£153,783.00	£200,995.00
HCT	Roseburn/Ravelston Dykes	£153,783.00	£200,995.00
HCT1	Ravelston Dykes/Craigleith	£153,783.00	£200,995.00
HCT1	Craigleith/Western General Hospital	£153,783.00	£200,995.00
HCT1	Western General Hospital/Crewe Toll	£153,783.00	£200,995.00
CTO1	Crewe Toll/West Granton	£153,783.00	£200,995.00
CTO1	West Granton/Caroline Park	£153,783.00	£200,995.00
CTO1	Caroline Park/Granton Waterfront	£153,783.00	£200,995.00
CTO1	Granton Waterfront/Granton Square	£153,783.00	£200,995.00
CTO2	Granton Square/Lower Granton Road	£153,783.00	£200,995.00
CTO2	Lower Granton Road/Newhaven Road	£153,783.00	£200,995.00
CTO2	Newhaven Road/Ocean Terminal	£153,783.00	£200,995.00
	Leith Depot (1 Nr)	£212,060.00	£264,335.00
	Systemwide	£127,237.00	£158,601.00
	Trams	£84,825.00	£105,734.00
	Total Preliminary Design Costs £ Carried to Design Master Summary, Line 1	£4,268,697.00	
	Total Detailed Design Costs £ Carried to Design Master Summary, Line 1		£5,553,545.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN SUMMARY, LINE 2

Sector	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	All Costs Carried from Tramstop Build Up	£	£
ARP1	Airport/Ingliston Park and Ride	£153,783.00	£200,995.00
ARP1	Ingliston Park and Ride/Gogarburn Depot Halt	£153,783.00	£200,995.00
DHY1	Gogarburn Depot Halt/Gyle/Depot/Connections	£153,783.00	£200,995.00
DHY2	Gyle/Depot/Connections/Edinburgh Park	£153,783.00	£200,995.00
DHY3	Edinburgh Park/South Gyle	£153,783.00	£200,995.00
DHY4	South Gyle/Saughton Road	£153,783.00	£200,995.00
DHY5	Saughton Road/Balgreen Road	£153,783.00	£200,995.00
DHY5	Balgreen Road/Murrayfield	£153,783.00	£200,995.00
DHY6	Murrayfield/Haymarket	£153,783.00	£200,995.00
HOT1	Haymarket/Shandwick Place	£153,783.00	£200,995.00
HOT1	Shandwick Place/Prince Street West	£153,783.00	£200,995.00
HOT1	Prince Street West/Waverley Bridge	£153,783.00	£200,995.00
HOT1	Waverley Bridge/St Andrews Square	£153,783.00	£200,995.00
HOT1	St Andrews Square/Picardy Place	£153,783.00	£200,995.00
GNB2	Ingliston West/Newbridge	£153,783.00	£200,995.00
	Gogarburn Depot (1 Nr)	£208,930.00	£273,069.00
	Systemwide	£81,485.00	£90,815.00
	Trams	£54,323.00	£60,543.00
	Total Preliminary Design Costs £ Carried to Design Master Summary, Line 2	£2,651,483.00	
	Total Detailed Design Costs £ Carried to Design Master Summary, Line 2		£3,439,352.00

**EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE
DESIGN SUMMARY. LINES 1 and 2 Combined**

Sector	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	All Costs Carried from Tramstop Build Up	£	£
ARP1	Airport/Ingliston Park and Ride	£153,783.00	£200,995.00
ARP1	Ingliston Park and Ride/Gogarburn Depot Halt	£153,783.00	£200,995.00
DHY1	Gogarburn Depot Halt/Gyle/Depot/Connections	£153,783.00	£200,995.00
DHY2	Gyle/Depot/Connections/Edinburgh Park	£153,783.00	£200,995.00
DHY3	Edinburgh Park/South Gyle	£153,783.00	£200,995.00
DHY4	South Gyle/Saughton Road	£153,783.00	£200,995.00
DHY5	Saughton Road/Balgreen Road	£153,783.00	£200,995.00
DHY5	Balgreen Road/Murrayfield	£153,783.00	£200,995.00
DHY6	Murrayfield/Haymarket	£153,783.00	£200,995.00
HOT1	Haymarket/Shandwick Place	£153,783.00	£200,995.00
HOT1	Shandwick Place/Prince Street West	£153,783.00	£200,995.00
HOT1	Prince Street West/Waverley Bridge	£153,783.00	£200,995.00
HOT1	Waverley Bridge/St Andrews Square	£153,783.00	£200,995.00
HOT1	St Andrews Square/Picardy Place	£153,783.00	£200,995.00
HOT2	Picardy Place/Macdonald Road	£153,783.00	£200,995.00
HOT2	Macdonald Road/Balfour Street	£153,783.00	£200,995.00
	<i>Page Totals £ Carried Forward</i>	£2,460,528.00	£3,215,920.00
DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)			
	PAYMENT MILESTONES (PM)	PM 2	PM 3
Sector	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN

	<i>Page Totals £ Brought Forward</i>	£2,460,528.00	£3,215,920.00
HOT2	Balfour Street/Foot of Walk	£153,783.00	£200,995.00
HOT3	Foot of Walk/Constitution Street	£153,783.00	£200,995.00
HOT3	Constitution Street/Ocean Drive	£153,783.00	£200,995.00
HOT4	Ocean Drive/Ocean Terminal	£153,783.00	£200,995.00
HCT	Roseburn Junction/Roseburn (Part Tram Stop)	£153,783.00	£200,995.00
HCT	Roseburn/Ravelston Dykes	£153,783.00	£200,995.00
HCT1	Ravelston Dykes/Craigleith	£153,783.00	£200,995.00
HCT1	Craigleith/Western General Hospital	£153,783.00	£200,995.00
HCT1	Western General Hospital/Crewe Toll	£153,783.00	£200,995.00
CTO1	Crewe Toll/West Granton	£153,783.00	£200,995.00
CTO1	West Granton/Caroline Park	£153,783.00	£200,995.00
CTO1	Caroline Park/Granton Waterfront	£153,783.00	£200,995.00
CTO1	Granton Waterfront/Granton Square	£153,783.00	£200,995.00
CTO2	Granton Square/Lower Granton Road	£153,783.00	£200,995.00
CTO2	Lower Granton Road/Newhaven Road	£153,783.00	£200,995.00
CTO2	Newhaven Road/Ocean Terminal	£153,783.00	£200,995.00
GNB2	Ingliston West/Newbridge	£153,783.00	£200,995.00
	Gogarburn Depot (1 Nr)	£208,930.00	£273,069.00
	Systemwide	£169,158.00	£221,089.00
	Trams	£112,772.00	£147,393.00
	<i>Total Preliminary Design Costs £ Carried to Design Master Summary, Lines 1 and 2 Combined</i>	£5,565,699.00	

Total Detailed Design Costs £ Carried to Design Master Summary, Lines 1 and 2 Combined		£7,274,386.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAM LINE 1, Systemwide

Sub milestone	PAYMENT MILESTONES (PM)	PM 2	PM 3
	a	Indicative Document Deliverable List	PRELIMINARY DESIGN
£			£
	Systemwide	£127,237.00	£158,601.00
	<i>Total Systemwide Preliminary and Detailed Design, Line 1, £ Carried to Design Summary, Line 1</i>	£127,237.00	£158,601.00

TRAM LINE 1, Systemwide

TRAM LINE 1, Trams

b	PAYMENT MILESTONES (PM)	PM 2	PM 3
		Indicative Document Deliverable List	PRELIMINARY DESIGN
£			£
	Trams	£84,825.00	£105,734.00
	<i>Total Trams Preliminary and Detailed Design, Line 1, £ Carried to Design Summary, Line 1</i>	£84,825.00	£105,734.00

TRAM LINE 1, Trams

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAM LINE 2, Systemwide

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
a	Systemwide	£81,485.00	£90,815.00
	<i>Total Systemwide Preliminary and Detailed Design, Line 2, £ Carried to Design Summary, Line 2</i>	£81,485.00	£90,815.00

TRAM LINE 2, Systemwide

TRAM LINE 2, Trams

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
b	Trams	£54,323.00	£60,543.00
	<i>Total Trams Preliminary and Detailed Design, Line 2, £ Carried to Design Summary, Line 2</i>	£54,323.00	£60,543.00

TRAM LINE 2, Trams

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAM LINES 1 and 2 Combined, Systemwide

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
a	Systemwide	£169,158.00	£221,089.00
	<i>Total Systemwide Preliminary and Detailed Design, Lines 1 and 2, £ Carried to Design Summary, Lines 1 and 2, Combined</i>	£169,158.00	£221,089.00

TRAM LINES 1 and 2 Combined,
Systemwide

TRAM LINES 1 and 2 Combined, Trams

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
b	Trams	£112,772.00	£147,393.00
	<i>Total Trams Preliminary and Detailed Design, Lines 1 and 2, £ Carried to Design Summary, Lines 1 and 2, Combined</i>	£112,772.00	£147,393.00

TRAM LINES 1 and 2 Combined, Trams

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Airport / Ingliston Park and Ride

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,176.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

	PAYMENT MILESTONES (PM)	PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00
h	Tramstop Equipment		

h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Airport / Ingleston Park and Ride

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Ingliston Park and Ride to Gogarburn Depot Halt

Sub milestone	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

SUB
MILESTON
E

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Ingliston Park and Ride to Gogarburn Depot Halt

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Gogarburn Depot Halt to Gyle and Depot Plus Connections

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	<i>Page Totals £ Brought Forward</i>	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
		£153,783.00	£200,995.00

TRAMSTOPS: Gogarburn Depot Halt to Gyle and Depot Plus Connections

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Gyle and Depot Plus Connections to Edinburgh Park

SUB MILESTON E	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

SUB MILESTON E	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Gyle and Depot Plus Connections to Edinburgh Park

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Edinburgh Park to South Gyle

SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00
d2	Culverts	£5,809.00	£7,593.00

d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00
h	Tramstop Equipment		

h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Edinburgh Park to South Gyle

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: South Gyle

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTON E	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	<i>Page Totals £ Brought Forward</i>	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: South Gyle

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Soughton Road to Balgreen Road

		PAYMENT MILESTONES (PM)	PM 2	PM 3
SUB MILESTONE		Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
			£	£
		Civil Engineering		
a		Track & Formation		
a1		Track	£8,372.00	£10,943.00
a2		Points & Point Machines/Heaters	£598.00	£782.00
a3		Drainage	£1,196.00	£1,563.00
a4		Cable Routes	£1,196.00	£1,563.00
a5		Fencing	£598.00	£782.00
b		Highways		
b1		Roadworks	£24,776.00	£32,382.00
b2		Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3		Car Parks	£2,478.00	£3,238.00
b4		Road Traffic Management	£7,433.00	£9,715.00
b5		Utilities	£12,388.00	£16,191.00
c		Buildings		
c1		Substations	£1,025.00	£1,340.00
c2		Travel Centre	£342.00	£447.00
c3		General	£342.00	£447.00
d		Structures		
d1		Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTON E	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Soughton Road to Balgreen Road

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Balgreen Road to Murrayfield

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00
d2	Culverts	£5,809.00	£7,593.00

d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

**SUB
MILESTONE**

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00
h	Tramstop Equipment		

h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Balgreen Road to Murrayfield

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Murrayfield to Haymarket

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

**SUB
MILESTONE**

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Murrayfield to Haymarket

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Haymarket to Shandwick Place

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	<i>Page Totals £ Brought Forward</i>	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Haymarket to Shandwick Place

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Shandwick Place to Princes Street West

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00
d2	Culverts	£5,809.00	£7,593.00

d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

SUB MILESTONE		PAYMENT MILESTONES (PM)	PM 2	PM 3
		Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		Page Totals £ Brought Forward	£126,442.00	£165,261.00
		Supervisory/Control & Communications		
f		Supervisory & Control System		
f1		Tram Position & Detection System	£3,076.00	£4,020.00
f2		Traction SCADA	£1,538.00	£2,010.00
f3		Auxillary SCADA	£1,538.00	£2,010.00
g		Telecommunications		
g1		Operational Voice Radio	£1,538.00	£2,010.00
g2		Operational Data Radio	£1,538.00	£2,010.00
g3		Wireless Communications	£1,538.00	£2,010.00
h		Tramstop Equipment		

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Princes Street West to Waverley Bridge

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

SUB
MILESTONE

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxiliary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Princes Street West to Waverley
Bridge

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Waverley Bridge to St. Andrews Square

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

	PAYMENT MILESTONES (PM)	PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Waverley Bridge to St. Andrews Square

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: St. Andrews Square to Picardy Place

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: St. Andrews Square to Picardy Place

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Picardy Place to MacDonald Road

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxiliary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Picardy Place to MacDonald Road

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: MacDonald Road to Balfour Street

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: MacDonald Road to Balfour Street

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Balfour Street to Foot of Walk

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

SUB
MILESTONE

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Balfour Street to Foot of Walk

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Foot of Walk to Constitution Street

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxiliary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Foot of Walk to Constitution Street

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Constitution Street to Ocean Drive

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Constitution Street to Ocean Drive

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Ocean Drive to Ocean Terminal

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

**SUB
MILESTONE**

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Ocean Drive to Ocean Terminal

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Leith Depot and Connections

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

		PAYMENT MILESTONES (PM)	PM 2	PM 3
		Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		Page Totals £ Brought Forward	£126,442.00	£165,261.00
		Supervisory/Control & Communications		
f		Supervisory & Control System		
f1		Tram Position & Detection System	£3,076.00	£4,020.00
f2		Traction SCADA	£1,538.00	£2,010.00
f3		Auxillary SCADA	£1,538.00	£2,010.00
g		Telecommunications		
g1		Operational Voice Radio	£1,538.00	£2,010.00
g2		Operational Data Radio	£1,538.00	£2,010.00
g3		Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs	£153,783.00	£200,995.00
	<i>Carried to Design Summary</i>		

TRAMSTOPS: Leith Depot and Connections

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Roseburn Junction to Roseburn

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
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e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

	PAYMENT MILESTONES (PM)	PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
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h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Roseburn Junction to Roseburn

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Roseburn to Ravelston Dykes

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
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d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
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	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	<i>Page Totals £ Brought Forward</i>	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
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h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Roseburn to Ravelston Dykes

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Ravelston Dykes to Craigleith

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
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b	Highways		
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b3	Car Parks	£2,478.00	£3,238.00
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d4	Retaining Walls	£11,619.00	£15,186.00
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e3	Platforms & Access	£1,538.00	£2,010.00
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	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
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g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
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h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Ravelston Dykes to Craigleith

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Craigleith to Western General Hospital

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
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e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
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g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxiliary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Craigleith to Western General Hospital

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Western General Hospital to Crewe Toll

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
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	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

SUB
MILESTONE

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
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g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
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j1	11kv Feeders	£1,794.00	£2,345.00
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k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Western General Hospital to Crewe
Toll

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Crewe Toll to West Granton

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
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	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

**SUB
MILESTONE**

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
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g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxiliary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Crewe Toll to West Granton

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: West Granton to Caroline Park

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs F Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: West Granton to Caroline Park

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Caroline Park to Granton Waterfront

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

	PAYMENT MILESTONES (PM)	PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Caroline Park to Granton Waterfront

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Granton Waterfront to Granton Square

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Granton Waterfront to Granton Square

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Granton Square to Lower Granton Road

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,302.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

**SUB
MILESTONE**

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Gateary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxiliary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Granton Square to Lower Granton Road

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Lower Granton Road to Newhaven Road

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	<i>Page Totals £ Brought Forward</i>	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£762.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Lower Granton Road to Newhaven Road

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Newhaven Road to Ocean Terminal

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

SUB
MILESTONE

	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Newhaven Road to Ocean Terminal

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN

TRAMSTOPS: Ingliston West to Newbridge

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
	Civil Engineering		
a	Track & Formation		
a1	Track	£8,372.00	£10,943.00
a2	Points & Point Machines/Heaters	£598.00	£782.00
a3	Drainage	£1,196.00	£1,563.00
a4	Cable Routes	£1,196.00	£1,563.00
a5	Fencing	£598.00	£782.00
b	Highways		
b1	Roadworks	£24,776.00	£32,382.00
b2	Pedestrians Areas & Crossings	£2,478.00	£3,238.00
b3	Car Parks	£2,478.00	£3,238.00
b4	Road Traffic Management	£7,433.00	£9,715.00
b5	Utilities	£12,388.00	£16,191.00
c	Buildings		
c1	Substations	£1,025.00	£1,340.00
c2	Travel Centre	£342.00	£447.00
c3	General	£342.00	£447.00
d	Structures		
d1	Bridges & Subways	£29,047.00	£37,965.00

d2	Culverts	£5,809.00	£7,593.00
d3	Earthworks	£11,619.00	£15,186.00
d4	Retaining Walls	£11,619.00	£15,186.00
e	Tramstops		
e1	Waiting Shelter	£1,538.00	£2,010.00
e2	Cable Routes	£1,281.00	£1,675.00
e3	Platforms & Access	£1,538.00	£2,010.00
e5	Lighting & Signage	£513.00	£670.00
e5	Fencing	£256.00	£335.00
	Page Totals £ Carried Forward	£126,442.00	£165,261.00

DESIGN WORK: PRELIMINARY AND DETAILED DESIGN (Continued)

PAYMENT MILESTONES (PM)		PM 2	PM 3
SUB MILESTONE	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	Page Totals £ Brought Forward	£126,442.00	£165,261.00
	Supervisory/Control & Communications		
f	Supervisory & Control System		
f1	Tram Position & Detection System	£3,076.00	£4,020.00
f2	Traction SCADA	£1,538.00	£2,010.00
f3	Auxillary SCADA	£1,538.00	£2,010.00
g	Telecommunications		
g1	Operational Voice Radio	£1,538.00	£2,010.00
g2	Operational Data Radio	£1,538.00	£2,010.00
g3	Wireless Communications	£1,538.00	£2,010.00

h	Tramstop Equipment		
h1	CCTV	£1,538.00	£2,010.00
h2	Passenger Help Points	£308.00	£402.00
h3	Public Address Systems	£308.00	£402.00
h4	Passenger Information Displays	£923.00	£1,206.00
h5	Ticket Vending Machines	£1,538.00	£2,010.00
	Electrification & Power		
j	Traction Power		
j1	11kv Feeders	£1,794.00	£2,345.00
j2	Substations	£2,392.00	£3,127.00
k	OHLE		
k1	Catenary & Wires	£4,784.00	£6,253.00
k2	Pantograph	£598.00	£782.00
l	Auxillary Power		
l1	LV Distribution	£2,392.00	£3,127.00
	Total Preliminary and Detailed Design Costs £ Carried to Design Summary	£153,783.00	£200,995.00

TRAMSTOPS: Ingliston West to Newbridge

DESIGN PRICING SCHEDULE: Leith Depot (1Nr) Preliminary and Detailed Design.

SUB MILESTONE	PAYMENT MILESTONES (PM)	PM 2	PM 3
	Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
		£	£
D/1	Depot		
D/1a	Control Room	£10,603.00	£13,217.00
D/1b	Equipment Rooms	£10,603.00	£13,217.00
D/1c	Vehicle Cleaning & Maintenance	£31,809.00	£39,650.00
D/1d	Infrastructure Maintenance	£31,809.00	£39,650.00
D/1e	Stores & Materials	£10,603.00	£13,217.00
D/1f	Administration & Management	£21,206.00	£26,433.00
D/1g	Staff Facilities	£21,206.00	£26,433.00
D/1h	External Works	£21,206.00	£26,433.00
D/2	Depot Equipment		
D/2/a	CCTV	£10,603.00	£13,217.00
D/2/b	Control Room	£21,206.00	£26,434.00
D/2/c	Equipment Rooms	£21,206.00	£26,434.00
	Total Preliminary Design Costs £ Carried to Design Summary, Line 1	£212,060.00	
	Total Detailed Design Costs £ Carried to Design Summary, Line 1		£264,335.00

DESIGN PRICING SCHEDULE: Gogarburn Depot (1Nr) Preliminary and Detailed Design.

PAYMENT MILESTONES (PM)	PM 2	PM 3
Indicative Document Deliverable List	PRELIMINARY DESIGN	DETAILED DESIGN
	£	£
Depot		
Control Room	£10,446.00	£13,653.00
Equipment Rooms	£10,446.00	£13,653.00
Vehicle Cleaning & Maintenance	£31,340.00	£40,961.00
Infrastructure Maintenance	£31,340.00	£40,961.00
Stores & Materials	£10,447.00	£13,653.00
Administration & Management	£20,893.00	£27,307.00
Staff Facilities	£20,893.00	£27,307.00
External Works	£20,893.00	£27,307.00
Depot Equipment		
CCTV	£10,446.00	£13,653.00
Control Room	£20,893.00	£27,307.00
Equipment Rooms	£20,893.00	£27,307.00
Total Preliminary Design Costs £ Carried to Design Summaries, Line 2 and Lines 1 and 2 Combined	£208,930.00	
Total Detailed Design Costs £ Carried to Design Summaries, Line 2 and Lines 1 and 2 Combined		£273,069.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

FURTHER SCOPE, LINE 1

Further Scope	£
<p>The items specifically detailed within the design pricing schedules are indicative and Tenderers are to detail here any further scope of work required to fulfill their full obligations under the SDS contract as detailed within these Tender Documents.</p> <p>Tenderers shall detail below additional specific items, with values, required to complete the SDS scope and not detailed elsewhere within the design pricing schedule.</p>	
Payment of fees to statutory and other bodies	£200,000.00
Surveys	£1,500,000.00
<i>Further Scope Carried to Tender Summary, Line 1</i>	£1,700,000.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

FURTHER SCOPE, LINE 2

Further Scope	£
<p>The items specifically detailed within the design pricing schedules are indicative and Tenderers are to detail here any further scope of work required to fulfill their full obligations under the SDS contract as detailed within these Tender Documents.</p> <p>Tenderers shall detail below additional specific items, with values, required to complete the SDS scope and not detailed elsewhere within the design pricing schedule.</p> <p>Payment of fees to statutory and other bodies</p> <p>Surveys</p>	<p>£200,000.00</p> <p>£1,500,000.00</p>
<p><i>Further Scope Carried to Tender Summary, Line 2</i></p>	<p>£1,700,000.00</p>

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

FURTHER SCOPE, LINES 1 and 2 COMBINED

Further Scope	£
<p>The items specifically detailed within the design pricing schedules are indicative and Tenderers are to detail here any further scope of work required to fulfill their full obligations under the SDS contract as detailed within these Tender Documents.</p> <p>Tenderers shall detail below additional specific items, with values, required to complete the SDS scope and not detailed elsewhere within the design pricing schedule.</p>	
Payment of fees to statutory and other bodies	£300,000.00
Surveys	£2,300,000.00
<i>Further Scope Carried to Tender Summary, Lines 1 and 2 Combined</i>	£2,600,000.00

EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

Provisional Additional Work

	Provisional Additional Work	Hours	Rate	Amount £
	Provisional Additional Work shall only have authority for payment and execution when instructed by tie, or authorised tie Representative prior to the work being carried out. The values contained in this section shall be deducted if not instructed by tie. The rates stated shall include all overheads, profit, non-productive overhead and time, holiday allowance, travelling, administration etc., and shall be the all-in rate for the respective grade of personnel. The rates shall apply for both the Lead and Sub Consultants.			
a	Senior Designer	4,500.00	£68.00	£306,000.00
b	Principle Designer	6,000.00	£85.00	£510,000.00
c	Graduate Designer	6,000.00	£55.00	£330,000.00
d	Senior CAD Technician	3,000.00	£49.00	£147,000.00
e	CAD Technician	5,000.00	£38.00	£190,000.00
f	Technical Support	3,000.00	£38.00	£114,000.00
	Rates valid to end 2009, exclude travel and subsistence			
g	Additional payment of fees to statutory and other bodies			£5,000.00
h	Management, Uplift, oncost and profit		%incl	
i	Travel, subsistence	Provisional Sum		£100,000.00

\$1,702,000.00	Provisional Additional Work Carried to Tender Summaries for Line 1, Line 2, and Line 1 and 2 Combined
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EDINBURGH TRAM NETWORK: SDS PRICING SCHEDULE

TRANSPORT MODELLING

		£
	<u>Line 1 Transport Modelling</u>	
a	Allow for all works required to complete the traffic modelling within the SDS scope of works as per Clause 3.5 of the Scope of Services	£972,000.00
	<i>Transport Modelling Carried to Tender Summary, Line 1</i>	£972,000.00

		£
	<u>Line 2 Transport Modelling</u>	
b	Allow for all works required to complete the traffic modelling within the SDS scope of works as per Clause 3.5 of the Scope of Services	£972,000.00
	<i>Transport Modelling Carried to Tender Summary, Line 2</i>	£972,000.00

		£
	<u>Lines 1 and 2 Combined, Transport Modelling</u>	
c	Allow for all works required to complete the traffic modelling within the SDS scope of works as per Clause 3.5 of the Scope of Services	£1,215,000.00
	<i>Transport Modelling Carried to Tender Summary, Lines 1 and 2 Combined</i>	£1,215,000.00


 Director/Authorised Signatory
TIE LIMITED


 Director/Authorised Signatory
PARSONS BRINCKERHOFF LIMITED

This is Schedule Four referred to in the foregoing Agreement between the Client and the SDS
Provider

SCHEDULE FOUR

PROGRAMME

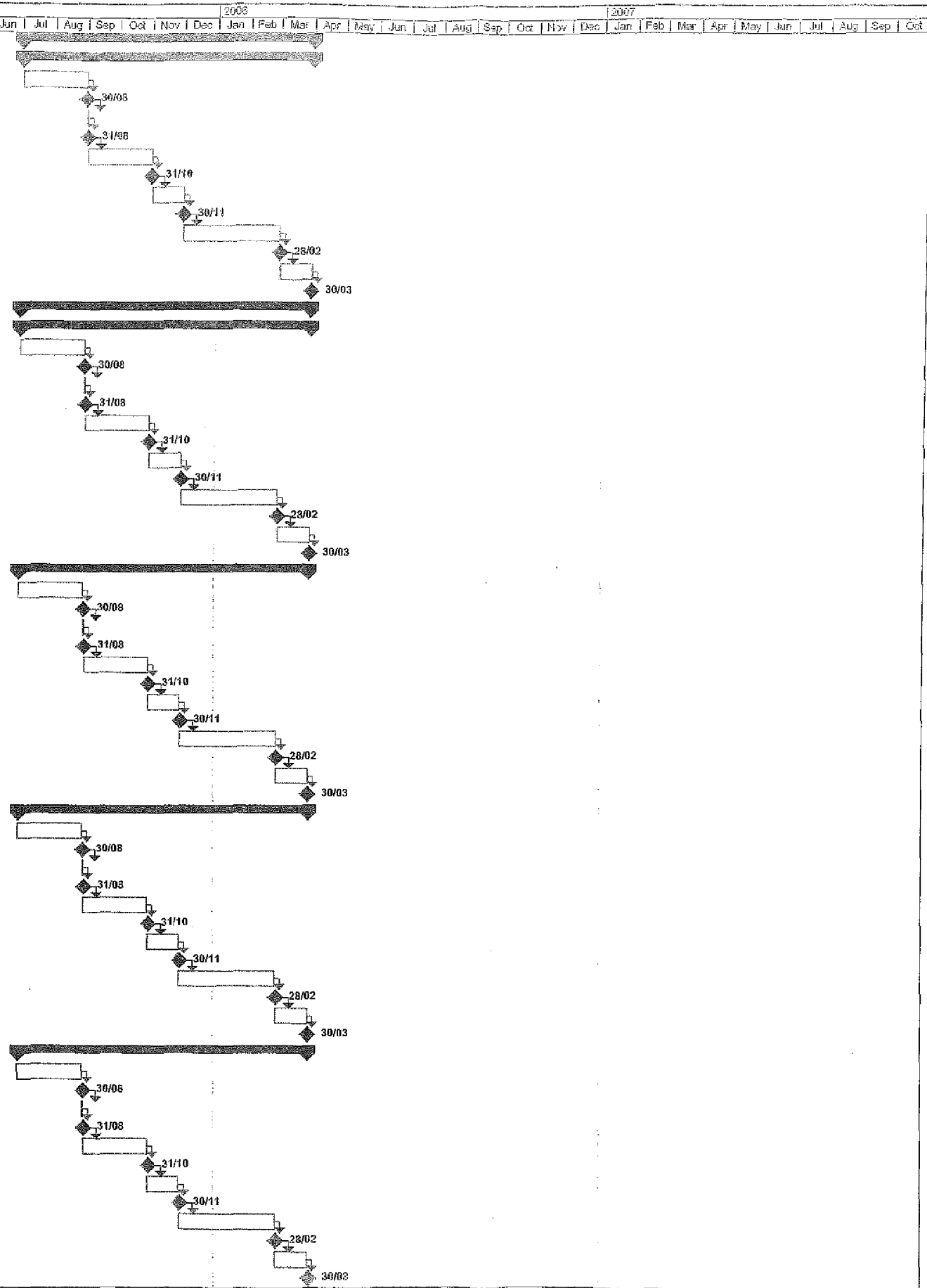
This is Schedule Four referred to in the foregoing Agreement between the Client and the SDS
Provider

SCHEDULE FOUR

PROGRAMME

Edinburgh Tram Network - Line One - System Design Services - Outline Design Programme

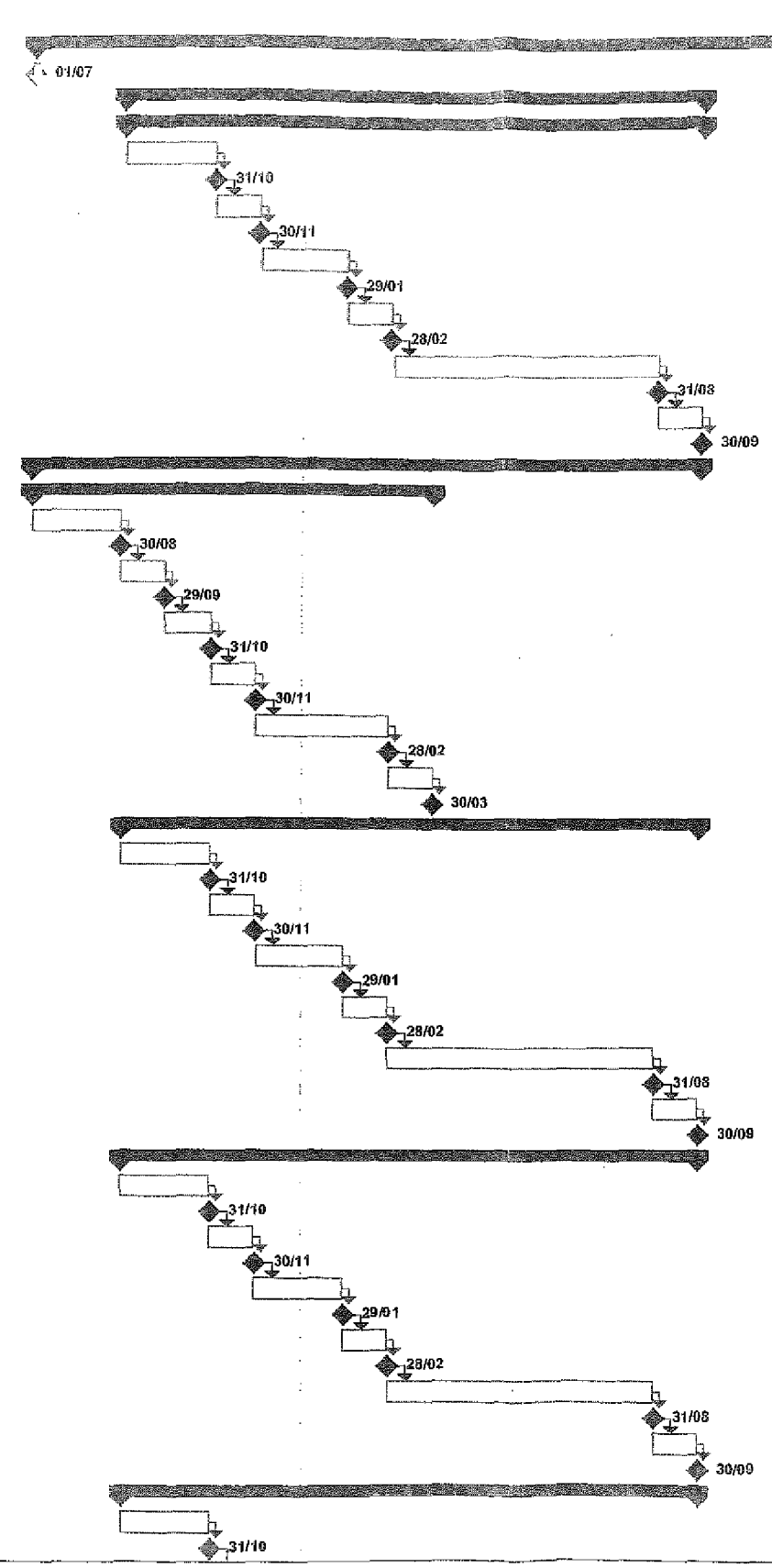
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							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
274	2.6.1 DEPOT HAYMARKET	200.3	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
275	2.6.1.1 Murrayfield (inc) - Haymarket (inc)	200.3.8	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
276	2.6.1.1.1 Requirements Definition	200.3.6	42 days	Fri 01/07/05	Tue 30/03/05	1,612.5 hrs																									
277	2.6.1.1.2 Submit RD Deliverables for Approval	200.3.6	0 days	Tue 30/03/05	Tue 30/03/05	0 hrs																									
278	2.6.1.1.3 RD Approvals Period	200.3.6	1 day	Wed 31/03/05	Wed 31/03/05	0 hrs																									
279	2.6.1.1.4 Receive Requirements Definition Approval	200.3.6	0 days	Wed 31/03/05	Wed 31/03/05	0 hrs																									
280	2.6.1.1.5 Preliminary Design	200.3.6	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs																									
281	2.6.1.1.6 Submit PD Deliverables for Approval	200.3.6	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
282	2.6.1.1.7 PD Approvals Period	200.3.6	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
283	2.6.1.1.8 Receive Preliminary Design Approval	200.3.6	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
284	2.6.1.1.9 Detailed Design	200.3.6	63 days	Thu 01/12/05	Tue 28/02/06	4,987.5 hrs																									
285	2.6.1.1.10 Submit DD Deliverables for Approval	200.3.6	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
286	2.6.1.1.11 DD Approvals Period	200.3.6	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
287	2.6.1.1.12 Receive Detailed Design Approval	200.3.6	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									
288	2.6.2 HAYMARKET St Andrews Square	200.4	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
289	2.6.2.1 Haymarket (exc) - Shandwick Place (inc)	200.4.1	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
290	2.6.2.1.1 Requirements Definition	200.3.6	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs																									
291	2.6.2.1.2 Submit RD Deliverables for Approval	200.3.6	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs																									
292	2.6.2.1.3 RD Approvals Period	200.3.6	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs																									
293	2.6.2.1.4 Receive Requirements Definition Approval	200.3.6	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs																									
294	2.6.2.1.5 Preliminary Design	200.3.6	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs																									
295	2.6.2.1.6 Submit PD Deliverables for Approval	200.3.6	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
296	2.6.2.1.7 PD Approvals Period	200.3.6	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
297	2.6.2.1.8 Receive Preliminary Design Approval	200.3.6	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
298	2.6.2.1.9 Detailed Design	200.3.6	63 days	Thu 01/12/05	Tue 28/02/06	4,987.5 hrs																									
299	2.6.2.1.10 Submit DD Deliverables for Approval	200.3.6	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
300	2.6.2.1.11 DD Approvals Period	200.3.6	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
301	2.6.2.1.12 Receive Detailed Design Approval	200.3.6	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									
302	2.6.2.2 Shandwick Place (exc) - Princes Street West (inc)	200.4.1	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
303	2.6.2.2.1 Requirements Definition	200.4.1	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs																									
304	2.6.2.2.2 Submit RD Deliverables for Approval	200.4.1	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs																									
305	2.6.2.2.3 RD Approvals Period	200.4.1	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs																									
306	2.6.2.2.4 Receive Requirements Definition Approval	200.4.1	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs																									
307	2.6.2.2.5 Preliminary Design	200.4.1	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs																									
308	2.6.2.2.6 Submit PD Deliverables for Approval	200.4.1	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
309	2.6.2.2.7 PD Approvals Period	200.4.1	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
310	2.6.2.2.8 Receive Preliminary Design Approval	200.4.1	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
311	2.6.2.2.9 Detailed Design	200.4.1	63 days	Thu 01/12/05	Tue 28/02/06	4,987.5 hrs																									
312	2.6.2.2.10 Submit DD Deliverables for Approval	200.4.1	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
313	2.6.2.2.11 DD Approvals Period	200.4.1	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
314	2.6.2.2.12 Receive Detailed Design Approval	200.4.1	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									
315	2.6.2.3 Princes Street West (exc) - Waverley Bridge (inc)	200.4.1	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
316	2.6.2.3.1 Requirements Definition	200.4.1	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs																									
317	2.6.2.3.2 Submit RD Deliverables for Approval	200.4.1	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs																									
318	2.6.2.3.3 RD Approvals Period	200.4.1	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs																									
319	2.6.2.3.4 Receive Requirements Definition Approval	200.4.1	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs																									
320	2.6.2.3.5 Preliminary Design	200.4.1	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs																									
321	2.6.2.3.6 Submit PD Deliverables for Approval	200.4.1	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
322	2.6.2.3.7 PD Approvals Period	200.4.1	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
323	2.6.2.3.8 Receive Preliminary Design Approval	200.4.1	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
324	2.6.2.3.9 Detailed Design	200.4.1	63 days	Thu 01/12/05	Tue 28/02/06	4,987.5 hrs																									
325	2.6.2.3.10 Submit DD Deliverables for Approval	200.4.1	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
326	2.6.2.3.11 DD Approvals Period	200.4.1	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
327	2.6.2.3.12 Receive Detailed Design Approval	200.4.1	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									
328	2.6.2.4 Waverley Bridge (exc) - St. Andrew Square (inc)	200.4.1	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
329	2.6.2.4.1 Requirements Definition	200.4.1	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs																									
330	2.6.2.4.2 Submit RD Deliverables for Approval	200.4.1	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs																									
331	2.6.2.4.3 RD Approvals Period	200.4.1	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs																									
332	2.6.2.4.4 Receive Requirements Definition Approval	200.4.1	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs																									
333	2.6.2.4.5 Preliminary Design	200.4.1	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs																									
334	2.6.2.4.6 Submit PD Deliverables for Approval	200.4.1	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
335	2.6.2.4.7 PD Approvals Period	200.4.1	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
336	2.6.2.4.8 Receive Preliminary Design Approval	200.4.1	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
337	2.6.2.4.9 Detailed Design	200.4.1	63 days	Thu 01/12/05	Tue 28/02/06	4,987.5 hrs																									
338	2.6.2.4.10 Submit DD Deliverables for Approval	200.4.1	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
339	2.6.2.4.11 DD Approvals Period	200.4.1	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
340	2.6.2.4.12 Receive Detailed Design Approval	200.4.1	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									



