

# Edinburgh Tram Network – Infraco Contract

## Design Due Diligence Summary Report

2B	18/02/2008	Minor error corrected - Issue for onwards submission to <b>tie</b>
2A	15/02/2008	Issue for onwards submission to <b>tie</b>
2	15/02/2008	First Issue
1	08/02/2008	Draft Issue for Comments
-	06/02/2008	First Draft Issue for Comments (TB Internal)
<b>Revision</b>	<b>Date</b>	<b>Description of Change</b>

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## 1 Executive Summary

In order to determine the design status prior to contract award a technical due diligence has been carried out for the design of the Edinburgh Tram Network Project. The due diligence process has been based on the relevant design information received by BBS by 14 Dec 2007.

Contrary to the **tie**'s original intention for this project stage, the design is incomplete and will require significant further development. Several sections are currently under re-design and the final concepts for these are unknown to us. According to the SDS document tracker more than 40% of the detailed design information has not been issued to BBS at all by the above mentioned cut-off date.

Where the detailed design is available, it is mostly of acceptable standard. However, this does not apply throughout. Particular areas of concern are the geotechnical and earthworks design, the pavement design as well as the design of tram stops and certain structures.

No geotechnical interpretative reports and earthworks design has been made available. The factual ground investigation report has only been issued in November 2007. There is a risk that the design of bridges, retaining walls and embankments, which was completed prior to this factual GI information being available, will change.

Over a large extent of the project the tram line runs at grade on existing roads. For cost, programme, traffic management and sustainability reasons it is desirable to retain as much existing road construction as possible. However, the necessary pavement surveys have not been carried out. Therefore, the current design does only allow for full pavement re-construction and no overlay. Provided that SDS are prepared to move away from full reconstruction everywhere, it is likely that it will take very long until an approved overlay design will be available.

For many areas the 3<sup>rd</sup> party approval status is not clear. Formal **tie** / CEC design approvals are generally outstanding. Not a single design element has received final approval and has been issued for construction.

The latest available SDS programme is version V23. This shows a slippage of more than a year compared to the programme in the SDS agreement. It schedules the release of issue for construction information from April 2008 to the end of 2008. This is based on optimistic approval periods for which no contractual reference could be found.

In accordance with **tie**'s original procurement concept a complete and issued for construction design would have been novated to the Infraco. The current design is far from meeting these requirements and, as consequence, a novation is considered to present significant and unforeseeable risks to the project.

## 2 Introduction

In October 2007 the client **tie** selected a Bilfinger Berger – Siemens Consortium (BBS) as preferred bidder for the Infraco Contract of the Edinburgh Tram Network Project (ETN).

**Tie** has previously appointed Parsons Brinkerhoff as the Systems Design Service (SDS) provider to produce the complete design for the ETN project. As part of the Infraco contract **tie** intends to novate the SDS agreement to BBS, which would result in BBS taking over the client role with regards to SDS and consequently become responsible for the design.

In order for BBS to understand the risks associated with the SDS novation at this stage the BB project team decided to carry out a design due diligence whereby the currently available design for the civil works has been assessed.

This report provides a summary of the results of the design due diligence.

## 3 Methodology

### 3.1 Relevant Documents

In addition to the preliminary design documents available during tender, **tie** provided numerous documents on CDs / DVDs and by means of an extranet data base during the preferred bidder stage. This data room contains several thousand documents of which only a limited number presents detailed design information relevant for the Infraco scope of works.

Therefore, only documents with the following discipline codes have been considered for the design due diligence:

- ACC - Accommodation works
- BRG - Bridge structures
- CND - Construction details
- DEP - Depot
- DNE - Drainage
- DRA - Designer's risk assessment
- DRG - Drawings (code predominately used for track details)
- GEO - Geotechnical / earthworks
- HRL - Highway and roads layouts
- LDS - Landscape drawings
- LTG - Lighting
- OLE - Overhead line equipment
- REP – Reports (partly considered only)
- RRR - Register (partly considered only)
- RTW - Retaining walls

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- SCC - Supervisory, control & communications
  - SCH - Schedules (partly considered only)
  - SCL - Site clearance
  - SPN - Specifications
  - STP - Tram stops
  - SUB - Sub-station
  - TAL - Track alignment layout
  - TMG - Traffic management drawings (traffic signal drawings)
  - TVA - Track vertical alignment
  - TSU - Track sub-station

Documents contained in the data room that have the following discipline codes do not present design information and have therefore not been considered for the design due diligence:

- IMG - Photographs
- FOR - Forms
- LET - Letters
- LND - GVD plans
- MEM - Memos
- MST - Method Statements
- PLG - Planning Drawings
- PPN - Project plan
- PPP - Presentation
- PRE - Procedure
- PRO - Programme
- REV - Review Sheets

Also all design documents with the following discipline codes have not been considered for the design due diligence, as SDS produced these for the Multiple Utility Diversion Framework Agreement (MUDFA) contract and they relate to utility diversion works, which are outwith the Infraco scope of works:

- UTL - Utility Diversions
- UBT - BT Utility Diversions
- CAL - Calculations / Conflict spreadsheets

In addition all uncontrolled documents, i.e. documents that are not labelled in accordance with the Project Plan, and all documents that have the random discipline code PDF, have been ignored for the purposes of the design due diligence. There are numerous such documents, which following a cursory review appear to refer predominately to utility diversion works, which are outwith the Infraco scope of works. The purpose of any other documents that fall into the 'uncontrolled documents' category is unknown to us thus we could not reasonably consider these in the design due diligence process.

The client has not provided BBS with a list of documents that shall be relevant to the Infraco contract. The BB document controller has therefore produced our own

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document register, which was used to define the documents considered to be relevant for the due diligence process.

**Tie** continues to add documents to the data room. However, for the purposes of the design due diligence only documents received by BBS up to and including 14 Dec 2007 (design freeze date) have been considered.

### 3.2 Responsibilities

For each design element, review responsibilities have been allocated to the relevant competent member of the ETN project team.

The design due diligence process has been coordinated by the BB Civil Structural Design Department.

### 3.3 Interface with Siemens

Our consortium partner Siemens reviews and assesses the design relevant for their scope of works, i.e. the track and OLE design as well as the various M+E design elements.

These elements have therefore been excluded from the due diligence carried out by Bilfinger Berger.

## 4 Design Programme

On 19 Sep 2005 **tie** entered the SDS agreement with Parsons Brinkerhoff. The design delivery programme contained in this agreement showed the detailed design to be complete by 25 Oct 2007.

Consequently, it was assumed by BBS that a complete, fully approved and issued for construction design would be available for due diligence prior to novation to the Infraco.

As part of the design due diligence we have reviewed the latest SDS programme dated 05 Dec 2007 reference 'SDS V23 Full Programme'. When compared to the programme contained in the SDS agreement this now shows significant slippages.

The SDS V23 programme shows that in 2007 not a single design element has been issued for final approval. Consequently, no design element has been issued for construction.

The first packages are scheduled to be issued for construction in April 2008 (section 1B) and the last ones are not due before 28 November 2008 (section 1A). It should be noted that in our opinion these dates even assume very optimistic approval periods for which no contractual basis could be found. At the beginning of December

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2007 a tender query (BBS TQ3050) was raised on this subject. To this date **tie**'s response remains outstanding.

During due diligence it became also apparent that the design priorities do not correspond to the construction priorities. This means for example that the design of Phase 1b (Sections 3A to 3C) is quite far advanced, whereas for some sections of Phase 1a, which will be constructed first, only preliminary and concept design information is available.

In summary, during 26 months of design development the target date for the design completion has slipped by 13 months.

It appears that **tie** and SDS agree revised programmes at regular intervals. There is a risk that further slippage will occur as a result of this. Also we are aware that for certain design elements (e.g. A8 underpass, depot access bridge) **tie** and SDS are still in discussions about a feasible concept, which may lead to further delays.

It is also worth noting that **tie** and BBS have a mutual interest in carrying out significant value engineering. So far there is no allowance in the SDS programme for VE. Any re-design due to value engineering would lead to further delays, which would have to be considered when making the decisions whether or not to proceed with certain VE alternatives.

## 5 Design Review Results

The 'Design Due Diligence Matrix' included in Appendix 2 contains detailed comments to items that have been reviewed and assessed in the due diligence process.

The following sections provide a summary of the key risks identified. For further details refer to Appendix 2.

### 5.1 Design Availability / Approval Status

In accordance with the SDS document tracker dated 06 Dec 2007 only approximately 60% of the detailed design has been issued to BBS. Depending on geographical section and design discipline the design is more or less advanced.

Many approvals by relevant authorities and 3<sup>rd</sup> parties (e.g. planning authority, technical approval authority, SEPA, Network Rail) are outstanding. Also no design element has received final **tie** / CEC approval and has been issued for construction.

The following items are key risks identified in relation with design availability and approval status:

- Sections 1A, 6 (depot) and 7A are under re-design. Final concepts for these areas are unknown.

- The various aspects of road works design (e.g. site clearance, drainage, lighting, traffic signs and signals, road markings, landscaping) are incomplete.
- Accommodation works requirements are unclear.
- No cross sections at regular intervals available (crucial for road works and earthworks).
- Alignment model file not provided in acceptable format (design could therefore not be checked in detail)
- Design for some structures missing, others under re-design.
- No geotechnical interpretative reports (i.e. the 'geotechnical design') available.
- No earthworks design available.
- No specific track details available. In particular formation requirements have not been defined.
- Key specification appendices (e.g. piling spec, earthworks spec and testing spec) missing, others incomplete (e.g. concrete spec).
- Status of 3<sup>rd</sup> party consultation is generally unclear.