Task: [] Progress: [] Summary: [] External Tasks: [] External Milestones: []
 Split: [] Milestone: [] Project Summary: [] External Milestone: [] Deadline: []

Edinburgh Tram Network - Line Two - System Design Services - Outline Design Programme

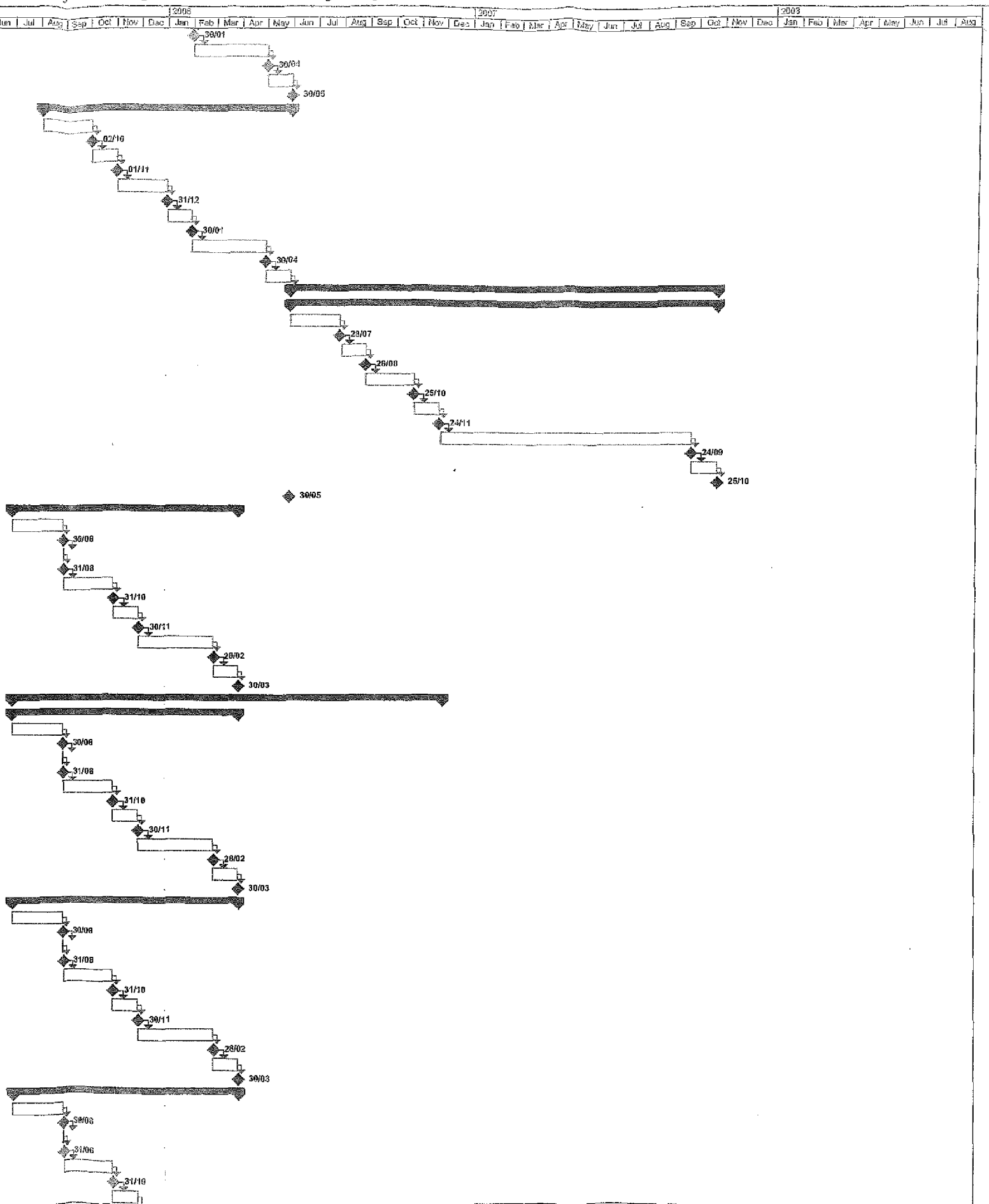
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							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
0	Edinburgh Tram Network - Line Two - System Design Services - Outline Design	0	477 days	Wed 27/04/05	Wed 28/02/07	106,273 hrs																									
1	1 Project Management	100	0 days	Wed 27/04/05	Wed 27/04/05	0 hrs																									
4	2 EDINBURGH TRAM SDS PROVIDER	200	432 days	Fri 01/07/05	Wed 28/02/07	85,480 hrs																									
5	2.1 CONTRACT AWARD / START DATE	200.1	0 days	Fri 01/07/05	Fri 01/07/05	0 hrs																									
6	2.2 AIRPORT GOGARBURN	200.2	281 days	Thu 01/09/05	Sat 30/09/06	8,175 hrs																									
7	2.2.1 Airport - Gogarburn (inc)	200.2.1	281 days	Thu 01/09/05	Sat 30/09/06	8,175 hrs																									
8	2.2.1.1 Requirements Definition	200.2.1.1	43 days	Thu 01/09/05	Mon 31/10/05	1,612.5 hrs																									
9	2.2.1.2 Submit RD Deliverables for Approval	200.2.1.2	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
10	2.2.1.3 RD Approvals Period	200.2.1.3	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
11	2.2.1.4 Receive Requirements Definition Approval	200.2.1.4	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
12	2.2.1.5 Preliminary Design	200.2.1.5	40 days	Fri 02/12/05	Sun 29/01/06	1,575 hrs																									
13	2.2.1.6 Submit PD Deliverables for Approval	200.2.1.6	0 days	Sun 29/01/06	Sun 29/01/06	0 hrs																									
14	2.2.1.7 PD Approvals Period	200.2.1.7	22 days	Mon 30/01/06	Tue 28/02/06	0 hrs																									
15	2.2.1.8 Receive Preliminary Design Approval	200.2.1.8	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
16	2.2.1.9 Detailed Design	200.2.1.9	130 days	Fri 03/03/06	Thu 31/08/06	4,987.5 hrs																									
17	2.2.1.10 Submit DD Deliverables for Approval	200.2.1.10	0 days	Thu 31/08/06	Thu 31/08/06	0 hrs																									
18	2.2.1.11 DD Approvals Period	200.2.1.11	21 days	Fri 01/09/06	Sat 30/09/06	0 hrs																									
19	2.2.1.12 Receive Detailed Design Approval	200.2.1.12	0 days	Sat 30/09/06	Sat 30/09/06	0 hrs																									
20	2.3 DEPOT HAYMARKET	200.3	324 days	Fri 01/07/05	Sat 30/09/06	32,700 hrs																									
21	2.3.1 Gogarburn (exc) - Gyle & Depot (inc)	200.3.1	193 days	Fri 01/07/05	Thu 30/03/06	8,175 hrs																									
22	2.3.1.1 Requirements Definition	200.3.1.1	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs																									
23	2.3.1.2 Submit RD Deliverables for Approval	200.3.1.2	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs																									
24	2.3.1.3 RD Approvals Period	200.3.1.3	22 days	Wed 31/08/05	Thu 29/09/05	0 hrs																									
25	2.3.1.4 Receive Requirements Definition Approval	200.3.1.4	0 days	Thu 29/09/05	Thu 29/09/05	0 hrs																									
26	2.3.1.5 Preliminary Design	200.3.1.5	22 days	Fri 30/09/05	Mon 31/10/05	1,575 hrs																									
27	2.3.1.6 Submit PD Deliverables for Approval	200.3.1.6	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
28	2.3.1.7 PD Approvals Period	200.3.1.7	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
29	2.3.1.8 Receive Preliminary Design Approval	200.3.1.8	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
30	2.3.1.9 Detailed Design	200.3.1.9	63 days	Thu 01/12/05	Tue 29/02/06	4,987.5 hrs																									
31	2.3.1.10 Submit DD Deliverables for Approval	200.3.1.10	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
32	2.3.1.11 DD Approvals Period	200.3.1.11	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
33	2.3.1.12 Receive Detailed Design Approval	200.3.1.12	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									
34	2.3.2 Gyle (exc) - Edinburgh Park (inc)	200.3.2	281 days	Thu 01/09/05	Sat 30/09/06	8,175 hrs																									
35	2.3.2.1 Requirements Definition	200.3.2.1	43 days	Thu 01/09/05	Mon 31/10/05	1,612.5 hrs																									
36	2.3.2.2 Submit RD Deliverables for Approval	200.3.2.2	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
37	2.3.2.3 RD Approvals Period	200.3.2.3	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
38	2.3.2.4 Receive Requirements Definition Approval	200.3.2.4	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
39	2.3.2.5 Preliminary Design	200.3.2.5	40 days	Fri 02/12/05	Sun 29/01/06	1,575 hrs																									
40	2.3.2.6 Submit PD Deliverables for Approval	200.3.2.6	0 days	Sun 29/01/06	Sun 29/01/06	0 hrs																									
41	2.3.2.7 PD Approvals Period	200.3.2.7	22 days	Mon 30/01/06	Tue 28/02/06	0 hrs																									
42	2.3.2.8 Receive Preliminary Design Approval	200.3.2.8	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
43	2.3.2.9 Detailed Design	200.3.2.9	132 days	Wed 01/03/06	Thu 31/08/06	4,987.5 hrs																									
44	2.3.2.10 Submit DD Deliverables for Approval	200.3.2.10	0 days	Thu 31/08/06	Thu 31/08/06	0 hrs																									
45	2.3.2.11 DD Approvals Period	200.3.2.11	21 days	Fri 01/09/06	Sat 30/09/06	0 hrs																									
46	2.3.2.12 Receive Detailed Design Approval	200.3.2.12	0 days	Sat 30/09/06	Sat 30/09/06	0 hrs																									
47	2.3.3 Edinburgh Park (exc) - South Gyle Access (inc)	200.3.3	281 days	Thu 01/09/05	Sat 30/09/06	8,175 hrs																									
48	2.3.3.1 Requirements Definition	200.3.3.1	43 days	Thu 01/09/05	Mon 31/10/05	1,612.5 hrs																									
49	2.3.3.2 Submit RD Deliverables for Approval	200.3.3.2	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
50	2.3.3.3 RD Approvals Period	200.3.3.3	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
51	2.3.3.4 Receive Requirements Definition Approval	200.3.3.4	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
52	2.3.3.5 Preliminary Design	200.3.3.5	41 days	Thu 01/12/05	Sun 29/01/06	1,575 hrs																									
53	2.3.3.6 Submit PD Deliverables for Approval	200.3.3.6	0 days	Sun 29/01/06	Sun 29/01/06	0 hrs																									
54	2.3.3.7 PD Approvals Period	200.3.3.7	22 days	Mon 30/01/06	Tue 28/02/06	0 hrs																									
55	2.3.3.8 Receive Preliminary Design Approval	200.3.3.8	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
56	2.3.3.9 Detailed Design	200.3.3.9	132 days	Wed 01/03/06	Thu 31/08/06	4,987.5 hrs																									
57	2.3.3.10 Submit DD Deliverables for Approval	200.3.3.10	0 days	Thu 31/08/06	Thu 31/08/06	0 hrs																									
58	2.3.3.11 DD Approvals Period	200.3.3.11	21 days	Fri 01/09/06	Sat 30/09/06	0 hrs																									
59	2.3.3.12 Receive Detailed Design Approval	200.3.3.12	0 days	Sat 30/09/06	Sat 30/09/06	0 hrs																									
60	2.3.4 South Gyle Access (exc) - Saughton Road North (inc)	200.3.4	281 days	Thu 01/09/05	Sat 30/09/06	8,175 hrs																									
61	2.3.4.1 Requirements Definition	200.3.4.1	43 days	Thu 01/09/05	Mon 31/10/05	1,612.5 hrs																									
62	2.3.4.2 Submit RD Deliverables for Approval	200.3.4.2	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									



Task: Progress: Summary: External Tasks: External Milestone:
 Split: Milestone: Project Summary: External Milestone: Deadline:

Edinburgh Tram Network - Lines One & Two - System Design Services - Outline Design Programme

ID	Task Name	W/S	Duration	Start	Finish	Work
82	2.3.5.1.8 Receive Preliminary Design Approval	200.3.5	0 days	Mon 30/01/05	Mon 30/01/05	0 hrs
83	2.3.5.1.9 Detailed Design	200.3.5	94 days	Tue 31/01/05	Sun 30/04/05	4,967.5 hrs
84	2.3.5.1.10 Submit DD Deliverables for Approval	200.3.5	0 days	Sun 30/04/05	Sun 30/04/05	0 hrs
85	2.3.5.1.11 DD Approvals Period	200.3.5	22 days	Mon 01/05/05	Tue 30/05/05	0 hrs
86	2.3.5.1.12 Receive Detailed Design Approval	200.3.5	0 days	Tue 30/05/05	Tue 30/05/05	0 hrs
87	2.3.5.2 Balgownie Road (exc) - Murrayfield (inc)	200.3.5	213 days	Wed 03/06/05	Tue 30/09/05	8,175 hrs
88	2.3.5.2.1 Requirements Definition	200.3.5	42 days	Wed 03/06/05	Sun 02/07/05	1,612.5 hrs
89	2.3.5.2.2 Submit RD Deliverables for Approval	200.3.5	0 days	Sun 02/07/05	Sun 02/07/05	0 hrs
90	2.3.5.2.3 RD Approvals Period	200.3.5	22 days	Mon 03/07/05	Tue 01/08/05	0 hrs
91	2.3.5.2.4 Receive Requirements Definition Approval	200.3.5	0 days	Tue 01/08/05	Tue 01/08/05	0 hrs
92	2.3.5.2.5 Preliminary Design	200.3.5	42 days	Wed 02/08/05	Sat 31/08/05	1,575 hrs
93	2.3.5.2.6 Submit PD Deliverables for Approval	200.3.5	0 days	Sat 31/08/05	Sat 31/08/05	0 hrs
94	2.3.5.2.7 PD Approvals Period	200.3.5	21 days	Mon 02/09/05	Mon 30/09/05	0 hrs
95	2.3.5.2.8 Receive Preliminary Design Approval	200.3.5	0 days	Mon 30/09/05	Mon 30/09/05	0 hrs
96	2.3.5.2.9 Detailed Design	200.3.5	64 days	Tue 3/10/05	Sun 30/04/06	4,957.5 hrs
97	2.3.5.2.10 Submit DD Deliverables for Approval	200.3.5	0 days	Sun 30/04/06	Sun 30/04/06	0 hrs
98	2.3.5.2.11 DD Approvals Period	200.3.5	22 days	Mon 01/05/06	Tue 30/05/06	0 hrs
99	2.3.5.3 Gogarburn - Newbridge	200.7	367 days	Tue 30/05/06	Thu 25/10/07	8,175 hrs
100	2.3.5.3.1 Gogarburn (exc) - Newbridge (inc)	200.7.1	367 days	Tue 30/05/06	Thu 25/10/07	8,175 hrs
101	2.3.5.3.1.1 Requirements Definition	200.7.1	43 days	Wed 31/05/06	Fri 29/07/06	1,612.5 hrs
102	2.3.5.3.1.2 Submit RD Deliverables for Approval	200.7.1	0 days	Fri 29/07/06	Fri 29/07/06	0 hrs
103	2.3.5.3.1.3 RD Approvals Period	200.7.1	21 days	Mon 31/07/06	Mon 28/08/06	0 hrs
104	2.3.5.3.1.4 Receive Requirements Definition Approval	200.7.1	0 days	Mon 28/08/06	Mon 28/08/06	0 hrs
105	2.3.5.3.1.5 Preliminary Design	200.7.1	42 days	Tue 29/08/06	Wed 26/10/06	1,575 hrs
106	2.3.5.3.1.6 Submit PD Deliverables for Approval	200.7.1	0 days	Wed 25/10/06	Wed 25/10/06	0 hrs
107	2.3.5.3.1.7 PD Approvals Period	200.7.1	22 days	Thu 26/10/06	Fri 24/11/06	0 hrs
108	2.3.5.3.1.8 Receive Preliminary Design Approval	200.7.1	0 days	Fri 24/11/06	Fri 24/11/06	0 hrs
109	2.3.5.3.1.9 Detailed Design	200.7.1	218 days	Mon 27/11/06	Mon 24/09/07	6,987.5 hrs
110	2.3.5.3.1.10 Submit DD Deliverables for Approval	200.7.1	0 days	Mon 24/09/07	Mon 24/09/07	0 hrs
111	2.3.5.3.1.11 DD Approvals Period	200.7.1	23 days	Tue 25/09/07	Thu 25/10/07	0 hrs
112	2.3.5.3.1.12 Receive Detailed Design Approval	200.7.1	0 days	Thu 25/10/07	Thu 25/10/07	0 hrs
113	2.3.5.3.1.13 Receive Detailed Design Approval	200.3.5	0 days	Tue 30/05/06	Tue 30/05/06	0 hrs
114	2.3.6 Murrayfield (inc) - Haymarket (inc)	200.3.6	193 days	Fri 01/07/05	Thu 30/09/05	8,175 hrs
115	2.3.6.1 Requirements Definition	200.3.6	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs
116	2.3.6.2 Submit RD Deliverables for Approval	200.3.6	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs
117	2.3.6.3 RD Approvals Period	200.3.6	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs
118	2.3.6.4 Receive Requirements Definition Approval	200.3.6	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs
119	2.3.6.5 Preliminary Design	200.3.6	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs
120	2.3.6.6 Submit PD Deliverables for Approval	200.3.6	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs
121	2.3.6.7 PD Approvals Period	200.3.6	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs
122	2.3.6.8 Receive Preliminary Design Approval	200.3.6	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs
123	2.3.6.9 Detailed Design	200.3.6	63 days	Thu 01/12/05	Tue 28/02/06	4,957.5 hrs
124	2.3.6.10 Submit DD Deliverables for Approval	200.3.6	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs
125	2.3.6.11 DD Approvals Period	200.3.6	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs
126	2.3.6.12 Receive Detailed Design Approval	200.3.6	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs
127	2.4 HAYMARKET OCEAN TERMINAL	200.4	368 days	Fri 01/07/05	Thu 30/11/06	90,100 hrs
128	2.4.1 Haymarket (exc) - Shandwick Place (inc)	200.4.1	193 days	Fri 01/07/05	Thu 30/09/05	8,175 hrs
129	2.4.1.1 Requirements Definition	200.3.6	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs
130	2.4.1.2 Submit RD Deliverables for Approval	200.3.6	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs
131	2.4.1.3 RD Approvals Period	200.3.6	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs
132	2.4.1.4 Receive Requirements Definition Approval	200.3.6	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs
133	2.4.1.5 Preliminary Design	200.3.6	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs
134	2.4.1.6 Submit PD Deliverables for Approval	200.3.6	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs
135	2.4.1.7 PD Approvals Period	200.3.6	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs
136	2.4.1.8 Receive Preliminary Design Approval	200.3.6	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs
137	2.4.1.9 Detailed Design	200.3.6	63 days	Thu 01/12/05	Tue 28/02/06	4,957.5 hrs
138	2.4.1.10 Submit DD Deliverables for Approval	200.3.6	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs
139	2.4.1.11 DD Approvals Period	200.3.6	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs
140	2.4.1.12 Receive Detailed Design Approval	200.3.6	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs
141	2.4.2 Shandwick Place (exc) - Princes Street West (inc)	200.4.1	193 days	Fri 01/07/05	Thu 30/09/05	8,175 hrs
142	2.4.2.1 Requirements Definition	200.4.1	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs
143	2.4.2.2 Submit RD Deliverables for Approval	200.4.1	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs
144	2.4.2.3 RD Approvals Period	200.4.1	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs
145	2.4.2.4 Receive Requirements Definition Approval	200.4.1	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs
146	2.4.2.5 Preliminary Design	200.4.1	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs
147	2.4.2.6 Submit PD Deliverables for Approval	200.4.1	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs
148	2.4.2.7 PD Approvals Period	200.4.1	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs
149	2.4.2.8 Receive Preliminary Design Approval	200.4.1	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs
150	2.4.2.9 Detailed Design	200.4.1	63 days	Thu 01/12/05	Tue 28/02/06	4,957.5 hrs
151	2.4.2.10 Submit DD Deliverables for Approval	200.4.1	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs
152	2.4.2.11 DD Approvals Period	200.4.1	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs
153	2.4.2.12 Receive Detailed Design Approval	200.4.1	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs
154	2.4.3 Princes Street West (exc) - Waverley Bridge (inc)	200.4.1	193 days	Fri 01/07/05	Thu 30/09/05	8,175 hrs
155	2.4.3.1 Requirements Definition	200.4.1	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs
156	2.4.3.2 Submit RD Deliverables for Approval	200.4.1	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs
157	2.4.3.3 RD Approvals Period	200.4.1	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs
158	2.4.3.4 Receive Requirements Definition Approval	200.4.1	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs
159	2.4.3.5 Preliminary Design	200.4.1	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs
160	2.4.3.6 Submit PD Deliverables for Approval	200.4.1	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs
161	2.4.3.7 PD Approvals Period	200.4.1	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs



Edinburgh Tram Network - Lines One & Two - System Design Services - Outline Design Programme

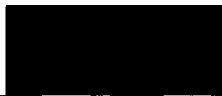
ID	Task Name	WBS	Duration	Start	Finish	Work	2006												2007												
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
242	2.4.7.1.8 Receive Preliminary Design Approval	200.4.4.	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
243	2.4.7.1.9 Detailed Design	200.4.4.	238 days	Thu 01/12/05	Tue 31/10/06	4,897.5 hrs																									
244	2.4.7.1.10 Submit DD Deliverables for Approval	200.4.4.	0 days	Tue 31/10/06	Tue 31/10/06	0 hrs																									
245	2.4.7.1.11 DD Approvals Period	200.4.4.	23 days	Wed 01/11/05	Thu 30/11/05	0 hrs																									
246	2.4.7.1.12 Receive Detailed Design Approval	200.4.4.	0 days	Thu 30/11/05	Thu 30/11/05	0 hrs																									
247	2.4.7.2 Constitution Street (exc) - Ocean Drive (inc)	200.4.4.	303 days	Fri 01/07/05	Thu 30/11/06	8,175 hrs																									
248	2.4.7.2.1 Requirements Definition	200.4.4.	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs																									
249	2.4.7.2.2 Submit RD Deliverables for Approval	200.4.4.	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs																									
250	2.4.7.2.3 RD Approvals Period	200.4.4.	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs																									
251	2.4.7.2.4 Receive Requirements Definition Approval	200.4.4.	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs																									
252	2.4.7.2.5 Preliminary Design	200.4.4.	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs																									
253	2.4.7.2.6 Submit PD Deliverables for Approval	200.4.4.	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
254	2.4.7.2.7 PD Approvals Period	200.4.4.	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
255	2.4.7.2.8 Receive Preliminary Design Approval	200.4.4.	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
256	2.4.7.2.9 Detailed Design	200.4.4.	238 days	Thu 01/12/05	Tue 31/10/06	4,897.5 hrs																									
257	2.4.7.2.10 Submit DD Deliverables for Approval	200.4.4.	0 days	Tue 31/10/06	Tue 31/10/06	0 hrs																									
258	2.4.7.2.11 DD Approvals Period	200.4.4.	22 days	Wed 01/11/06	Thu 30/11/06	0 hrs																									
259	2.4.7.2.12 Receive Detailed Design Approval	200.4.4.	0 days	Thu 30/11/06	Thu 30/11/06	0 hrs																									
260	2.4.8 Ocean Drive (exc) - Ocean Terminal (inc)	200.4.5	303 days	Fri 01/07/05	Thu 30/11/06	8,175 hrs																									
261	2.4.8.1 Requirements Definition	200.4.5	42 days	Fri 01/07/05	Tue 30/08/05	1,612.5 hrs																									
262	2.4.8.2 Submit RD Deliverables for Approval	200.4.5	0 days	Tue 30/08/05	Tue 30/08/05	0 hrs																									
263	2.4.8.3 RD Approvals Period	200.4.5	1 day	Wed 31/08/05	Wed 31/08/05	0 hrs																									
264	2.4.8.4 Receive Requirements Definition Approval	200.4.5	0 days	Wed 31/08/05	Wed 31/08/05	0 hrs																									
265	2.4.8.5 Preliminary Design	200.4.5	43 days	Thu 01/09/05	Mon 31/10/05	1,575 hrs																									
266	2.4.8.6 Submit PD Deliverables for Approval	200.4.5	0 days	Mon 31/10/05	Mon 31/10/05	0 hrs																									
267	2.4.8.7 PD Approvals Period	200.4.5	22 days	Tue 01/11/05	Wed 30/11/05	0 hrs																									
268	2.4.8.8 Receive Preliminary Design Approval	200.4.5	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
269	2.4.8.9 Detailed Design	200.4.5	238 days	Thu 01/12/05	Tue 31/10/06	4,897.5 hrs																									
270	2.4.8.10 Submit DD Deliverables for Approval	200.4.5	0 days	Tue 31/10/06	Tue 31/10/06	0 hrs																									
271	2.4.8.11 DD Approvals Period	200.4.5	22 days	Wed 01/11/06	Thu 30/11/06	0 hrs																									
272	2.4.8.12 Receive Detailed Design Approval	200.4.5	0 days	Thu 30/11/06	Thu 30/11/06	0 hrs																									
273	2.4.9 Leith Depot & Connections	200.4.6	293 days	Mon 09/10/05	Thu 02/11/06	8,175 hrs																									
274	2.4.9.1 Requirements Definition	200.4.6	43 days	Mon 09/10/05	Wed 30/11/05	1,612.5 hrs																									
275	2.4.9.2 Submit RD Deliverables for Approval	200.4.6	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
276	2.4.9.3 RD Approvals Period	200.4.6	21 days	Thu 01/12/05	Fri 30/12/05	0 hrs																									
277	2.4.9.4 Receive Requirements Definition Approval	200.4.6	0 days	Fri 30/12/05	Fri 30/12/05	0 hrs																									
278	2.4.9.5 Preliminary Design	200.4.6	42 days	Mon 02/01/06	Tue 28/02/06	1,575 hrs																									
279	2.4.9.6 Submit PD Deliverables for Approval	200.4.6	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
280	2.4.9.7 PD Approvals Period	200.4.6	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
281	2.4.9.8 Receive Preliminary Design Approval	200.4.6	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									
282	2.4.9.9 Detailed Design	200.4.6	133 days	Fri 31/03/06	Tue 03/10/06	4,897.5 hrs																									
283	2.4.9.10 Submit DD Deliverables for Approval	200.4.6	0 days	Tue 03/10/06	Tue 03/10/06	0 hrs																									
284	2.4.9.11 DD Approvals Period	200.4.6	22 days	Wed 04/10/06	Thu 02/11/06	0 hrs																									
285	2.4.9.12 Receive Detailed Design Approval	200.4.6	0 days	Thu 02/11/06	Thu 02/11/06	0 hrs																									
286	2.5 HAYMARKET CREWÉ TOLL	200.5	303 days	Mon 03/10/05	Thu 30/11/06	8,175 hrs																									
287	2.5.1 Roseburn Junction (exc) - Roseburn (inc)	200.5.1	303 days	Mon 03/10/05	Thu 30/11/06	8,175 hrs																									
288	2.5.1.1 Requirements Definition	200.5.1	43 days	Mon 03/10/05	Wed 30/11/05	1,612.5 hrs																									
289	2.5.1.2 Submit RD Deliverables for Approval	200.5.1	0 days	Wed 30/11/05	Wed 30/11/05	0 hrs																									
290	2.5.1.3 RD Approvals Period	200.5.1	21 days	Thu 01/12/05	Fri 30/12/05	0 hrs																									
291	2.5.1.4 Receive Requirements Definition Approval	200.5.1	0 days	Fri 30/12/05	Fri 30/12/05	0 hrs																									
292	2.5.1.5 Preliminary Design	200.5.1	42 days	Mon 02/01/06	Tue 28/02/06	1,575 hrs																									
293	2.5.1.6 Submit PD Deliverables for Approval	200.5.1	0 days	Tue 28/02/06	Tue 28/02/06	0 hrs																									
294	2.5.1.7 PD Approvals Period	200.5.1	22 days	Wed 01/03/06	Thu 30/03/06	0 hrs																									
295	2.5.1.8 Receive Preliminary Design Approval	200.5.1	0 days	Thu 30/03/06	Thu 30/03/06	0 hrs																									
296	2.5.1.9 Detailed Design	200.5.1	163 days	Fri 31/03/06	Tue 31/10/06	4,897.5 hrs																									
297	2.5.1.10 Submit DD Deliverables for Approval	200.5.1	0 days	Tue 31/10/06	Tue 31/10/06	0 hrs																									
298	2.5.1.11 DD Approvals Period	200.5.1	22 days	Wed 01/11/06	Thu 30/11/06	0 hrs																									
299	2.5.1.12 Receive Detailed Design Approval	200.5.1	0 days	Thu 30/11/06	Thu 30/11/06	0 hrs																									
300	2.5.2 Roseburn (exc) - Ravelston Dykes (inc)	200.5.2	303 days	Mon 03/10/05	Thu 30/11/06	8,175 hrs																									
301	2.5.2.1 Requirements Definition	200.5.2	43 days	Mon 03/10/05	Wed 30/11/05	1,612.5 hrs																									
302	2.5.2.2 Submit RD Deliverables for Approval	200.5.2	0 days	Wed 30/11/05																											

This is Schedule Five referred to in the foregoing Agreement between the Client and the SDS Provider

SCHEDULE FIVE

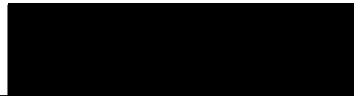
COMMERCIALLY SENSITIVE INFORMATION

The SDS Provider's bid in relation to the provision of the Services, sent under cover of the SDS Provider's formal offer dated 13th May 2005, together with the subsequent correspondence detailed within the definition of "Formal Offer" in this Agreement shall be considered as Commercially Sensitive Information for the purposes of this Agreement.



Director/Authorised Signatory

TIE LIMITED



Director/Authorised Signatory

PARSONS BRINCKERHOFF LIMITED

This is Schedule Six referred to in the foregoing Agreement between the Client and the SDS Provider

SCHEDULE SIX

REQUIRED INSURANCES

Part 1

Required insurances

1. PROFESSIONAL INDEMNITY INSURANCE

- Insured Party:** The SDS Provider
- Coverage:** The legal liability of the SDS Provider as a result of any negligent act, error, or omission in the performance of its professional activities and duties in connection with the Services.
- Limit of Indemnity:** Minimum £10,000,000 on an each and every claim basis and on an aggregate basis in respect of pollution and contamination claims and date recognition claims. There is no requirement to maintain cover in respect of asbestos or terrorism related claims.
- Period of Insurance:** From the Effective Date for 12 months and thereafter each further 12 month period until the earlier of 12 years from the completion by the SDS Provider of the Services and its obligations under this Agreement or 12 years from the Termination Date.
- Extensions:** The insurance must include the following minimum extensions:
General Indemnity to Principals/Main Contractors
Vicarious Liability for Sub-Consultants
Worldwide Jurisdiction
- Maximum Permitted Deductible:** GBP 25,000 each and every claim.

2. THIRD PARTY LIABILITY INSURANCE

- Insured Party:** The SDS Provider
- Coverage:** The legal liability of the SDS Provider for death, injury, illness, disease contracted by third party persons or loss of or damage to property arising out of or in connection with the Services.
- Limit of Indemnity:** Unlimited as to the number of occurrences in each 12 month period in respect of death or injury to persons. For all other occurrences, a minimum of £5,000,000 any one occurrence (unlimited as to number of occurrences in the Period of Insurance stated below) in respect of third party liability and £5,000,000 any one occurrence and in the aggregate in any one 12 month period of insurance in respect of products liability and in annual aggregate in respect of pollution and contamination claims.

Period of Insurance: From the Effective Date for 12 months and thereafter each further 12 month period until the earlier of Termination Date or the completion by the SDS Provider of the Services and its obligations under this Agreement.

Minimum Extensions The insurance must include the following minimum extensions:

Contractual Liability
Liability for loss or damage to buildings temporarily occupied
Cross Liabilities Clause
Includes Liability for Sub-Contractors
Worldwide Jurisdiction
Includes Minimum Network Rail and/or BAA Insurance Requirements

Maximum Permitted Deductible: GBP 500 each and every loss in respect of property damage claims, nil excess for bodily injury claims.

3. EMPLOYERS LIABILITY INSURANCE

Insured Party: The SDS Provider

Coverage: The legal liability of the SDS Provider for death, injury, illness, disease contracted by employees of the SDS Provider caused by or arising out of or in connection with the Services.

Limit of Liability Minimum limit of indemnity of £10,000,000 any one occurrence or series of occurrences arising from one original cause or event.

Period of Insurance: From the Effective Date for 12 months and thereafter each further twelve month period until the earlier of the completion by the SDS Provider of the Services and its obligations under this Agreement or the Termination Date.

Extensions The insurance must include the following minimum extensions:

Contractual Liability
Cross Liabilities Clause
General Indemnity to Principals/Main Contractors
Worldwide Jurisdiction

Maximum Permitted Deductible: GBP 500 any one claim/occurrence

Part 2

Form of Brokers Letter of Undertaking

To: [THE CLIENT]

Dear Sirs

We confirm in our capacity as insurance brokers that the Required Insurances specified in Clause 17 (*Required Insurances*) and Schedule 6 (*Required Insurances*) of the Agreement dated ◆ between Parsons Brinckerhoff Limited (the "SDS Provider") and the Client as defined therein are, as at the date hereof, in effect in respect of the risks set out in the attached completed insurance questionnaire ref SLF/LED/310299/1/4515105 dated 7 and 11 April 2005 and clarified on 8 June 2005.

We have arranged the Required Insurances on the basis of the information and instructions given by the SDS Provider. We have not made any particular or special enquiries regarding the Required Insurances beyond those that we would normally make in the ordinary course of arranging the insurances on behalf of our insurance broking clients.

The confirmations set out in this letter are given by reference to our state of knowledge at the date hereof.

Pursuant to instructions received from the SDS Provider, we hereby undertake in respect of the interests of the SDS Provider and the Client in the Required Insurances referred to in the attached completed questionnaires:

1. to use reasonable endeavours in order that the policy provides full coverage for the Required Insurances when the same is issued, substantially in the form set out in Schedule 6 (*Required Insurances*) of the Agreement;
2. to advise the Client :
 - 2.1 promptly after receiving notice of any insurer's cancellation or suspension of any of the Required Insurances or receiving notice of the intended cancellation or suspension of any of the Required Insurances;
 - 2.2 promptly upon our receipt from the SDS Provider of any notice of any changes proposed to be made to the Required Insurances which, if effected, would result in a material reduction in limits or coverage (including in respect of extensions of cover) or in an increase in deductibles, exclusions or exceptions;
 - 2.3 of any default in the payment of any premium for any of the Required Insurances;
 - 2.4 at least 14 days prior to the expiry of any of the Required Insurances if we have not received written renewal instructions from the SDS Provider or if we receive written instructions to renew, to advise the Client of the details thereof; and
 - 2.5 on receipt of notice of any act or omission of the SDS Provider or any SDS Provider Party which will invalidate or render unenforceable in whole or in part, any of the Required Insurances;
3. no later than 14 days (in respect of certificates) and as soon as reasonably practicable in respect of policies, to supply you copies of certificates and confirmations of renewal and all policy documents (or confirmation of the terms of such policy documents where such policy documents cannot be made available) in respect of the Required Insurances;

4. to disclose to the Client any fact, change of circumstance or occurrence is material to the risks insured against under the Required Insurances;
5. to treat as confidential all information in relation to the Required Insurances supplied to us by the SDS Provider or any SDS Provider Party or the Client and not to disclose, without the written consent of the Client, such information to any third party other than the insurers under the Required Insurances, unless required to do so by law or any regulatory authority; and
6. to notify the Client as soon as reasonably practicable prior to our ceasing to act as brokers to the SDS Provider, unless impracticable because of circumstances beyond our control, in which case we shall notify the Client as soon as reasonably practicable upon becoming aware that we shall cease, or have ceased, so to act.

Where insurers wish any of the Required Insurances to be cancelled for reasons of non-payment of premium, we will request those insurers to give you a reasonable opportunity of paying such amounts outstanding before issuing notice of cancellation on behalf of such insurers.

The above undertakings are given subject to our continuing appointment for the time being as insurance brokers to the SDS Provider in relation to the Required Insurances concerned and the monitoring and handling of claims in relation to the SDS Provider, and our obligations set out in this letter shall automatically cease upon termination of our appointment.

For the avoidance of doubt all undertakings and other confirmations given in this letter relate solely to the Required Insurances. They do not apply to any other insurances and nothing in this letter should be taken as providing any undertakings or confirmations in relation to any other such insurance that ought to have been placed or may at some future date be placed by other brokers.

This letter is given by us on the instructions of the SDS Provider and with the SDS Provider's full knowledge and consent as to its terms as evidenced by the SDS Provider's signature below for each and every correspondence that may be necessary.

This letter shall be governed by and shall be construed in accordance with Scots Law and any dispute as to its terms shall be submitted to the exclusive jurisdiction of the courts of Scotland.

Yours faithfully

.....

For and on behalf of (Insurance Broker)

.....

For and on behalf of (The SDS Provider)

Part 3

Insurance Questionnaire

1.0	PUBLIC & PRODUCTS LIABILITY	
1.1	Name & Address of Insurers	
1.2	Policy Number(s)	
1.3	Renewal Date	
1.4	Limits of Indemnity in respect of (Please state whether any one occurrence or in the aggregate)	
a.	Public Liability	£
b.	Products Liability	£
c.	Subsidence, Collapse, Vibration or Removal or Weakening of Support	£
d.	Fire & Explosion	£
e.	Pollution	£
f.	Any other "inner" limit	£
1.5	Is the policy subject to a heat warranty or condition of any sort and/or any height or depth restrictions. If so attach copies?	YES/NO
1.6	Is Contractual Liability included?	YES/NO
1.7	Does the policy include liability for damage to premises temporarily occupied for the performance of works therein or thereon?	YES/NO
1.8	Does the policy include a cross liability provision and a General Indemnity to Principals/Main Contractors Clause?	YES/NO
1.9	What limitations apply in respect of cover for loss or damage due to defective design, workmanship or materials?	
1.10	What excess(es) are applicable?	
1.11	Is the policy extended to include financial loss?	YES/NO (If YES state limit £)
1.12	Does the policy:	
a)	include liability for acts of sub-contractors	YES/NO
b)	Respond to judgements made outside the UK	YES/NO
1.13	Is cover subject to any material exclusions or limitations?	YES/NO

	(If YES please supply copies thereof)	
1.14	Have you ever undertaken or are you currently undertaking work on behalf of Network Rail or British Airports Authority? (if yes please state which or both)	YES/NO
1.15	Does your policy extend to include the minimum insurance requirements of either Network Rail or British Airports Authority? (if yes please state which or both)	YES/NO
2.0 EMPLOYERS LIABILITY		
2.1	Name & Address of Insurers	
2.2	Policy Number(s)	
2.3	Renewal Date	
2.4	Limit of Indemnity	£
2.5	Is the policy subject to a heat warranty or condition of any sort and/or any height or depth restrictions? If so attach copies.	YES/NO
2.6	Is Contractual Liability included?	YES/NO
2.7	What is the definition of "employee"?	
2.8	Does the policy include a cross liability provision and a General Indemnity to Principals/Main Contractors Clause?	YES/NO
2.9	Does the policy respond to judgements made outside UK?	YES/NO
3.0 PROFESSIONAL INDEMNITY		
3.1	Name & Address of Insurers	
3.2	Policy Number(s)	
3.3	Renewal Date	
3.4	Limit of Indemnity	i. any one event £ ii. in the aggregate £
3.5	Scope of professional duties insured as stated in the policy.	
3.6	What excess(es) are applicable?	
3.7	Is cover included for sub-consultants?	YES/NO
3.8	Is cover included for the costs of mitigation of loss	YES/NO
3.9	Does the policy include a General Indemnity to Principals/Main Contractors Clause?	YES/NO
3.10	Is cover subject to any material	YES/NO

exclusions or limitations? (If YES please supply copies thereof)	
3.11 Does the policy respond to judgements made outside UK	YES/NO

DECLARATION:

We confirm that the foregoing details are accurate and that the above policies are subject to no special terms, conditions and exceptions other than those referred to above. We also confirm that all premiums due to date have been paid.

Signed

Position

Name

Date

For and on behalf of

.....
.....
.....

This form should be completed by your Insurers or your Registered Insurance Brokers ONLY.

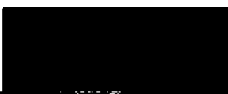
The above information is agreed on behalf of the Tenderer by the Tenderer's Authorised Representative:

Name

Signed

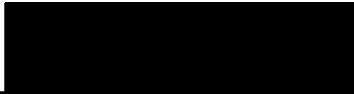
For and on behalf of

Date



Director/Authorised Signatory

TIE LIMITED



Director/Authorised Signatory

PARSONS BRINCKERHOFF LIMITED

This is Schedule Seven referred to in the foregoing Agreement
between the Client and the SDS Provider

SCHEDULE SEVEN

COLLATERAL WARRANTY IN FAVOUR OF THE



(1) PARSONS BRINCKERHOFF LIMITED

- and -

(2) TIE LIMITED

- and -

(3) [INFRACO]

**COLLATERAL WARRANTY IN FAVOUR
OF TIE FROM THE SDS PROVIDER**

relating to

**THE PROVISION OF SYSTEM DESIGN
SERVICES FOR THE EDINBURGH TRAM
NETWORK**

AGREEMENT

BETWEEN

- (1) **PARSONS BRINCKERHOFF LIMITED** (Company Number 2554514) whose registered office is at Amber Court, William Armstrong Drive, Newcastle Business Park, Newcastle Upon Tyne, NE4 7YQ ("**SDS Provider**");
- (2) **TIE LIMITED** (Company Number SC230949) whose registered office is at City Chambers, High Street, Edinburgh, Midlothian, EH1 1YJ ("**tie**") which term shall include its successors and permitted assignees); and
- (3) [**INFRACO**] (Company Number ◆) whose registered office is at ◆ ("**Infraco**").

BACKGROUND

- A By an agreement in writing dated [◆] 2005 (the "**SDS Agreement**"), tie appointed the SDS Provider to provide system design services in connection with the Edinburgh Tram Network.
- B tie and Infraco have entered into a contract under which Infraco has been appointed to complete the design and carry out the construction, installation, commissioning and maintenance planning in respect of the Edinburgh Tram Network.
- C tie and Infraco have agreed, with the consent of the SDS Provider, that the Infraco shall take over the rights and liabilities of the "Client" under the SDS Agreement by novating the SDS Agreement from tie to Infraco upon and subject to the terms of the Novation Agreement (as hereinafter defined).
- E It is a term of the SDS Agreement that the SDS Provider shall enter into this Agreement with tie following the execution of the Novation Agreement.

IT IS AGREED as follows:

1. DEFINITIONS AND INTERPRETATION

- 1.1 In this Agreement the following words and expressions have the following meanings, unless the context requires otherwise:

"Agreement" means this document (as amended from time to time pursuant to Clause 14);

"Deliverables" means the Functional Requirements Specifications, the Technical Specifications and the items listed in Appendix 3 to Schedule 1 (*Scope of Services*) of the SDS Agreement, and all other documents, information, reports, records, diagrams, bills of quantities, manuals, schedules, databases, reinforcement details, photographs, formulae, consultation materials, plans, designs, specifications, drawings (including as-built drawings), details, calculations, transport and other models and simulations, the outputs and reports based on any models, programmes and all other material created and/or provided by the SDS Provider (and/or any SDS Provider Party or any other third party) in the performance of the Services and the SDS Provider's other obligations under the SDS Agreement;

"Infraco Contract" means the contract to be entered into or entered into by tie with the Infraco in relation to the completion of the design, and carrying out the construction, commissioning and maintenance planning in respect of the Edinburgh Tram Network;

"**Novation Agreement**" means the novation agreement entered into among **tie**, the SDS Provider and the Infraco;

"**Party**" means each and any of the parties to this Agreement and Parties shall be construed accordingly;

"**SDS Agreement**" means the agreement dated [◆] originally entered into by the SDS Provider and **tie**, which has been novated to the Infraco and the SDS Provider.

1.2 Unless the context requires otherwise:

1.2.1 words importing:

1.2.1.1 the singular include the plural and vice versa; and

1.2.1.2 one gender include all other genders.

1.2.2 a reference to:

1.2.2.1 persons includes firms, companies, corporations, partnerships, trusts, authorities and other incorporated and/or unincorporated bodies; and

1.2.2.2 a recital, clause or schedule is a reference to a recital, clause or schedule of or to this Agreement;

1.3 The list of contents and clause headings in this Agreement are included for convenience only and do not affect its interpretation; and

1.4 Where a party comprises two or more persons:

1.4.1 any obligations on the part of that party contained or implied in this agreement are deemed to be joint and several obligations on the part of those persons; and

1.4.2 references to that party shall include references to each and any of those persons.

1.5 Unless otherwise defined hereunder, where the SDS Agreement defines a meaning to any capitalised word or expression used in this Agreement, the same meaning shall be given to it in this Agreement;

1.6 In the case of any unintended conflict between the definition or interpretation of words or expressions in this Agreement and the SDS Agreement, the SDS Agreement shall prevail save where by express words or where it is apparent from the context that the contrary is intended in this Agreement.

2. STANDARD OF CARE

The SDS Provider warrants and undertakes to **tie** that:

2.1 it has carried out and shall carry out its Services and other duties and obligations under the SDS Agreement subject to and in accordance with the terms thereof; and

2.2 in addition to and without derogation from clause 2.1;

2.2.1 the SDS Provider warrants to **tie** that, in the performance of the Services and its other obligations under the SDS Agreement it shall exercise a reasonable level of professional skill, care and diligence to be expected of a properly

qualified and competent system design services provider experienced in performing services similar to the Services in connection with projects of a similar size, scope and complexity; and

2.2.2 it owes a duty of care to **tie** in carrying out its duties and obligations under the SDS Agreement.

3. COPYRIGHT LICENCE

- 3.1 The SDS Provider hereby grants to **tie** an irrevocable, perpetual, royalty-free and non-exclusive licence to use such Project IPR and SDS Provider IPR as may be necessary for **tie** to use in relation to any projects associated with the Services. This licence shall carry the right to grant sub-licences, and be freely transferable to third parties. The SDS Provider shall be liable for the Project IPR and the SDS Provider IPR only to the extent that it is used for the purposes for which it was intended.
- 3.2 In so far as ownership of the copyright and any other Intellectual Property Rights in any Deliverable prepared or provided by the SDS Provider in connection with the Edinburgh Tram Network is vested in any person other than the SDS Provider including, without limitation, any SDS Provider Party, the SDS Provider shall procure for **tie** the benefit of such a licence as is referred to in clause 3.1 for the purposes referred to therein.
- 3.3 The SDS Provider shall, if so requested at any time, execute such documents and perform such acts (including the grant to **tie** of a licence to use any SDS Provider Software and/or any Third Party Software and/or any Specially Written Software) as may be required fully and effectively to assure to **tie** or any third party the rights referred to in this clause 3.
- 3.4 The SDS Provider shall provide to **tie** a copy of any of the Deliverables as soon as reasonably practicable after receipt by the SDS Provider of a written request from **tie** to do so.
- 3.5 The SDS Provider undertakes to **tie** that the use by **tie** of any of the Deliverables for any purpose provided for in this clause 3 shall not infringe the rights of any third party in relation to the Deliverables.

4. REQUIRED INSURANCES

- 4.1 The SDS Provider undertakes that:
- 4.1.1 it has maintained and shall maintain during the performance of its obligations under the SDS Agreement each of the Required Insurances in accordance with the requirements of Clause 17 (*Required Insurances*) and Schedule 6 (*Required Insurances*) of the SDS Agreement;
- 4.1.2 cover under the professional indemnity insurance is extended to include the SDS Provider's liabilities under this Agreement;
- 4.1.3 this Agreement has been disclosed to the SDS Provider's current professional indemnity insurers or brokers (as the case may be) and shall be disclosed to any future professional indemnity insurers or brokers providing the insurance required by this Agreement; and
- 4.1.4 the SDS Provider shall abide by the terms and conditions of insurance and not do or omit to do anything that might prejudice the cover or its right to make a claim.

- 4.2 As and when required by **tie**, the SDS Provider shall produce for inspection documentary evidence that such insurance is being properly maintained.
- 4.3 The SDS Provider shall not make any material alteration to the terms of the Required Insurances without **tie's** prior approval which approval shall not be unreasonably withheld. If the insurer makes or attempts to make any material alteration or purports to withdraw cover, or if the SDS Provider is unable to obtain professional indemnity insurance, the SDS Provider shall promptly give notice of this to **tie**.

5. TIE STEP-IN

- 5.1 The SDS Provider shall not exercise nor seek to exercise any right of determination of the SDS Agreement or to rescind the SDS Agreement by reason of a Client Default or to otherwise discontinue the performance of any of the SDS Provider's obligations in relation to the SDS Agreement by reason of breach on the part of the Infraco (or otherwise) without giving to **tie** not less than 21 days' written notice of its intention to do so and specifying in such notice the grounds for the proposed determination. The SDS Provider shall for the period of any such notice diligently and properly continue to perform the SDS Provider's obligations under the SDS Agreement.
- 5.2 Any period stipulated in the SDS Agreement for the exercise by the SDS Provider of a right of determination shall nevertheless be extended as may be necessary to take account of the period of notice required under clause 5.1.
- 5.3 Compliance by the SDS Provider with the provisions of clause 5.1 shall not be treated as a waiver of any breach on the part of the Infraco giving rise to the right of determination nor otherwise prevent the SDS Provider from exercising its rights after the expiration of the notice unless the right of determination shall have ceased under the provisions of clause 5.4.
- 5.4 The right of the SDS Provider to determine the SDS Agreement or to rescind the SDS Agreement or to discontinue the performance of any of its obligations in relation to the SDS Agreement shall cease if within the period of 21 days referred to in clause 5.1, **tie** gives written notice to the SDS Provider:
- 5.4.1 requiring the SDS Provider to continue with the performance of all its obligations under the SDS Agreement;
 - 5.4.2 acknowledging that **tie** is assuming all the obligations of the Infraco (as "Client") under the SDS Agreement; and
 - 5.4.3 undertaking to the SDS Provider to discharge all amounts payable to the SDS Provider under the terms of the SDS Agreement.
- 5.5 Upon compliance by **tie** with the requirements of clause 5.4, the SDS Agreement shall continue in full force and effect as if the right of determination on the part of the SDS Provider had not arisen and in all respects as if the SDS Agreement had been made between **tie** and the SDS Provider to the exclusion of the Infraco.
- 5.6 Notwithstanding that as between the Infraco and the SDS Provider, the SDS Provider's right of determination of its engagement under the SDS Agreement may not have arisen the provisions of clause 5.5 shall nevertheless apply if **tie** gives written notice to the SDS Provider and the Infraco to that effect and **tie** complies with the requirements on its part under clause 5.4.
- 5.7 The SDS Provider does not need to be concerned or required to enquire whether, and shall be entitled to assume that, as between the Infraco and **tie**, the circumstances have occurred permitting **tie** to give notice under clause 5.6.

- 5.8 The SDS Provider acting in accordance with the provisions of this clause 5 shall not incur any liability to the Infraco.
- 5.9 Unless and until **tie** has given notice under this clause 5:
- 5.9.1 **tie** has no liability whatsoever to the SDS Provider in respect of amounts payable to the SDS Provider under the SDS Agreement (except in relation to the sums referred to in Clause 8 of this Agreement); and
- 5.9.2 **tie** has no authority to issue any direction or instruction to the SDS Provider in relation to the performance of the SDS Provider's obligations under the SDS Agreement.
- 5.10 Without prejudice to the provisions of clauses 5.1 to 5.9 inclusive, if prior to the service of any notice under clause 5.4 the SDS Provider is determined under the SDS Agreement for any reason whatsoever the SDS Provider shall if required in writing so do to by **tie** no later than 12 weeks after the date of such determination forthwith enter into a new agreement with **tie** on the same terms as the SDS Agreement, but with such revisions as **tie** and the SDS Provider may reasonably require to reflect altered circumstances and the fact that it is **tie** and not the Infraco employing the SDS Provider.

6. ASSIGNATION

- 6.1 The SDS Provider shall not assign, novate or otherwise transfer the whole or any part of the Agreement without the prior written agreement of **tie**.
- 6.2 **tie** shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:
- 6.2.1 to the Scottish Ministers or any local authority or other body with no worse financial standing than that of **tie** who, as a result of any Change in Law, takes over all or substantially all the functions of **tie**; or
- 6.2.2 to any other person whose obligations under this Agreement are unconditionally and irrevocably guaranteed (in a form reasonably acceptable to the SDS Provider) by **tie** or a person falling within clause 6.2.1; or
- 6.2.3 to CEC or Transport Edinburgh Limited; or
- 6.2.4 with the prior written consent of the SDS Provider (such consent not to be unreasonably withheld or delayed).
- 6.3 The SDS Provider undertakes to **tie** not to contend in any court proceedings under this Agreement that any person to whom **tie** assigns or has assigned its rights under this Agreement or any of them in accordance with the foregoing provisions of this clause is to be precluded from recovering any loss resulting from any breach of this Agreement (whenever happening) by reason that such person is an assignee and not the original contracting party under this Agreement or by reason that **tie** is named under this Agreement or any intermediate assignee of **tie** escaped loss resulting from such breach by reason of the disposal of its interest in the same.

7. LIABILITY OF THE SDS PROVIDER

- 7.1 No provision of this Agreement is intended to exclude any obligation or liability which would otherwise be implied whether by law of contract, delict or otherwise.

- 7.2 The responsibility of the SDS Provider under this Agreement is not to be reduced or in any way released or limited by any enquiry or inspection by or on behalf of any person notwithstanding that such enquiry or inspection may give rise to a claim by **tie** against a third party.
- 7.3 The rights and benefits conferred upon **tie** by this Agreement are in addition to any other rights and remedies that **tie** may have against the SDS Provider including (without prejudice to the generality of the foregoing) any remedies in delict.
- 7.4 Subject to the other provisions of this Agreement, the liability of the SDS Provider to **tie** is to be determined in all respects in accordance with the terms of the SDS Agreement and, in the event of any claim by **tie** under this Agreement, the SDS Provider shall be entitled to rely upon any defence, right, limitation or exclusion under the SDS Agreement as though **tie** were named as Client under it, except that:
- 7.4.1 **tie** shall not be affected by any subsequent variation of the SDS Agreement which would adversely affect the obligations owed by SDS Provider or the waiver, compromise or withdrawal of any claim made by the Infraco; and
- 7.4.2 the SDS Provider shall not be entitled to exercise any right of set-off, retention or withholding against **tie** to which the SDS Provider may be entitled as against the Infraco.
- 7.5 The liability of the SDS Provider under this Agreement shall be no greater in extent than the liability of the SDS Provider under the SDS Agreement.

8. PAYMENT TO THE SDS PROVIDER IN RESPECT OF RETENTIONS AND REDUCTIONS IN THE SCOPE OF SERVICES

- 8.1 **tie** shall make payment of any sums which have been agreed to be due to the SDS Provider in accordance with Clause 12.7.3 and/or Clause 29.4 of the SDS Agreement, in the amounts and the timescales set out within these said Clauses.

9. CONSENT OF INFRACO

- 9.1 The Infraco consents to the terms of this Agreement.

10. NOTICES

- 10.1 Any notice required to be given under this Agreement is to be hand delivered or sent by prepaid registered or recorded delivery post to the party concerned at its address set out in this Agreement or to such other addresses as may be notified by such party for the purposes of this clause.
- 10.2 Any notice given pursuant to this clause, if sent by registered or recorded delivery, is deemed to have been received 48 hours after being posted.

11. RIGHTS OF THIRD PARTIES

- 11.1 A person who is not a party to this Agreement shall have no right to enforce any term of this Agreement.

12. INVALID TERMS

- 12.1 If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable

12.1.1 that term shall to that extent be deemed not to form part of this Agreement;
and

12.1.2 the validity and enforceability of the remainder of this Agreement shall not be
affected.

13. VARIATIONS AND WAIVERS TO BE IN WRITING

13.1 No variation, alteration or waiver of any of the provisions of this Agreement shall be
effective unless it is in writing and signed by or on behalf of the Party against which
the enforcement of such variation, alteration or waiver is sought.

14. WAIVER

14.1 Save where expressly stated, no failure or delay by either Party to exercise any right
or remedy in connection with this Agreement shall operate as a waiver of it or of any
other right or remedy nor shall any single or partial exercise preclude any further
exercise of the same, or of some other right or remedy. A waiver of any breach of this
Agreement shall not be deemed to be a waiver of any subsequent breach.

14.2 The Parties' rights and remedies under this Agreement are, except where provided
otherwise in this Agreement, independent, cumulative and do not operate to exclude
one another or any rights or remedies provided by law.

15. JURISDICTION AND LAW

15.1 This Agreement is governed by and is to be construed according to Scots law and the
Scottish courts shall have jurisdiction in relation to all matters arising under it.

15.2 The Parties agree that any dispute in relation to this Agreement shall be conducted in
accordance with Clause 28 (*Dispute Resolution Procedure*) of the SDS Agreement
and the provisions of the said Clause 28 and Schedule 10 (*Panels to the Dispute
Resolution Procedure*) are deemed to be incorporated mutatis mutandis in respect of
this Agreement provided that any reference to "Parties" shall be deemed to refer to **tie**
and the SDS Provider, any reference to "Client" shall be deemed to refer to **tie**, the
reference to "Clause 36" shall mean Clause 10 of this Agreement.

IN WITNESS WHEREOF these presents on this and the preceding ♦ pages are executed as follows:

EXECUTED for and on behalf of **PARSONS
BRINCKERHOFF LIMITED** at

on _____ 2005 by:

Director/Authorised Signatory _____

Full Name _____

Witness Signature _____

Full Name _____

Address _____

EXECUTED for and on behalf of **TIE LIMITED**
at

on _____ 2005 by:

Authorised Signatory _____

Full Name _____

Witness Signature _____

Full Name _____

Address _____

EXECUTED for and on behalf of **[INFRACO]** at

on _____ 2005 by:

Director/Authorised Signatory _____

Full Name _____

Witness Signature _____

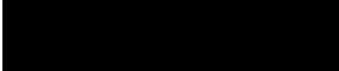
Full Name _____

Address _____



Director/Authorised Signatory

TIE LIMITED



Director/Authorised Signatory

PARSONS BRINCKERHOFF LIMITED

This is Schedule Eight referred to in the foregoing Agreement
between the Client and the SDS Provider

SCHEDULE EIGHT

NOVATION AGREEMENT

THIS NOVATION AGREEMENT is made this 1st day of January 2008 between the Client and the SDS Provider.



(1) tie

- and -

(2) INFRACO

- and -

(3) PARSONS BRINCKERHOFF LIMITED

**NOVATION OF SYSTEM DESIGN
SERVICES AGREEMENT**

in respect of

EDINBURGH TRAM NETWORK

AGREEMENT

AMONG

- (1) **TIE LIMITED** (Company number SC230949) whose registered office is at City Chambers, High Street, Edinburgh, Midlothian, EH1 1YJ ("**tie**");
- (2) [**INFRACO**] (company number ◆) whose registered office is at ◆ ("**Infraco**");
- (3) **PARSONS BRINCKERHOFF LIMITED** (company number 2554514) whose registered office is at Amber Court, William Armstrong Drive, Newcastle Business Park, Newcastle Upon Tyne, NE4 7YQ ("**SDS Provider**").

BACKGROUND

- A By an agreement in writing dated [◆] 2005 ("**SDS Agreement**") **tie** appointed the SDS Provider to provide system design services in connection with the Edinburgh Tram Network.
- B **tie** and Infraco have entered into a contract under which Infraco has been appointed to complete the design and carry out the construction, installation, commissioning and maintenance planning in respect of the Edinburgh Tram Network.
- C **tie** and Infraco have agreed, with the consent of the SDS Provider, that the Infraco shall take over the rights and liabilities of the "Client" under the SDS Agreement by novating the SDS Agreement from **tie** to Infraco upon and subject to the terms of this Agreement.

1. DEFINITIONS AND INTERPRETATION

- 1.1 The definitions given in the recitals to this Agreement apply to this Agreement.
- 1.2 Clause headings in this Agreement are for the convenience of the parties only and do not affect its interpretation.
- 1.3 Unless otherwise defined hereunder, where the SDS Agreement defines a meaning to any capitalised word or expression used in this Agreement, the same meaning shall be given to it in this Agreement;

2. RELEASE BY THE SDS PROVIDER OF TIE

- 2.1 The SDS Provider releases and discharges **tie** from any and all duties, obligations and liabilities owed to the SDS Provider under the SDS Agreement and accepts the liability of the Infraco under the SDS Agreement in lieu of **tie**.

3. RELEASE BY TIE OF THE SDS PROVIDER

- 3.1 **tie** releases and discharges the SDS Provider from the further performance of the SDS Provider's duties and obligations under the SDS Agreement.

4. ACCEPTANCE OF LIABILITY BY THE SDS PROVIDER TO THE INFRACO

- 4.1 The SDS Provider undertakes to continue to perform all the duties and to discharge all the obligations of the SDS Provider under the SDS Agreement and to be bound by its terms and conditions in every way as if the Infraco was and always had been a party to the SDS Agreement in place of **tie**.
- 4.2 The SDS Provider warrants to the Infraco that, in respect of the duties and obligations which it has already performed under the SDS Agreement, it has performed those duties and obligations in accordance with the standards of skill and care set out in the

SDS Agreement. The SDS Provider warrants to the Infraco that it shall be liable for any loss or damage suffered or incurred by the Infraco arising out of any negligent act, default or breach by the SDS Provider in the performance of its obligations under the SDS Agreement prior to the date of this Agreement. The SDS Provider shall be liable for such loss or damage notwithstanding that such loss or damage would not have been suffered or incurred by **tie** (or suffered or incurred to the same extent by **tie**).

- 4.3 The liability of the SDS Provider to the Infraco pursuant to the SDS Agreement shall not be affected by the Infraco's assumption of liability for design to **tie** pursuant to the Infraco Contract.
- 4.4 The SDS Provider acknowledges that the Infraco has and shall continue to rely upon all Services carried out by the SDS Provider.

5. VESTING OF REMEDIES AGAINST SDS PROVIDER

All rights of action and remedies against the SDS Provider under and pursuant to the SDS Agreement vested in **tie** shall from the date of this Agreement vest in the Infraco.

6. ACCEPTANCE OF LIABILITY BY THE INFRACO

The Infraco undertakes to perform all the duties and to discharge all the obligations of **tie** under the SDS Agreement and to be bound by its terms and conditions in every way as if the Infraco was and always had been a party to the SDS Agreement in place of **tie** and as if all acts and omissions of **tie** under or pursuant to the SDS Agreement prior to the date of this Agreement were the acts and omissions of the Infraco.

7. VESTING OF REMEDIES AGAINST TIE

All rights of action and remedies under or pursuant to the SDS Agreement vested in the SDS Provider shall from the date of this Agreement lie against the Infraco and not **tie**.

8. ACKNOWLEDGEMENT OF PAYMENT

The SDS Provider acknowledges that all fees and expenses properly due to the SDS Provider under the SDS Agreement up to the date of this Agreement have been paid by **tie** except sums which have been agreed to be due to the SDS Provider in accordance with Clause 12.7.3 and/or Clause 29.4 of the SDS Agreement and which have not been paid by **tie**.

9. AMENDMENT OF SDS AGREEMENT

tie, the SDS Provider and the Infraco agree that the terms of the SDS Agreement shall be and are varied in the manner set out in Appendix 1 to this Agreement.

10. AFFIRMATION OF SDS AGREEMENT

The terms and conditions of this Agreement represent the entire agreement between the parties relating to the novation of the SDS Agreement and, except as specifically amended by Appendix 1 of this Agreement, all the terms and conditions of the SDS Agreement remain in full force and effect.

11. RIGHTS OF THIRD PARTIES

A person who is not party to this Agreement shall have no right to enforce any term of this Agreement. This Clause does not affect any right or remedy of any person which exists or is otherwise available.

12. LAW AND JURISDICTION

This Agreement shall be governed by and construed in accordance with Scots law and the Scottish Courts shall have jurisdiction with regard to all matters arising under it.

IN WITNESS WHEREOF these presents on this and the preceding [♦] pages together with Appendix 1 which is annexed and subscribed as relative hereto are executed as follows:

EXECUTED for and on behalf of **TIE LIMITED** at

on _____ 2005 by:

Authorised Signatory _____

Full Name _____

Witness Signature _____

Full Name _____

Address _____

EXECUTED for and on behalf of **[INFRACO]** at

on _____ 2005 by:

Director/Authorised Signatory _____

Full Name _____

Witness Signature _____

Full Name _____

Address _____

EXECUTED for and on behalf of
PARSONS BRINCKERHOFF LIMITED at

on _____ 2005 by:

Director/Authorised Signatory

Full Name

Witness Signature

Full Name

Address

APPENDIX 1

SCHEDULE OF AMENDMENTS TO THE SDS AGREEMENT

Clause 3 - Duty of Care, Standards and the Services to be Provided

Insert the following new Clauses:

- 3.28 The SDS Provider is aware and has knowledge of all the terms and conditions of the Infraco Contract (in so far as the same has been supplied to the SDS Provider) so that in so far as is consistent with its terms the SDS Provider shall not cause the Infraco to be in breach of the provisions of the Infraco Contract to be observed and performed and complied with by the Infraco in so far as they relate and apply to the Services, and is further aware and has taken and shall continue to take full account of the obligations to be undertaken and the liabilities which may be incurred by the Infraco therein in relation to the Services.
- 3.29 The SDS Provider acknowledges that any breach by it of this Agreement may result in the Infraco committing breaches of and becoming liable for damages under the Infraco Contract and other contracts made by it in connection with the Infraco Contract and may occasion further loss or expense to the Infraco in connection with the Infraco Contract and all such damage, loss and expense is hereby agreed to be within the contemplation of the Parties as being the probable results of any such breach by the SDS Provider. The SDS Provider shall indemnify the Infraco against all such damage, loss and expense.
- 3.30 The SDS Provider shall observe, perform and comply with all the provisions of the Infraco Contract (in so far as the same has been supplied to the SDS Provider) on the Infraco's part to be observed, performed and complied within so far as they relate and apply to the performance of the Services and the SDS Provider shall be liable to the Infraco for:
- 3.30.1 any breach, non-observance or non-performance for which the SDS Provider is responsible of any of the provisions of the Infraco Contract in so far as they relate and apply to the performance of Services; and
- 3.30.2 any act or omission for which the SDS Provider is responsible which involves the Infraco in any liability to ~~tie~~ under the provisions of the Infraco Contract in so far as they relate and apply to the performance of Services; and
- 3.30.3 any claim, damage, loss or expense due to or resulting from any negligence or breach of duty for which the SDS Provider is responsible.