## 5.2 Design Quality

Where detailed design is available it is mostly of acceptable standard. However, refer to the following list for key concerns regarding design quality, constructability and drawings standard:

- No survey of existing pavement carried out thus current design does not allow for pavement overlay.
- Pavement option for full re-construction appears to be uneconomic, as the existing ground conditions have not been investigated.
- No evidence that departures necessary for alignment in urban areas have been formally approved.
- Geotechnical and earthworks design not available hence quality could not be assessed.
- Ground investigation carried out after design for certain elements was completed. Risk that new findings have not been considered.
- Survey of existing drainage network incomplete and heavily qualified.
- SDS design for re-use of existing drainage network in sections 1A to 2A. May not be practical / feasible in combination with full road re-construction.
- Constructability issues with structures, in particular S7, S23 and S27.
- Many drawings only legible in colour, which is not in accordance with good industry practice and will lead to problems on site.
- SDS design based on superseded ER version plus **tie** changes both of which are unknown to BBS.

## 5.3 Quantities

For certain design elements and sections no information has been provided or the information is insufficiently detailed to allow pricing. For some areas currently under re-design, in particular sections 1A and 6, conflicting information is available.



There is a risk that quantities and requirements have been underestimated, both cost and programme wise, or that elements that are not shown clearly on the available preliminary drawings have been overlooked.

Without knowing the final details we understand that some CEC requirements are likely to change, e.g. Picardy Place layout or finishes for tram stops and urban spaces. The current design does not reflect these new requirements.

Insufficient design for pricing does not only affect the Infraco contract with **tie** but would also prevent BBS from letting comprehensive subcontract packages. From experience, any design variations that occur after a subcontract is placed are likely to lead to excessive claims from subcontractors.

## 6 Conclusion

Whilst parts of the design are far advanced and of acceptable quality, the design of other elements and sections is still at preliminary / concept stage or even completely missing. The available design for certain sections is subject to change, as we understand that these areas are currently under re-design.

Consultations with key third parties, such as CEC, Scotrail / Network Rail and the Scottish Environmental Protection Agency, have not been concluded by SDS. There is a risk that the design, as envisaged by SDS, may not gain the required 3<sup>rd</sup> party approvals.

Contrary to the original design delivery programme, not a single design element has received final **tie** / CEC approval and has been issued for construction. Issue for construction information for the final elements is now not scheduled to become available before the end of 2008.

The evolution of the design programme and the fact that the target design completion date has slipped by 13 months over 2 years suggests that the design development process is not running smoothly and that there are significant risks that further slippages will occur.

In accordance with **tie**'s original procurement concept a complete and issued for construction design would have been novated to the Infraco. The current design is far from meeting these requirements and, as consequence, a novation is considered to present significant and unforeseeable risks to overall success of the project.

WI, 18/02/2008  
BB Civil Structural Design, DGoe

# Appendix 1

## Not used

# Appendix 2

## Design Due Diligence Matrix

Structures (BRG, RTW drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[ - ]	[ - ]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
Scheme Wide		Testing Specification	Document not available.	3	All formal approvals outstanding.	3	3rd party approval for this type of document is considered to be not required.	1	Document not available. No check possible.	3	Document not available. No check possible.	3	Document not available. No check possible.	3	Document not available. Not possible to take off quantities.	3
		Concrete Specification	Available spec only covers section 3, structures S19, S20 and the Gogarburn culverts. It can only be assumed that the requirements for the other areas will be similar.	2	All formal approvals outstanding.	3	3rd party approval for this type of document is considered to be not required.	1	The specified max w/c ratios of 0.4 are too low and will cause problems on site. Pile concrete would be a big concern, CFA piles in particular, as concrete consistency would reduce rapidly thus preventing rebar cages to be pushed down. Given the fact that the soil / ground water is not very aggressiv (DC-1 only) the permissible max w/c value should be increased to min 0.45 generally and to 0.5 for piles.	3	Acceptable.	1			n / a	
		Piling Specification	Document not available.	3	All formal approvals outstanding.	3	3rd party approval for this type of document is considered to be not required.	1	Document not available. No check possible.	3	Document not available. No check possible.	3	Document not available. No check possible.	3	Document not available. Not possible to take off quantities (e.g. monitoring equipment, pile tests, etc).	3
Section 1A		W1 - Lindsay Road Retaining Wall	No additional information received since Aug 07. Only superseded AIP info available. Re-design scheduled for Jun 08 (IFC).	3	All formal approvals outstanding. Prior Approval (Planning) required. Technical Approval (TAA) required.	3	All formal approvals outstanding.	3	Proposal generally buildable / constructible.	1	No detailed design available. No check possible. As yet the following items have been identified: No S.O.P. for piled wall available, no details for piles shown, no RC details shown no elevation shown. No details for pile caps shown, i.e. no concrete outlines or RC details. No details for bottom slab shown, i.e. no concrete outlines or RC details. No vertical alignment to indicate elevation and location of different retaining structures available. No parapet details shown.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		S16 - Victoria Dock Entrance Bridge	No significantly new information received since Aug 07 (number of added piles and beams revised). Only superseded AIP info available. Re-design scheduled for Oct 08 (IFC).	3	All formal approvals outstanding. Technical Approval (TAA) required.	3	All formal approvals outstanding. Multiple services in existing bridge. Temporary and permanent diversions will require stats approval.	3	As yet only 2 drawings "for tender purposes only" available; detailed design drawings not issued. Basically the structure is constructible. A proper risk evaluation can only be carried out when detailed design drawings have been made available.	3	No detailed design drawings available as yet. No check possible.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		S17 - Tower Place Bridge	No significantly new information received since Aug 07 (number of added piles and beams revised). Only superseded AIP info available. Re-design scheduled for Nov 08 (IFC).	3	All formal approvals outstanding. Technical Approval (TAA) required.	3	All formal approvals outstanding. Multiple services in existing bridge. Temporary and permanent diversions will require stats approval.	3	As yet only 2 drawings as "preliminary design" with two different solutions available. Solution 1 comprises widening of the existing bridge deck to allow incorporation of a footway; solution 2 comprises the construction of a separate new footbridge. A proper risk evaluation can only be carried out after one solution has been selected and the detailed design drawings have been made available.	3	No detailed design drawings available as yet. No check possible.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
Section 1B		S18 - Leith Walk Railway Bridge	No additional information received since Aug 07. Only assessment report AIP info available. The SDS programme V23 indicates that no detailed design is envisaged, which suggests that assessment report concludes that no structural works are required. To be confirmed.	1	Technical Approval (TAA & Planning Department) required for assessment AIP. In accordance with SDS' programme V23 the detailed assessment report has been issued to CEC in Mar 2007, which implies that Technical Approval was received previously. It is not clear if final CEC approval was received / is required.	2	Existing bridge crossing Network Rail infrastructure. SDS' programme V23 records NR's response to assessment report as outstanding. Services might be present in existing bridge and might require relocation to facilitate track work. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	As yet only 2 "preliminary design" drawings available. A proper risk evaluation can only be carried out after one solution has been selected and the detailed design drawings have been made available.	3	No detailed design drawings available as yet. No check possible.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
Section 1C	none	n/a	n/a		n/a		n/a		n/a		n/a		n/a	n/a	n/a	
Section 1D	none	n/a	n/a		n/a		n/a		n/a		n/a		n/a	n/a	n/a	

Structures (BRG, RTW drawing series)			Design Availability						Design Quality				Quantities			
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 2A	S19 - Haymarket Station Viaduct	Detailed design now available. Changes since Aug 07: Tender design replaced by proper detailed design & GA revised to meet interfaces. Design programmed to be IFC by end of Mar 08.	1	Prior approvals for section 2A outstanding and not due before end of Feb 08. (refer to SDS programme V23) Technical Approval (TAA) for S19 outstanding. Was due at the end of Dec 07. (refer to SDS programme V23) Unclear if this was received. Final tie / CEC approval outstanding.	3	New structure that interfaces with Network Rail / First Scot Rail infrastructure. Their approvals are outstanding and not due before mid Feb 08.	3	Buildable / constructible in principle subject to the following comments: No information about construction and condition of adjacent existing masonry wall, which has to be retained. No information about foundation of existing masonry wall. Foundation of abutment east and pier 4 in the range of the to be demolished public building. No information about soffit level of building foundations and hence formation level after demolition. Special foundation arrangements may be required.	2	Notes item 10: Max. water cement ratio of 0.4 not acceptable, minimum 0.45. No as-built drawings available. Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. Selection regarding configuration of deck slab sections and joints not economic (construction of piers / abutments including part of deck slab).	1			BoQ according to detailed design incl. reinforcement schedules, without temporary works design	1
		S20 - Russell Road Bridge	Detailed design now available. However, several elements are on-hold and many details are missing. These issues would prevent the drawings from being used for construction. Changes since Aug 07: Tender design replaced by detailed design & GA revised to meet interfaces. Design programmed to be IFC by end of Feb 08.	2	Prior approvals for section 2A outstanding and not due before end of Feb 08. (refer to SDS programme V23) Technical Approval (TAA) for S20 was received in Nov 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	New structure that interfaces with Network Rail infrastructure. Their approval was due to be received in Dec 07. Unclear if this has happened.	3	Proposal generally buildable / constructible. Small risk due to adjacency to existing Network Rail structure.	1	Constraints, on holds, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. Partial contradictory technical descriptions of works on several drawings. Notes item 10: Max. water cement ratio of 0.4 not acceptable, minimum 0.45. Drawings partial incomplete as regards content deficient. Miscellaneous members not shown on drawings ( see detailed report about design check of this structure). Partly reference drawings not available.	3			BoQ according to detailed design incl. reinforcement schedules, without temporary works design	1
		S21A - Roseburn Street Viaduct	Detailed design now available. However, many details are missing from the drawings and bar bending schedules are not available. These issues would prevent the design from being used for construction. Changes since Aug 07: Tender design replaced by detailed design. Design programmed to be IFC by end of Mar 08.	2	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for S21A is programmed for Mar 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New bridge carrying tram over local roads and public space. Existing services might clash with foundations for new structure. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: Small risk due to adjacency to existing Network Rail in the west abutment area, third party restrictions of Scottish Rugby Union, cramped location of construction site and live traffic through site.	2	Constraints, on holds, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. Partial contradictory technical descriptions of works on several drawings. Notes item 10: Max. water cement ratio of 0.4 not acceptable, minimum 0.45. Drawings partial incomplete as regards content deficient. Miscellaneous members not shown on drawings ( see detailed report about design check of this structure). Partly reference drawings not available.	3			BoQ according to detailed design, reinforcement schedules missing, without temporary works design	2
		S21B - Murrayfield Stadium Retaining Wall	Only some detailed layout drawings available. Detailed design package outstanding. Design programmed to be IFC by end of Apr 08.	2	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for S21B is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	Reinforced soil retaining wall required to support new embankment with tram line on. Existing services might be present in the foot print of new structure. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: Dismantling existing masonry retaining wall for re-use as facing material after finishing reinforced earth wall and bankseat. Geogrid "Arrangement E" not specified. Working close to existing rail network.	2	Drainage pipe not shown at required level (ULE90130-05-RTW-00444). No outlines for retaining wall blockwall facing shown. No parapet detail shown. No RC details and outlines for RTW cap shown.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		S21C - Murrayfield Stadium Underpass	Detailed design now available. Changes since Aug 07: Tender design replaced by proper detailed design. Design programmed to be IFC by end of Mar 08.	1	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for S21C were programmed for Apr 08. (refer to SDS programme V23) Not clear if this has happened. Final tie / CEC approval outstanding.	3	New RC pedestrian underpass under proposed embankment, which supports the new tram line. The new underpass effectively extends an existing underpass under a railway embankment. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Mar 08.	3	Proposal generally buildable / constructible but following risks: Small risk due to adjacency to existing Network Rail in the west abutment area. Third party restrictions of Scottish Rugby Union.	1	In places information about drainage connection and dimensions missing.	1			BoQ according to detailed design, reinforcement schedules missing, without temporary works design	2

Structures (BRG, RTW drawing series)			Design Availability						Design Quality				Quantities			
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[ - ]	[ - ]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		S21D - Murrayfield Training Pitches Retaining Wall	Only AIP information available. Detailed design package outstanding. No new information received since Aug 07. Design programmed to be IFC by Jul 08.	3	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for S21D is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	Reinforced earth slope required to support new embankment with tram line on. Network Rail approval is outstanding and not due until Jun 08. Existing services (combined sewer) are present in the foot print of new structure. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	3	Proposal generally buildable / constructible but following risks: Only small area for site vehicles like excavators or tipper trucks available.	2	No detailed design drawings available as yet. No check possible. As yet following items: No vertical alignment shown to indicate elevation. No outlines, dimensions and RC details for coping shown.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
	Section 5A	S21E - Water of Leith Bridge	Detailed design now available. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by end of Mar 08.	1	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for S21E is programmed for Jan 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New underbridge over Water of Leith river and footways on both banks. New bridge is adjacent and parallel to existing railway bridge. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Mar 08. Consultation with Scottish Environmental Protection Agency may be required.	3	Proposal generally buildable / constructible but following risks: Small risk due to adjacency to existing structure of Network Rail. Third party restrictions of Scottish Rugby Union (regarding main access to site - abutment east). Access to site to west abutment in relation to earth- and trackworks on tram route between Balgreen Road and S21E and construction of Balgreen Road Bridge. Installation of structural steel works. Complex cofferdam at intermediate pier location. VE option to replace with monopiles subject to net gain considering additional design fee and sufficient float in construction programme.	2	Information about bearing types and loads missing. Information about jacking points (loads, dimensions, type) missing.	1			BoQ according to detailed design incl. reinforcement schedules, with temporary works design	1
		S22 - Balgreen Road Bridge	Only preliminary layout information. Re-design ongoing. Bridge structure has to be split as a result of consultation with Network Rail. Design programmed to be IFC by mid Aug 08.	3	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for S22 is programmed for Jun 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New underbridge over road and pedestrian subway. New structure is adjacent to Network Rail Bridge. Network Rail approval is outstanding and not due before Jun 08.	3	Initially modifications to existing structure were proposed. This has now changed and the current proposal is to construct a new structure. As yet only draft or uncontrolled drawings available. A proper risk evaluation can only be carried out after detailed design drawings have been made available.	3	No detailed design drawings available as yet. No check possible.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		W03 - Russell Road Retaining Wall 1	Detailed design now available. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by end of Mar 08.	1	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for W03 was programmed for Dec 07. (refer to SDS programme V23) Not clear if this was received. Final tie / CEC approval outstanding.	3	New retaining wall supporting tram line embankment. Structure adjacent to railway. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Feb 08.	3	Proposal generally buildable / constructible but following risks: Damaging of existing services; placing rebar for piles in order to put rebar in correct place and achieve required concrete cover.	2	Transfer of utility diversion scope to us for this work? If so -> Information missing	1	According to AIP insitu RC retaining walls proposed. In Drawing ULE-90130-05-RTW-00014 W3A General Arrangement reinforced earth is designed. Cope detail acc. Drg ULE-90130-05-RTW-00014 precast elements, acc. AIP insitu structure proposed.	3	BoQ according to detailed design, reinforcement schedules missing, without temporary works design	1
		W04 - Russell Road Retaining Wall 2	Detailed design now available. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by end of Mar 08.	1	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for W04 is programmed for Jan 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New retaining wall supporting tram line embankment. Structure adjacent to railway. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Mar 08.	3	Proposal generally buildable / constructible but following risks: Placing rebar for piles in order to achieve required concrete cover und keep reinforcement in correct position. Excavation close to existing Network Rail an associated facilities.	1	Details for parapet in section 4B and 4C not available.	2			BoQ according to detailed design, reinforcement schedules missing, without temporary works design	1

Structures (BRG, RTW drawing series)			Design Availability					Design Quality					Quantities			
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[ - ]	[ - ]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
Phase 1a		W08 - Balgreen to Water of Leith / Baird Drive Retaining Wall	Only AIP information available. Detailed design package outstanding. No new information received since Aug 07. Design programmed to be IFC by Jul 08.	3	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for W08 is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New retaining wall supporting tram line embankment. Structure adjacent to railway. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Jun 08.	3	Proposal generally buildable / constructible.	1	No detailed design drawings available as yet. No check possible. As yet the following items have been identified: Drawing ULE-90130-RTW-05-00202, Revision No 1 available twice but with different content. Vertical alignment missing to indicate elevation of retaining structure.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		W09 - Balgreen Road (West of Balgreen Rd) Retaining Wall	Only AIP information available. Detailed design package outstanding. No new information received since Aug 07. Design programmed to be IFC by Jul 08.	3	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for W09 is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New retaining wall supporting tram line embankment. Structure adjacent to railway. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Jun 08.	3	Proposal generally buildable / constructible.	1	No detailed design drawings available as yet. No check possible. As yet the following items have been identified: Vertical alignment missing to indicate elevation of retaining structure.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		W18 - Murrayfield Tramstop Retaining Wall	Draft detailed design available. No new information received since Aug 07. Design programmed to be IFC by May 08.	2	All formal approvals outstanding. Prior approvals for section 5A outstanding and not due before April 08. (refer to SDS programme V23) Technical Approval (TAA) for W18 is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New retaining wall supporting tram line embankment. Structure adjacent to Murrayfield Stadium and railway line. Consultation with Stadium and Network Rail required. No other major 3rd parties identified at this stage.	2	Proposal generally buildable / constructible.	1	Only GAs and drawings in DRAFT status available. As yet the following items have been identified: Retaining wall cross sections are not consistent. Levelling pad details and geogrid arrangement vary in drg ULE-90130-05-RTW-00562 & 00564. Clear height from top of levelling pad to platform edge level varies in drg 90130-05-RTW-00562 & 00564. No retaining wall outlines shown. No piling details shown (S.O.P., dimensions, reinforcement details, etc). No details for stairs shown.	3	No compliance with AIP. AIP proposes spread foundation, drg ULE 90130-05-RTW-00570 shows piled foundations.	3	Tender BoQ, detailed drwg's missing, without temporary works design	2
Section 5B		S23 - Carrick Knowe Underbridge	Only AIP information available. Detailed design package outstanding. Bridge under re-design. Changes since Aug 07: Revised AIP info received (cycle path added). Design programmed to be IFC by end of Jul 08.	3	All formal approvals outstanding. Prior approvals for section 5B outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for S23 is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New underbridge over railway line. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Jul 08.	3	Alteration of initial design. For new modified design as yet only draft or uncontrolled drawings available. No detailed check possible. However, foundations of abutments encroach into railway clearance zone --> not constructable.	3	No detailed design drawings available as yet. No check possible.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		S24 - Saughton Road Bridge	No additional information received since Aug 07. Only assessment report AIP info available, which concludes that no structural works are required.	1	No works required thus no approvals necessary.	1	Existing underbridge over local road, which was built in 2003 for the guided bus way and allows for retrofitting of tram line.	1	No works required.	1	No works required.	1			No BoQ required	1
		S25 - Broomhouse Road Bridge	No additional information received since Aug 07. Only assessment report AIP info available, which concludes that no structural works are required.	1	No works required thus no approvals necessary.	1	Existing underbridge over local road, which was built in 2003 for the guided bus way and allows for retrofitting of tram line.	1	No works required.	1	No works required.	1			No BoQ required	1
		S26 - South Gyle Access Bridge	Only tender design drawings available. No new information received since Aug 07. Design programmed to be IFC by end of Mar 08.	2	All formal approvals outstanding. Prior approvals for section 5B outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for S26 is programmed for Feb 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New underbridge over roads. New structure is adjacent to Network Rail Bridge. Network Rail approval may be required (not currently reflected in SDS programme V23).	2	Proposal generally buildable / constructible but following risks: Small risk due to adjacency to existing structure of Network Rail.	1	Dimensioning in some drawings incomplete e.g. 00430 + 00431 fill material below retaining walls. Construction sequences of pile extension unclear (discrepancy between dwg's 004325 and 00427).	1			Tender BoQ, detailed drwg's missing, without temporary works design	2