Clause 4 - Development, Review, Finalisation and Delivery of the Deliverables

Insert the following new Clause 4.14:

- 4.14 In addition to the other requirements of this Clause 4, the SDS Provider shall support the Client as required in relation to the maintenance and provision of any records, drawings, registers, manuals and/or reports as may be required under the Infraco Contract.

Clause 7.5 - Extensions of Time:

Delete Clause 7.5 and substitute therefor:

- 7.5.1 If the SDS Provider shall be delayed in the execution of the Services:
- 7.5.1.1 by any circumstances or occurrence (other than a breach of this Agreement by the SDS Provider) entitling the Infraco to an extension of time for completion or stage completion of the Infraco Contract; or

7.5.1.2 by the issuing of a Client Change Order in respect of the Services to which Clause 7.5.1.1 does not apply; or

7.5.1.3 by reason of any other breach by the Client of this Agreement; or

7.5.1.4 by reason of any breach by the Infraco of the Infraco Contract.

then in any such event the SDS Provider shall forthwith notify the Client of:-

- (a) the cause of the delay;
- (b) the SDS Provider's estimate of the likely effect of such delay upon the Programme and the Master Project Programme;
- (c) the estimated additional cost that shall be incurred; and
- (d) any acceleration measures which the SDS Provider could take to mitigate the effects of such delay and an estimate of the costs thereof.

7.5.2 The SDS Provider shall, subject to any instruction to accelerate the Services pursuant to Clause 7.5.3, be entitled to such adjustment to the Programme as may in all circumstances be fair and reasonable, provided always that the SDS Provider's entitlement to an extension of time for any event listed in Clauses 7.5.1.1 and 7.5.1.2 above shall in no circumstances exceed (in respect of such event) the extension of time (if any) to which the Client is entitled for the identical event under the Infraco Contract. An extension of time shall not be granted where the cause of the Services having been delayed, affected or suspended is due to any act, omission, default or breach of the Agreement by the SDS Provider or its employees, agents or servants or any SDS Provider Party.

7.5.3 The Client shall issue a Client Change Order to authorise any agreed acceleration of the Programme and/or increased costs as a result of delays notified under Clause 7.5.1.

7.5.4 If the Services are delayed in circumstances other than those entitling the SDS Provider to an extension of time as set out in Clause 7.5.1 or as a result of a Force Majeure Event, the SDS Provider shall inform the Client at the earliest opportunity and shall give an estimate of the likely effect upon the Programme. The SDS Provider at his own expense shall take such acceleration measures as are necessary to achieve the requirements of the Programme.

7.5.5 The SDS Provider shall not be entitled to and shall be deemed to have irrevocably waived any entitlement to any extension of time unless the SDS Provider has:

7.5.5.1 within 10 Business Days of becoming aware of the circumstances or occurrences which have caused or are likely to cause delay to the SDS Provider in the performance of the Services notified the Client in writing; and

7.5.5.2 within 10 Business Days after such notification submitted by further written notice to the Client detailed particulars of any extension of time to which it may consider itself entitled in order that such submission may be investigated at the time; and

7.5.5.3 wherever applicable, complied with the requirements of any Clause under this Agreement requiring timely notice to be given.

7.5.6 Any notice under 7.5.5.1 or 7.5.5.2 above shall give full particulars to the extent then possible of the cause of the delay and of its probable duration and where appropriate reasonable estimate of any direct and indirect costs likely to result therefrom together with any other relevant details.

Clause 15 - Changes

Insert the following new Clause 15.15

- 15.15 Except in relation to a breach of this Agreement or the Infraco Contract by the Client or unless otherwise agreed by the Client in writing, the SDS Provider's entitlement to additional payment or an extension of time for a Permitted Variation shall in no circumstances exceed (in respect of such Permitted Variation) the extension of time (if any) and/or additional payment (if any) to which the Infraco is entitled under the Infraco Contract for the identical Permitted Variation. The SDS Provider's entitlement to such extension of time or additional payment under this Agreement shall in no circumstances exceed that proportion of the Infraco's entitlement to an extension of time or additional payment under the Infraco Contract to which the Infraco becomes entitled in respect of the entitlement claimed by the SDS Provider. An extension of time and/or additional payment shall not be granted where the cause of the Permitted Variation is due to any act, omission, default or breach of the Agreement by the SDS Provider, its employees, agents or servants or any SDS Provider Party.

Clause 19 - Termination for SDS Provider Default

Delete Clause 19.1.3 and substitute therefore "Clause not used".

Clause 20 - Termination, Abandonment or Suspension of the Services by the Client

Delete Clause 20.1 and substitute therefor:

- 20.1 In the event that the Infraco Contract is terminated, this Agreement shall terminate unless the SDS Provider is notified that ~~the~~ (or another nominated party) requires to step into this Agreement.

Clause 22 - Termination for Corrupt Gifts and Payments

Delete Clause 22 (Termination for Corrupt Gifts and Payments in its entirety) substitute therefor:

- 22.1 The SDS Provider or anyone employed by it or acting on its behalf (including any SDS Provider Party) shall not commit any Prohibited Act.
- 22.2 If the SDS Provider or anyone employed by it or acting on its behalf (including any SDS Provider Party) commits any Prohibited Act, then the Client may terminate this Agreement with immediate effect by giving notice to the SDS Provider.

Clause 30 - Assignment, Changes In Legal Status And Changes In Control

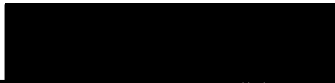
Delete Clause 30.2 and substitute therefor:

- 30.2 The Client shall be entitled to assign, novate or otherwise transfer the whole or any part of this Agreement:
 - 30.2.1 to an assignee permitted in accordance with the terms of the Infraco Contract; or
 - 30.2.2 with the prior written consent of the SDS Provider (such consent not to be unreasonably withheld or delayed).



Director/Authorised Signatory

TIE LIMITED



Director/Authorised Signatory

PARSONS BRINCKERHOFF LIMITED

**This is Schedule Nine referred to in the foregoing Agreement
between the Client and the SDS Provider**

SCHEDULE NINE

REVIEW PROCEDURE

1. Introduction

- 1.1 Except where otherwise agreed in writing, the provisions of this Schedule 9 (*Review Procedure*) shall apply whenever any Deliverable or course of action is required to be reviewed, approved, agreed, consented to or otherwise processed in accordance with the Agreement.
- 1.2 Each submission by the SDS Provider to the Client's Representative under the Review Procedure shall be accompanied by five copies of the proposed Deliverable (in appropriate agreed format) to be reviewed or a statement of the proposed course of action (the entire contents of a submission being referred to as a "Submitted Item"). In relation to each Submitted Item, the provisions of this Schedule 9 (*Review Procedure*) shall apply.
- 1.3 Within 20 Business Days of the date of receipt of a submission (or re-submission, as the case may be) of the Submitted Item to the Client's Representative (or such other period as the Parties may agree), the Client's Representative shall return one copy of the relevant Submitted Item to the SDS Provider endorsed (subject to and in accordance with paragraph 3 (*Grounds of Objection*)) "Level A - no objection", "Level B - proceed subject to comments" or "Level C - resubmit".
- 1.4 If the Client's Representative fails to return a copy of any Submitted Item within 20 Business Days (or within such other period as the Parties may agree in writing) of the date of its submission to the Client's Representative, then the SDS Provider shall re-submit the submitted item. If the Client's Representative fails to return a copy of any Submitted Item within seven days of any re-submission, then the Client's Representative shall be deemed to have returned the Submitted Item to the SDS Provider endorsed "Level A - no objection".
- 1.5 If the Client's Representative makes an objection to any Submitted Item in accordance with paragraph 3 (*Grounds of Objection*), the Client's Representative shall state the ground upon which such objection is based and the evidence or other information necessary to substantiate that ground.
- 1.6 For the avoidance of doubt, the Client's Representative shall be entitled to make such comments on any Submitted Item on any grounds as he sees fit but, to the extent that the Client's Representative comments on a Submitted Item other than on the grounds specified in paragraph 3 (*Grounds of Objection*), or fails to comply with the provisions of this paragraph 1, the SDS Provider may, at its discretion request written clarification of the basis for such comments and, if clarification is not received within 10 Business Days of such request by the SDS Provider refer the matter for determination in accordance with the Dispute Resolution Procedure.
- 1.7 Where any information that has been provided is updated, the new issues shall be provided promptly to the Client as soon as reasonably possible.
- 1.8 The Client's Representative shall be entitled to instruct the SDS Provider that a defined class of Deliverable or course of action may be submitted "for information" and not for review in accordance with this Schedule 9 (*Review Procedure*).

- 1.9 The SDS Provider shall ensure that each Submitted Item shall contain sufficient detail and shall be accompanied by sufficient information to enable the Client's Representative to assess the Submitted Item in accordance with Schedule 9 (*Review Procedure*).
- 1.10 Where a revised Submitted Item is submitted, the SDS Provider shall also ensure that such revision clearly identifies what revision to the Deliverable was made.

2. Further Information

- 2.1 The SDS Provider shall submit any further or other information, data and documents that the Client's Representative reasonably requires to act in accordance with this Schedule 9 (*Review Procedure*). If the SDS Provider does not submit any such information, data and documents, the Client's Representative shall be entitled to object to the Submitted Item:
 - 2.1.1 on the basis of the information, data and documents which have been provided; or
 - 2.1.2 on the grounds that insufficient information, data and documents have been provided to enable the Client's Representative to act in accordance with this Schedule 9 (*Review Procedure*).

3. Grounds of Objection

- 3.1 The Client's Representative may object to any Submitted Item on the grounds set out in paragraph 2 (*Further Information*) above but otherwise may make objections in relation to a Submitted Item if, on the balance of probabilities, implementation of that Submitted Item:
 - 3.1.1 would not be in accordance with this Agreement; and/or
 - 3.1.2 would result in an increase to the Client's liabilities or potential or contingent liabilities under this Agreement; and/or
 - 3.1.3 would be inefficient as to expenditure of resource/costs; and/or
 - 3.1.4 would lead to a health and safety risk to any person or property; and/or
 - 3.1.5 would lead to a breach of any Law or the terms of any Consent; and/or
 - 3.1.6 would necessitate the obtaining of a new Law or the obtaining of a variation to an existing Law; and/or
 - 3.1.7 would not be in accordance with any relevant environmental requirements; and/or
 - 3.1.8 would not be in accordance with the Functional Requirements Specifications or the Technical Specifications; and/or
 - 3.1.9 would adversely impact on the flexibility or ease of operation, run time, reliability, operating maintenance costs or revenues of the Edinburgh Tram Network; and/or
 - 3.1.10 would materially adversely affect the SDS Provider's ability to perform its obligations under this Agreement; and/or

- 3.1.11 would materially adversely affect the Client's ability to perform its obligations or enforce its rights under this Agreement; and/or
- 3.1.12 is not in accordance with the SDS Provider's quality plans; and/or
- 3.1.13 would not be in accordance with Good Industry Practice; and/or
- 3.1.14 would prevent efficient procurement, construction, completion and/or commissioning of or under the Intraco Contract; and/or
- 3.1.15 prevent Service Commencement being achieved by the Planned Service Commencement Date.

4. Effect of Review

4.1 Any Submitted Item which is returned or deemed pursuant to paragraph 1.4 to have been returned by the Client's Representative endorsed "Level A - no objection" shall be complied with and implemented by the SDS Provider subject to Clauses 7.2 and 7.3 of the Agreement.

4.2 If the Client's Representative returns the Submitted Item endorsed other than "Level A - no objection", the SDS Provider shall:

4.2.1 where the Client's Representative has endorsed the Submitted Item "Level B - proceed subject to comments", proceed with the performance of the Services (subject to Clauses 7.2 and 7.3 of the Agreement) but acknowledge and take into account the Client's Representative's comments;

4.2.2 where the Client's Representative has endorsed the Submitted Item "Level C - resubmit", not act upon the Submitted Item, amend the Submitted Item to respond to the Client's Representative's objections and requirements, and re-submit the same to the Client's Representative in accordance with paragraph 4.3 unless the SDS Provider disputes that any such objection or proposed requirement is on grounds permitted by this Agreement, in which case the SDS Provider or the Client's Representative may refer the matter for determination in accordance with the Dispute Resolution Procedure and the SDS Provider shall not act on the Submitted Item until such matter is so determined or otherwise agreed provided that any referral to the Dispute Resolution Procedure is at the risk of the SDS Provider.

4.3 Where the Submitted Item has been endorsed *Level C*, the SDS Provider shall within 10 Business Days of receiving the returned Submitted Item, resubmit the Submitted Item as amended to the Client's Representative and the provisions of paragraphs 1.2 to 4 of this Schedule 9 (*Review Procedure*) shall apply (*mutatis mutandis*) to such re-submission.

4.4 The return or deemed return of any Submitted Item endorsed "Level A - no objection" or otherwise endorsed in accordance with paragraph 4.2.1 (*Level B - proceed subject to comments*) shall mean that the relevant Submitted Item may be used or implemented (subject to any comments made in accordance with paragraph 4.2.1) for the purposes for which it is intended. However, the return or deemed return of any Submitted Item howsoever endorsed shall not:

4.4.1 relieve the SDS Provider of its obligations under this Agreement; nor

4.4.2 constitute an acknowledgement, admission or acceptance by Client that the SDS Provider has complied with such obligations.

5. Disclaimer

- 5.1 No review, objection, comment or silence by the Client shall operate to (i) exclude or limit the SDS Provider's obligations or liabilities under this Agreement (or the Client's rights under this Agreement) or (ii) fix the Client with any express or implied obligations, duties or liabilities with respect to the Submitted Item.
- 5.2 For the avoidance of doubt, this information is supplementary to information required to be produced by the SDS Provider in order to satisfy the approval requirements of and Consents from other third parties and Approval Bodies. These include those required for:
- 5.2.1 local planning authorities;
 - 5.2.2 local roads authorities;
 - 5.2.3 HMRI;
 - 5.2.4 Network Rail;
 - 5.2.5 statutory undertakers; and
 - 5.2.6 the Scottish Executive.
- 5.3 The SDS Provider shall promptly provide copies of all such submissions to the Client together with the responses to them as a matter of routine.

6. Documentation Format and Management

- 6.1 The SDS Provider shall issue five copies (in appropriate agreed format) of all Submitted Items to the Client and compile and maintain a register of the date and contents of the submission for each Submitted Item.
- 6.2 The SDS Provider shall compile and maintain a register of the date of receipt and content of all Submitted Items that are returned or deemed to be returned by the Client's Representative.
- 6.3 All drawings shall be presented as A3 sized paper copies and drawings shall be prepared at their original size in a manner that allows them to be readily legible when reduced to A3 size. Original drawings shall not be greater than A0 in size.

7. Variations

- 7.1 No review, objection or comment or any failure to make objection or comment under this Schedule 9 (*Review Procedure*) by the Client shall constitute a Client Change
- 7.2 If, having received comments from the Client's Representative, the SDS Provider considers that compliance with those comments would amount to a Client Change, the SDS Provider shall within seven days of any comments being received, before complying with the comments, notify the Client of the same and, if it is agreed by the parties or determined pursuant to the Dispute Resolution Procedure that a Client Change would arise if the comments were complied with, the Client may proceed with the matter in accordance with Clause 15 (*Changes*).
- 7.3 Any failure by the SDS Provider to notify the Client within seven days of comments being received that it considers compliance with such comments of the Client's Representative would amount to a Client Change shall constitute an irrevocable acceptance by the SDS Provider that any compliance with the Client's comments


shall be without cost to the Client and without any entitlement to any extension of time or other relief.

- 7.4 No alteration or modification to the scope, quality, quantity or nature of the Services arising from the development of the detailed Design or from the co-ordination or integration of the Design shall be construed or regarded as a Client Change.



Director/Authorised Signatory

TIE LIMITED



Director/Authorised Signatory

PARSONS BRINCKERHOFF LIMITED

This is Schedule Ten referred to in the foregoing Agreement between the Client
and the SDS Provider

SCHEDULE TEN

PANELS FOR THE DISPUTE RESOLUTION PROCEDURE

CONSTRUCTION / OPERATIONAL

Alan Wilson

[REDACTED]
Chesterfield
DERBYSHIRE
[REDACTED]

Peter Chapman

[REDACTED]
OXSHOTT
SURREY [REDACTED]

Tony Canham

[REDACTED]
Thorpe St Andrew
NORWICH
[REDACTED]

Guy Cottam

[REDACTED]
Upper Limpley Stoke
BATH
[REDACTED]

FINANCIAL

Nigel Lowe

Nigel Lowe Consulting Limited
27 Old Gloucester Street
LONDON
WC1N 3XX

John Hunter

Hunter Consulting
Commercial Centre
Stirling Enterprise Park
STIRLING
FK7 7BF

Bryan Porter

[REDACTED]
Newton Mearns
GLASGOW

[REDACTED]

Eric Mouzer

[REDACTED]

Edgebaston
BIRMINGHAM

[REDACTED]

LEGAL

Gordon Reid, QC

[REDACTED]

By St Andrews
FIFE

[REDACTED]

Robert Howie, QC

[REDACTED]

EDINBURGH

[REDACTED]

Lord Dervaird (Prof. John Murray QC)

[REDACTED]

EDINBURGH

[REDACTED]

Gordon Coutts, QC

[REDACTED]

EDINBURGH

[REDACTED]

Angus Glennie, QC

[REDACTED]

Oxton
Lauder
BERWICKSHIRE

[REDACTED]

[REDACTED]

Director/Authorised Signatory

TIE LIMITED

[REDACTED]

Director/Authorised Signatory

PARSONS BRINCKERHOFF LIMITED



**This is the Schedule 11 referred to in the
foregoing Agreement between the Client
and the SDS Provider**

Requirements Specification for

**Overall System
Operational & Performance
Requirements**

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1 OVERALL SYSTEM OPERATIONAL & PERFORMANCE REQUIREMENTS

1.1 Routes

The routes for the proposed Edinburgh Tram Network are as set out in the Edinburgh Tram (Line One) Bill and the Edinburgh Tram (Line Two) Bill

1.1.1 Line 1

A north Edinburgh loop connecting the city centre with Leith, Newhaven and Granton and passing through the Waterfront Development Area. The route, which comprises approximately 16km of double track and 23 tramstops, runs from Haymarket along the former Roseburn railway corridor, along the shore front to Ocean Terminal Shopping Centre and onwards to Leith returning to the city centre via Leith Walk. The route through the city centre to Haymarket, will be via Princes Street.

Line 1 comprises Stage Builds; HOT, HCT and CTO, as referred to in the Programme Phasing Structure.

1.1.2 Line 2

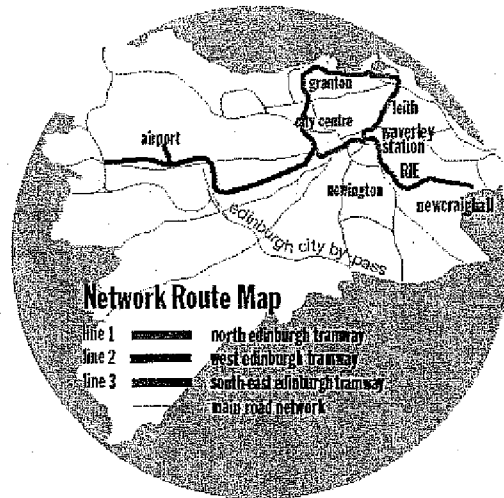
A western corridor from the city centre to the Gyle, Edinburgh Park, the Airport and Newbridge, with extensions possible in the future to Livingston or South Queensferry. The route comprises approximately 15km of double track, the majority of which is fully segregated from other traffic, and 14 tramstops. The preferred corridor approximately follows the main Edinburgh-Glasgow railway line between Haymarket and the new station at Edinburgh Park, then heading north west to the Gyle, Gogarburn, Edinburgh International Airport and Newbridge.

Line 2 comprises Stage Builds; ARP, DHY and GNB, as referred to in the Programme Phasing Structure.

1.1.3 Line 3

At this stage it is envisaged that a potentially expanded tramway may include a southern corridor which will be about 9 km long from the city centre to the south east of the city. The preliminary alignment may follow approximately the Nicholson Street - Minto Street corridor from the city to Cameron Toll and continues past the new Edinburgh Royal Infirmary before swinging to the east to Craigmillar, Fort Kinnaird and terminating at the New Craighall park & ride.

All three lines are represented in the diagram below:



Further possible expansion, potentially including Line 3 may be added to the core network. This expansion could potentially take the form of interconnections, spurs and/or line extensions on Line Two possibly towards Dalmeny/South Queensferry and Livingston and Line Three towards Musselburgh. Any expansion will probably require additional approvals, infrastructure and increased tram fleet and do not form part of the requirements for the initial phase of the project which is the subject of this suite of Functional Requirements Specifications.

1.1.4 Depot

It is envisaged that the Edinburgh Tram Network will ultimately have one depot facility located at Gogar, connected to the running tramway of Line 2. However, the parliamentary process currently allows for both a depot at Leith and one at Gogar. Two depot preliminary designs shall be required to be produced. The depot or depots to be installed as part of the Edinburgh Tram Network are referred to herein as the "Depot".

This installation will facilitate all tram servicing and maintenance and be the location of a centralized Control Room.

1.2 Service Patterns and Frequency

The Edinburgh Tram Network shall be available for operation 365 days per year.

1.2.1 Normal Service Weekdays

1.2.1.1 Granton - Haymarket - St. Andrew Square - Ocean Terminal - Granton

This part of the Edinburgh Tram Network will operate as a circular service operating in both clockwise and anti-clockwise directions.

For the section route from Roseburn Jct - Granton Square - Ocean Terminal, the overall system shall be capable of supporting a minimum service requirement of 6 trams/hour indefinitely, but subject to further business case and revenue development by **tie** shall be designed for a service equivalent to 8 trams/hour indefinitely from the outset of tram operation. Future revenue predictions show that future proofing to support a service equivalent to 12 trams/hour shall be required in this design.

1.2.1.2 Airport - Haymarket – St. Andrew Square - Ocean Terminal

This part of the tramway will operate on an end to end basis in each direction.

For the section of route from Edinburgh International Airport to Roseburn Jct, the overall system shall be capable of supporting a service equivalent to 8 trams/hour indefinitely from the outset of tram operation. Future revenue predictions show that future proofing to support a service equivalent to 12 trams/hour shall be required in this design.

1.2.1.3 Common Corridor (Roseburn Junction - Princes Street - Ocean Terminal)

The common corridor shall facilitate the sum of service levels required for the non-common sections referred to in paragraph 1.2.1.1 and 1.2.1.2. This equates to peak hour services operating to a timetable based on a minimum service requirement of 14 trams/hour indefinitely, but subject to further business case and revenue development by **tie** shall be designed for a service equivalent to 16 trams/hour indefinitely from the outset of tram operation. Future revenue predictions show that future proofing to support a service equivalent to 24 trams/hour shall be required in this design.

1.2.1.4 Gogarburn – Newbridge

From the Line 2 alignment at Gogarburn, a branch to Newbridge shall be designed which shall be capable of supporting a service equivalent to 8 trams/hour indefinitely from the outset of tram operation.

1.2.2 Operating Hours

The tramway shall have operating hours that will facilitate the following first and last tram services:

	Weekdays		Saturday		Sunday	
	First Departure	Last Departure	First Departure	Last Departure	First Departure	Last Departure
From Airport to City Centre	05:10	23:40	05:10	23:40	05:10	23:50
From Ocean Terminal to City Centre via Leith Walk	05:00	24:00	05:00	24:00	07:00	24:00
From Ocean Terminal to City Centre via Granton	05:00	24:00	05:00	24:00	07:00	24:00
From City Centre to Airport	04:30	24:00	04:30	01:00	04:30	00:30
From City Centre to Ocean Terminal via Leith Walk	05:00	24:00	05:00	24:00	07:00	24:00
From City Centre to Ocean Terminal via Granton	05:00	24:00	05:00	24:00	07:00	24:00

1.3 Special Workings

At certain times in the year, festivals, Hogmanay and other special events will generate the need to close Princes Street and/or Saint Andrew Square to all traffic. Under such circumstances the Edinburgh Tram Network will operate as follows:

<u>Restriction</u>	<u>Tram Service</u>	<u>Revised Origin - Destination</u>
Princes Street Closed/St. Andrew Square Open	Line 1	Operates between Shandwick Place and St Andrew Square via Ocean Terminal and visa versa
	Line 2	Operates between Edinburgh International Airport and Shandwick Place and visa versa
	Line 3	Potentially operates between New Craighall and St Andrew Square and visa versa
Princes Street and St. Andrew Square Closed	Line 1	Operates between Shandwick Place and Picardy Place via Ocean Terminal and visa versa. (Trams will use York Place Crossover to turnback)
	Line 2	Operate between Edinburgh International Airport and Shandwick Place and visa versa
	Line 3	Operates between New Craighall and North Bridge and visa versa

1.4 Journey times

Edinburgh Tram Network operations shall support the following key journey times:

1. Line 1 - Ocean Terminal to Ocean Terminal Clockwise shall have an end to end journey including layover of 45mins.
2. Line 1 - Ocean Terminal to Ocean Terminal Anti-clockwise shall have an end to end journey including layover of 45mins.
3. Line 2 - Airport to Ocean Terminal; each direction shall have an end to end journey time including layover currently envisaged at 35mins. All run time assumptions shall be agreed by **tie**.
4. Common corridor - The section between Haymarket and St Andrew Square tramstops shall have end to end journey times in each direction of 8 mins
5. Common corridor - The section between St Andrew Square and Ocean Terminal shall have their end to end journey times in each direction proven and agreed by **tie**.

1.5 Performance/Reliability

The system shall be designed and constructed to operate without unreasonable duress on Operations personnel in Normal, Degraded and Abnormal Modes as defined below.

- **Normal Mode** means the number of tram services as prescribed in the headway/timetable requirements.
- **Degraded Mode** means restricted operations resultant from failure of one or more components of the Edinburgh Tram Network.
- **Abnormal Mode** means the occurrence of extreme loading on a part of the Edinburgh Tram Network resultant from causes such as major disruption, whether caused through tramway elements or third party interference.

The Edinburgh Tram Network shall be designed such that during peak-hours service it achieves at least 80% of all tram journeys between the places listed below and shall be completed no more than 2 minutes late:

Airport – Haymarket and visa versa

Haymarket – St. Andrew Square – Ocean Terminal and visa versa

Haymarket – Granton Square – Ocean Terminal and visa versa



**This is the Schedule 12 referred to in the
foregoing Agreement between the Client
and the SDS Provider**

Requirements Specification for

Civil Engineering Works

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2 REQUIREMENTS SPECIFICATION FOR CIVIL ENGINEERING WORKS

2.1 General

This Requirements Specification for Civil Engineering Works sets out the functional requirements that **tie** requires to be met.

2.2 Track & Formation

2.2.1 Trackform and gauge

A standard railway track form with steel rails set to standard gauge and a standard tram track comprising grooved rail set to the same gauge shall be provided that is compatible with the Edinburgh Tram Network's tram fleet. Rail shall be continuously welded wherever possible. The use of fish-plated joints shall be avoided.

Track form and its alignment shall be designed as an integral component of the Edinburgh Tram Network taking account of the interaction with the tram and its running gear (wheel/rail interface), the need to meet the overall specified ride quality and journey time parameters and Edinburgh Tram Network whole life cost assessment.

2.2.2 Rail types

The rails used shall be selected from a family of rails that shall present the same profile to the wheel throughout the Edinburgh Tram Network. All rails used shall be readily available and used in significant quantities in Europe. S49 rail and its related grooved rail sections is one such option.

The selected wheel profile shall be demonstrated to be compatible with the rail profile in terms of the risk of derailment, noise, wear and vibration.

The safety of the selected wheel and rail combination shall also be proven and demonstrated at points and crossings.

On ballasted sections of the route, road/rail equipment will be used for maintenance tasks such as tamping. These machines are likely to present heavy rail wheel profiles to the track. It shall be possible to pass wheels that are of standard heavy profile through points. For this purpose, this may be achieved by having check rails that are bolted into position and consequently can be removed for this purpose. The passage of these wheels through the crossings can be achieved by inserting suitable packing into the crossing itself to lift the wheels.

2.2.3 Miscellaneous

An integrated approach shall be taken to the lubrication of the wheel/rail interface, preferably with no trackside rail lubricators and all track lubrication being carried out by the tram.

Any trackside cables shall be in ducts. Cable troughs shall not be used.

Any cables crossing the track on ballasted sections that terminate on the track shall be in orange plastic ducts as used by Network Rail.

On street, the track shall include regular spare cross track ducts to facilitate future utilities diversions or new services. The size and frequency of these ducts is to be agreed with **tie**.

Special track forms shall be used at sensitive locations to ensure sufficient noise and vibration control. These locations will be identified by the SDS Provider in agreement with tie.

2.2.4 Alignment and geometry

Details are included in the System Wide Non- Functional Requirements.

2.2.5 Trackform Construction Operation and Maintenance

A form of track construction shall be provided that will

- facilitate ease of construction and minimise disruption during the construction phase within the City of Edinburgh (Haymarket – Princes St – Ocean Terminal)
- comply with the Code of Construction Practice
- minimise the potential for stray current, bonding and corrosion issues
- be designed for simplicity of overall maintenance and ease of track replacement and relaying, especially on-street sections;
- comply with the operational noise and vibration requirements as stated in System-Wide Non-Functional Requirements.
- reduce, as far as is practicable, the disruption to other highway users caused by the repair or replacement of such trackwork.

2.2.6 Points & Point Machines

All turn-outs, crossings and interruptions to the continuity of the rail head shall be equipped with flange running sections or other design which minimises joint noise.

The design shall minimise flange squeal through tight radii and through junctions.

Points shall be provided with two movable blades so mounted to allow the use of magnetic track brakes and their safe passage through the point and crossing.

All points shall be freely trailable.

The moving parts of turn-outs shall not be located on pedestrian crossings or in areas of heavy crossing and turning movements by road vehicles.

The location of turn-outs and crossovers shall be positioned to minimise operational noise and vibration and visual intrusion caused by associated OLE.

Switches and crossings shall be designed so that they are capable of through stressing as required.

Point machines outside the Depot shall all be capable of manual operation by tram drivers using a red point bar that is carried in each cab of all trams. There shall only be one type of point bar.

All point machines shall be from the same family of machines and provided by the same supplier.

On the highway, point machines shall be installed in the "4ft", and on segregated track they shall be installed in the "cess" to facilitate maintenance.

All combinations of points and point machines shall be validated to demonstrate to tie that:

- o the machines can exert sufficient force under all foreseeable circumstances to move the point blade into the required position

- o in the Depot, any tram driver can safely operate all points without risk of injury and the points shall close reliably under all foreseeable operational conditions
- o the wheel/rail interface at the toes of the points is such that there is no derailment risk under all combinations of wheel wear, rail wear, and detection settings
- o detection settings have adequate maintenance tolerances to ensure that point detection setting testing is required no more than monthly on all points.
- o the points will lock reliably under all foreseeable operating conditions.

The documentation that validates of these specific items shall be submitted to **tie** for approval in accordance with the Review Procedure.

2.2.7 Drainage

The Edinburgh Tram Network shall have a drainage system which at least achieves accepted EU or BS standards and Good Industry Practice.

The drainage of all new bridge structures shall be positive and, unless otherwise required by the relevant local authority, all surface water shall be piped to the local storm water sewer systems by a defined drainage path.

Particular attention shall be paid to ensure that surface water drainage systems in the vicinity of traction sub-stations and cable ducts are routed to avoid any risk of flooding of electrical equipment areas.

In street track, the track drainage system shall incorporate an insulated break from the storm water system.

Drainage proposals shall be approved by the relevant Water Utility, Environment Agency, and the Highway Authority.

Any new flows into existing drains and the methods of connection shall be authorised by Scottish Water, SEPA and Roads Authority.

2.2.8 Formation

The trackbed/roadbed shall be designed and specified for construction so as to avoid the need for excessive or frequent maintenance or repair.

2.2.9 Cable Routes

The trackform shall include all associated equipment including, where necessary, but without limitation to, drainage, ducts for power supply, signalling and telecommunications cables, traction earth and stray current systems. The location of the necessary associated equipment shall be clearly indicated on the agreed trackform drawings.

2.2.10 Pedestrian crossing points of track on off-carriageway sections

The surface at crossing points shall be level with the top of the running rails and surfaced in non-slip materials. These materials shall be in harmony with the character of the locality whilst providing clear indication to all users (including the visually impaired) of the correct point to cross the track and the extent of the Edinburgh Tram Network environment outside of the highway.

Crossings and approach ramps to them shall be accessible to those with disabilities, including users of wheelchairs.

Crossings shall be illuminated, to the same intensity as platforms, or pedestrian routes they serve, whichever is the higher, or otherwise as required by HMRI.

2.2.11 Roadworks

Horizontal clearances between kerb lines of roads and tram network structures shall be not less than those set out in the relevant Department of Transport technical memoranda and the Department of Transport publication, "Roads and Traffic in Urban Areas" (or Scottish equivalent) and shall meet the requirements of the HMRI.

2.2.12 Road Surface Design

The integration of the Edinburgh Tram Network alignment, highway design and highway markings must minimise the risk of road vehicles skidding on the rails.

2.3 Travel Centre

An Edinburgh Tram Network information and ticket sales facility shall be provided at Edinburgh International Airport Interchange.

2.4 Tramstops

The main functions of a tramstop are to:

- provide a secure and comfortable environment for passengers on the Edinburgh Tram Network to wait for their intended tram service.
- provide a location at which intending tramway passengers can purchase a valid ticket.
- provide the means by which passengers can board and/or disembark trams.
- provide a point at which intending passengers are made aware of tram service timetables, their current punctuality and imminent tram arrival/departures.

2.4.1 Location

The Edinburgh Tram Network shall have tramstops provided at the locations shown in the Network Diagram contained in the Requirements Specification for Overall System Operational & Performance Requirements.

Tramstops and their surroundings shall be designed to provide safe and effective pedestrian circulation.

Key views and vistas of the City of Edinburgh shall not be unnecessarily interrupted.

2.4.2 Engineering Principles

The design of each tramstop shall compliment the public realm taking into account architectural form, colours and corporate branding such that they become commonly recognisable.

Tramstops shall provide the necessary functionality described herein and in doing so shall avoid unnecessary clutter.

The overall design of the tramstop shall ensure functionality is achieved as a whole. The tramstop shelter shall provide a clean, dry and safe area for passengers to wait but must not conflict with the CCTV surveillance system's aims to enhance security of passengers and react to any activation of the emergency PHP.

Tramstop design shall not leave any unlit areas on the tramstop platform and access routes thereto/therefrom.