Structures (BRG, RTW drawing series)			Design Availability					Design Quality					Quantities			
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		S27 - Edinburgh Park Station Bridge	Detailed design now available. However, many details are missing from the drawings. This would prevent the design from being used for construction. Changes since Aug 07: Tender design replaced by detailed design. Design programmed to be IFC by Apr 08.	1	All formal approvals outstanding. Prior approvals for section 5B outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for S27 is programmed for Feb 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New underbridge over railway line. Consultation with Network Rail required. Network Rail approval is outstanding and not due before Apr 08.	3	Proposal not buildable / constructible, as foundations of piers 3 and 4 encroach into railway clearance zone. Following additional risks: Construction above railway tracks. Handicap due to newly constructed hotel complex on the south side. VE potential (steel composite deck instead of precast beams or simply supported PC beams with modified span lengths) subject to tie / CEC approvals, a net gain considering additional design fee and sufficient float in construction programme.	3	Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. Dimensioning of superstructure sections generally missing. Drawings partly incomplete and as regards content deficient, as miscellaneous members not shown on drawings ( see detailed report about design check to this structure, which was issued as a TQ).	3			BoQ according to detailed design incl. reinforcement schedules, with temporary works design	1
		W11 - Bankhead Drive Retaining Wall	Only AIP information available. Detailed design package outstanding. No new information received since Aug 07. Design programmed to be IFC by Mar 08.	3	All formal approvals outstanding. Prior approvals for section 5B outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for W11 is programmed for Mar 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New retaining wall supporting tram line embankment. Embankment adjacent to existing railway embankment. Network Rail approval may be required (not currently reflected in SDS programme V23).	2	Proposal generally buildable / constructible.	1	Only General Arrangements and drawings in DRAFT status available. As yet the following items have been identified: Vertical alignment missing to indicate elevation of retaining structure. Outlines of blockwork not shown.	3				
		S28 - A8 Underpass	Re-design in progress to allow major utilities to remain in place. Only preliminary layout drawings and superseded AIP information available. Detailed design package outstanding. Changes since Aug 07: Preliminary construction sequence and services drawings received. Design programmed to be IFC by May 08.	3	All formal approvals outstanding. Prior approvals for section 5C outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for S28 is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New underpass conveying tram line under dual carriageway. Existing services are present and clash with foundations for new structure. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	3	Proposal generally buildable / constructible but following risks: Construction adjacent to and in A8 trunk road zone. Construction in so-called "island sites" required over 4 construction phases. Structure under re-design due to presence of existing services that cannot be relocated. The comments above relate to the previous, now superseded proposal.	2	No detailed design drawings available as yet; only superseded design for tender purposes. No check possible. Structure under re-design due to presence of existing services that cannot be relocated. The comments above relate to the previous, now superseded proposal.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
	Section 5C	S32 - Depot Access Bridge	No additional information received since Aug 07. Only superseded AIP info available. Re-design in progress with a view to modify structure to allow it to tie in with revised depot layout. SDS programme V23 does not provide a date for the IFC submission of the revised detailed design for the structure. However, this cannot be sooner than the programmed TAA approval, i.e. Jul 08.	3	All formal approvals outstanding. Prior approvals for section 5C outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for S32 is programmed for Jul 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New overbridge carrying the depot access road over tram line 2 (airport - city centre) as well as the tram entry / exit lines into the depot. Existing services might be present in the foot print of new structure. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: Construction adjacent to busy A8 trunk road. Construction in the vicinity of Edinburgh Airport. Certain restrictions may apply with regards to cranes etc. Re-design in progress with a view to modify structure to allow it to tie in with revised depot layout. The comments above relate to the previous, now superseded proposal.	1	No detailed design drawings available as yet; only design for tender purposes. No check possible. Re-design in progress with a view to modify structure to allow it to tie in with revised depot layout. The comments above relate to the previous, now superseded proposal.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		W19 - Gyle Stop Retaining Wall	Only AIP information available. Detailed design package outstanding. No new information received since Aug 07. Design is programmed to be IFC by Dec 07. However, this was not received, i.e. the design is late and overdue.	3	Prior approvals for section 5C outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for W19 was received in Nov 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Low height RC retaining wall supporting cut along the side of new tram stop. No major 3rd party issues identified at this stage.	1	Proposal generally buildable / constructible.	1	Trackslab details not available. No drain detail available. No reinforcement details for track slab and retaining wall shown. No concrete outlines shown.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
	Section 6	W16 - A8 Retaining Wall	N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted	



Structures (BRG, RTW drawing series)			Design Availability						Design Quality				Quantities			
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		S29 - Gogarburn Bridge	Only draft detailed design now available. Changes since Aug 07: Tender design partly replaced by detailed design. Alignment revised to reflect cancellation of EARL project. Design programmed to be IFC by Apr 08.	2	All formal approvals outstanding. Prior approvals for section 7A outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for S29 is programmed for Mar 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New underbridge over water course. Consultation with Scottish Environmental Protection Agency may be required. Existing services might be present in the foot print of new structure. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible.	1	Drawing 00043 missing in drawing schedule. Drawings partly as "issued for external approval"; partly as "for tender purposes" and partly as "draft". Detailed design not complete.	2			BoQ according to detailed design incl. reinforcement schedules, without temporary works design	1
		S30 - Gogarburn Culvert One	Detailed design now available. In accordance with note on drawings the design will be subject modified earthworks outlines. Changes since Aug 07: Tender design replaced by proper detailed design. Alignment revised to reflect cancellation of EARL project. Design programmed to be IFC by Apr 08.	2	All formal approvals outstanding. Prior approvals for section 7A outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for S30 is programmed for Jul 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New reinforced concrete culvert through tram line embankment. Scottish Environmental Protection Agency approval is required and not due before Jun 08. (refer to SDS programme V23) 3rd party approval status is unclear.	2	Proposal generally buildable / constructible.	1	Information about location (dimensions) and invert levels of drainages missing. Some details about sealing and joints missing.	1			BoQ according to detailed design, reinforcement schedules missing, without temporary works design, revised design may be available in Apr.08	2
		S31 - Gogarburn Culvert Two	Detailed design now available. In accordance with note on drawings the design will be subject modified earthworks outlines. Changes since Aug 07: Tender design replaced by proper detailed design. Alignment revised to reflect cancellation of EARL project. Design programmed to be IFC by Apr 08.	2	All formal approvals outstanding. Prior approvals for section 7A outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for S31 is programmed for Jul 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New reinforced concrete culvert through tram line embankment. Scottish Environmental Protection Agency approval is required and not due before Jun 08. (refer to SDS programme V23) 3rd party approval status is unclear.	2	Proposal generally buildable / constructible.	1	Information about location (dimensions) and invert levels of drainages missing. Some details about sealing and joints missing.	1			BoQ according to detailed design, reinforcement schedules missing, without temporary works design, revised design may be available in Apr.08	2
	Section 7A	S33 - Earl Underbridge	N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted		N / A - Structure deleted	
		S34 - Gogarburn Culvert Three	Detailed design now available. In accordance with note on drawings the design will be subject modified earthworks outlines. Changes since Aug 07: Tender design replaced by proper detailed design. Alignment revised to reflect cancellation of EARL project. Design programmed to be IFC by Apr 08.	2	All formal approvals outstanding. Prior approvals for section 7A outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for S34 is programmed for Jun 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New reinforced concrete culvert through tram line embankment. Scottish Environmental Protection Agency approval is required and not due before May 08. (refer to SDS programme V23) 3rd party approval status is unclear.	2	Proposal generally buildable / constructible.	1	Drawing 00079 missing. Information about location (dimensions) and invert levels of drainages missing. Drawing 00071 - details of wing wall connection to culvert unclear. Some details about sealing and joints missing.	1			BoQ according to detailed design, reinforcement schedules missing, without temporary works design, revised design may be at Apr.08	2
		W14 - Gogarburn Retaining Wall One	Only superseded AIP drawings (preliminary layouts) available. Re-design in progress to adjust structural design to reflect cancellation of EARL project. Detailed design package outstanding. No new information received since Aug 07. Design is programmed to be IFC by Aug 08.	3	All formal approvals outstanding. Prior approvals for section 7A outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for W14 is programmed for Aug 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	Retaining wall supporting tram line embankment along existing water course. There appears to be a requirement to design retaining wall / earth bund as flood defence measure. Consultation with Scottish Environmental Protection Agency may be required. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: Construction close to Gogar Burn difficult because of small available site area.	1	No vertical alignment available to locate the type of retaining system along Retaining wall. No elevation shown. No RC details, outlines for cope and blockwork, no brickwall outline, parapet details shown.	3			Tender BoQ, detailed drwg's missing, without temporary works design	2
		W15 - Gogarburn Retaining Wall Two	New structure. No information available. Design is programmed to be IFC by Aug 08.	3	All formal approvals outstanding. Prior approvals for section 7A outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for W15 is programmed for Aug 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	New structure. No information available thus no judgement possible with respect to likely 3rd party issues.	3	New structure. No information available. No check possible.	3	New structure. No information available. No check possible.	3	New structure. No information available. No check possible.	3	New structure. No information available. No BoQ.	3

Structures (BRG, RTW drawing series)			Design Availability						Design Quality				Quantities			
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		S01 - Roseburn Terrace Bridge	Detailed design now available for the bridge structure only. Detailed design for the proposed retaining walls at both sides of the northern abutment are missing. In summary the detailed design standard is not acceptable, as drawings are missing and constraints are stated on the drawings. Changes since Aug 07: AIP info now supplemented by proper detailed design for the bridge only. Design programmed to be IFC by end of Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S01 was received in Nov 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing bridge carrying tram, cycleway and footway over a road. Services might be present in existing bridge and might require relocation to facilitate track work. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: No information about condition of existing masonry abutments. Construction of bored piles may have an impact on existing and to be retained abutments. Partial demolition of masonry + plaster and preservation of material for re-use.	2	Drawings not complete. No information provided in dwg's or through cross references to other dwg's about connection of Roseburn tram stop access stair and ramp construction including retaining walls to both sides of the northern abutment. No as-built drawings for existing structure available. Indicative information and their confirmation by others in "notes" on the drawings have to be clarified. Notes item 10: max. water cement ratio of 0,4 not acceptable, minimum 0.45.	3			BoQ according to detailed design incl. reinforcement schedules, without temporary works design	1
		S02 - Coltbridge Viaduct	Detailed design now available. In summary the detailed design standard is not acceptable, as as-built drawings of existing structure are missing and also constraints and on-hold marks are stated on the drawings. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by end of Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S02 was received in Nov 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing bridge carrying tram, cycleway and footway over the Water of Leith and a local access road. Services might be present in existing bridge and might require relocation to facilitate structural and track work. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: No information about current state of complete structure and particularly masonry. Stability of arches during excavation of arch fill, installation of waterproof membrane and concrete infill. Difficult repair works of existing masonry as a result of the unavailable information about conditions of structure.	3	Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. No as-built drawings for existing structure available.	2			BoQ according to detailed design incl. reinforcement schedules, excavation and backfill above arch missing, works on existing structure missing, without temporary works design	2
		S03 - St. George's School Access Bridge	Detailed design now available. In summary the detailed design standard is not acceptable, as as-built drawings of existing structure and information about underpinning are missing. Also constraints are stated on the drawings. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by mid Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S03 was received in Sep 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying a local access road over tram and footway. Bridge provides access to school, which we may need to consult with. No other major relevant parties identified at this stage.	1	Proposal generally buildable / constructible but following risks: No information about current state of complete structure. Stability of arches during excavation for construction of trough (soffit level of new trough approx. 1.00 m below bottom of existing arch foundations - underpinning required?). Provision of required Random Rubble Sandstone Blocks from existing structures, which are to be demolished.	2	Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. No as-built drawings for existing structure available. "Provided Details by others" have to be clarified.	2			BoQ according to detailed design incl. reinforcement schedules, without temporary works design	1
		S04 - St George's School Footbridge	Detailed design now available. However, standard is not acceptable. Refer to column 'plausibility'. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by mid Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S04 was received in Sep 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying an access footway over tram and footway. Bridge provides access to school, which we may need to consult with. No other major relevant parties identified at this stage.	1	Proposal generally buildable / constructible but following risks: Sheet piling or equivalent for construction pit required, difficult below structure. Foundation type unknown (see AIP, item 3.2); angle for load transfer below bridge foundation to construction pit less than 45 degree.	2	Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. No as-built drawings for existing structure available. "Provided Details by others" have to be clarified.	1			BoQ according to detailed design incl. reinforcement schedules, without temporary works design	1
		S05 - Ravelston Dykes Bridge	Layout drawings without dimensions available. Reinforcement drawings missing (if required). Changes since Aug 07: AIP info now supplemented by layout drawings. Design programmed to be IFC by mid Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S05 was received in Sep 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying a local road over tram and footway. No major relevant parties identified at this stage.	1	Proposal generally buildable / constructible.	1	Notes item 10: Max. water cement ratio of 0.4 not acceptable, minimum 0.45.	1			Tender BoQ, detailed drwg's missing, without temporary works design	2
		S06 - Craigeleith Drive Bridge	Detailed design now available. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by mid Feb 08.	1	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S06 was received in Sep 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing bridge carrying tram, cycleway and footway over a local access road. Services might be present in existing bridge and might require relocation to facilitate structural and track work. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: Provision of required Random Rubble Sandstone Blocks from existing structures, which are to be demolished. Difficult works (partial demolition, excavation, installation falsework etc.) immediately adjacent to existing structure.	2	ID-numbers of reference drawings missing. Drawings partly incomplete e.g. dimensions missing. No "as-built" drawings available. Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified.	2	AIP states that deck slab will be constructed from precast reinforced concrete units.	3	BoQ according detailed design incl. reinforcement schedules, without temporary works design	1

Structures (BRG, RTW drawing series)			Design Availability						Design Quality				Quantities				
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off		
[ - ]	[ - ]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	
Phase 1b	Section 3A	S07 - Holiday Inn Access Bridge	Detailed design now available. However, design appears to be erroneous. Refer to column 'constructability' for further details. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by mid Feb 08.	3	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S07 was received in Sep 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying a local access road over tram and footway. Bridge provides access to hotel, which we may need to consult with. No other major relevant parties identified at this stage.	1	If section A-A on dwg 00363 Rev. 1 is correct, the proposal is not buildable / constructible! Alignment of tracks not coordinated with existing bridge (pier east). Kink / step in trough wall underneath the bridge protrudes into the tram envelope. Type and shape of pier foundations unknown (see AIP 3.2); level and dimensions of foundations to investigate using trial pits according to note on dwg 00363 (not done as yet --> risk). The current design would require the existing bridge pier foundations to be partially demolished. In this case the integrity of the bridge is doubtful. According to AIP formation level of trough must not be lower than the level of existing bridge foundations - in design it appears to be approx. 0,60 m lower.	3	Notes item 10: Max. water cement ratio of 0,4 not acceptable, minimum 0,45. No as-built drawings available. Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. Design is not complete and appears to be erroneous in some cases (refer to column constructability). In dwg 00363 the walls of the trough are shown as sloped, in other dwg's the walls are vertical; what is correct?	3			BoQ according to detailed design incl. reinforcement schedules, excavation and backfill missing, without temporary works design	2	
		S08 - Queensferry Road Bridge	Detailed design now available. However, standard is not acceptable. Refer to column 'plausibility'. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by mid Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S08 was received in Sep 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying a road over tram and footway. No major relevant parties identified at this stage.	1	Proposal generally buildable / constructible but following risks: Foundation level of existing arch acc. AIP 3.1 approx. 0,60 m below EGL = 44,60 m. Assumption of level in dwg 00423 = 43,74 m (incorrect). Bottom edge of trough is approx. 43,00 m - underpinning required. Additional investigations required (trial pits).	2	No information provided about underpinning of existing arch. No as-built drawings available. Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified.	2			BoQ according to detailed design incl. reinforcement schedules, without temporary works design	1	
		S09 - Groathill Road South Bridge	Detailed design now available. However, concrete outline drawing missing and standard not acceptable. Also refer to column 'plausibility'. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by mid Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S09 was received in Sep 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing bridge carrying tram, cycleway and footway over a local road. Services might be present in existing bridge and might require relocation or protection to facilitate structural and track work. Temporary and permanent diversions will require stats approval. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: Provision of required Random Rubble Sandstone Blocks from existing structures, which are to be demolished. Difficult works (partial demolition, excavation, installation falsework etc.) immediately adjacent to existing structure.	2	ID-numbers of reference drawings missing. Drawings partly incomplete e.g. dimensions missing. No as-built drawings available. Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified. Drawing no. 00484 missing.	2	AIP states that deck slab will be constructed from precast reinforced concrete units.	3		Tender BoQ, detailed drwg's cannot be used for quantity take-off, as concrete outlines are missing, without temporary works design	2
		S10 - Telford Road Bridge	Detailed design now available. However, standard is not acceptable. Refer to column 'plausibility'. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by mid Feb 08.	2	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S10 was received in Oct 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying a road over tram and footway. No major relevant parties identified at this stage.	1	Proposal generally buildable / constructible but following risks: Provision of required cope blocks to match material of copes on existing structure. No accurate information about foundation level and form of existing structure (to determine by trial pits). Determining of safe angle for excavation. Underpinning of wings walls may be required, no accurate information.	2	ID-numbers of reference drawings missing. Drawings partly incomplete e.g. dimensions missing, dwg 00548 (construction sequences) is completely confusing, dwg 00543 information about badger tunnel (existing?) etc. No as-built drawings available. Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified.	2			BoQ according to detailed design incl. reinforcement schedules, repair works at the existing structure not included	2	
		S11 - Drylaw Drive Bridge	Only AIP information available. No new information received since Aug 07. Detailed design is late (draft issue was programmed for Aug 07 in accordance with SDS programme V23). Design programmed to be IFC by end of Mar 08.	3	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for S11 was received in Nov 06. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying a footpath over tram and footway. No significant works to structure envisaged thus no major relevant parties identified at this stage.	1	Proposal generally buildable / constructible.	1	No comments.	1			No significant works, Tender BoQ	1	