Materials used shall be scratch resistant and easy to clean and repair/replace.

All access routes and platforms top surfaces shall be slip resistant and durable.

Transition zones shall be designed so as to be clearly differentiated by those who are visually impaired.

Unless required for proven safety requirements, handrails shall not be provided.

2.4.3 Access

Each tramstop shall provide access to all areas that conforms to the prevailing Disability Discrimination Act.

Access to tramstops shall as near as practicable to a direct route from key passenger generators that the tramstop serves.

Wherever practicable pedestrian access routes shall be designed to use street lighting as the sole or primary means of illumination.

Access route dimensions shall be appropriate for the prescribed level of pedestrian activity.

2.4.4 Platforms

Tramstop platforms and ancillary works shall maintain consistency of alignment with the Edinburgh Tram Network's permanent way.

Platforms shall provide passengers with a clear view of an arriving tram.

Platforms shall facilitate level access for boarding and disembarking from trams.

Tripping hazards shall be avoided.

The length of platform available for boarding/disembarking from trams shall be at least 4m greater than the distance between the outside front edge of the front most passenger door opening and the rear outside edge of the rear most passenger door opening of the tram.

Each platform shall be of sufficient area to accommodate the projected passenger flow for each location and shall have as a recommended minimum of 2m clear circulation width, but widths shall be designed to be commensurate with anticipated passenger and pedestrian demand.

Safety ramps shall be provided at each end of all platforms and shall conform to the HSE and Department of Transport's Requirements (produced by HMRI) and the Railways and Other Transport Systems (Approval of Works, Plant and Equipment) Regulations 1994.

2.4.5 Waiting Shelter

Waiting shelters on platforms shall not prohibit passengers within the shelter from having a clear view of an arriving tram.

Waiting shelters shall provide the means to distribute power and communications to/from equipment located at the tramstop.

The waiting shelter shall provide for seating (with backrests), signage, lighting, PIDs, PHPs, public address equipment, advertising and where practicable, ticket vending machine to be located within it.

Two litterbins shall be provided on each platform located at mid-points between the waiting shelter and each end of the platform.

Litterbins shall be designed to deter and eliminate opportunity for vandalism and/or terrorism.

Litterbins shall be provided such that each tramstop will require only one litter collection per operating day.

Waiting shelters shall permit future alteration to the capacity in terms of volume of passengers and equipment to meet emerging needs.

Tramstop waiting shelters shall be of elegant but functional design and provide protection to passengers from sun, wind and driven rain/snow.

Waiting shelters shall not permit climbing and/or its use by person(s)/object(s) coming into contact with the OLE.

Waiting shelters canopies shall be designed so as not to form a receptacle for litter/debris.

The shelter structure, roof and wall panels shall be available, as far as possible, 'off the shelf' in order to facilitate effective repair and maintenance.

2.4.6 Equipment

All equipment sited at tramstops shall have power provided in accordance with the Requirements Specification for Electrification and Power.

Equipment placed on platforms shall not prohibited passengers from having a clear view of an arriving tram.

The following minimum equipment level as referred to in the Requirements Specification for Supervision, Command and Control Suite of Systems shall be provided on each tramstop platform:

The minimum equipment level for any tramstop will be:

- 1 x CCTV camera per platform
- 1 x PA per platform
- 1 x Double-sided PID per platform
- 1 x PHP per platform
- 1 x Automated TVM per platform

Additional CCTV and PHP shall be provided where adequate security cannot be provided by the minimum equipment level.

All tramstop equipment, including where practicable, the automated ticket vending machine shall be located and/or integrated within the tramstop waiting shelter.

2.4.7 Signage

Each tramstop shall contain signage that displays the corporate branding.

The tramstop name shall be displayed prominently in several locations at that tramstop.

Signage of the tramstop name shall be displayed such that it is visible from arriving trams at the earliest possible opportunity.

Signage shall be clearly visible under all lighting conditions and in all weathers.

Directional signage showing entrance/exit routes to/from the tramstop platform and signage directing passenger to the relevant platform for their service shall be provided at all tramstops and park & ride sites.

2.4.8 Lighting

Lighting shall be provided to engender a safe and attractive environment in which intending passenger can wait.

All signage shall be illuminated.

Lighting design shall be the same or complimentary to adjacent highway lighting.

Lamps shall be able to be replaced during normal Edinburgh Tram Network operating hours without disruption to service.

Wherever practicable, lighting columns at tramstops should be provided for the mounting and operation of CCTV cameras and radio/wireless communication antennae where used.

2.5 Depot

2.5.1 Site

The Depot site in sector DHY1 (Gogar) would be located in the vicinity of Edinburgh International Airport and may have constraints imposed on its design by aviation authorities. The potential Depot site at Leith would not have these constraints.

The Depot track layout shall be based on nominal 40m cars, noting requirement for shunting moves by two coupled cars. The SDS Provider is required to evaluate this against a move to 30m cars.

Stabling shall be provided for the total number of cars in the fleet as derived from the technology review and service pattern/run time requirements.

Delivery of trams by road shall be afforded with minimum impact on other facilities.

Segregation of all rail and road vehicle movements shall be provided wherever practicable.

The Depot track and stabling layout shall be robust in operation with single failures of vehicles or pointwork causing a blockage of other tram movements. Single-ended stabling roads shall be avoided.

Point levers shall lay flat.

Logical walking routes and access in stabling shall be provided.

Water and 110V power shall be provided to each stabling berth.

Overall layout shall be operationally logical in the flow of vehicles, particularly when vehicles are entering or leaving service. A bypass road shall be provided past the washer.

Sanding and washing facilities shall be provided in a sheltered environment adjacent to but not part of the vehicle workshop space.

Depot layout shall allow the building(s) to be expanded with minimal disruption to normal operations.

Depot layout shall minimise disturbance to neighbours from sources such as artificial lighting and noise.

The orientation of the building within the Depot layout shall take into consideration aspects of solar gain and the view from the Control Room.

Car parking for XX vehicles, with provision for future expansion to XY vehicles; also cycle/motorcycle parking; locations for service vehicles and appropriate locations for visitors shall be provided. The values of XX and XY shall be agreed with **tie**.

Allowance shall be made in the layout adjacent to the Depot building for additional temporary office facilities for e.g. commissioning staff, including electricity and water services.

2.5.2 Security

The Depot site shall be secure and fitted with CCTV surveillance and any other necessary security systems as appropriate.

Controlled entry for pedestrians (staff to nearest tramstop and visitors), trams and road vehicles shall be allowed with appropriate access control for each. Access control shall be switchable between a reception area (for daytime use) and the Control Room.

The Depot perimeter fence shall be at least 2.4m high and shall have a continuous concrete strip foundation. It shall be a weldmesh or paling fence – Interlaced wire is not acceptable. It shall be plastic coated or galvanised.

The Depot road entrance shall have two separate vehicle gates for entry and exit, and additionally a pedestrian gate on the footway. The vehicle entry gate shall be capable of being opened, and the pedestrian gate released, from either the Control Room or the Depot reception, or by a member of staff presenting a security card to a reader at the gate. The vehicle gate shall re-close once a vehicle has passed through. The pedestrian gate shall close automatically and re-lock when it closes.

Intercoms shall be provided from each of the two entry gates (pedestrian and vehicle) to reception and to the Control Room. There shall be two vehicle entry intercom positions on the same pole, one at a convenient height for car drivers and one for HGV drivers, who shall be able to use them whilst in the driving seats of their vehicles. There shall be one security card reader at the lower position and one with the intercom at the pedestrian gate.

Any equipment in the centre of the road (gateposts, islands, intercom/card reader pole) shall be removable if required to allow tram movement by road if this is designed to do be done through the same access.

The vehicle exit gate shall open automatically when a vehicle approaches it from the within the Depot.

The tram entry/exit locations shall be provided with manual gates which shall be normally left open. At these gateways, there shall be a microwave detector which shall sound a single brief distinct audible warning in the Control Room whenever the beam is interrupted by a person or larger object.

2.5.2.1 Depot CCTV

The entire Depot perimeter and together with the tram entrance junctions shall be under CCTV surveillance, the images from which shall be displayed real-time in the Control Room. The cameras shall form part of the network CCTV system.

A dedicated camera shall be provided to view the Depot entrance. The image from this camera shall be available on a monitor in the Depot reception area when access is being controlled from there.

2.5.3 Buildings & Services

The main Depot building shall accommodate the following requirements:

Auxiliary supplies shall be supplied from the traction substation; a UPS is to be installed for defined functions to be agreed.

The traction supply shall include an appropriate earthing scheme and interlocking with relevant workshop equipment and appropriate indication to maintenance staff and tram drivers.

The Depot maintenance building shall be designed and constructed for 40m nominal length trams, and for maintenance of an initial fleet of XX cars, including the staff to

operate and maintain a system of respective size. Expansion to support a larger fleet size and system of 1.33 times the value XX shall be possible without disruption to the existing operations. The SDS Provider is required to evaluate this against a move to 30+m cars.

Provision of appropriate network cabling throughout the building for the independent supply of IT systems shall be made.

All appropriate furnishings shall be supplied.

All finishes shall be appropriate to area and type of use within the building and in materials with a long life in a largely 24/7 environment.

The office and welfare facilities shall support the staff numbers required for the initial and expanded system (numbers to be defined with **tie**).

The building shall also house training and meeting rooms, a secure room for cash, storage areas, maintenance workshops, supervisory offices and a stores area for both small items and large/heavy items.

The Control Room shall have an adjacent lobby area and preferably a viewing area from an adjacent corridor.

Natural light in offices shall be maximised and all rooms are to be placed within the building in locations appropriate to their function.

The layout of an agreed part of the office/training areas shall be able to be simply changed in layout for changing requirements. A specific example of this is the initial need for a large training room (XX people), with smaller areas preferred thereafter.

The building design shall avoid noise being transmitted through the roof space between the workshop, upper floor offices, training areas if at all possible, while retaining flexibility for future changes to layout.

An adequate open area shall be provided in the vehicle workshop, alongside the workshops, for flexible future use.

Space shall be provided throughout the relevant parts of the building to drive a loaded fork lift truck.

Appropriate networks of 110V and compressed air shall be provided.

Air conditioning shall be provided in the Control Room and consideration shall be given as to whether it would be cost effective for the office areas also to be so fitted.

There shall be sufficient maintenance pit space provided. The layout, cross-sections of such pit space shall facilitate the optimisation of those aspects of tram maintenance for which inspection pits are required.

Lighting in the main workshop and other areas shall be placed so that light is given where required for work to take place, including when trams are present. The lighting shall also be readily accessible for maintenance (lamp change).

2.5.4 Maintenance

2.5.4.1 Maintenance Shed Doors

The Depot doors shall be bi-parting, l-folding with clear panels for through visibility. They shall be power-operated with push-button controls both inside and outside. The open and close buttons shall be press and hold whilst the door moves, rather than press and walk away, to ensure that the door does not open or close onto an obstruction or person.

In the event of power failure or door operating equipment failure, it shall be possible for one person to operate the doors manually. It shall be possible to change doors to manual mode from ground level.

A design of door without a bottom track is strongly preferred.

A design of door which does not have the actuation equipment at the top, near the OLE, is strongly preferred.

The doors must include an appropriate hole or insulated edge to accommodate the (live) OLE when they are closed.

Door leaves shall be bonded and earthed so that should they inadvertently come into contact with the OLE, the fault resistance will be sufficiently low to ensure an immediate circuit breaker trip without damage to the doors or equipment.

2.5.4.2 Workshop & Mobile Equipment

The following requirements shall be provided:

- A comprehensive provision of all workshop fixed tools, staging, storage racking, cupboards, benches, lockers, mobile tools and equipment and hand tools shall be specified.
- The scope shall include all staging and high-level access platforms required for the tram maintenance.
- An under floor wheel lathe appropriate to the type of tram and running gear. A key requirement being the ability to reprofile a complete tram in a single shift, with an appropriate definition of cut. Data collection facilities shall be provided.
- This shall include equipment for tram interior cleaning and infrastructure cleaning, although the requirement for the supply of these items has yet to be confirmed.
- Specialist tools, jigs and test equipment that are properly included in the scope of the "Tram Vehicle Supply Contract" and other supply subcontracts need not be specified. However, the scopes of supply shall be reviewed to ensure that there are no gaps in the supply arrangements.
- Appropriate battery charging equipment for trams and fork lift truck and associated ventilation equipment for this and other relevant activities shall be provided.
- A battery-powered fork lift truck of appropriate capacity and terrain capability shall be provided.
- Special workshop facilities, including test benches shall be provided, appropriate to the trams and other fixed equipment to be supplied, for hydraulic equipment and electronic equipment.

2.5.4.3 Sand Plant

A sand dispensing plant shall be provided at the Depot located as appropriate to facilitate effective maintenance, turnaround of trams back into service. The sand silo need not be located in a building.

The sand silo must have a capacity of at least 30 tons, so that it will accept a full lorry-load.

Tram drivers will be expected to fill their own trams without assistance. One driver must be able to fill a tram from empty within five minutes (measured from one tram leaving the sand station to the next leaving the sand station). This rate of filling must

be sustainable for thirty minutes. In no circumstances may the interval between two successive trams exceed ten minutes.

The physical condition of the sand must remain in accordance with the procurement specification when the sand is delivered to the tram sandboxes.

Delivery must cease automatically when a box is full.

The sand plant delivery nozzles shall be compatible with the sand filling inlets on the tram.

Interlocking and indication (preferably standard tram signals) must be provided so that the indicators do not change to proceed unless all nozzles are stowed and clear of the tram.

2.5.4.4 Wash Plant

The wash plant shall be located inside a shelter (though the shelter need not extend the full length of the tram being washed). It shall be designed such that it will operate effectively at all temperatures of 0°C and above and it must be effective in washing trams at the ambient temperature.

In front of the wash plant and a tram length apart shall be the end wash pads, with lances / rotary brushes supplying detergent solution from the wash, and drainage.

2.5.4.5 Road – Rail Vehicle

A road-rail vehicle appropriate to the alignment and nature of the system shall be provided. Basic requirements include a Hiab-type crane of a capacity to be agreed, and exchangeable body pallets. A man basket shall be supplied.

Particular attention shall be applied to the suitability of the vehicle and its equipment for working on the OLE. This shall include a large working platform which does not need outriggers down so it can be moved quickly between structures, and moved along the track and highway slowly with people on the platform inspecting the OLE.

Options for tram towing capacity (and technical provisions) shall be considered as part of the development of this Requirements Specification for Civil Engineering Works.

A range of optional equipment for attachment to the vehicle shall be supplied. The possible options shall be investigated and agreed with the client.

A facility for groove cleaning is required. This may take the form of an exchangeable module to fit on the road-rail vehicle.

2.5.4.6 Shunter

The wheel lathe road should be unwired and a battery shunter provided to move trams over the wheel lathe.

2.5.4.7 Lifting Equipment

It shall be possible to:

- Unload a bogie from a lorry (and load it).
- Move a bogie from where it will be taken out from under the tram to anywhere it may be worked on.
- Take any roof box off the roof of the tram. Any removal of roof boxes shall be accomplished sideways over the overhead access platform and guard rails.

An appropriate set of lifting equipment, suited to the layout of the vehicle workshop, including an overhead traversing crane and options for semi-portal and/or travelling mono-hoists shall be provided.

A drained pad is required with a water and power supply for a pressure washer, accessible to bogies by rail (so they can be cleaned off after being extracted and can have salt washed off after winter) and to road vehicles (again, for washing underneath). The ideal location is outside but on the lifting road.

2.5.4.7.1 Lifting equipment – Trams

Equipment to lift a complete tram and/or parts of a complete vehicle shall be supplied. There is a strong preference for built-in equipment to leave an uninterrupted floor space when not in use, as well as avoiding handling jacks, trailing cables and minimising set-up time. There is a further preference for lifting under bogies than under sections of track. It must be possible to lift/drop any bogie or combination. Therefore, stands to support the vehicle with any combination of bogies removed are also required.

2.5.4.8 Accommodation bogies

An accommodation bogie to replace any of the tram bogies and which allows the vehicle to be moved around the Depot shall be provided.

An additional requirement is for a "bogie" or equivalent to support the disconnected end of a split tram. This must also be moveable at low speed. This might be based on the above or be a separate item (There is no requirement for both facilities to be available simultaneously).

2.5.4.9 Paint Booth

An appropriate paint system shall be provided (not involving isocyanates or other hazardous materials) for panel and patch repairs. An appropriate spray booth is to be provided (not whole vehicle).

2.5.5 Re-railing Equipment

An appropriate package is required. This needs to match the vehicle type and the special characteristics of the alignment. The equipment shall be packed together either as a module to fit the road-rail vehicle or to fit in a separate road vehicle. Options shall be discussed with **tie**.

The equipment will depend on the vehicle fittings e.g. if it has external jacking pockets or internal jacking holes in the floor. There may be a requirement for more than one set of traversing gear.

2.5.6 Stores

External storage facilities shall be provided for large items and for a limited amount of hazardous materials.

Layout to allow ease of road vehicle deliveries, inc. loading sand delivery into the silo, taking into account the likely types of pressure discharge, and of large deliveries to the inside stores.

The lorry delivery point shall be so located that the lorry does not need to pass under any OLE, and such that whilst connected to the delivery point, the tipping body cannot come within 3m of any live OLE, and such that it does not prevent road vehicle movements in the Depot.

2.6 Utilities

Wherever possible, the Edinburgh Tram Network shall be designed such that there is no requirement to divert existing public utilities. Where this is not achievable, then diversionary works shall as far as possible be undertaken as part of an 'advanced works' programme with the relevant public utility organisation.



Director/Authorised Signatory
TIE LIMITED



Director/Authorised Signatory
PARSONS BRINCKERHOFF LIMITED



**This is the Schedule 13 referred to in the
foregoing Agreement between the Client
and the SDS Provider**

Requirements Specification for
**Supervision, Command & Control
Suite of Systems**

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3 SUPERVISION, CONTROL & COMMUNICATIONS

3.1 General

Supervision, control and communications for the Edinburgh Tram Network will be centralised in a Control Room and supporting equipment room located at the Depot.

The Edinburgh Tram Network's tram position and detection sub-system ("TPDS") shall provide for the safe movement and overall regulation of trams running on the Edinburgh Tram Network. Such sub-system shall be primarily carried on-board the tram.

Although the tram driver shall be responsible for safe tram operation driving on 'line of sight', the command, signalling, control and communications system shall provide the personnel in the Control Room with the tram regulation and performance monitoring facilities needed to achieve the target headway for the core period and the timetable.

The Edinburgh Tram Network and all system components shall be configurable to ensure the ability to maintain tram services under all reasonably foreseeable conditions, albeit that some peripheral functions may be operating in degraded mode.

The Edinburgh Tram Network shall be configured such that in the event of single failure there shall be no loss of data and no requirement for excessive actions on the part of the Control Room staff.

Where there are connections or any exchange of data between subsystems, each system shall be such that any failure in another system shall not cause a failure of the system, (except in the functionality between the two systems concerned).

3.2 Operational Requirements

The supervisory, control and communication system shall enable compliance with the Requirements Specification for Overall System Operational and Performance Requirements and the System Wide Non Functional Requirements.

3.3 Sub-Systems

The supervisory, control and communication system shall comprise a number of sub-systems.

3.3.1 Tram Position and Detections System (TPDS)

The TPDS sub-system shall detect the location and position of trams anywhere on the Edinburgh Tram Network.

The TPDS sub-system shall be capable of accepting and processing the following information from each tram:

- Tram number
- Run number
- Destination
- Driver staff number
- Driver duty number
- Whether the tram is in service or not

This information shall be transmitted in real time to the Control Room from each tram. The tram driver shall input this information at the start of turn of duty and the system will then automatically update at the start of each trip.

TPDS shall provide data of tram positions such that the PID sub-system can be updated automatically in real-time. The PIDs shall display accurate information for both timetabled and untimetable trams for which destination information is available, so that PIDs will display correctly even during periods of disruption.

On approach to a tram's destination, TPDS shall be capable of providing updates to the PIDS sub-system such that the tramstop PID can display the tram's next destination.

TPDS shall be able to automatically call for the setting of power points at junctions for the required route in advance of the tram approaching the junction. Once the points have been confirmed as being correctly 'set', an indication of such shall be given to the tram driver and Control Room operators. This functionality shall be based with the local point controller, being suitably protected from abuse, and not rely on communication between the remote location and the Control Room.

Where there is a tramstop on the approach to a signalled installation, then it shall detect a 'Ready-to-Start' signal operated by the driver of the tram from a cab control.

TPDS shall be interfaced with the urban traffic control system and provide information as to the approach of trams. This information shall be used by the local traffic signal controller to provide the agreed Tram junction priority. Tram priority at junctions shall be level 1. Where this priority level cannot be achieved level 2 shall be attained.

TPDS interfaces shall be compatible with the highway traffic-light system and shall enable the provision of visual indication to the drivers of trams of the ability to proceed or the need to stop.

At signalled road junctions where there is a divergent tramway junction ahead, TPDS shall detect which route the tram will take and may be required to provide such indication to the tram driver via an appropriate tram signal.

There shall be sufficient redundancy provided in the interface between TPDS and the UTC controller such that failure of one input and/or one output will not cause the interface to fail. As a guideline this should be of the order of 3 x tram approach inputs and 1 x departure input.

Additional signalling features in accordance with Good Industry Practice for safety enhancement and to achieve operational flexibility shall be provided where appropriate. Such features shall comply with the relevant signalling and signage standards.

At road junctions, provision shall be made so that in the event of failure of tram detection, the signal sequence may be initiated by a command from the Control Room through UTC to the local UTC interface.

3.3.2 Passenger Information Display System (PIDS)

Double-sided PIDs shall be provided on each tramstop platform. Such PIDs shall be mounted in such a way and position that restricts their vulnerability to vandalism and persons attempting to climb them.

Double-sided PIDs shall be provided at each park & ride site. Such PIDs shall be mounted in such a way and position that restricts their vulnerability to vandalism.

For each tramstop, 1 x PID shall be provided per platform face and shall be mounted in a suitable position such that it can be seen from within the shelter and from as much of the platform area as possible.

Additional PID's and signage shall be provided as appropriate at Edinburgh International Airport, Ocean Terminal and Haymarket.

Under normal and degraded modes of operation ('normal' and 'degraded' being defined in paragraph 1.5 of the Requirements Specification for Overall System Operational & Performance Requirements) the displays shall be updated automatically via data transmitted from the tram. Dependent upon system architecture the routing of such data communication may be from the tram via the Control Room equipment (for TPDS and PIDS) and then to the relevant tramstop PIDs rather than communicated directly from the tram to the relevant PIDs.

Provided that the next three tram service arrivals at a tramstop platform are expected within the ensuing 30 minute period, the PID for that platform shall display the destinations of these services and the expected number of minutes before their arrival.

PIDs shall be of a type and be sited so as to be legible to passengers in all reasonable prevailing lighting conditions.

PIDs shall be capable of allowing a limited selection of messages and free-form text to be displayed, at selected individual, selected groups or at all tramstops on command from the Control Room.

All PIDs shall display the current time using time source and format stated in the System-Wide Non-Functional Requirements.

3.3.3 Telephony

A telecommunications system shall be provided that allows communication with all internal Edinburgh Tram Network organisation members and external parties but not with trams.

All voice communications to and from the Control Room shall be recorded and played back.

Emergency telephone lines must be provided to allow contact with and from the following organisations regardless of any failure of the main PABX. Such facilities need not necessitate individual handsets but may consider a single handset (on the relevant operator workplaces) with priority displays and call buttons:

1. Fire Control Room
2. Police Control Room
3. Ambulance Control Room
4. Airport Control Room
5. Network Rail Edinburgh Waverley PSB
6. City of Edinburgh Urban Traffic Control
7. One other phone, the number to be used only by staff and others working near the Edinburgh Tram Network to report emergencies at worksites.

3.3.4 Public Address (PA)

A public address system shall be provided at each tramstop. Such equipment shall be mounted in such a way and position that restricts their vulnerability to vandalism.

The PA system shall enable the Control Room to provide audible information to passengers at selected individual, selected groups or at all tramstops. This facility shall be provided by:

1. the Operator selecting a pre-recorded announcement(s) from a library of such announcements.
2. the Operator directly making a voice announcement from the Control Room.

The PA system shall avoid noise carry and nuisance to any neighbouring properties whilst remaining audible on the platform concerned.

There shall be two volume settings for the PA system, one setting for daytime operation and one for night time operation. Such settings shall be pre-determined by time of day will automatically switch when those preset times are reached. These preset times shall be capable of amendment by the Operator and will be different for weekdays, Saturday and Sunday.

Volume settings shall be capable of being manually switched from the Control Room.

3.3.5 Operational Radio System (ORS)

A radio system shall provide a two-way communication enabling voice and data exchanges between the Control Room and

1. drivers on board individual or all trams
2. drivers of road and other support vehicles for the Edinburgh Tram Network. There may be up to 5 of these vehicles.
3. Individually or in groups with other mobile Edinburgh Tram Network operations staff using hand portable equipment along the Edinburgh Tram Network and in the Depot.

Communication shall be reliable, continuous and free from interference over the entire Edinburgh Tram Network.

Primary means of initiating radio calls to individual trams from the Control Room shall be achieved by mouse click(s) on the relevant tram represented on the TPDS display.

The attention of Control Room staff to a tram making a radio call to the Control Room shall be achieved by appropriate graphical and audible representations on both the TPDS and ORS HCI's.

All radio calls shall also be capable of being made and received via the ORS HCI.

All communications shall be via the Control Room. Direct calling between outstation radios is not required and shall not be available.

When an outstation wishes to call the Control Room, they shall insert a call request message. The Control Room will then call them back.

When the Control Room calls an outstation, the outstation radio shall "ring" and the outstation operator shall answer the call and speak first.

All outstation radios shall be equipped with an emergency call facility. When an emergency call is received at the Control Room, a distinct audible and visual alarm shall appear on the Control Room ORS HCI. It shall not be possible for a Control Room operator to cancel an emergency call without answering it.

The ORS shall be able to send 'short codes'. Such short codes can be sent to individual trams, groups of trams or to all trams and be configurable by the user's administrator. They shall consist of the following:

Status Message	Status Meaning	Control to Tram	Tram to Control
CHANGE	Change Active Unit ?		✓
ACK MESS	Status message acknowledge		✓
ACK CALL	Group Voice Call Acknowledge		✓
###-DEP	Departure from departure points, where ### is the three letter code for each departure tramstop. This feature may not be implemented.		✓
DELAY	Delay to Report		✓
FAULT	Defect to Report		✓
NEWCREW	Crew Change Complete		✓
HELP	Police Required		✓ (see note below)
EXIT	Depot Exit Request		✓
ENTRY	Depot Entry Request		✓
RELIEF	Crew Relief Request		✓
XO-DONE	Crossover / Turnback complete		✓
STABLED	Tram Stabled		✓
CREWGONE	Driver Leaving Tram - will report back		✓
ALL-STOP	Stop Immediately	✓	
STOPNEXT	Wait Next Stop	✓	
FIREMEN	Beware Fire Engines	✓	
FIREGONE	Fire Engines Clear	✓	

Notes:

1. the "HELP" code can also be sent from the hand portable and from the road vehicle radios.
2. The emergency call functionality may also require the use of short codes

There shall be at least 50% spare capacity for additional codes.

When the Control Room sends a single voice message to all trams and requests the tram drivers to acknowledge receipt, the radio system shall present a list of all trams and their status to the Control Room operator via the ORS HCI. The status shall be coloured to identify:

1. trams that have acknowledged the message, in green
2. trams that do not have active radios, in amber
3. trams that have not acknowledged the message in red.

This will enable the Control Room staff to identify any trams that have not acknowledged the call.

A similar arrangement shall apply to codes sent to trams.

The ORS shall record all voice communications and store such recordings at the Control Room in accordance with the System Wide Non Functional Requirements for data recording.

3.3.6 Passenger Help Points (PHP)

Clearly visible and signed PHPs shall be provided at each tramstop. Such equipment shall be mounted in such a way and position that restricts their vulnerability to vandalism.

Clearly visible and signed PHPs shall be provided at each park & ride site. Such equipment shall be mounted in such a way and position that restricts their vulnerability to vandalism.

PHPs shall be capable of being activated in two modes; normal and emergency. There shall be two buttons provided, one for each mode, and each clearly signed for their intended use.

Operation of a PHP by the 'emergency button' shall give an immediate indication and audible alarm presented to all Operator workplaces and the overview display at the Control Room. In addition it shall cause the relevant platform CCTV camera to focus on the PHP, overriding any sequential scanning for that camera.

The help point and operation of it shall be compliant with the prevailing Disability Discrimination Act.

The video image received during the period the camera is in the pre-set shot mode shall be continuously recorded together with time, date and location data.

The unit shall provide two-way speech facilities between the unit and the Control Room. Such voice communication shall be recorded by the CCTV sub-system and data stored in accordance with the System Wide Non Functional Requirements for data recording.

The Control Room operator shall be able to terminate the call, reset the alarm unit and override the camera controls. Once a PHP call has been cleared by the Operator, the CCTV camera shall return to its original position/sequence of scans unless the Operator has taken manual control of the camera.

3.3.7 Closed Circuit Television (CCTV)

CCTV camera(s) shall be provided at each tramstop platform and be able to pan, tilt and zoom both automatically within preset limits and under manual control. Such equipment shall be mounted in such a way and position that restricts their vulnerability to vandalism.

The CCTV surveillance system shall be of digital design.

All CCTV cameras shall be enclosed in domes to camouflage their position.

The CCTV system shall provide surveillance for ticket machines, shelters, buildings and other structures, the platform and their walking and access routes.

The CCTV system shall be provided at all park and ride sites and cover the car park, paths to and from it, ticket vending machines, PHPs, shelters, buildings and other structures. It shall provide such CCTV to the same standard as that specified above in relation to tramstops.

At park & ride sites, a CCTV camera shall be positioned at the vehicular entrance/exit point such that clear images of vehicles and their registration plates can be displayed and recorded.

The CCTV surveillance system shall comprise colour cameras and all associated equipment to permit the remote viewing and recording of video images in real time 24 hours/day, 365 days/year.

CCTV recorded images and printed images shall comply with Home Office guidelines (or Scottish equivalent) and provides clear undistorted colour video images over the

entire operating range under all lighting and weather conditions, with image quality sufficient for unambiguous identification of persons for prosecution purposes.

The CCTV system shall support the facility to review recorded images, freeze frame, Rugby date and time stamp, any view and provide printed images of incidents without interruption to continuous CCTV surveillance operation.

The CCTV system shall provide for no-dwell zones to inhibit panning into neighbouring properties.

Stored viewing patterns shall be provided for each of the two banks of CCTV displays provided in the Control Room. Viewing patterns shall be capable of creation, amendment or deletion by the Edinburgh Tram Network operator/maintainer.

The CCTV system shall automatically position and zoom-in if the PHP is activated. Upon such activation the CCTV system shall record both CCTV images and the voice communication of the PHP unit.

The CCTV system shall be compatible with and allow image transfer to/from the UTC room and the local Police system.

3.3.8 Supervisory Collection and Data Acquisition System (SCADA)

A SCADA system shall be provided that will provide the HCI to monitor and control the Edinburgh Tram Network's traction power system and monitor and log data relating to Edinburgh Tram Network equipment.

The SCADA system shall be located in the equipment room of the Depot and be connected to remote equipment by a suitable communications medium.

3.3.8.1 Traction Power

The SCADA sub-system shall permit the controller to isolate and/or earth any section of the traction power system by making a minimal number of mouse clicks, or equivalent, from the SCADA HCI power diagram.

The SCADA sub-system shall monitor the status of the traction power system.

If abnormal conditions/events occur they shall be detected by the SCADA sub-system and transmitted to the Control Room in the form of an alert.

Alerts received at the Control Room shall be filtered, grouped and prioritised with only those that require Control Room staff action being indicated on the SCADA HCI in the Control Room.

All alerts shall be targeted to a particular user/group of users and have a nomenclature that is unambiguous and easy to comprehend by that user.

The SCADA sub-system shall permit the controller to remotely control motorised isolators from the SCADA HCI power diagram.

The SCADA sub-system shall permit the controller to open individual circuit breakers by making no more than one or two mouse clicks, or equivalent, from the SCADA HCI power diagram.

Closing of an individual circuit breaker or isolator to render the equipment 'live' shall require at least three mouse clicks in different places on the SCADA HCI power diagram.

The Operator shall be able to isolate and earth all electrical sections between adjacent sub-stations or between a sub-station and the end of the Edinburgh Tram Network route by making no more than two mouse clicks, or equivalent, from the SCADA HCI power diagram. This operation will initiate a sequence of switching operations, the progress and completion of which shall be indicated to the Operator

via the SCADA HCI power diagram. Should any operation in this sequence 'time out' or fail an visual and audible alarm shall be generated to the Operator and the sequence be suspended by the system.

Switching sequences shall be able to be created, edited and deleted by the system administrator.

The current status of the traction power system shall be displayed to the controller at all times.

All events within the traction power system shall be logged and be able to be retrieved for analysis.

3.3.8.2 Tramway Equipment

The SCADA sub-system shall monitor and log the events of all Edinburgh Tram Network equipment connected via the chosen communications medium.

Equipment to be monitored and logged shall include:

- Tram position & detection devices
- ORS
- PHPs
- TEL
- Voice recording devices
- Point control equipment
- Point heating equipment
- Tram signals
- Point indicators
- Trackside cabinets/housings
- TRTS
- Point detection
- UPS (if supplied)
- All communications bearer systems
- PIDs
- CCTV cameras
- CCTV recording devices
- Public address system
- Equipment room HVAC devices
- Depot sand hopper levels
- Automated TV Ms
- UTC interface
- Tramstop cabinets/housings
- Tramstop lighting
- Power sub-stations

The SCADA sub-system shall provide spare capacity for at least 10% of additional alarms to be connected to the system. Configuration of such alarms shall be undertaken by the Edinburgh Tram Network's operations/maintenance personnel.

Alerts received at the Control Room shall be filtered, grouped and prioritised with only those that require Control Room staff action being indicated on the SCADA HCI in the Control Room.

All alerts shall be targeted to a particular user/group of users and have a nomenclature that is unambiguous and easy to comprehend by that user.

3.3.9 Fare Collection System

Fare collection and ticket issuing for the Edinburgh Tramway shall be effected through the provision of automatic TVMs

The system shall be configured such that in the event of single failure there shall be no loss of data and no requirement for excessive actions on the part of the Control Room staff.

Where there are connections or any exchange of data between subsystems, each system shall be such that any failure in another system shall not cause a failure of the system.

3.3.9.1 Automated Ticket Vending Machine (TVM)

TVMs shall have a proven record of successful use (defined as greater than 99% operational availability) in a similar environment and be capable of interfacing to the SCADA system used on the Edinburgh Tram Network.

One automated TVM shall be provided on each tramstop platform and wherever practicable shall be integrated into the tramstop shelter.

TVMs shall permit the user to select the type of ticket required and tender the relevant fare in as simple as possible manner. To achieve this they shall have an easily understood sequence of events to obtain a ticket and tender fare that is clearly displayed to the user.

Automated TVMs shall:

- accept UK coins of no less value than 5 pence and all UK bank notes, including all Scottish bank notes.
- accept all major credit/debit cards.
- be capable of easy conversion to Euro currency
- give correct change in the fewest number of coins/notes permissible
- have sufficient ticket, cash box and change capacity to carry out all normal transactions daily
- Once fare has been tendered successfully the TVM shall print the ticket and make it available to the user via an appropriate output means.

TVMs shall communicate reliably and effectively with the Edinburgh Tram Network's SCADA system. It is an objective that cabling for power and telecommunications is kept to a minimum. To achieve this alternative means of transmitting data from the TVM's to the SCADA system shall be considered. These may include internet or wireless technologies.

TVMs shall be weatherproof and vandal resistant, in particular with respect to maintaining clarity of display of the human-computer interface, under all reasonable lighting conditions.

TVMs shall conform to the power design of the Edinburgh Tram Network, in terms of EMC, standards, consumption and earthing.

3.4 Control Room

The Control Room shall be located at the Depot. It shall have access to/from the main administration and support offices located at the Depot.

The Control Room shall provide Control Room staff and especially the shift controller and duty manager with clear visibility of the entrance and exit tracks and associated

infrastructure of the Depot complex with the main tramway and at least one end of Depot shed tracks and stabling apron tracks.

3.4.1 Staffing Levels

The Control Room shall be designed to provide sufficient and effective area for the following operations personnel.

3.4.1.1 Duty Manager

The duty manager is responsible for overall control of the Edinburgh Tram Network and the safety of its operation.

The duty manager is also required to be present to 'book' tram-crew on and off duty.

3.4.1.2 Shift Controller

The shift controller is responsible for the minute by minute operation of the Edinburgh Tram Network ensuring service perturbations risks are minimised and tram-crew are aware of the current state of the Edinburgh Tram Network.

3.4.1.3 Information & Security Supervisor

The information & security supervisor provides support to the duty manager and shift controller by monitoring the positions of trams, monitoring and editing of PIDs, monitoring of CCTV and PHPs. This post will also take the primary role in ensuring passenger information and security.

3.4.1.4 Support

The Control Room will also need to allow for the provision of a support post to the information & security supervisor under certain perturbed situations.

3.4.2 Facilities

The duty manager is required to 'book' tram-crew on/off duty and needs to physically see crew before they take their turn of duty in order to be convinced that they are in an appropriate condition to commence duty. The Control Room shall provide for this without the need for tram-crew to enter the Control Room.

A diagrammatic representation of the Edinburgh Tram Network shall be provided in the Control Room that is clearly visible to all Control Room personnel. Such representation, which may take the form of a plasma type display, shall be capable of displaying the same views as stated in paragraph 3.4.5.1.1 herein.

A means of displaying replays of recorded CCTV surveillance images and voice recordings from the ORS and/or TEL sub-systems shall be provided in the Control Room and one of the Depot meeting rooms.

Sufficient printing and facsimile services shall be provided to maintain effective operations.

3.4.3 Systems

HCl's to the following sub-systems and grouping shall be provided in the Control Room:

<u>Group</u>	<u>Sub-system within the Group</u>
--------------	------------------------------------

- | | |
|---|--|
| 1 | TPDS - Tram Position and Detection System
PCC - Point Control System
PHC - Point Heating System Alarms/Alerts
PIDS - Passenger Information Display System (at Tramstops/Park & Ride Sites)
UTC - Urban Traffic Control (interface to Highways Traffic Signals and Control)
+ link to ORS to initiate radio call to tram from TPDS display |
| 2 | TEL - Telephony System
PA - Public Address System (at Tramstops/Park & Ride Sites)
PHP - Passenger Help Points (at Tramstops/Park & Ride Sites)
+ link to CCTV when CCTV sub-system detects PHP activated |
| 3 | ORS - Operational Voice Radio Communications (Control to/from Tram and portable handsets) |
| 4 | CCTV - Closed Circuit Television Surveillance
+ link to PHP sub-system when PHP is detected as being activated |
| 5 | SCADA - both traction power and auxillary SCADA high priority alarms/indications |

Complete integration of all sub-systems is not required. Moreover, grouping of sub-systems or part thereof shall be provided and displayed via an appropriate HCl to the relevant operator position as defined in paragraph 3.4.5.

Operator access and security to relevant systems and parts thereof shall be governed by passwords/logons.

3.4.4 Example Configuration

An example configuration of the Control Room layout showing staffing and system HCl's is included below:

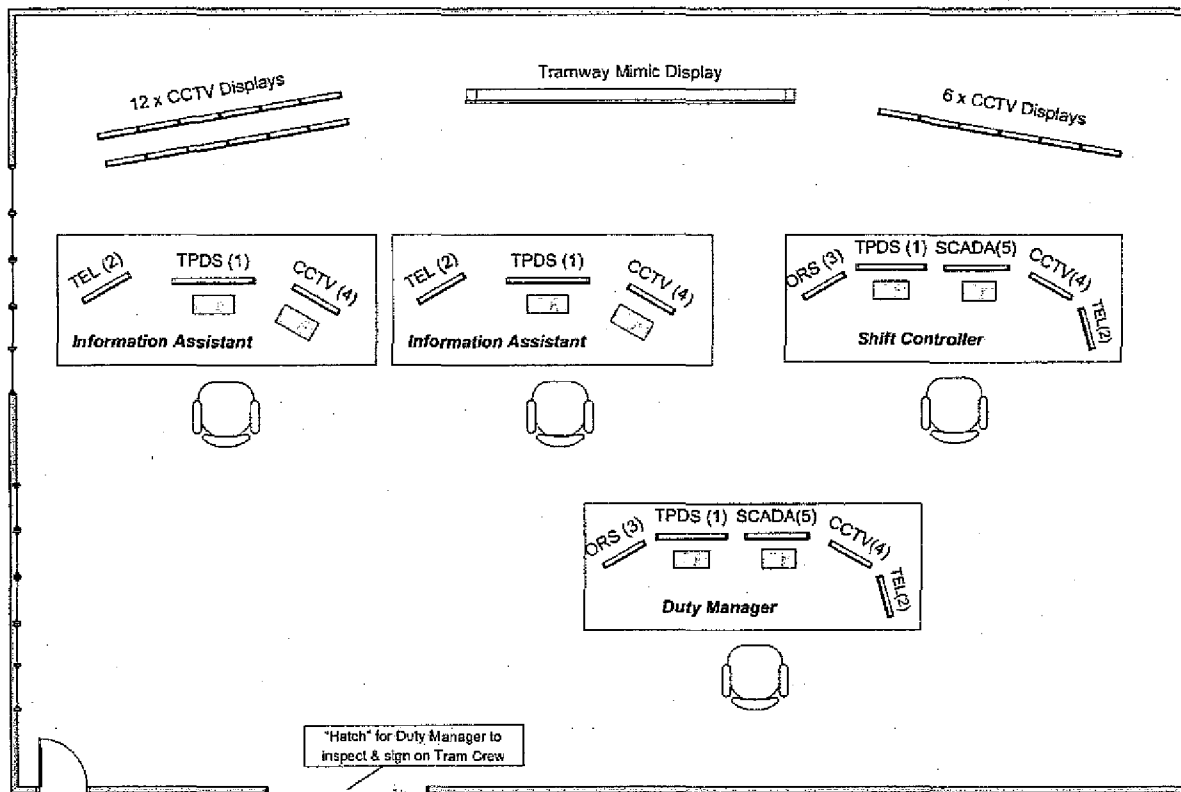


Figure 1 - Numbers in bracket represent HCI Groupings stated in section 1.3.3

3.4.5 Operator Workplaces

All operator workplaces shall be of similar design to maintain the aesthetics of the Control Room.

3.4.5.1 Duty Manager

The duty manager's work place shall be located such that he can clearly see and interact with all the operations of the Control Room.

The duty manager's workplace shall provide:

3.4.5.1.1 TPDS

There shall be a display, mouse and keyboard for interaction with TPDS to:

1. View the current state of the infrastructure
2. View the current position of trams
3. View the punctuality of trams on the Edinburgh Tram Network
4. View and acknowledge all alerts and alarms
5. Input a tram signal demand via the UTC system
6. Allow the updating of the PIDS sub-system with adhoc or pre-programmed suite of text messages.
7. Initiate a radio call to a tram via the ORS by mouse click on the appropriate tram represented on the display.

The keyboard shall be retractable when not in use.

3.4.5.1.2 SCADA

There shall be a display, mouse and keyboard for interaction with the SCADA sub-system to:

1. Provide full access to command and monitor the traction power sub-system.
2. Command the heating of points in the event of the thermostatic control failing
3. Provide indication of restricted alarms sets from remotely located infrastructure and ticketing equipment.

The keyboard shall be retractable when not in use.

3.4.5.1.3 ORS

There shall be touch screen interface to the ORS that permits:

1. Initiation/receipt of radio calls to any/all tram(s) and other vehicles fitted with ORS.
2. Initiation/receipt of radio calls to any/all portable radio handsets.
3. Initiation/receipt of radio calls to any/all PA and PHP devices.
4. Provides audible and visual alarms for emergency radio calls received. Such alarms shall be displayed so as to clearly differentiate between normal events and emergency events.
5. Use of 'short radio codes'.

3.4.5.1.4 CCTV

There shall be a display and console for the selection and monitoring of CCTV images from remotely located cameras.

This display and console shall automatically display the image of the location where a PHP is detected to have been activated.

This console shall be able to select those images that are required to be displayed on any CCTV display in the Control Room. Priority of selection shall be governed by the Edinburgh Tram Network operating procedures.

3.4.5.1.5 TEL

There shall be a touch screen interface to the TEL, (and PA and PHP sub-systems if not provided for by ORS voice radio) that provides for:

1. Initiation/receipt of telephone calls to any/all users on the exchange provided.
2. Priority and high integrity Initiation/receipt of telephone calls to/from emergency services.
3. Audible and visual alarms for PHP calls received.
4. Making of public address announcements at individual, grouped or all tramstops and/or park & ride sites.

3.4.5.2 Shift Controller

The operator workplace provided for the shift controller shall be a complete replica of that provided for the duty manager.

In addition the shift controller shall be given clear visibility of the mimic display and the bank of 6 CCTV displays located at the front of the Control Room.

3.4.5.3 Information & Security Supervisor

The information & security supervisor workplace shall provide HCI for:

3.4.5.3.1 TPDS

There shall be a display, mouse and keyboard for monitoring of:

1. View the current state of the Infrastructure
2. View the current position of trams
3. View the punctuality of trams on the Edinburgh Tram Network
4. Allow the updating of the PIDS with adhoc or pre-programmed suite of text messages.
5. Initiate a radio call to a tram via the ORS by mouse click on the appropriate tram represented on the display.

The keyboard shall be retractable when not in use.

3.4.5.3.2 CCTV

There shall be a display and console for the selection and monitoring of CCTV images from remotely located cameras.

This display and console shall automatically display the image of the location where a PHP is detected to have been activated.

This console shall be able to select those images that are required to be displayed on a predetermined 10 display of the bank of 12 displays at the front on the Control Room near this workplace and that of the support workplace.

3.4.5.3.3 TEL

There shall be a touch screen interface to the TEL, (and PA and PHP sub-systems if not provided for by ORS voice radio) that provides for:

1. Initiation/receipt of telephone calls to any/all users on the exchange provided.
2. Initiation/receipt of priority telephone calls to/from emergency services.
3. Audible and visual alarms for PHP calls received.
4. Making of PA announcements at individual, grouped or all tramstops and/or park & ride sites.

3.4.5.4 Support

The operator workplace provided for the support post shall be a complete replica of that provided for the information & security supervisor.

The support post shall have clear visibility to the bank of 12 CCTV displays provided for the information & security supervisor. The support post shall via desktop console be able to select at will 3 CCTV images to be displayed on these displays.

3.5 Equipment Room

3.5.1 Facilities

The equipment room shall be located as close to the Control Room as reasonable practicable.

The equipment room shall provide HVAC, lighting, power and other buildings services to provide effective habitation for the centralised terminals of all subsystems deployed upon the Edinburgh Tram Network and the HCIs thereof.

The equipment room shall provide HVAC, lighting and other buildings services to provide effective habitation for those people required to access the HCIs of the Edinburgh Tram Network sub-systems located in the equipment room.

Appropriate facilities shall be provided to mitigate, detect and extinguish risks associated with the outbreak of fire.

An appropriate means of facilitating uninterrupted data and voice communication between the equipment room and Control Room shall be provided for those sub-systems that are present at the operator workplaces, mimic diagrams, display banks and any emergency override facilities.

3.5.2 Systems

'Head end' components of the following sub-systems shall be present in the equipment room:

- TPDS
- ORS
- PHPs
- TEL
- Voice recording devices
- Point control equipment
- Point heating equipment
- SCADA
- All communications bearer systems
- PID
- CCTV surveillance
- CCTV recording devices
- Public address system
- Automated ticket vending
- UTC interface

3.5.3 Workplaces

Workplaces in the equipment room shall be of similar design to their equivalents in the Control Room but their users shall require a greater level of more detailed access. Such access shall be governed by password and user groups membership.

The following workplaces shall be present in the equipment room:

1. Display, mouse and keyboard for interaction with TPDS and PIDS sub-systems, the ORS sub-system and the UTC sub-system.
2. Touch screen interface to the TEL, PA, and PHP sub-systems
3. Touch screen interface to the ORS sub-system

4. Displays and console for the selection and monitoring of CCTV images from remotely located cameras.
5. Display, mouse and keyboard for interaction with the SCADA sub-system.
6. HCI(s) for the purpose of archiving and retrieving logged data

3.6 Tramstop Equipment

The architecture of the system shall ensure that, in general, all equipment associated with vehicle detection, relays, interlocking, point heating and point control, shall be situated in apparatus cabinets at the appropriate tramstops or point locations.

The minimum equipment level for any tramstop will be:

- 1 x CCTV camera per platform
- 1 x PA per platform
- 1 x PiD per platform
- 1 x PHP per platform
- 1 x automated TVM per platform

Additional CCTV and PHP shall be provided where adequate security cannot be provided by the minimum equipment level.

Wherever practicable, equipment associated with the operation and control of PA, PiD, PHPs and automated TVM shall be integrated into the design of the tramstop's passenger waiting shelter. Associated tail cables/other connections shall be sourced from sub-surface, prefabricated housings of materials such 'aqueduct'.

3.7 Trackside Equipment

The minimum amount of equipment shall be mounted at the trackside.

3.7.1 Equipment Cabinets & Housings

Separate cabinets/housings shall be provided for point control and/or point heating equipment. Such cabinets/housings shall be discretely located as close to the associated points as practicable.

Sub-surface, prefabricated housings of materials such 'aqueduct' shall be considered for use in housing trackside equipment such as point controllers and point heating controllers.

Trackside cabinets/housings shall provide the appropriate HVAC conditions that will ensure continuous operation of those sub-systems therein.

3.7.2 Communications Transmission

An integrated communications infrastructure shall be provided that is suitable for the satisfactory transfer of all data, telephone and other signals required for controlling, monitoring and communicating with equipment distributed throughout the Edinburgh Tram Network.

Wherever practicable, communication between two or more items of trackside equipment and from trackside equipment to the Control Room shall be by such means that permits minimal trackside cabling and an acceptable level of system integrity.

The schematic below provides an indication of the communication channels required:

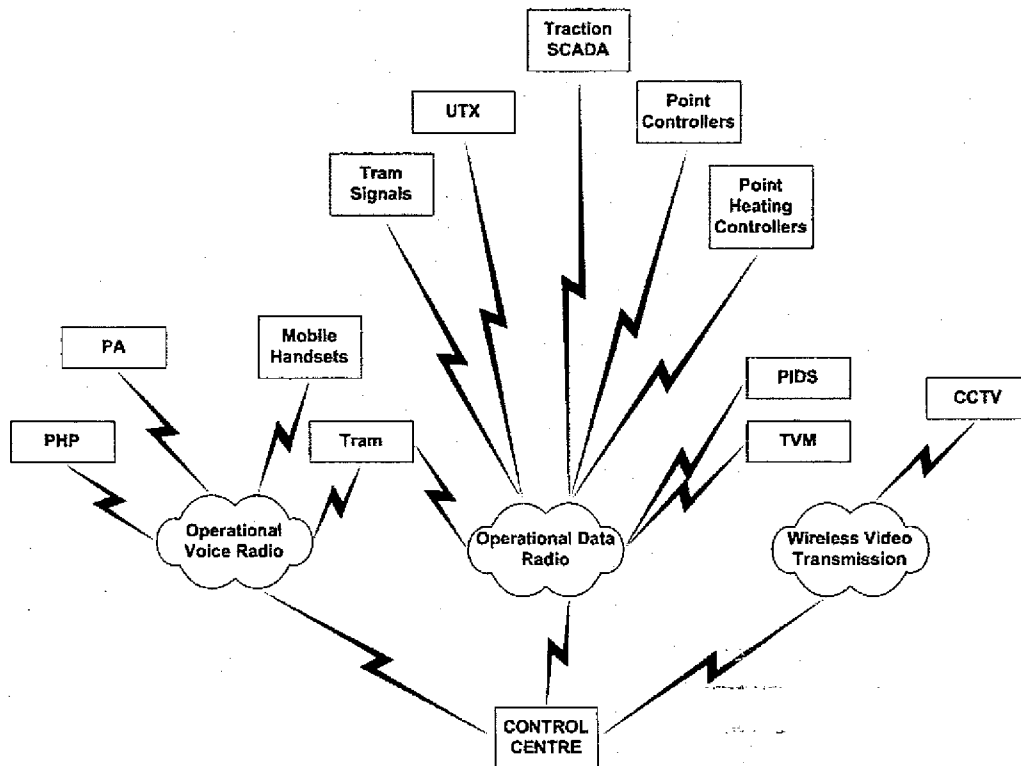


Figure 2 : Example Telecommunications Configuration

The communications bearer and associated electronic equipment shall be configured so as to provide automatic re-routing in the event of failures such that any loss of facility is confined to that given locality and does not affect the operation of the transmission system and facilities at any other location.

3.7.3 Points & Crossovers

3.7.3.1 Route Setting

Point controllers shall command powered point machines to be activated when valid data is received from an approaching tram.

There shall be a fallback mode for all junctions. The parameters of this will be agreed with **tie**.

Powered points shall not be able be activated whilst a tram is occupying the switching zone or by a following tram until the rear bogie of a preceding tram is clear of the moveable point blades.

Points situated within the highway shall not move until the approaching tram is in sufficiently close proximity to the switch blades so as to deter pedestrians from being on the switches.

All powered points shall be detected and have point indicators fitted at a suitable position at the trackside.

All point indicators shall be of Yellow Bar LED design.

The tram driver shall be able to clearly observe point indicators, where provided, and be able to stop before the points if they fail to respond to a command.

Location of point indicators will require agreement with the Edinburgh Tram Network operator and HMRI.

Composite alarm circuits to detect any faulty operation or failure of the separate components of point control packages shall be provided and initiate an alarm to the Control Room.

3.7.3.2 Point Heating

All powered points and emergency crossovers shown on the Edinburgh Tram Network diagram (as defined in the Requirements Specification for Overall System Operational & Performance Requirements) shall have heating mechanisms to prevent failure to operate during cold, snowy and icy weather conditions.

Points heating mechanisms shall activate automatically by sensing that a predetermined temperature has been reached.

Point heating control mechanisms shall have the facility to be activated upon command from the Control Room.

3.7.4 Signals

All tramway signals shall be of LED design.

Position of tramway signals shall be agreed with **tie**.

3.7.5 Power Supplies

A suitable power supply shall be provided in the equipment room at the Control Room that ensures that all equipment necessary to the continuing smooth operation of the Control Room can operate uninterrupted.

A dual supply changeover arrangement, with high integrity circuit breakers is preferred to a single large UPS. The power changeover function shall not itself cause the failure of any systems so powered, the loss of information or an interruption to the availability to any sub-system for more than 20 seconds.

Equipment connected directly to the running rails (e.g. point mechanisms) shall have insulation between rail and that equipment to prevent the flow of traction return current.

3.7.6 Cables

Trackside cabling shall be kept to minimal levels and alternative means of data transmission and power distribution considered. This could include radio communication for operational equipment with retail equipment such as TVMs communicating via internet or mobile phone links.

In all cases of installation, cables shall be protected from damage and view throughout their entire length by the use of appropriate ducting.

3.8 Tram Borne Supervisory, Control & Communication Equipment

3.8.1 Tram Position & Detection System (TPDS)

The tram shall carry such equipment that permits the following data to be input, gathered and transmitted between the vehicle and the Control Room:

- Tram position and which cab is in use
- Tram number
- Run number (unit diagram number)
- Service destination

- Driver number
- Driver duty number
- Whether tram is in/out of service

The tram shall initiate such message(s) that inform the Control Room and enable the updating of the PID sub-system of its destination.

3.8.2 Operational Radio System (ORS)

Nomenclature for tram radio call signs shall be the same as the vehicle number.

All voice communications involving the tram driver shall be via a handsfree method so as to minimise distraction of the driver from his driving responsibilities.

In the event that an on-board PHP is activated and the tram driver is involved in a radio call, the radio call shall not be interrupted. An alert of the help point activation shall be indicated to the tram driver.

The tram shall carry a mobile radio handset which includes both a microphone and an earpiece. This can be used in the event that the normal handsfree method of communication becomes unavailable or impractical - for example when the radio call is of a sensitive nature to those who may overhear it.

Where the tram driver instigates an on-board public address, this shall take precedence over any incoming radio calls received during the duration of public address. All radio calls received during this time shall be clearly indicated to the driver at the time of receipt.

When the tram is required to change direction of travel; e.g. after arrival at a terminus, the tram driver shall not be required to make any input to the ORS sub-system as he takes up occupation of the 'now leading' cab.



Director/Authorised Signatory
TIE LIMITED



Director/Authorised Signatory
PARSONS BRINCKERHOFF LIMITED



**This is the Schedule 14 referred to in the
foregoing Agreement between the Client
and the SDS Provider**

Requirements Specification for

Electrification & Power

Contents : Schedule 14

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4 ELECTRIFICATION & POWER REQUIREMENTS

4.1 General

The traction power supply system shall be a 750V or 1500V nominal DC system, fed through overhead contact wire and with traction return through the running rails.

The appearance of the finished overhead contact wire system (OLE) is of paramount importance and will receive detailed consideration through the planning approval process.

4.2 Traction Power Supply System

4.2.1 Modelling and Capacity

The full input parameters for the traction system modelling shall be agreed by tie in advance. Parameters should be chosen conservatively, but not so that in combination an unrealistically severe combination of parameters arises. The system shall be designed to support:

1. the peak service pattern,
2. the assumed rail, track construction, bonding, OLE and any parallel feeding arrangements,
3. trams of 40m nominal length,
4. all trams at AW2 loading, and with full auxiliary electrical loading,
5. service disruption, simulated by an appropriate means e.g. by an additional load drawn by each tram,
6. capacity for system expansion (see paragraph 4.2.3)
7. no spurious circuit breaker trips, and
8. any one substation in bypass for an indefinite period.

Only substation locations identified by tie may be used for the simulation and design.

As part of the traction power system design, an integrated holistic approach shall be taken with other subsystems including the OLE and the track and bonding details.

4.2.2 Electrical System Design

The electrical system design shall include the preparation of the protection scheme and the calculation of settings for the protection arrangements at each substation while supporting the traction supply to the requirements included in Section 4.2.1.

The normal OLE feeding arrangement shall be double end feeding to each section between substations. Inter-tripping arrangements are therefore required. Cascade tripping resulting from a single fault shall be avoided.

Accessible voltages shall be demonstrated to achieve the relevant EN and HMRI requirements under fault conditions and/or conditions of service disruption.

4.2.3 Capacity for System Expansion

The traction power supply network design shall support any potential Line 3 service over the common section of route. If certain equipment can be omitted from the initial scheme, being only required for the enhanced services to be operated over the common section, then this may be omitted for the initial supply, but the buildings shall

accommodate its future introduction and it shall be able to be installed and commissioned without disruption to normal service.

In addition the E & P design shall accommodate increase in service to 12 services per peak hour per route as described in the Requirements Specification for Overall System Operational & Performance Requirements.

4.2.4 Depot Traction Supply

The Depot site tracks, including those in the vehicle workshop, shall be electrically insulated from the main line, and tied to a common earthing system for the whole Depot site. The location of the IBJs is to be selected taking into account the operational, track layout and OLE requirements.

The Depot traction supply shall be drawn from the main line when the Depot traction substation is not available. This reconfiguration shall be able to be implemented via SCADA.

A foreseeable single failure in the High Voltage supply to the Depot substation shall not result in an interruption to either the Depot traction or to any of the Depot ancillary supply of more than 5 minutes, with no requirement for manual switching.

4.3 Substations

4.3.1 Substations Requirements and Facilities

Detailed interface requirements for the sub-station shall be provided such that a finished building suitable for immediate installation of the electrical equipment and cabling is achieved. This shall include surface finishing and level tolerances in particular. The substation floor and walls shall be sealed to control dust generation.

Underground substations shall not be provided unless proven absolutely necessary. However, where substations are underground, all necessary ventilation, drainage, access and egress requirements shall be provided.

Ventilation shall be provided to ensure both the system performance in hot weather and that the equipment does not suffer from dampness, dust and condensation in cold weather. Forced ventilation can be provided, and thermostatically controlled background heating is required.

The layout of and access arrangements to all substations, particularly the Depot substation, must be accepted by **tie**. This shall facilitate effective training and certification of maintenance staff being implemented. Sufficient access shall be provided to all substations such that the largest component can be replaced without dismantling any of the substation structure.

An appropriate locking system for access doors shall be provided. An intruder system shall be provided that is activated by door contacts and when so activated shall provide an alert to the Control Room via SCADA.

Internal emergency lighting shall be provided and adequate external lighting for access and egress.

All substations shall have the ability to connect an external generator via socket and plug and an interlocked Isolator. This shall provide all 400V AC services inside the substation to facilitate maintenance and fault investigation.

The substation building layout should include space for the inclusion of an energy storage device (see also paragraph 4.3.4 below).

All substation equipment shall be of low flammability in order to ensure that fire suppression is not required. Fire detection shall be provided and indicated in the Control Room by SCADA.

4.3.2 Incoming DNO Supplies

The integrity of the incoming DNO supplies to the substations shall be considered as part of their siting. It is important that adjacent substations are not fed from the same ring mains.

4.3.3 Flywheel energy storage

An option for the inclusion of flywheel energy storage at substations shall be considered. This should be addressed as a marginal cost on the scope of supply and a prediction of the energy saved from a separate power supply model.

4.4 Overhead Line Equipment (OLE)

4.4.1 General Requirements

Appearance of the OLE is of paramount importance throughout the Edinburgh Tram Network. The appearance must be appropriate to the location and visual intrusion shall be minimised. The visual appearance may need to include the contact wire stagger in certain areas.

The type of equipment selected (including e.g. auto-tensioned; fixed termination; catenary support; central mast with balanced bracket arms; side masts with cantilever arms; span wire construction etc.) over each section of the route must be appropriate to the area and to the tramway operating speed requirement in that location. The use of building fixings shall be maximised.

Where poles supports are provided, the shape and colour shall be considered as part of the visual approach. It is not necessary to minimise the total number of poles but rather to minimise their overall visual impact.

Consideration shall be given to individual replacement by poles in future, should building alterations require their removal on a temporary or permanent basis.

4.4.2 OLE Components

The use of twin contact wires is not permitted. Where necessary, buried parallel feeders may be considered as part of the traction power system network design. On certain sections of the route, aerial parallel insulated feeders may be considered.

Care shall be taken in specifying the standard components from which the overall OLE system will be assembled.

The part of the OLE that must be considered as 'live' should be minimised, with particular reference to minimising the impact on third-party maintenance alongside the route. The area considered as 'live' should preferably not exceed the width of the DKE of the pantograph head.

If 'parafil' or an equivalent material is to be used as part of the standard components, rigorous quality control measures for its installations shall be ensured.

Particular care shall be taken with the design for minimum visual impact of the parallel bonding between the contact wires, and of the feeder cabling from trackside isolators and at substations. Similarly, particular care must be taken with the overall visual impact and vandal-resistance of balance weight installations, where these are used.

The appearance around the base of support poles will also be of importance in certain areas. Consideration also needs to be given to the ease of replacement of poles if damaged by e.g. errant road vehicles.

4.4.3 Electrical Sectioning and DC Feeding Arrangements

The E & P system shall have both adjacent overhead lines in the same electrical section such that any outage will sever the system. Consequently most substations will only require two DCCBs and a bypass isolator. Line proving shall be a standard feature on all DCCBs.

Electrical sectioning of the overhead line shall be designed taking full account of the following criteria.

- It shall permit sectional energisation refer to the System Wide Non-Functional Requirements while allowing subsequent adjacent sections to be erected with minimum disruption to the energised sections.
- Electrical sections shall be such that crossovers and turnbacks can be used to turn trams with the overhead line isolated on the side of the crossover that is furthest from the city centre.
- Where trams are to be reversed, for instance at a crossover, the section Insulators shall be placed to allow two coupled 40m nominal length cars to be reversed (e.g. in a recovery situation).
- Where there are centre platforms, the OLE should be able to be isolated and earthed in the centre platform, with trams able to run through the tramstop on the outer two lines. Also, when the OLE is isolated on one side of the tramstop, trams should be able to operate from the opposite side of the tramstop and turn back in the centre platform. This could be achieved with a changeover switch.
- At a terminus, either platform should be able to be isolated and earthed by the operation of manual isolators.

4.4.4 Section Insulators

Section insulators shall in general be non-gapping (make before break) and shall not require trams to coast through them. They should be positioned on straight track where possible and at a point where current flowing to or from the tram is normally low.

However, section insulators which isolate the overhead line in workshop tracks shall be gapping, so that even if a tram enters a dead section, the dead section is not rendered live by the passage of the pantograph.

4.4.5 Wire Height and Gradient

Generally, the wire shall be as high as practicable to:

- Mitigate HMRI's requirement for minimum wire heights where a support has failed.
- Reduce the risk of contact with wires from over height road vehicles, window cleaners carrying ladders and any third party work.

Contact wire gradients adopted must take account of the expected tram operating speed in the area and an appropriate standard for the installation.

4.4.6 Pantograph

The tram pantograph sub-system shall be supplied as part of the OLE scope of supply for free-issue to the tram manufacturer.

The pantograph must be able to be raised manually when the tram battery is discharged. It is expected that the pantograph will in principle be of the 'power up/ spring down' type.

4.4.7 Integration with Street Lighting

It is expected that on certain sections of route, an integrated design of OLE poles and streetlighting will be required. This should seek to optimise the spacing of support poles and minimise visual intrusion. An appropriate electrical feeding and earthing scheme must be developed and approved by HMRI. This should minimise the additional components required to be attached to support poles and take account of the maintenance approach to be adopted for the street lighting.

4.4.8 Depot

OLE sectioning shall allow maintenance tasks e.g. on washer without disruption to other operations.

Adequate traction power supply for whole fleet stabled overnight and individual tram movements shall be provided.

4.4.8.1 OLE in Maintenance Workshop

Each maintenance berth shall be capable of being isolated separately.

Live line status indication shall be provided for:

1. For tram drivers, standard LRT signals outside doors to each wired part of vehicle workshop, showing STOP when line dead and PROCEED when line live.
2. For staff in the shed, Red (live or dead but not earthed) / Green (earthed) indicators at each berth. Should be visible from as much of the shed as possible, from the rolling stock office and (preferably) from the window from the Control Room into the vehicle workshop.

Vehicle workshop OLE shall be high (partly for safety, partly because it facilitates pantograph set-up).

4.4.8.2 Safety Interlocking system

A safety interlocking system shall be provided that is essentially mechanical key system that shall prevent:

1. Access to a tram roof when the OLE above it is not earthed, either by preventing access to the gantry or by preventing access from gantry to tram.
2. Use of overhead crane where there is a conflict with live OLE;
3. Use of overhead crane where it would run into a tram on jacks.

If there is tram roof equipment near the ends, such that a person working on it is at risk of falling off the end, end gates to high level shall be provided and interlocked such that OLE cannot be live whilst a gate is across.

4.5 Control and Monitoring

4.5.1 SCADA

All circuit breakers shall normally be remotely controlled by the SCADA system, but may also be locally controlled at the substations.

All isolators outside the Depot shall be operated remotely by SCADA and shall provide indications to the Control Room through SCADA.

4.5.2 High integrity emergency isolation system

This system is separate from the SCADA system and shall have no common failure modes with the SCADA system. The Control room shall have the facility to initiate an isolation (not earthing) of all of the overhead line sections by opening the associated DCCBs for:

1. The Depot only, and
2. All other overhead line sections.

4.5.3 Traction Power Supply Isolators

All isolators outside the Depot shall be motorised. Isolators shall generally have three positions, with the common pole connected to the overhead line. The positions are:

1. **Normal** - connecting overhead line to feeder
2. **Earth** - connecting overhead line to rail
3. **Bypass** - connecting overhead line to bypass position on the adjacent isolator at the substation concerned.

The position shall be indicated locally (physically) at the isolator, as well as remotely in the Control Room via SCADA.

Isolators shall be easily locked in the earth position to provide safe isolation of the OLE.

Isolators shall be able to be hand wound whilst maintaining interlocking with DC supply.

In trackside cabinets, the relative positions of the individual isolators are to be geographically consistent with the electrical sections being switched.

All isolators in the Depot shall be manually operated, with two positions, closed to feeder and closed to earth.

4.6 Auxiliary Supplies

4.6.1 Tramstops

A standard approach to the supply of auxiliary power to tramstop locations shall be adopted. This approach shall meet the following criteria:

- The integrity of the supply shall be appropriate to the equipment being powered, and to the overall architecture of the network systems including communications, tramstop equipment, and tram signalling and point control equipment.
- The standard scheme needs to take account of the standard equipment to be provided at every tramstop, and the specific additional needs at certain individual tramstops, including those with three platforms rather than two.
- An element of additional supply shall be provided at each tramstop for future additional provisions.
- Provision for a socket for cleaning equipment shall be included.
- Provision shall be made to feed the auxiliary supply locally by an external supply (e.g. a generator) via plug/socket and isolator).
- Take consideration of the cost of supplying power to tramstops overall.
- Size and shape of the equipment cabinet at the tramstop, including the other equipment required as well as the power supply.

- The integration of the equipment enclosure into the overall tramstop design, which may be by integration into a standard shelter 'kit of parts' or could be placed under the surface of the platform.
- Avoidance of bulky enclosures is required and an overall scheme without a UPS at each tramstop is essential.
- If higher integrity supplies are required, then consideration should be given to feeding from the nearest substations; possibly from the substation in each direction with an automatic changeover switch in case of failure of one or other supply.

Also refer to Requirements Specification for Civil Engineering Works, Requirements Specification for Supervision, Command and Control Suite of Systems and System Wide Non Functional Requirements.

4.6.2 Along the line

All auxiliary supplies to equipment alongside the track shall be specified, with appropriate supplies to the nature of equipment. This may be expected to include 400V AC supplies if necessary to supply any lifts and point heating equipment.

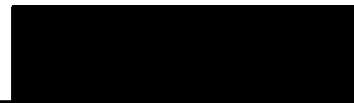
4.6.3 Street lighting/furniture & signs

All auxiliary supplies to street furniture, bollards, signs etc are to be specified.