Structures (BRG, RTW drawing series)			Design Availability						Design Quality				Quantities			
Phase	Section	Structure	Design Status / Completeness		Design Approval Status (tie / CEC)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[ - ]	[ - ]	Ref number - Name	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		W02 - Ferry Road Retaining Wall	Only AIP information available. No new information received since Aug 07. Detailed design is not included in SDS programme (assumed to be suppliers design element).	3	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for W02 was received in Oct 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	New modular retaining wall required to form a tram stop. No major relevant parties identified at this stage.	1	No detailed design drawings available as yet. No check possible.	3	No detailed design drawings available as yet. No check possible. Only general arrangement available. As yet the following items have been identified: Two drawings with same Revision number but different content available.	3	Not compliant with AIP. CFA bored piles are proposed but designed is dry build modular blockwork wall with mass concrete backfilling.	3	Tender BoQ, detailed drwg's missing, without temporary works design	2
		W100 - Roseburn Retaining Walls	Only conceptual / preliminary drawings available. Changes since Aug 07: Revised conceptual GA drawings and typical cross sections received. Detailed structural design outstanding (does SDS consider these to be supplier design items????). Design programmed to be IFC by mid Feb 08, which seems unachievable considering the fact that TAA comments on AIP were only received in Nov 07..	3	Prior approvals for combined section 3A outstanding and not due before start of May 08. (refer to SDS programme V23) Technical Approval (TAA) for W100 was received in Nov 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	W100 combines various minor retaining structures along the Roseburn corridor. Extensive consultation with owners of adjacent properties will be required to agree access arrangements for piling etc. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: No detailed design concerning soil nailing, bored piled retaining wall.	2	Differences between alignment section and chainage. Outer rail, bored pile retaining wall chainage 302.120 but shown in section approx. 302.115! Detailed design for bored piled retaining walls is completely missing. RC drawings, dimensions, sections and elevation are required. Only typical detail available. Detailed design for soil nailing is completely missing. Only typical detail available.	3	Not compliant with AIP! According to AIP bored pile retaining wall is NON PREFERRED OPTION but shown in drawing at several places/chainages: Inner rail at 302.085 to 302.120. Outer rail at 300.586 to 300.620; at 300.647 to 300.654; at 300.840 to 300.880; at 302.115 to 302.209; at 302.115 to 302.209; at 302.976 to 303.035.	3	Tender BoQ, detailed drwg's missing, without temporary works design	2
	Section 3B	S12 - Crewe Road Gardens Bridge	Detailed design now available. Changes since Aug 07: AIP info now supplemented by proper detailed design. Design programmed to be IFC by start of Feb 08.	1	Prior approvals for combined section 3B outstanding and not due before mid Feb 08. (refer to SDS programme V23) Technical Approval (TAA) for S12 was received in Oct 07. (refer to SDS programme V23) Final tie / CEC approval outstanding.	2	Existing overbridge carrying a road over a road and a footpath. A second span is to be added to allow the new tram to pass under existing bridge parallel to road at low level. Services are present in existing bridge / road, which will require relocation or protection to facilitate structural and track work. Temporary and permanent diversions will require stats approval. Long retaining walls on either side of new bridge span. Extensive consultation with owners of adjacent properties will be required to agree access arrangements for piling etc. 3rd party approval status is unclear.	2	Proposal generally buildable / constructible but following risks: Strict limitations on settlement and permissible lateral movement of the retained ground (proximity of housing) during construction and in the permanent case. Connection proposed deck slab reinforcement using couplers to existing bridge deck reinforcement.	3	No information on dwg's about connection of proposed part of deck slab to existing deck slab. Construction joint in deck slab not detailed shown. Components of existing structure in details not shown. No as-built drawings of existing structure available. Constraints, indicative information and their confirmation by others in "notes" on the drawings have to be clarified.	2			BoQ according to detailed design incl. reinforcement schedules, excavation and backfill missing, without temporary works design	2
	Section 3C	none	n/a		n/a		n/a		n/a		n/a		n/a		n/a	

Notes: 1) All comments are based on the documents available at the 14th Dec 2007 design freeze date.  
 2) Cells highlighted in blue letters require input by appropriate person.

Risk definition:

1	low
2	medium
3	high

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 1A	Alignment (Track & Roads)	Only superseded track alignment drawings (TAL & TVA series) available, as section 1A is currently under re-design thus available information cannot be considered. No roads alignment drawings available.	3		3		3	No alignment design based on latest GA proposals available. However, one has to assume that, once the re-design becomes available, it will have similar issues with respect to pavement overlay as the design of section 1B. Refer to comments on section 1B.	3	No current design available hence no comments possible.	3			Section under re-design. No take-off of latest proposal possible. Current price is based on sub-contractor's quotation, which is based on tie tender BoQ's adjusted with contractor's items. All prices based on old scheme.	3
		General Arrangement (Track & Roads)	Only superseded roads design drawings (HRL series) available, as section 1A is currently under re-design thus available information cannot be considered. No further roads design information available.	3		3		3	Section currently under re-design hence no detailed comments possible. However, we know from indicative drawings (planning) that layout of some junctions will change radically. This has created a situation where we have conflicting information.	3	No current design available hence no comments on layouts possible. Comments only relate to standard details and specs. Aesthetic requirements for new ped guard rail not defined. Dimensions for kerb and footway details missing. Detailed cross sections at 10m interval required but missing.	3			Section under re-design. No take-off of latest proposal possible. Current price is based on sub-contractor's quotation, which is based on tie tender BoQ's adjusted with contractor's items. All prices based on old scheme.	3
		Track details	Generic indicative track details (DRG drawing series) available. However, as section is under re-design, it is not clear as to which typical detail applies where. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	3		3	3rd party approval status is unclear. It is likely that Forth Port Authority, residents and developers as well as CEC will be the major relevant 3rd parties. However, as a full re-design is in progress, which is not due to be completed before Oct 08, it is assumed that 3rd party approvals are outstanding. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	3	Some track details available. However, as section is under re-design it is not clear, which details will apply where. Track details are likely to change in line with system (Rheda City) of Siemens' track contractor. Generally, it appears that SDS have not assessed the existing pavement. There is a risk that subformation might require substantial strengthening before track can be constructed.	3	Only outline details available, which are likely to change in line with system (Rheda City) of Siemens' track contractor. No comments possible at this stage	2			Section under re-design. No take-off of latest proposal possible. Current price is based on sub-contractor's quotation, which is based on tie tender BoQ's adjusted with contractor's items. All prices based on old scheme.	3
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) does not include section 1A. Also no drawings defining the areas where specific pavement options shall be applied are available. No pavement standard details available.	3		3		3	No pavement design available. one has to assume that, once the re-design becomes available, it will have similar issues as the design of section 1B. Refer to comments on section 1B.	3	No info.	3			Section under re-design. No take-off of latest proposal possible. Current price is based on assumption that existing pavement will be kept and overlaid. All prices based on old scheme.	3
		Lighting	No information available for this section.	3		3		3	No info. However, risk that proposals will not be constructable is considered to be low.	1	No info. However, risk that design documents will not be up to standard is considered to be low.	1			Section under re-design. No take-off of latest proposal possible. Current price is based on sub-contractor's quotation, which is based on tie tender BoQ's adjusted with contractor's items. All prices based on old scheme.	3
		Traffic Signs and Road Markings	No traffic sign and road marking drawings available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available. However, this excludes section 1A.	3		3		3	No info. However, risk that proposals will not be constructable is considered to be low.	1	No info. However, risk that design documents will not be up to standard is considered to be low.	1			Section under re-design. No take-off of latest proposal possible. Current price is based on sub-contractor's quotation, which is based on tie tender BoQ's adjusted with contractor's items. All prices based on old scheme.	3
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal design (layout drawings, standard details and controller specification) missing. Section under re-design.	3		3		3	No info. However, risk that proposals will not be constructable is considered to be low.	1	No info. However, risk that design documents will not be up to standard is considered to be low.	1			Section under re-design. No take-off of latest proposal possible. Current price is based on sub-contractor's quotation, which is based on tie tender BoQ's adjusted with contractor's items. All prices based on old scheme.	3

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads alignment drawings available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2	It appears that the track alignment has been developed in isolation and has not been sufficiently coordinated with the roads design. However, this iterative optimisation process would have been required to maximise pavement overlay areas. As it stands, the current design proposal is for full reconstruction of carriageway and footway pavements and is not feasible / constructable to current budget and programme. Traffic management would become more complex for full re-construction. Post-novation the alignment design will have to be revised accordingly. This will have a knock-on effect (re-design) on design elements such as structures. No roads alignment design available hence no comments possible.	3	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2			Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2
		General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. Detailed road restraint system layout drawings (HRL drawing series) available. However, these do not include RRS schedules, which should be provided. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	1		3		2	Full footway re-construction (i.e. from house to house) for many areas. This seems over the top and is not what BBS have priced for. Spec app 11/1 defines option for new footway construction only. However, we want to keep at least the base layers. No info about existing base layers of footways - is it granular, blacktop or concrete. This will have a knock-on effect on possible re-use or removal costs.	2	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Dimensions for kerb and footway details missing. The status quo at start of Infraco works is not clear, e.g. central reserve kerbs might have been removed by MUDFA but Infraco assume re-use of existing kerbs. Detailed cross sections at 10m interval required but missing.	2		Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2	
	Section 1B	Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2	All formal approvals outstanding. Prior approvals for section 1B are outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for	3	3rd party approval status is unclear. Due to the urban environment this section is in, it is assumed that multiple authorities and interested 3rd part need to be consulted. Depending on the design element the risk varies	1						Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2	

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 1B. Detailed pavement design and detailed pavement surface colour drawings (HRL series) available. Typical cross sections (HRL series) for section 1B show existing road pavement to be retained as 'unknown', which would make overlay option impossible. The current design therefore conflicts with BBS' qualification that our price does not allow for full depth reconstruction. No pavement standard details available.	3	Technical Approval (TAA) for section 1B roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	Design element the risk varies. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	2	Available drawings show new pavement construction throughout even where new levels are higher than existing, i.e. overlay would be possible. This means that there is no real pavement design (survey of extg pavement, analysis of residual design live, determination of required overlay). Pavement survey and resulting interpretative report is essential and its absence is big risk. Pavement levels relativ to existing (above / below) vary too often over short sections to permit efficient pavement construction. Pavement works shown outside LOD areas. The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	3	Pavement drawings need dimensions on it. Drawings not clear. Different hatchings should refer to pavement options rather than levels. Document required that specifies concrete surface colour requirements for 'tram only', 'bus only', etc areas. Relevant drawings should make reference to this document. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2			Available drawings generally used for quantity take-offs. Current price is based on assumption that existing pavement will be kept and overlaid where proposed levels are equal higher than existing levels.	2
		Lighting	Detailed lighting layout drawings available. Electrical schematics and calculations missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		2			Electrical schematics missing. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2			Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		2	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2			Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout drawings and ducting drawings (TMG series) available. Standard details and controller specifications missing.	2		3		2			Standard details and controller specs missing. Otherwise no comments.	1			Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability					Design Quality					Quantities			
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[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads alignment drawings available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2	It appears that the track alignment has been developed in isolation and has not been sufficiently coordinated with the roads design. However, this iterative optimisation process would have been required to maximise pavement overlay areas. As it stands, the current design proposal is for full reconstruction of carriageway and footway pavements and is not feasible / constructable to current budget and programme. Traffic management would become more complex for full re-construction. Post-novation the alignment design will have to be revised accordingly. This will have a knock-on effect (re-design) on design elements such as structures. No roads alignment design available hence no comments possible.	3	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2			Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2
		General Arrangement (Track & Roads)	Draft detailed roads design drawings (HRL series) available. However, some sections are superseded and under re-design, e.g. Picardy Place. Typical cross sections (HRL series) only available for St Andrews Square area. Remainder missing. No detailed road restraint system layout drawings or RRS schedules (HRL drawing series) available. Detailed kerb and footway layout drawings (HRL layout drawings) are only available for the St Andreas Square area of section 1C. Remainder missing. Standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	3		3		2	Full footway re-construction (i.e. from house to house) for many areas. This seems over the top and is not what BBS have priced for. Spec app 11/1 defines option for new footway construction only. However, we want to keep at least the base layers. No info about existing base layers of footways - is it granular, blacktop or concrete. This will have a knock-on effect on possible re-use or removal costs.	2	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Dimensions for kerb and footway details missing. The status quo at start of Infraco works is not clear, e.g. central reserve kerbs might have been removed by MUDFA but Infraco assume re-use of existing kerbs. Detailed cross sections at 10m interval required but missing.	2		Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2	
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2		3		1							Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2

All formal approvals outstanding.

3rd party approval status is unclear.  
Due to the urban environment



Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability					Design Quality					Quantities			
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 1C	Pavement	The available draft specification appendix 7/1 (permitted pavement options) does only include the St Andrews Square area of section 1C. Remainder missing. Detailed pavement design and detailed pavement surface colour drawings (HRL series) are only available for the St Andrews Square area of section 1C. Remainder missing. No pavement standard details available.	3	Prior approvals for section 1C are outstanding and not due before mid Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for section 1C roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	this section is in, it is assumed that multiple authorities and interested 3rd part need to be consulted. Depending on the design element the risk varies. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	2	Available drawings show new pavement construction throughout even where new levels are higher than existing, i.e. overlay would be possible. This means that there is no real pavement design (survey of extg pavement, analysis of residual design live, determination of required overlay). Pavement survey and resulting interpretative report is essential and it's absence is big risk. Pavement levels relativ to existing (above / below) vary too often over short sections to permit efficient pavement construction. Pavement works shown outside LOD areas. The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	3	Pavement drawings need dimensions on it. Drawings not clear. Different hatchings should refer to pavement options rather than levels. Document required that specifies concrete surface colour requirements for 'tram only', 'bus only', etc areas. Relevant drawings should make reference to this document. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2		Available drawings generally used for quantity take-offs. Current price is based on assumption that existing pavement will be kept and overlaid where proposed levels are equal higher than existing levels.	2	
		Lighting	Only some draft detailed lighting layout drawings available (Princess Street section is missing). Electrical schematics and calculations missing. Specification appendices 13 and 14 missing.	3		3		2			Electrical schematics missing. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2		Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3	
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) are only available for the St Andrews Square area. Remainder missing. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available. However, this does only include the St Andrews Square area of section 1C.	3		3		2	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2		Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2	
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout drawings and ducting drawings (TMG and HRL series) available for some junctions. Standard details and controller specifications missing. As some areas of section 1C are under re-design (e.g. Picardy Place), it is assumed that information is missing.	3		3		2			Standard details and controller specs missing. Otherwise no comments.	1		Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2	

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads alignment drawings available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2	It appears that the track alignment has been developed in isolation and has not been sufficiently coordinated with the roads design. However, this iterative optimisation process would have been required to maximise pavement overlay areas. As it stands, the current design proposal is for full reconstruction of carriageway and footway pavements and is not feasible / constructable to current budget and programme. Traffic management would become more complex for full re-construction. Post-novation the alignment design will have to be revised accordingly. This will have a knock-on effect (re-design) on design elements such as structures. No roads alignment design available hence no comments possible.	3	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2			Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2
		General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. Detailed road restraint system layout drawings (HRL drawing series) available. However, these do not include RRS schedules, which should be provided. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	1		3		2	Full footway re-construction (i.e. from house to house) for many areas. This seems over the top and is not what BBS have priced for. Spec app 11/1 defines option for new footway construction only. However, we want to keep at least the base layers. No info about existing base layers of footways - is it granular, blacktop or concrete. This will have a knock-on effect on possible re-use or removal costs.	2	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Dimensions for kerb and footway details missing. The status quo at start of Infraco works is not clear, e.g. central reserve kerbs might have been removed by MUDFA but Infraco assume re-use of existing kerbs. Detailed cross sections at 10m interval required but missing.	2		Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2	
	Section 1D	Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2	All formal approvals outstanding. Prior approvals for section 1D are outstanding and not due before end of Feb 08. (refer to SDS programme V23) Technical Approval (TAA) for	3	3rd party approval status is unclear. Due to the urban environment this section is in, it is assumed that multiple authorities and interested 3rd part need to be consulted. Depending on the design element the risk varies	1						Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2	

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 1D. Detailed pavement design and detailed pavement surface colour drawings (HRL series) available. Typical cross sections (HRL series) for section 1D show existing road pavement to be retained as 'unknown', which would make overlay option impossible. The current design therefore conflicts with BBS' qualification that our price does not allow for full depth reconstruction. No pavement standard details available.	3	Technical Approval (TAA) for section 1D roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	Design element the risk varies. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	2	Available drawings show new pavement construction throughout even where new levels are higher than existing, i.e. overlay would be possible. This means that there is no real pavement design (survey of extg pavement, analysis of residual design live, determination of required overlay). Pavement survey and resulting interpretative report is essential and its absence is big risk. Pavement levels relativ to existing (above / below) vary too often over short sections to permit efficient pavement construction. Pavement works shown outside LOD areas. The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	3	Pavement drawings need dimensions on it. Drawings not clear. Different hatchings should refer to pavement options rather than levels. Document required that specifies concrete surface colour requirements for 'tram only', 'bus only', etc areas. Relevant drawings should make reference to this document. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2			Available drawings generally used for quantity take-offs. Current price is based on assumption that existing pavement will be kept and overlaid where proposed levels are equal higher than existing levels.	2
		Lighting	Detailed lighting layout drawings available. Electrical schematics and calculations missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		2			Electrical schematics missing. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2			Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		2	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2			Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout drawings and ducting drawings (TMG series) available. Standard details and controller specifications missing.	2		3		2			Standard details and controller specs missing. Otherwise no comments.	1			Available drawings generally used for quantity take-offs. However, all small items (e.g. signs, markings, signals) are based on tie's tender BoQs.	2