All auxiliary supplies to street lighting are to be specified. It is expected that some street lighting may be attached to buildings and some may be integrated with OLE poles. The feeding arrangements shall be arranged logically with the intended future division of responsibility for the lighting, particularly in respect of footpaths and access to tramstops.



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**This is the Schedule 15 referred to in the
foregoing Agreement between the Client
and the SDS Provider**

Requirements Specification for

Tram Vehicle

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5 TRAM VEHICLE

5.1 Design principles

The tram provided for the Edinburgh Tram Network shall comply with the following general design criteria:

- high safety standards
- high reliability, minimum maintenance requirement and ease of repair
- proven design and technology
- low floor access
- ease of cleaning
- modern and attractive appearance
- low weight
- low environmental impact
- meet access requirements for the disabled
- prevent the possibility of persons climbing on the sides or roof of the tram and from being able to 'surf' on it.

5.2 Minimum safety standards

Notwithstanding the general safety requirements mandated in current relevant standards, the following minimum standards shall apply for the tram design:

- (i) internal cubicles, access panels, etc. shall be lockable in order to prevent access by passengers but shall be easily accessible by operating staff;
- (ii) care shall be taken to prevent injury by or in movable parts in the trams;
- (iii) external and internal projections and finger traps shall be avoided as far as practicable;
- (iv) internal fixtures shall be safely secured.

5.3 Physical Requirements

The tram design shall meet the following requirements:

- (i) Trams shall be capable of running together for emergency operation only, i.e., one tram recovering a failed tram. Normal service trams shall comprise one tram;
- (ii) trams in normal or emergency operation as defined in (i) shall be capable of negotiating the minimum radius horizontal and vertical curves specified in the System Wide Non Functional Requirements and maintain acceptable wheel flange wear and noise;
- (iii) The tram shall be designed to have a minimum service life as specified in the System Wide Non Functional Requirements.

5.4 System Elements

5.4.1 Climatic and environmental conditions

The tram shall be capable of normal operation in all climatic and environmental conditions found on the proposed route as described in the System Wide Non Functional Requirements.

5.4.2 Alignment and gauge details

The tram shall be capable of traversing track and gauge as specified in the System Wide Non Functional Requirements.

5.4.3 Network Rail infrastructure compatibility

The tram shall not import additional risk onto Network Rail infrastructure.

5.4.4 Traction Power supply

The traction power shall be collected from an OLE.

5.5 Overall design and performance

5.5.1 Overall configuration and layout

The tram body shall be approximately 2.65m wide externally. If a tenderer wishes to propose a tram with external projections (such as mirrors, camera pods, or footsteps) which will render the tram wider than this in plan view, details must be provided at the time of tender. Note that footsteps are likely to be required in order to comply with RVAR.

5.5.2 Crash worthiness

Easily replaceable energy absorption devices shall be provided at both ends of the tram such that frontal and rearward collisions, at speeds up to 5 km/hr, shall be fully absorbed without causing permanent deformation of the car body structure;

5.5.3 Materials

The tram shall be designed to be resistant to fire in accordance with the relevant UK or European standard. The onus to demonstrate equivalence of standards rests with the supplier.

5.5.4 Interior design

All passenger areas of trams shall be provided with a heating and ventilation system that maintains a constant acceptable ambient temperature during transit between tramstops and during boarding and alighting at tramstops when operating in all prevailing climatic and environmental conditions on the proposed route.

Able-bodied passengers shall be able to move along the entire length of the passenger accommodation of the tram.

Movement within the tram shall be made as safe as practicable. Care and attention shall be given to provide a safe passenger environment.

The free and safe movement of passengers shall be facilitated by the incorporation of handrails, grabpoles and an interior free of tripping hazards and sharp corners throughout the tram.

For the avoidance of doubt in this context, steps may be included to permit the movement of passengers to/from areas where there is a difference in the height of the floor of the tram.

All passenger areas of trams shall be provided with windows in all side walls to maximise visibility for passengers. This requirement shall also apply to draught screens and separation walls to the driver's cabs.

All seats shall be at least 450mm wide.

5.5.5 Saloon Lighting

Interior lighting shall provide glare free, uniformly distributed illumination in passenger areas, to a level of between 280-350 lux;

Emergency internal lights, hazard lights and radio must all function for at least 30 mins after disconnection from the overhead power supply. Emergency internal lighting shall provide a minimum illumination of 30 lux at floor level shall be evenly distributed in each passenger area of the tram; their operation shall be independent from the overhead line power supply. Uniformity of illuminance shall not be less than a factor of 0.4

5.5.6 Floor height and headroom

Headroom throughout the seating areas shall be 2.3m to ceiling in the low floor areas and where uneven floor height is proposed then 2.1m to ceiling in the high floor areas.

High floor areas shall be minimised and shall be no more than one third of the overall saloon floor area.

5.5.7 Driver's cab

The driver's cabs shall be air-conditioned and the temperature shall be controllable by the driver. Air conditioning in both cabs shall be switched on or off from either cab but temperature selection shall be only available from the cab in use.

An internal cab to saloon door is required.

When changing ends, insertion of the driver's key and the operation of one switch shall switch on all of the equipment needed to enable the tram to be driven from that cab. Subsystems which are always needed shall not be separately switched.

The layout of controls and switches shall be agreed with the

A separate track brake button shall be provided, as well as the hazard brake on the driver's controller required by HMRI Guidance.

Driver control of sanding shall be provided as well as automatic control under conditions of wheel slip or wheel slide.

At least one cab shall display an odometer calibrated in km.

Windscreen wiper control shall be by means of a multi-position switch having intermittent, continuous slow and continuous fast positions.

There shall be a separate push button which operates wipers and windscreen washers for as long as it is held down, and provides one additional sweep of the wipers after it is released.

A mirror giving a view into the saloon is required.

A generally translucent mesh fabric sun blind is required, with an opaque strip extending 150mm up from the bottom edge. The blind must be able to be deployed whilst driving. It need be retractable only at stops.

The configuration of the cab partition and the windscreen shall be such as to avoid confusing internal reflections in the windscreen at night. If this cannot be achieved, then blinds or curtains shall be provided to screen saloon lighting from the cab at night.

The following features that relate to instruction of tram drivers shall be provided:

- A tram driver can be under instruction when a tram is in passenger service. Consequently it must be possible for an instructor and a driver to be inside the

cab with the cab/saloon door closed, and the instructor must be comfortably and safely located in the cab.

- The instructor must be able to apply the tram hazard or safety brakes quickly.
- The instructor must be seated and secure in the cab to the extent that he/she can apply the brakes even when the tram is performing unpredictably.

It shall be possible to drive the tram from each end of the tram.

The driver's cab shall be separated from the passenger area by a glazed partition providing good passenger visibility through the cab windscreen.

The driver's cab may extend to the full width of the tram.

The design of the driver's cab shall be undertaken to sound human factors practice.

Windscreens and cab windows shall be designed to maximise the degree of all round vision. A clear unobstructed view of the road/track ahead shall be provided.

Cab and glazing surfaces shall be designed to minimise the incidence of reflections during all hours of tram operation and all expected environmental conditions.

The following controls should be conveniently placed for the driver's free hand when the tram is in motion:

First priority:

- Audible warnings (bell, horn)
- Track brake
- Indicators

Second priority:

- Manual sand
- Windscreen washer and wiper controls
- Headlamp dip / main beam

The following controls shall be conveniently placed close together for use when the tram is at a tramstop:

- Door controls
- Rear-view normal mode push button
- Tram Ready To Start (junction calling when at a stop close to the junction)
- Tram punctuality display against timetable or headway

5.5.7.1 Driver's seat

Unless the seat is purpose-designed for the tram, it shall be a seat specifically designed for bus applications rather than for other vehicles such as heavy goods vehicles, as it must be capable of being adjusted many times per day without any damage.

5.5.7.2 Storage

Both cabs on each tram shall provide storage for:

- A points handle, typically a red steel bar about 1m long. This must be placed so the driver can easily take it with them when leaving the cab, and so it can be stowed and unstowed without risk of damage to the cab finishes or equipment
- A first-aid box
- A fire extinguisher

- A place to hang a driver's coat, where it will not interrupt his view in any direction.
- A place to hold two A5 ring binders of timetables, information and procedures.
- A place to clip an A5 sheet of paper, which can be conveniently referred to by the driver (whilst at a tramstop), and which does not obscure any controls or gauges.
- A handlamp

5.5.7.3 Rear View Equipment

Whilst mirrors may be acceptable, CCTV is the preferred rear-view equipment. If fitted, it must function as follows:

The "normal" view, displayed whenever the tram is in motion, shall have two screens in the cab, one on the left and one on the right side of the desk, and the images in them shall be the same as would be seen in mirrors.

The "tramstop" view shall be displayed between the doors being enabled at a stop and all doors being proved closed. In this view, the monitor on the platform side (the side on which the doors are enabled) shall show the same as in normal view. The other monitor shall display the image from the rear camera on the platform side.

A push button on the cab desk shall provide changeover from tramstop to normal mode for as long as it is held down, to allow a driver to check that nothing is overtaking the tram at an on-street stop whilst the doors are closing.

CCTV images must remain clear enough to see a cyclist overtaking the tram before it sets off from an in-street tramstop, even when it is raining, dark, under street lighting and there are car headlamps shining towards the cameras. In practice, the only application of CCTV on a UK street-running tramway so far had to use cameras which were colour by day and monochrome by night, with automatic changeover in low light.

Rain affects CCTV both by creating additional reflections and on the camera housings themselves; the system must cope adequately with both.

If mirrors are to be offered, they must be adjustable from the cab and heated. If only the mirrors in the active cab are heated, then the mirror must be clear of frost or condensation within one minute of the cab being made active, in an ambient temperature of -10°C.

If mirrors are provided, they must remain available at all times on street-running sections and must be included within the DKE. On off-street sections, if the mirrors are not to be included within the DKE, they must fold in, but must deploy automatically at a standstill.

The tram shall be fitted with cab-to-cab intercom facilities. The intercom facility will also provide communication between all four cabs when two trams are coupled during the recovery of a defective tram.

5.6 Communications systems – functionality and priorities

Spatial provision shall be made in the most appropriate part of the tram for ORS and TPDS sub-system equipment and the associated cabling, support equipment, microphones, speakers, antennae and power supplies.

5.7 Bogies

5.7.1 Bogie Systems

5.7.1.1 Sanding System

The tram shall be equipped with a system which deposits sand ahead of the driven wheels in the direction of travel both automatically, when wheel slip or wheel slide is detected, and manually under control of the driver. Sand shall be deposited on at least two locations on each rail.

The tram sand boxes shall have sufficient capacity for a full day's service under all conditions of weather and loading.

A means of ascertaining the sand level in the sandboxes shall be provided, visible from within the tram.

The tram sandboxes shall be filled from the outside the tram using a sand dispensing plant. In the event of failure of the plant, it shall also be possible to fill the tram manually, and if any special equipment is required for this, the tram manufacturer shall provide it.

The tram manufacturer shall provide a specification for the sand to be used. This shall be provided within 30 days of contract award, for use by the sand plant manufacturer. The tram manufacturer shall also provide the contact details of at least one UK supplier of compliant sand. This information shall be provided at least three months before the date on which the first tram is programmed to operate outside the Depot.

5.7.1.2 Flange Lubrication Equipment

At least one bogie of the tram shall be equipped with flange lubrication equipment on all wheels. Both sides of the flange shall be lubricated. It shall be capable of being programmed to operate on the basis of either location, or of a time interval, or a combination.

5.8 Propulsion and braking equipment

5.8.1 Performance

The tram power equipment shall be designed to conform to the nominal voltage. It is envisaged that nominal voltage will be either 750 volt dc or 1,500 volt dc.

The harmonic generation from the propulsion and control equipment shall not interfere with trainborne or trackside systems or third party infrastructure.

The traction equipment shall be capable of detecting and automatically managing wheel slip and wheel slide.

5.8.2 Braking equipment

The service brake application shall be capable of retardation at an acceptable rate at all specified tare and laden conditions and the jerk rate shall be limited so as to not cause discomfort to standing passengers.

For emergency braking applications the jerk rate shall be limited as far as practicable without compromising emergency braking performance.

5.9 PASSENGER DOORS

The tram shall be capable of providing data of the number of passengers boarding and disembarking at each tramstop.

Provision for passengers to validate their travel tickets on boarding the tram and on disembarking shall be made at a suitable point(s).

5.9.1 Door system performance

The tram shall accept a door enable command from the driver when the tram speed is below 10km/h, but the doors shall not become enabled until the tram is at a standstill. If, having been enabled, the tram speed then rises above 10km/h, the enable command shall be cancelled.

To prevent the doors being enabled on the wrong side, the door enable shall be interlocked and programmed with the correct side for the platform at each tramstop along the route. This feature must be capable of being over-ridden by the driver (for example, if the tram uses an unusual platform at a terminus), but such over-ride must require the driver to press at least one additional button which shall not be located adjacent to the other door controls in the cab.

The time from the tram coming to rest to doors being fully open in response to a prompt passenger demand, plus the time from the driver pressing the door close button to the tram moving off, shall be less than 12 seconds. The doors themselves shall move from closed to fully open or vice versa in less than 3 seconds.

5.9.2 Sealing

The door sealing arrangement will be designed to exclude the ingress of water in all weather conditions found on the proposed route and when passing through the Depot washing plant.

5.9.3 Door guidance system

The guidance mechanism shall not be a swing plug mechanism.

5.9.4 Passenger door operation

The following controls shall be fitted in each cab for driver control of the doors:

- Door enable controls for the left and right sides separately. It must be possible to enable both sides simultaneously. The enable buttons should each be located on the appropriate side of the cab desk.
- One door open button, which will open any doors not previously enabled, provided the tram is at a stand.
- One door close button, which will close all doors which are open. This will be the normal mode of door closing at tramstops other than termini.

The door enabled indicator lights at the doors shall illuminate, and the door enabled tone start, simultaneously with the door actually becoming available.

A door shall re-close automatically, with warning tone, if no obstacle is detected for twenty seconds (configurable). This will be the normal mode of door closing at termini.

When all doors are closed and traction is available, an audible signal, distinct from all other tones and quieter and less offensive than any alarm tone, shall sound in the cab in use. This is preferred to a lamp or other visual signal as the driver already has to view the platform and check ahead before moving off.

Unless a separate external cab door is provided, the door nearest each cab on each side (four doors in total) shall be provided with local internal and external door open and close switches operated by driver's key. These shall be spring-loaded centre-off, turned one way to open and the other to close. Any door opened using a local switch shall be capable of being closed either using the appropriate local switch or the "door close" button in an active cab. The purpose of these switches is to allow local control of the door by a driver who needs to leave and re-enter a passenger-carrying tram, for example to operate points, at a place which is not a tramstop.

In addition, unless a separate cab door is provided, a separate control shall be provided in the cab to allow the tram driver to open and close the nearside front passenger door separately. This is to allow the driver to open and close this door separately at the crew change halt at the Depot.

The door enabled tone required by RVAR shall be audible from both inside the tram and on the platform. This may require an additional external sounder if, in order to be heard outside, the internal one is uncomfortably loud for passengers on the tram.

5.10 Communication systems

5.10.1 Close circuit television

The tram shall be fitted with internal CCTV which shall record digital images covering:

- The whole of the saloon, with sufficient clarity to enable individuals to be identified for evidential purposes;
- The views ahead/back from the cabs.

The resolution of recorded images and recording speed of images shall be of a quality from which it would be capable of being reliably used as part of an accident investigation and in respect of the saloon images be of a quality to gain a conviction in the event of illegal activity.

The recorded CCTV images will be capable of being retained on the tram for 72 hours at which point the system will restart recording and erase the retained image.

CCTV images must be capable of being taken from the tram for subsequent retention and analysis. This must be done using a removable data storage medium rather than by data transfer.

All software required for off tram viewing, editing and analysis must be provided by the manufacturer.

5.10.2 Event Recorder

The tram shall include a data recorder capable of providing time, speed and distance information at 1m resolution or better for the last day's operations, and at 10m resolution or better for the last 7 days' operations. Additionally the start and end of the following events shall be recorded:

- Horn
- Bell
- Traction
- Brake
- Hazard brake
- Safety brake
- Track brake

- Door enable left present
- Door enable right present
- Manual sand command present
- Tram Ready to Start (TRTS)
- Hazard lights
- Left Indicator
- Right Indicator

Software enabling event recorder download data to be interrogated and displayed in both graphical and tabular format shall be provided. The software shall also enable all of the data to be exported into Excel for further analysis.

The data shall be recorded onto a removable data storage medium. The data recorded shall include the tram number.

5.10.3 Public address system

Audible announcements for destination and stops shall be made by means of a digital voice announcement system. The supplier shall supply a copy of any necessary equipment and software needed to upload new and amended announcements or to alter the times and places at which announcements are made.

Additionally, the tram shall be fitted with both internal and external public address systems, selectable individually by the driver.

The following are additional to the requirements of the RVAR:

- RVAR permit audible announcements between stops to be omitted where the run time between stops is less than two minutes. This option is to be used wherever possible.
- At a stop, in addition to the RVAR requirement of announcing the next stop and destination, the equipment must also be capable of announcing the current stop. The form of the announcement to be provided initially shall be:
 - "This is <name of current stop>. This tram is for <name of destination>. The next stop is <name of next stop>." It shall be initiated by the door enable, and there shall be a short delay so that the door enable tone is finished before the announcement starts.

5.10.4 Passenger Information Systems

The tram shall be fitted with six external destination displays, one at each end above the cab and two on each side, one near each end. The side displays should not be obscured by open doors.

- The visual displays shall display, successively:
 - Screen 1: Tram to
 - Screen 2: <Destination> (see separate proposal for Line1)
 - Screen 3: Next Stop
 - Screen 4: <Next Stop>

Stepping to the next stop name shall take place on arrival at a stop

- After leaving the stop before a terminus, the external destination indicators shall change to show the destination of the next trip, so that the tram arrives at the terminus with the correct next destination already displayed.

5.10.5 Passenger Alarm Systems

Passenger alarm devices shall be located in the saloon area.

Request "Stopping Buttons" are to be provided and compliant with RVAR and should:

- become operable when doors are proved closed at a tramstop.
- when the first one is pressed, sound a single audible warning in the cab, illuminate a warning light in the cab and illuminate the tram stopping indicators required by the RVAR in the saloon.
- no further audible warning in the cab from subsequent button pushes.
- positioned such that they can easily activated by any passenger intending to disembark, but should not be positioned such that they can be inadvertently activated by standing passengers.

Request stop from the wheelchair spaces should:

- illuminate a different warning light in the cab.
- create a door open request for the nearest door, so it opens as soon as enabled.
- override the automatic close on that door for the next opening.

All request stop indications should be cancelled by the next door enable command

5.11 Towing or Propelling a dead tram

An empty tram shall be capable of both hauling and propelling (but not both simultaneously) another empty tram, which is incapable of movement under its own power, between any two points on the system under the climate conditions described in the System Wide Non-Functional Requirements.

As well as mechanical coupling, the following control facilities shall be provided on a coupled pair of trams:

- Track brake control of both trams from the cab in use
- Through intercom between all cabs
- Through control and power to hazard lights and marker lights

The intercom, marker lights and hazard lights shall be operational on both trams even if the tram being assisted has no battery power available.



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System-wide Non-Functional Requirements

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6 SYSTEM WIDE NON-FUNCTIONAL REQUIREMENTS

6.1 General

This is intended to capture and state those non-functional requirements that are applicable to all elements of the Edinburgh Tram Network. It should therefore be read and applied in conjunction with the other sections of this document relating to the various sub-systems.

6.2 Usability

The Edinburgh Tram Network shall be designed and constructed for left-hand running under line of sight operation.

The maximum speed for the Edinburgh Tram Network shall be 80 km/h.

All vehicles and tram network enclosed premises shall be designated no-smoking environments.

6.2.1 Control Room

Operator workplaces shall be designed and constructed such that they conform to good HF practice.

6.2.2 Environmental Conditions

Equipment may be installed in a number of differing environments depending on location and site conditions. Notwithstanding this, all equipment shall be capable of continuous operation.

The Edinburgh Tram Network shall function in accordance with the Requirements Specification for Overall System & Performance Requirements taking cognisance of factors including electrical interference, dust, vibration, supply voltage variations, radio signal variations, solar radiation, temperature, humidity, salt, mist, wind, precipitation etc. The existence of any of these factors shall not reduce the performance nor shorten the working life of the Edinburgh Tram Network.

Table 6-1: Edinburgh Climate Data shows the average climatic conditions for the region. All equipment shall be suitable for a working life as defined in section 6.2.4 under these conditions, unless otherwise agreed by the reviewing body.

Equipment housings/enclosures and the equipment contained therein shall be capable of operating at a temperature 15°C higher than the upper limit specified in Table 6-1 and at a temperature of 5°C lower than the lowest ever recorded as specified in Table 6-1.

Equipment housings/enclosures, cable routes etc. shall be such that with doors closed, all covers in place and all internal equipment correctly mounted and fully operational, the temperature rise at any free air point shall not vary from ambient by more than 10°C unless otherwise agreed.

All equipment housings/enclosures that contain electronic equipment shall be so equipped to minimise the occurrence of condensation.

6.2.3 Climatic Conditions

Edinburgh (eastern Scotland)															
Sunshine (average hours per day)		Temperatures								Precipitation and humidity			Wet days (more than 0.1 mm/0.004 in)		
		Average daily				Highest recorded		Lowest recorded		Relative humidity		Average monthly precipitation			
		minimum		maximum		Highest recorded	Lowest recorded	900	x						
		°C	°F	°C	°F	°C	°F	°C	°F	%		mm			in
Jan	2	1	34	6	42	14	57	-8	17	84		57	2	17	Jan
Feb	3	1	34	6	43	14	58	-9	15	83		39	2	15	Feb
March	4	2	36	8	46	20	68	-6	21	81		39	2	15	March
April	5	4	39	11	51	22	72	-4	25	75		39	2	14	April
May	6	6	43	14	56	24	76	-1	31	76		54	2	14	May
June	6	9	49	17	62	28	83	3	37	75		47	2	15	June
July	5	11	52	18	65	28	83	6	42	78		83	3	17	July
Aug	4	11	52	18	64	28	82	4	40	80		77	3	16	Aug
Sept	4	9	49	16	60	25	77	1	33	80		57	2	16	Sept
Oct	3	7	44	12	54	20	68	-2	28	82		65	3	17	Oct
Nov	2	4	39	9	48	19	67	-4	24	83		62	2	17	Nov
Dec	1	2	36	7	44	14	58	-7	20	84		57	2	18	Dec

Based on readings for 30 years at 55°55' N, 3°11' W, altitude 134 m/440 ft.

Table 6-1: Edinburgh Climate Data

The size, colour, and location of all trackside equipment cabinets/housings, lighting columns, CCTV columns and the like shall comply with the requirements of the relevant Local Authority Planning Department.

Where used, the size, colour and location of lighting columns, CCTV columns and the like shall comply with the requirements of the relevant Local Authority Planning Department.

6.2.4 Edinburgh Tram Network Life-Cycle

Unless otherwise specified in this Agreement, the Edinburgh Tram Network and its components shall be designed for a working life cycle as defined in **Table 6-2** :

System life

System Element	System Life
Tram	30 years
CCTV	15 years
TVMs	15 years
PHPs	15 years
PIDs	15 years
PA	10 years
Radio communication systems	15 years
Control Room equipment	15 years
Signalling equipment	20 years
OLE	40 years
Track & formation	30 years off street 50 year on street
Points & crossovers	25 years
Buildings	50 years
Bridges & structures	120 years

Table 6-2 : System life

Where the life expectancy may be constrained by the availability of replacement components, it will be acceptable to achieve the design life through the use of a replacement sub-unit using different components provided that such components shall not be detrimental to the operational and performance requirements and uphold the Edinburgh Tram Network safety case. This shall be demonstrated through the approved amendments to the relevant cause consequence analysis.

6.2.5 Alignment & Gauge

Track form and its alignment shall be designed as an integral component of the Edinburgh Tram Network taking account of the interaction with the tram and its running gear (wheel/rail interface), the need to meet the overall specified ride quality and journey time parameters and Edinburgh Tram Network whole life cost assessment.

6.2.5.1 Horizontal Alignment

The following horizontal alignment criteria shall be assumed:-

Horizontal alignment		Requirement	Notes of meeting on 3 Feb 05
H1	Minimum curve radius		
H1.1	Slab track	25m	
H1.3	Ballasted track, main line and unanchored.	150m	Tighter radii can be accommodated if accompanied by proposals to anchor track in an effective way.
			Ride comfort issue. Alternatives of 2 seconds transit time or outer axle rejected.
H3	Absolute minimum length of straight alignment between reverse curves	10m	
H4	Straight alignment in front of the platform limit		Dependent on vehicle geometry; to be confirmed once tram selected and DDA doors nominated.
H5	Length of tram stop platform (between tops of ramp)		Will be set at 4m longer than the distance between the outer edges of the outer tram doors, to provide a plus or minus 2m stopping tolerance for the tram.
H7	Minimum horizontal radius in tram stops	Straight	Issues are horizontal gaps between doors and platforms and the risk of collision between tram and platform edge. General note covers point on derogation
H8	Transition curves	clothoid/Spiral	
H9	Minimum transition curve length		This is a ride quality and speed issue, covered adequately elsewhere. There may also be constraints from the selected tram, as yet unknown.
H10	Turnout geometry		
H10.1	Crossing design must accommodate curve in turnout		Turnout crossing geometry through which regular scheduled

Horizontal alignment		Requirement	Notes of meeting on 3 Feb 06
	direction. Straight legs in turnout curve are not permitted.		moves are made through the turnout leg shall avoid use of straight legs on this leg
	Slab track	4mm/m	Set by tram, but this is not the complete picture as far as "twist" is concerned. The tram will have other limits that relate to combinations of horizontal and vertical geometry.
	Ballasted track		Less than for slab track to allow for maintenance and construction tolerances. To be established by the SDS Provider and agreed with lie . See section on tolerances at end of document
C4	Maximum cant gradient		While around 1:300 is likely to be the minimum design figure, certainly for street/slab track, this is another one where the requirements of manufacturers should be canvassed in respect of the present generation of vehicles. A maintenance tolerance (in respect of ballasted track) and an installation tolerance for any track needs to be taken away from what the manufacturers are happy with to get a nominal design figure.

6.2.5.2 Parameters for Comfort

Parameters for Comfort		Requirement	Comment
C1	Maximum cant deficiency	150 mm	More detailed study required
C2	Maximum cant		
C2.1	running lines	150mm	But check that the applied cant can be applied and maintained for the typical short length curves (is there enough room for the transitions) and will it stay there. Worth looking at concrete-based trackform of some kind for the sharper curves.
C2.2	Platforms	Desirable 0mm Absolute 15mm	Absolute value only to be adopted if there is a need to accommodate cross falls that can not be avoided.
C2.3	switches and crossings	All must lie in the same plane	Princes St/David St turnout will probably have to be on an inclined plane
C5	Maximum rate of change of cant with time	80mm/s	Linked to ride quality and passenger comfort and the tram may also set limits for this.
C6	Maximum jerk (rate of change of lateral acceleration)	0.4m/s ³	This doesn't seem unreasonable as an empirical effort; given standing passengers in particular will have more expectation of longitudinal jerk rather than lateral. Potentially big issue with conductors it is agreed that this should be a specific requirement, which could be related to any untransitioned curve and all pointwork, but it needs to be recognised as additive to whatever is specified for ride quality, which it has been assumed is not intended to be addressed in this document.
C7	Maximum vertical acceleration	0.3m/s ³	Not considered to be a parameter that is likely to impact on run times. NB there may be issues with the achievable speed being governed by the OLE and its ability to match the profile and the minimum acceptable gradient of contact wire/track.

Parameters for Comfort		Requirement	Comment
C8	Maximum design speed	80km/hr	The alignment should be designed for this speed but tram selected may have a slightly lower top speed.

6.2.5.3 Vertical Alignment

The following vertical alignment criteria shall be assumed (V to be inserted in km/hr):-

Vertical alignment		Requirement	Comment
V1	Desirable minimum vertical track radius plain line		500m hog or sag seems a reasonable starting point, but this is an item which will be set by the selected tram. It is clear that there are some critical locations in Edinburgh which will challenge whatever limit is set, particularly for 100% low floor cars. We need to be certain about this and the other design criteria being set. Tram suppliers will be provided with the current St Andrew Sq alignment for them to confirm if their tram(s) can use this alignment. A key related issue is the risk of a person being trapped under the front of the tram.
V1.1	Sag (MM/FM quote parabolic curve)	()	
V1.2	Hog (MM/FM quote parabolic curve)	()	
	Crest		Desirable infinity, absolute min 5000m
	Dip		Desirable infinity, absolute min 1000m

6.2.5.4 Combined horizontal and vertical geometry

There will be constraints on combinations of vertical and horizontal geometry. These will include:

- Combination of vertical curves and horizontal curves
- Combination of gradients and horizontal curves

6.2.5.5 Gradients.

The following criteria relating to gradient shall be assumed:

Gradients	Requirement	Comment	
G1	Maximum gradient		
G1.2	Absolute	8%	Any increase on 8% will exclude 2/3 motored tram s, and would result in a step change in tram costs.
G2	Maximum gradient Tram Stops		
G2.1	Normal	Level	
G2.2	Absolute		Minimise this as gradients impact on run time, and reduce accessibility.
G3	Maximum gradient stabling area and Depot	Level	
			HMRI Part E revised

6.2.5.6 Other features

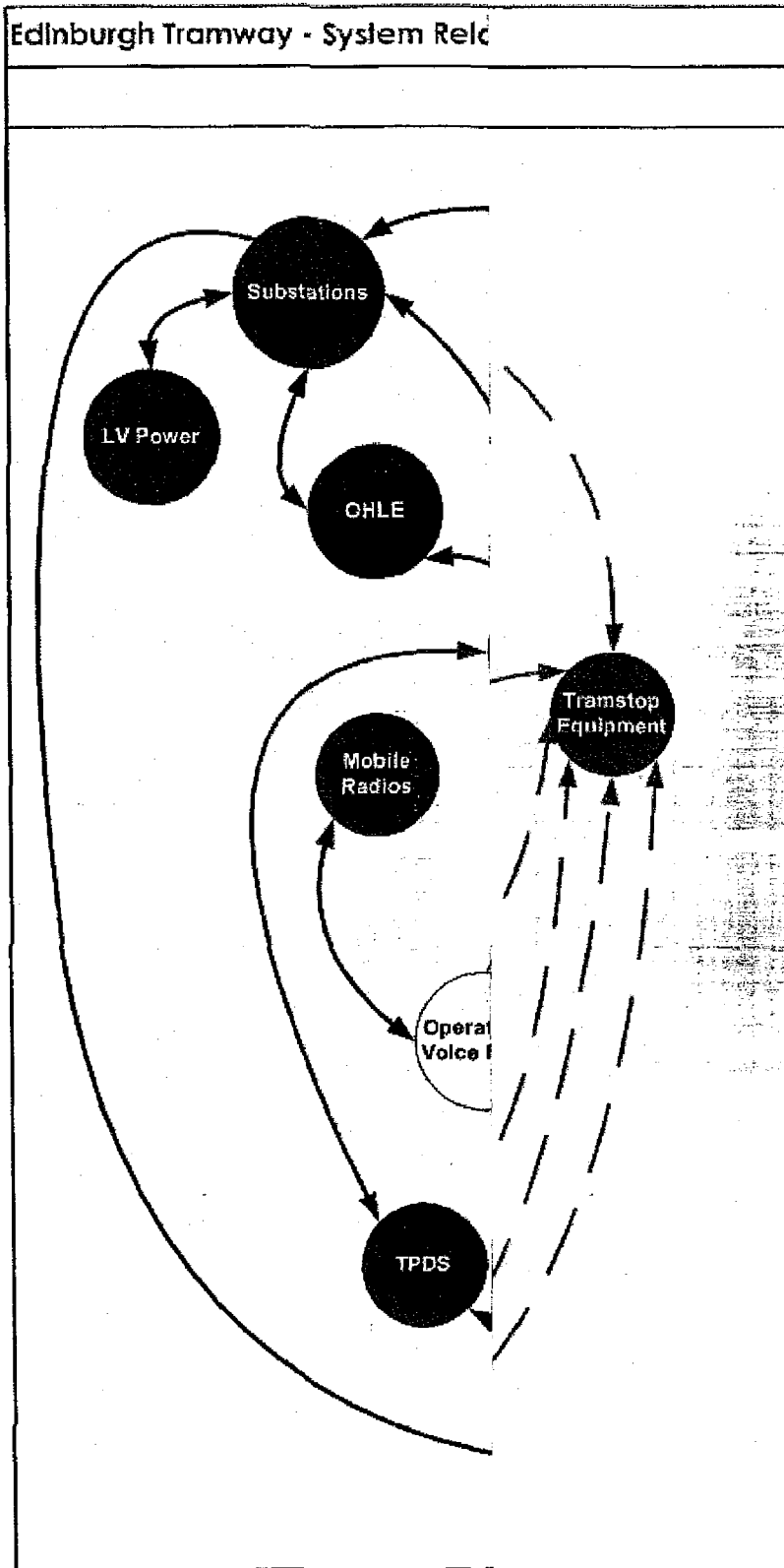
The tolerances on alignment and gauge shall form a coherent and achievable set of tolerances for the Edinburgh Tram Network. Construction and maintenance tolerances shall be separately defined for each parameter. A full set of parameters that will protect the safety and performance of the Edinburgh Tram Network shall be included.

6.2.5.7 Lineside speed signs

The Edinburgh Tram Network shall be signed at speeds that are integer multiples of 5 km/h. Speed signs shall be rationalized in conjunction with the Operator. The signed speeds shall be an input to any run time modelling.

6.3 System/Sub-System Relatio

The following diagram is intended to d



6.4 Nomenclature

6.4.1 Tramstops and Substations

Substations shall have the third character "E" (for Electricity). Names of Substations shall not be the same as tramstops.

Tramstop acronyms shall avoid having the third letter "E" to avoid potential confusion with substations.

Tramstop and Substation acronyms are set out in the table below.

Tramstops		Sub-stations	
Haymarket to Ocean Terminal to Haymarket:	Airport to Haymarket:	All have third character E (for Electricity). This shall be avoided in selecting tramstop acronyms.	
HAY Haymarket	AIR Airport	GBE Gogar Bridge Road	
SHP Shandwick Place	IPR Ingliston Park and Ride	GDE Gogar Depot	
PSW Princes Street West	GOG Gogarburn	BDE Bankhead Drive	
WAB Waverley Bridge (Proposed)	(DEH) Depot Halt (Staff Only)	JDE Jenner's Depository	
SAS St Andrew Square	GYL Gyle	RRE Russell Road	
PIP Picardy Place	EDP Edinburgh Park	HTE Haymarket Terrace	
MDR McDonald Road	EPS Edinburgh Park Station	CCE Coates Crescent	
BAS Balfour Street	SGA South Gyle Access	CAE Cathedral	
FOW Foot of the Walk	SRN Soughton Road North	LWE Leith Walk	
COS Constitution Street	BAR Balgreen Road	LDE Leith Depot	
OCD Ocean Drive	MUR Murrayfield	ANE Annfield	
OCT Ocean Terminal	HAY Haymarket	GRE Granton Road	
NER Newhaven Road		GME Granton Mains East	
LGR Lower Granton Road	OTHER NOMINATED LOCATIONS	TRE Telford Road	
GRS Granton Square			
GRW Granton Waterfront			
CAP Caroline Park	ROJ Roseburn Junction		
WGA West Granton Access			
CRT Crewe Toll			
WGH Western General Hospital			
CRA Craighleith			
RAD Ravelston Dykes			
ROS Roseburn			
OTHER NOMINATED LOCATIONS			
YOP York Place (crossover)			

6.4.2 Directions

Line One shall be described as "Inner Circle" for clockwise directions, and "Outer Circle" for anticlockwise directions.

Therefore, AIR to ROJ is "Inbound", and ROJ to AIR is "Outbound".

	Description	Route
I/B	Inbound	Between AIR and ROJ
O/B	Outbound	
I/C	Inner Circle	Line 1
O/C	Outer Circle	

6.4.3 Items of Equipment

Acronym	Meaning
AFC	Automatic Fare Collection
CCTV	Closed Circuit Television
DCCB	Direct Current Circuit Breaker
HCI	Human Computer Interface
HF	Human Factors
HVAC	Heating, Ventilation and Air Conditioning
OHLE	Overhead Line
ORS	Operational Radio System
PA	Public Address
PCC	Point Control Cabinet
PCC	Point Control System
PHC	Point Heating Cabinet
PHP	Passenger Help Point
PID	Passenger Information Display
SCADA	Supervisory Control and Data Acquisition System
TBC	Traction/Brake Controller
TEL	Telephony
TLA	Three letter acronym
TPDS	Tram Position and Detection System
UTC	Urban Traffic Control

6.4.4 Points

The nomenclature for points shall consist of:

- the three letter acronym for the adjacent tramstop or other location
- the letter "P"
- a sequential number. Even numbers on the Outer Circle and Outbound lines, odd numbers on the Inner Circle and Inbound lines.

Point acronyms are as set out on the Edinburgh Tram Network diagram.

6.4.5 Other equipment

The following nomenclature shall be defined and agreed with **tie**:

- TVMs
- Signals
 - off street
 - on street
- PIDs
- etc

6.4.6 Chainage

There shall be a single "Chainage System Definition Document" that links all of the project's chainage systems together such that the distance between any two points on the whole Edinburgh Tram Network can be easily determined from:

1. The chainage of one point
2. The chainage of the second point, and
3. The Chainage system definition document

The chainage system shall have no two points with the same chainage distance anywhere on the network. This will be achieved as set out in the Edinburgh Tram Network diagram.

This chainage system for Line One shall start at 0.000 km at Ocean Terminal and runs clockwise through SAS, HAY and GRS back to OCT, finishing at about 16.000 km.

The short outbound or easterly route through St Andrew Square along the southern and eastern sides that is not included in the above shall have a separate chainage running from 20.000km to about 20.400 through the section where there is single track.

Line Two chainages shall start at ROJ at a notional 30.000 km and increment to AIR.

Newbridge Spur chainages shall start at 50.000 km at EPS and increment to NEW.

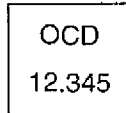
The potential Line 3 shall start at St Andrew Square at a notional 60.000 km and increment to the end of Line 3.

6.4.7 OLE Fixings

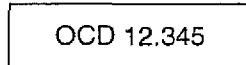
These shall all be uniquely identified with the following information

- The TLA of the tramstop that is closest to the fixing
- Operator's chainage, eg "12.345"

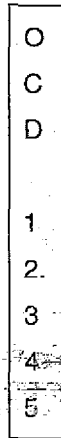
An example of an OLE pole fixing identification plate follows.



Building fixings shall be similarly identified, but the format may be



Or



The ROJ area shall be effectively identified using this system.

6.4.8 Generation of Acronyms

The following process is used to convert names into acronyms:

1. Start with the name that consists of a number of words that is to be converted into an acronym, and a blank acronym of known required length.
2. Take the initial letter of each word in the name and put them together.
3. If this is longer than the required acronym, truncate it to fit
4. If this is shorter than the required acronym, insert the second letter onwards from the first word in the name into the acronym after the first letter in the acronym until the required length is achieved.
5. Check that there are no ambiguities with other acronyms that are already in use. If so, the acronym produced by the above process may be altered.

Examples follow:

Name	Acronyms
Foot Of The Walk	FOTW, FOW,FW,F,
Airport	AIRP, AIR,AI,A

6.5 International

All text shall be in English (UK)

All date formats shall use dd-mmm-yy i.e. 21-Oct-03

Time format shall be hh:mm:ss and use the 24 hour clock i.e. 18:10:36.

All sub-systems shall be configured to use Rugby time as the prime means of timekeeping.

All events and communications, including recorded ones, shall be date and time stamped using Rugby Time.

All recorded public address announcements shall be made using the English Language.

6.6 Data Capture & Retention

The fixed system shall capture all system level and sub-system level events and record them onto hard disk storage in the equipment room of the Depot. Such hard disk shall be capable storing at least 28 days worth of events before overwriting.

All radio and telephone voice communications shall be recorded and stored on hard disk in the equipment room for 28 days before overwriting.

All CCTV images shall be recorded and stored on suitable media in the equipment room for 28 days before overwriting.

The systems shall provide prior to the system automatically overwriting hard disk data in order this data can be written to other media such as CD or DVD.

Data capture shall be defined and actioned such that it supports the management information systems of the Edinburgh Tram Network.

The merits of data recording being done locally and downloaded to a central store out of tram service hours shall be analysed and reported.

6.7 Performance/Reliability

The integration and/or interface between all sub-systems shall enable the Operator to respond to all events that are presented to the Operator via the relevant Operator HCI with no more than 1 second delay.

The Edinburgh Tram Network shall be designed and constructed to operate without unreasonable duress on operations personnel in Normal, Degraded and Abnormal modes.

- **Normal Mode** can be defined as meeting the number of tram services as prescribed in the headway/timetable requirements.
- **Degraded Mode** can be defined as restricted operations resultant from failure of one or more components of the system.
- **Abnormal Mode** can be defined as the occurrence of extreme loading on a part of the system resultant from causes such as major disruption, whether caused through tramway elements or third party interference.

Overall System performance in terms of reliability and availability shall be demonstrated through cause consequence analysis and subsidiary fault tree and Markov analysis.

The tram fleet shall not suffer a failure requiring a tram to be towed or pushed more often than once per 200000km.

6.7.1 Noise

The Edinburgh Tram Network shall be designed so as not to generate excessive noise pollution levels. Options for noise mitigation shall be considered if the free-field noise level outside the window of any sensitive receiver exceeds either of the upper values specified in PAN56 0 for noise exposure category A i.e.:

1. for daytime noise, $L_{Aeq, 0700-2300 \text{ hours}}$ 55 dB;

or

2. for night time noise, $L_{Aeq, 2300-0700 \text{ hours}}$ 45 dB.

These parameters shall be reviewed and validated for acceptability and any changes agreed with **tie**.

Where tram noise is predicted to be more than 3dB 0 above either of these thresholds, mitigation measures to reduce the adverse impact of noise will be considered according to the extent to which the pre-existing ambient ($L_{Aeq, 1 \text{ hour}}$) noise level is increased, as follows:

1. Increase of 3-5 dB - mitigation considered on a case by case basis, and implemented if reasonably practicable and acceptable to affected parties.
2. Increase of greater than 5 dB - mitigation implemented if reasonably practicable and acceptable to affected parties.

6.7.2 Vibration

Trackforms adjacent to sensitive receptor buildings shall be designed using best practicable means to keep within the guideline levels of Vibration Dose Value (VDV) given in BS6472, 1992 below which the probability of adverse comments is low:

- Day (0700-2300 hours) 0.4 $m/s^{1.75}$; and
- Night (2300-0700 hours) 0.13 $m/s^{1.75}$.

These parameters shall be reviewed and validated for acceptability and any changes agreed with **tie**.

6.8 Legal

The Edinburgh Tram Network shall comply with all Law.

The Edinburgh Tram Network shall comply with local data protection legislation

The Edinburgh Tram Network shall comply with the prevailing Disability Discrimination Act.

The Edinburgh Tram Network shall comply with Health & Safety at Work Act (1974) at all stages during its life-cycle.

An appropriate quality management system equivalent to ISO 9001 shall be in place throughout the Edinburgh Tram Network life-cycle.

Civil Aviation Authority, Airport Operators Association & General Aviation Awareness Council 'Safeguarding of Aerodromes Advice Note 3' shall apply to those sectors of the Edinburgh Tram Network that interact with air traffic.

All cables and equipment enclosures shall comply with the latest applicable IEC standards.

6.9 Safety

The systems shall provide alarms and indications to users in such a way that does not cause the users undue distractions and/or stress in any mode of operation.

All hazards and risks shall be demonstrated to have been eliminated or mitigated to be ALARP.

The following minimum safety deliverables and documentation shall be provided:

- a) Preliminary hazard analysis report
- b) Hazard log
- c) Safety management plan
- d) Hazard identification and risk analysis/assessment documentation
- e) Cause consequence analysis
- f) Safety assessment & audit reports
- g) Phased safety cases constructed using GSN
- h) HMRI declaration of no objection that if constructed according to design a certificate of authority/authority to operate would be likely.

Earthing of electronic equipment shall be required to reduce the effects of interference with other equipment on the Edinburgh Tram Network and its neighbours as well as providing adequate personal safety to operations and maintenance staff and Tramway users. Where any conflict arises between these two, personal safety shall always take precedence.

6.10 Security

Authorised access to electronic systems shall be controlled by login(s) and password(s).

Authorised access to appropriate functions of the System and its sub-systems shall be allocated and governed by the users' login and password.

Physical entry access security shall be provided for all remotely located equipment cabinets/housings. This can take the form of key locks or an electronic locking device such as swipe cards.

Appropriate protection shall be provided to both centrally and remotely located equipment to counter unauthorised access and/or vandalism.

6.11 Development

The Edinburgh Tram Network shall be designed, developed and constructed to meet the requirements of the most recent edition of the Railway Safety Principles and Guidance Part 2 Section G "Tramways".

Design and development of the System shall follow the spirit and principles of Engineering Safety Management – Yellow Book 3.

The architecture of the System shall initially be designed and constructed to meet the requirement for Lines 1 and 2. However, the architecture shall contain sufficient room for expansion to cater for the later addition of Line 3 without noticeable degradation of performance.

Design, development and construction shall be undertaken to conform to the Stage Build and Sectorisation shown in Table 6.3.

Table 6.3: Stage Build and Sector Details. It should not be inferred that sectors and stage builds are sequential, indeed design, development and construction shall be undertaken to achieve to optimum end to end project timescale.

(The table content is extremely faint and illegible due to low contrast and scan quality. It appears to be a multi-column table with several rows of data.)

Stage Build	Description	Sector By	
ARP	Airport - Gogarburn	ARP1	Airport - Goga06
DHY	Depot - Haymarket	DHY1	Gogaburn (exc06
		DHY2	Gyle (exc) - Edl06
		DHY3	Edinburgh Park06 (Inc)
		DHY4	South Gyle Acc06 North (Inc)
		DHY5	Soughton Road06 (exc) 06
		DHY6	Murrayfield (inc06
HOT	Haymarket - Ocean Terminal	HOT1	Haymarket (ex06 (Inc)
		HOT2	St. Andrew SQ.(06
		HOT3	Picardy Place i06 (inc)
		HOT4	Foot of the Wc06 (inc)

equipment in the design shall be available for the operational period specified earlier and that they shall give the Operator a minimum of 12 months notice where after that period they intend to cease supply of that component.

Equipment housings/enclosures and their contents; i.e. racks etc. shall not exceed 2 metres in height, unless specifically agreed by the reviewing body.

The lowest mounting point, plug-in group or terminal block shall not be less than 400mm above floor level unless specifically agreed by tie.

6.14 Training

An indicative training plan for all users of the Edinburgh Tram Network shall be produced.



Director/Authorised Signatory
TIE LIMITED



Director/Authorised Signatory
PARSONS BRINCKERHOFF LIMITED

This is the Schedule Seventeen referred to in the foregoing Agreement between the Client and the SDS Provider

SCHEDULE SEVENTEEN

AGREEMENT BETWEEN THE SDS PROVIDER AND THE JOINT REVENUE COMMITTEE



(1) PARSONS BRINCKERHOFF LIMITED
- and -

(2) STEER DAVIES & GLEAVE LIMITED

AGREEMENT

relating to

THE EDINBURGH TRAM NETWORK

AGREEMENT

BETWEEN

- (1) **PARSONS BRINCKERHOFF LIMITED** a company incorporated under the Companies Act with registration number 2554514 and having its registered office at Amber Court, William Armstrong Drive, Newcastle Business Park, Newcastle Upon Tyne, NE4 7YQ (the "**SDS Provider**") which expression shall include its permitted assignees.

and

- (2) **STEER DAVIES & GLEAVE LIMITED**, a company incorporated under the Companies Act with registration number 01883830 and having its registered office at Barbican House, 26 - 34 Old Street, London, EC1V 9QQ (the "**JRC**") which expression shall include its permitted assignees.

BACKGROUND

- (A) **tie** is a wholly owned subsidiary of the City of Edinburgh Council ("the Council") and **tie** is funded directly by the Council for the delivery of projects included in the Council's Local Transport Strategy.
- (B) **tie** has appointed the Parties (as hereinafter defined) to provide technical consultancy services to support (a) the design, construction and operation of the Edinburgh Tram Network (as hereinafter defined), and (b) requisite public transportation service integration and revenue forecasting.
- (C) Accordingly, the Parties intend in terms of this Agreement to work together to deliver a bespoke transport modelling suite to **tie** for deployment in relation to the Edinburgh Tram Network and its integration into the transport environment in the City of Edinburgh.

IT IS HEREBY AGREED

1. DEFINITIONS AND INTERPRETATION

1.1 In this Agreement, unless the context otherwise requires:

"**Agreement**" means this document (as amended from time to time pursuant to Clause 14);

"**Confidential Information**" means any information which has been designated as confidential by either Party in writing or that ought to be considered as confidential (however it is conveyed or on whatever media it is stored) including information which relates to the business, affairs, trade secrets, properties, assets, trading practices, goods, services, developments, trade secrets, intellectual property rights, know-how, personnel, advisors and suppliers of either Party and all personal data and sensitive personal data within the meaning of the Data Protection Act 1998;

"**Edinburgh Tram Network**" has the meaning given in the **tie** Appointments;

"**FOISA**" means the Freedom of Information (Scotland) Act 2002 and any subordinate legislation made under that Act from time to time together with any guidance and/or codes of practice issued by the Scottish Information Commissioner in relation to such legislation;

"**Infraco Contract**" means the contract or contracts to be entered into or entered into by **tie** for the provision of the Edinburgh Tram Network infrastructure and operating systems;

"**Party**" means each and any of the parties to this Agreement and Parties shall be construed accordingly;

"**tie**" means **tie** limited, the wholly owned subsidiary of Edinburgh City Council responsible for the development and delivery of the Edinburgh Tram Network; and

"**tie** Appointment " means the agreement under which each party provides services to **tie**, and **tie** Appointments should be construed accordingly.

1.2 In this Agreement, except where the context otherwise requires:

- 1.2.1 words importing gender include masculine, feminine and neuter;
- 1.2.2 the singular includes the plural and vice versa;
- 1.2.3 a reference to any part, Clause, sub-clause or Schedule is, except where it is expressly stated to the contrary, a reference to such part, Clause or sub-clause of or Schedule to this Agreement;
- 1.2.4 a reference in any Schedule to any part, paragraph or sub-paragraph is, except where it is expressly stated to the contrary, a reference to such part, paragraph or sub-paragraph of that Schedule (as the case may be);
- 1.2.5 any reference to this Agreement or to any other document shall include any variation, amendment, or supplement to such document expressly permitted under the terms of this Agreement;
- 1.2.6 any reference to any enactment, order, regulation or other similar instrument (including any EU instrument) (whether specifically named or not) shall be construed as a reference to the enactment, order, regulation or instrument as amended, replaced, consolidated or re-enacted and shall include any orders, consents, regulations, legally binding codes of practice or subordinate legislation (within the meaning of section 21(1) of the Interpretation Act 1978) made thereunder;
- 1.2.7 a reference to a person includes individuals, firms, partnerships, bodies corporate, joint ventures, government departments and any organisation capable of suing or being sued and references to any of the same include the others and their successors and assignees and transferees to the extent that such assignment and transfer are expressly permitted under the terms of this Agreement;
- 1.2.8 headings and the contents list are for convenience of reference only and do not affect the interpretation of this Agreement;
- 1.2.9 the ejusdem generis rule does not apply and the meaning of general words is not to be restricted by any particular examples preceding or following those general words;
- 1.2.10 an obligation to do something includes an obligation to procure it to be done;
- 1.2.11 an obligation not to do something includes an obligation not to wilfully allow it to be done;
- 1.2.12 the word "including" means "including without limitation"; and
- 1.2.13 a reference to "approval" or "consent" shall mean consent in writing.

2. TERM OF AGREEMENT

2.1 This Agreement shall come into effect on the last date of execution hereof and shall continue in effect until the date on which the defects liability period for the Infracore Contract is confirmed by **tie** to have ended.

3. COLLABORATIVE WORKING

3.1 The Parties agree as part of their respective mandates pursuant to the relevant **tie** Appointment to collaborate on the development, testing, validation, commissioning and approval of a comprehensive independent hierarchical transport modelling suite ("the SDS-JRC Modelling Suite") as defined and stipulated in the Parties' respective **tie** Appointments.

3.2 The Parties shall plan, execute and deliver the completed and fully functional SDS-JRC Modelling Suite to **tie** on the basis of joint and several liability for its timely and efficient production and its fitness for purpose. The Parties agree to indemnify one another in respect of any loss or damage incurred by reason of a failure to comply with an obligation under this Agreement or under their respective **tie** Appointments arising from or in connection with the design, production or commissioning of the SDS-JRC Modelling Suite.

4. MODEL SPECIFICATION

4.1 The Parties shall prepare a composite specification together with a detailed staged work programme and resourcing plan to submit to **tie** no later than 30 working days after the formal appointment of the JRC. The development, testing and commissioning process shall be resourced by a team selected by the Parties to combine equal contribution of practical know how, market experience and technical specialism. The joint team shall be co located at a location to be mutually agreed between the Parties.

5. INITIAL FORECAST

5.1 The Parties shall deploy the SDS-JRC Modelling Suite to generate a model revenue forecast scenario for the first year of public service operations of the Edinburgh Tram Network and shall obtain **tie's** approval of the resultant forecast.

6. MODEL MAINTENANCE

6.1 Subject to Clause 6.1, the Parties have agreed that they shall be jointly and severally responsible at all times to **tie** in relation to:

6.1.1 the correction of any single or recurring fault or incapacity; and

6.1.2 the regular calibration, updating and maintenance (including upgrades against obsolescence).

6.2 After the date on which **tie** confirms that the Edinburgh Tram Network has completed its defects liability period, the Parties have agreed that JRC shall carry primary responsibility, as between the Parties, with regard to the routine maintenance and guardianship of the SDS-JRC Modelling Suite, in addition to those functions stated above.

7. INTELLECTUAL PROPERTY RIGHTS

7.1 The Parties rights with regard to intellectual property rights (including copyright in design rights or exclusive know how) in the SDS-JRC Modelling Suite and the work

product from the performance of this Agreement shall be vested pursuant to **tie** Appointments.

7.2 The Parties shall be entitled to use the SDS-JRC Modelling Suite under a royalty free license from **tie** granted pursuant to **tie** Appointments.

8. INTEGRITY AND CUSTODY OF THE MODEL

8.1 Neither Party shall make any adjustment or modification to the SDS-JRC Modelling Suite without the prior consent of both the other Party and **tie**. The parties shall discuss and agree with **tie** as to appropriate custody of a master copy final version of the model as approved by **tie**.

9. CONFIDENTIALITY

9.1 Each Party shall treat all Confidential Information belonging to the other Party as confidential and safeguard it accordingly.

9.2 Each Party shall not disclose any Confidential Information belonging to the other Party to any other person without the prior written consent of the other Party, except to **tie** and to such persons and to such extent as may be necessary for the performance of the Agreement or except where disclosure is otherwise permitted by the provisions of this Agreement.

9.3 The provisions of Clauses 9.1 and 9.2 shall not apply to any Confidential Information received by one Party from the other:

9.3.1 which is or becomes public knowledge (otherwise than by breach of this Clause);

9.3.2 which was in the possession of the receiving Party, without restriction as to its disclosure, before receiving it from the disclosing Party;

9.3.3 which is received from a third party who lawfully acquired it and who is under no obligation restricting its disclosure;

9.3.4 is independently developed without access to the Confidential Information; or

9.3.5 which must be disclosed pursuant to a statutory, legal or parliamentary obligation placed upon the Party making the disclosure, including any requirements for disclosure under FOISA.

10. FOISA

10.1 Each Party acknowledges that **tie** is subject to the requirements of FOISA and shall assist and cooperate with the other Party to enable both Parties to comply with any information disclosure requirements to which **tie** directs it is subject under FOISA.

10.2 Each Party shall provide the other Party with a copy of any request from **tie** for information under FOISA in relation to this Agreement and the Parties shall act jointly to furnish a response in the format and within the timescales set out in FOISA.

11. ASSIGNATION

11.1 Neither Party shall assign or otherwise dispose of any interest in, or rights or obligations under this Agreement in whole or in part to any person, save as may be approved in advance in writing by **tie**.

12. PROJECT RECORDS

- 12.1 The Parties shall in accordance with Good Industry Practice keep and maintain detailed records regarding the activities in relation to the performance of this agreement and shall keep such records for at least twelve years following expiry or termination of this Agreement.
- 12.2 The records referred to in Clause 12.1 shall be kept in good order and in such form as to be capable of technical and financial audit.

13. JURISDICTION AND DISPUTE RESOLUTION

- 13.1 This Agreement, any document completed or to be completed in accordance with its provisions and any matter arising from it or any such document shall be governed by and construed in accordance with Scots law.
- 13.2 The Parties hereby irrevocably submit to the exclusive jurisdiction of the Court of Session in relation to this Agreement, any such document and any such matter.
- 13.3 Any difference or dispute arising from or in connection with this Agreement shall be referred to the Parties for resolution pursuant to the process stipulated in the **tie** Appointments.

14. VARIATIONS AND WAIVERS TO BE IN WRITING

- 14.1 No variation, alteration or waiver of any of the provisions of this Agreement shall be effective unless it is in writing and signed by or on behalf of the Party against which the enforcement of such variation, alteration or waiver is sought and has been approved in writing by **tie**.

15. WAIVER

- 15.1 Save where expressly stated, no failure or delay by either Party to exercise any right or remedy in connection with this Agreement shall operate as a waiver of it or of any other right or remedy nor shall any single or partial exercise preclude any further exercise of the same, or of some other right or remedy. A waiver of any breach of this Agreement shall not be deemed to be a waiver of any subsequent breach.
- 15.2 The Parties' rights and remedies under this Agreement are, except where provided otherwise in this Agreement, independent, cumulative and do not operate to exclude one another or any rights or remedies provided by law.

16. NO PARTNERSHIP OR DILUTION OF DUTIES

- 16.1 Nothing in this Agreement shall be construed as:
 - 16.1.1 creating a partnership between the Parties; or
 - 16.1.1 diluting in any way the duties owed by each Party under separate agreement with **tie**.

17. NOTICES

- 17.1 Any notice or notification required or authorised to be given under this Agreement by one Party to the other shall be:
 - 17.1.1 in writing;

17.1.1 sent by one of the following methods:

17.1.1.1 pre-paid registered or recorded delivery post or facsimile transmission addressed to the Party to which it is given at:

(a) in the case of notices given to the SDS Provider, Parsons Brinckerhoff Limited, Royal Exchange House, 2nd Floor, 100 Queen Street, Glasgow, G1 3DF, fax number 0141 222 6901 attention: David Hutchison, or such other address in the United Kingdom as the SDS Provider may notify the JRC from time to time for that purpose; or

(b) in the case of notices given to the JRC, Steer Davies & Gleave, 28-32 Upper Ground, London, SE1 9PD, fax number 020 7827 9850, attention Steve Hewitt or such other address in the United Kingdom as the JRC may notify the SDS Provider from time to time for that purpose; or

17.1.1.2 facsimile transmission addressed to the SDS Provider or the JRC (as appropriate) at a facsimile number notified to the giving Party by the receiving Party for the service of notices under this Agreement from time to time; or

17.1.1.3 personal delivery to the respective addresses of the Parties as specified in clause 17.1.2.1

17.1.2 be deemed duly served:

17.1.2.1 if sent by pre-paid registered or recorded delivery post, 2 clear days after posting; or

17.1.2.2 if sent via facsimile transmission or personal delivery, on the day of issue of the relevant fax confirmation receipt or such personal delivery (as appropriate), unless that day is not a business day in which case it shall be deemed duly served on the next business day thereafter.

18. INVALID TERMS

18.1 If any term of this Agreement shall be held to any extent to be invalid, unlawful or unenforceable

18.1.1 that term shall to that extent be deemed not to form part of this Agreement; and

18.1.2 the validity and enforceability of the remainder of this Agreement shall not be affected.

19. THIRD PARTY RIGHTS

19.1 Save that **tie** shall be entitled to rely upon the undertakings given by the Parties in this Agreement, any person who is not Party to this Agreement shall have no right to enforce any term of this Agreement.

IN WITNESS WHEREOF these presents consisting of this and the [◆] preceding pages are executed as follows:

EXECUTED for and on behalf of **PARSONS BRINCKERHOFF LIMITED**

at ♦ on ♦ by

Director/Authorised Signatory:

Full Name:

Witness:

Full Name:

Address:

EXECUTED for and on behalf of **STEER DAVIES & GLEAVE LIMITED**

at ♦ on ♦ by

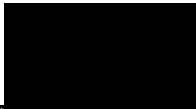
[Authorised Signatory]:

Full Name:

Witness:

Full Name:

Address:



Director/Authorised Signatory

Director/Authorised Signatory

TIE LIMITED

PARSONS BRINCKERHOFF LIMITED

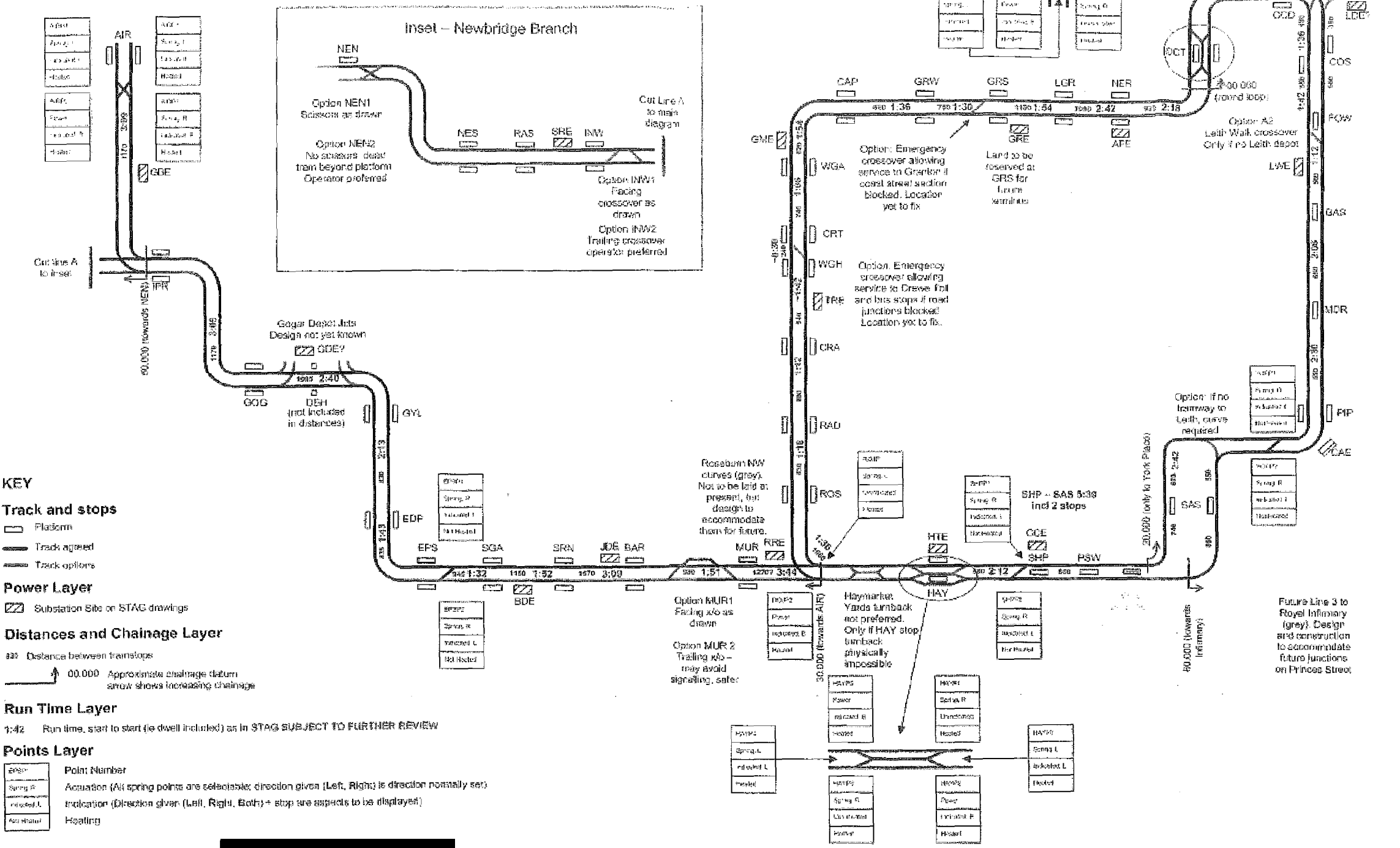
Table 6.3: Stage Build and Sector Details. It should not be inferred that sectors and stage builds are sequential, indeed design, development and construction shall be undertaken to achieve to optimum end to end project timescale.

(The content of this table is extremely faint and illegible due to low contrast and scan quality. It appears to be a table with multiple columns and rows, likely detailing project stages and sectors.)

1.6 Tram Network Schematic applicable to this commission

The permanent way alignment and tramstop locations are depicted below:

EDINBURGH TRAM LINES 1&2 NETWORK DIAGRAM
Version 7, 02/03/05



Director/Authorised Signatory
TIE LIMITED

Director/Authorised Signatory
PARSONS BRINCKERHOFF LIMITED

Table 6-3 : Stage Build and Sector Details

Stage Build	Description	Sector	Sub-sector	Criticality	Commissioning Sequence for Trial Running (Line 1&2 and Line 2only)	Commissioning Sequence for Trial Running (Line 1only)	Preliminary Design Approved By	Detailed Design Approved By			
ARP	Airport - Gogarburn	ARP1	Airport - Gogarburn (inc)		C	3		28-Feb-06	30-Sep-06		
DHY	Depot - Haymarket	DHY1	Gogaburn (exc) - Gyle & Depot (inc)		A1	1		30-Nov-05	30-Mar-06		
		DHY2	Gyle (exc) - Edinburgh Park (inc)		C			28-Feb-06	30-Sep-06		
		DHY3	Edinburgh Park (exc) - South Gyle Access (inc)		C	2		28-Feb-06	30-Sep-06		
		DHY4	South Gyle Access (exc) - Soughton Road North (inc)		C			28-Feb-06	30-Sep-06		
		DHY5	Soughton Road North (exc) - Murrayfield (exc)	DHY5a	Soughton Road(exc)-Balgreen Road(inc)		B			30-Jan-06	30-May-06
				DHY5b	Balgreen Road(exc)-Murrayfield(exc)					30-Jan-06	30-May-06
		DHY6	Murrayfield (inc) - Haymarket (inc)		A(2)	3		30-Nov-05	30-Mar-06		
HOT	Haymarket - Ocean Terminal	HOT1	Haymarket (exc) - St.Andrew Square (inc)	HOT1a	Haymarket(exc)-Shandwick Place(inc)		A(1)	4	3 (section now includes Haymarket Tramstop)	30-Nov-05	30-Mar-06
				HOT1b	Shandwick Place(exc)-Princes St West(inc)						
				HOT1c	Princes St West(exc)-Waverley Bridge(inc)						
				HOT1d	Waverley Bridge(exc)-St.Andrew SQ.(inc)						
		HOT2	St.Andrew SQ.(exc)-Picardy Place(inc)		A(2)	4	3	30-Nov-05	30-Mar-06		
		HOT3	Picardy Place (exc) - Foot of the Walk (inc)	HOT3a	Picardy Place(exc)-MacDonald Rd(inc)		A(2)	5	2	30-Nov-05	30-Mar-06
				HOT3b	MacDonald Rd(exc)-Balfour St(inc)						
				HOT3c	Balfour St(exc)-Foot of the Walk(inc)						
		HOT4	Foot of the Walk (exc) - Ocean Drive (inc)	HOT4a	Foot of the Walk(exc)-Constitution St(inc)		A(3)	6	1	30-Nov-05	30-May-06
				HOT4b	Constitution St(exc)-Ocean Drive(inc)						

		HOT5	Ocean Drive (exc) - Ocean Terminal (inc)			A(3)	6	1	30-Nov-05	30-May-06
		HOT6	Leith Depot & Connections			D	5	1	30-Mar-06	30-Nov-06
HCT	Haymarket - Crewe Toll	HCT1	Haymarket (exc) - Crewe Toll (inc)	HCT1a	Roseburn Jct(exc)-Roseburn(inc)	D	4	4	30-Mar-06	30-Nov-06
				HCT1b	Roseburn(exc)-Ravelston Dykes(inc)				30-Mar-06	
				HCT1c	Ravelston Dykes(exc)-Craigleith(inc)				30-Mar-06	
				HCT1d	Craigleith(exc)-W.General Hosp-Crewe Toll(inc)				30-Mar-06	
CTO	Crewe Toll - Ocean Terminal	CTO1	Crewe Toll (exc) - Granton Square (inc)	CTO1a	Crewe Toll(exc)-W. Granton(inc)	D	5	5	30-Mar-06	30-Nov-06
				CTO1b	W. Granton(exc)-Caroline Pk(inc)				30-Mar-06	
				CTO1c	Caroline Pk(exc)-Granton Waterfront(inc)				30-Mar-06	
				CTO1d	Granton Waterfront(exc)-Granton Sq.(inc)				30-Mar-06	
		CTO2	Granton Square (exc) - Ocean Terminal (inc)	CTO2a	Sea Wall Survey	A1	6	6	30-Nov-05	28-Feb-07
				CTO2b	Granton Sq.(exc)-Lower Granton Rd	E	6	6	30-Mar-06	
				CTO2c	Lower Granton Rd-Newhaven Rd					
				CTO2d	Newhaven Rd-Ocean Terminal(exc)					
GNB	Gogarburn - New bridge	GNB1	Gogaburn (exc) - Newbridge (inc)			F	7		30-Mar-06	28-Feb-07