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities		
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off		
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	
Phase 1a	Section 2A	Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads alignment drawings available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2	It appears that the track alignment has been developed in isolation and has not been sufficiently coordinated with the roads design. However, this iterative optimisation process would have been required to maximise pavement overlay areas. As it stands, the current design proposal is for full reconstruction of carriageway and footway pavements and is not feasible / constructable to current budget and programme. Traffic management would become more complex for full re-construction. Post-novation the alignment design will have to be revised accordingly. This will have a knock-on effect (re-design) on design elements such as structures. No roads alignment design available hence no comments possible.	3	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2					
		General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	1		3		2	Full footway re-construction (i.e. from house to house) for many areas. This seems over the top and is not what BBS have priced for. Spec app 11/1 defines option for new footway construction only. However, we want to keep at least the base layers. No info about existing base layers of footways - is it granular, blacktop or concrete. This will have a knock-on effect on possible re-use or removal costs.	2	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Dimensions for kerb and footway details missing. The status quo at start of Infraco works is not clear, e.g. central reserve kerbs might have been removed by MUDFA but Infraco assume re-use of existing kerbs. Detailed cross sections at 10m interval required but missing.	2					
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2	All formal approvals outstanding. Prior approvals for section 2A are outstanding and not due before Mar 08. (refer to SDS programme V23) Technical Approval (TAA) for	3	3rd party approval status is unclear. Due to the urban environment this section is in, it is assumed that multiple authorities and interested 3rd part need to be consulted. Depending on the design element the risk varies	1									

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 2A. No detailed pavement design and detailed pavement surface colour drawings (HRL series) available. However, it appears that there are only 2 scenarios in section 2A: 1) track bed spans across the full width of the road which results in full reconstruction of road and no specific pavement drawings would be required or 2) track line is away from road and does not affect pavement design. Consequently, further pavement drawings may not be required. To be confirmed. No pavement standard details available.	2	Technical Approval (TAA) for section 2A roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	Design element the risk varies. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	2	Available drawings show new pavement construction throughout even where new levels are higher than existing, i.e. overlay would be possible. This means that there is no real pavement design (survey of extg pavement, analysis of residual design live, determination of required overlay). Pavement survey and resulting interpretative report is essential and it's absence is big risk. Pavement levels relativ to existing (above / below) vary too often over short sections to permit efficient pavement construction. Pavement works shown outside LOD areas. The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	3	Pavement drawings need dimensions on it. Drawings not clear. Different hatchings should refer to pavement options rather than levels. Document required that specifies concrete surface colour requirements for 'tram only', 'bus only', etc areas. Relevant drawings should make reference to this document. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Lighting	Detailed lighting layout drawings including electrical schematics available. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	1		3		2			Electrical schematics missing. Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		2	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout drawings and ducting drawings (HRL series) available. Standard details and controller specifications missing.	2		3		2			Standard details and controller specs missing. Otherwise no comments.	1				
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads alignment drawings available for works required in the Roseburn Viaduct area. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2	No comments.	1	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2				

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability				Design Quality				Quantities									
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off					
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk				
	Section 5A	General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	1		3		2	No comments.	1	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Detailed cross sections at 10m interval required but missing.	2								
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2	All formal approvals outstanding. Prior approvals for section 5A are outstanding and not due before May 08. (refer to SDS programme V23) Technical Approval (TAA) for section 5A roadworks is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status is unclear. The tram line runs along the corridor of the main Edinburgh to Glasgow rail line, which makes Network Rail together with CEC a key 3rd party for this section. The tram line has also a significant interface with the Murrayfield Stadium. Depending on the design element the risk varies.	1												
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 5A. Detailed drawings available for proposed footway / cycleway along tram line as well as for proposed paved access ramps to tram stops. No detailed pavement drawings available for works required on roads. No pavement standard details available.	2				1	The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	2	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2								
		Lighting	Detailed lighting layout drawings available. However, from these drawings it is not clear how new lighting ties in with existing circuits. Also cable routes and feeder pillars are not shown. Electrical schematics and calculations missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2							1							Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3	
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1							1	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2					
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout and ducting drawings (HRL series) available. Standard details and controller specifications missing.	2							2			Standard details and controller specs missing. Otherwise no comments.	1					

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads alignment drawings and alignment drawings for the proposed footway / cycleway along the tram line available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		1	No comments.	1	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2				
		General Arrangement (Track & Roads)	Draft roads design drawings (HRL series) available. Typical cross sections missing. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. No detailed kerb and footway layout drawings (HRL layout drawings) available. Standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	2		3		2	No comments.	1	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Detailed cross sections at 10m interval required but missing.	2				
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2		3		1								
	Section 5B	Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 5B. No detailed pavement drawings available for works required on roads. Also no detailed drawings available for proposed footway / cycleway along tram line or for proposed paved access ramps to tram stops. No pavement standard details available.	2	All formal approvals outstanding. Prior approvals for section 5B are outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for section 5B roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	The tram line runs along and crosses twice the corridor of the main Edinburgh to Glasgow rail line, which makes Network Rail together with CEC a key 3rd party for this section. The tram route also crosses Edinburgh Park industrial estate. The tram route coincides with the guided bus route. There will be requirements from CEC and the bus operator to keep this open for as long as possible, whereas we want to construct this section early.  Depending on the design element the risk varies.	1	The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	2	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Lighting	Detailed lighting layout drawings available. However, details for Edinburgh tram stop area missing and in abeyance. Electrical schematics and calculations missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		1							Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3
		Traffic Signs and Road Markings	No detailed traffic signs and road marking drawings (HRL drawing series) available. However, a traffic sign register for section 3C is included in spec appendix 12/1 (traffic signs) and a road markings register in 12/3.	2		3		1	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout drawings, ducting drawings, standard details and controller specifications missing.	3		3		2			Standard details and controller specs missing. Otherwise no comments.	1				
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. However, track alignment is to be reviewed / adjusted following recent changes to depot. No roads alignment drawings and alignment drawings for the proposed sections of footway / cycleway available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		1	No comments.	1	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2				
		General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	1		3		2	No comments.	1	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Detailed cross sections at 10m interval required but missing.	2				
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2		3		1								
	Section 5C	Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 5B. Detailed drawings available for proposed footway / cycleway along tram line as well as for proposed paved access ramps to tram stops. No detailed pavement drawings available for works required on roads. No pavement standard details available.	2	All formal approvals outstanding. Prior approvals for section 5C are outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for section 5C roadworks is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status is unclear. The tram line passes through suburbs and runs along predominately rural areas. On its route it crosses major roads, which makes the Roads Authority and other CEC departments key 3rd party for this section. Depending on the design element the risk varies.	1	The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	2	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Lighting	Detailed lighting layout drawings available. However, details for some feeder pillars in the Edinburgh Park area unclear. Also cable routes and feeder pillars are not shown in the Gogarburn area. Electrical schematics missing for the majority of areas. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		1							Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3



Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		1	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout and ducting drawings (HRL series) available. Standard details and controller specifications missing.	2		3		2			Standard details and controller specs missing. Otherwise no comments.	1				
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads alignment drawings available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		1	Track alignment currently under review / re-design with a view to optimise depot design.	2	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2				
		General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. However, western part of depot access road missing. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	2		3		2	General arrangement currently under review / re-design with a view to optimise depot design.	2	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Detailed cross sections at 10m interval required but missing.	2				
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2		3		1								
	Section 6	Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 6. Detailed drawings available for proposed footways along depot access road. However, drawings does not include details for footways along western part of depot access road. No detailed pavement drawings available for carriageway works. No pavement standard details available.	2	All formal approvals outstanding. Prior approvals for section 6 are outstanding and not due before Aug 08. (refer to SDS programme V23) Technical Approval (TAA) for section 6 roadworks is programmed for Oct 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status is unclear. The depot is located in a rural area in direct vicinity to Edinburgh Airport, which makes the Airport together with CEC a key 3rd party for this section. Depending on the design element the risk varies.	1	The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	2	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Lighting	Detailed lighting layout drawings including electrical schematics available. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	1		3		1							Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		1	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal ducting drawings (HRL series) available. However, traffic signal layout drawings, standard details and controller specifications missing.	2		3		2			Standard details and controller specs missing. Otherwise no comments.	1				
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. However, some areas of section 7A are under re-design following omission of EARL project. No roads alignment drawings available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		1	Track alignment currently under re-design with a view to reflect cancellation of EARL project.	2	The drawings do not convey sufficient information to allow construction. According to SDS this info will be supplied electronically through model files. However, to date these were not provided in a format that we can read hence no detailed comments possible at this stage. Novation agreement to state that design information to be provided in format suitable for the contractor.	2				
		General Arrangement (Track & Roads)	Roads design missing from many of the available roads scheme layout drawings (HRL series) available. Typical cross section only available for one side road. Remainder missing. Track design to be revised in some areas of section 7A following omission of EARL project. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	3		3		2	General arrangement currently under re-design with a view to reflect cancellation of EARL project. Section 7 is envisaged to be the test track and requires early completion. Due to late design this may now be in doubt.	2	The information contained in the drawings appears to be of acceptable standard. However, only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format. Aesthetic requirements for new ped guard rail not defined. Detailed cross sections at 10m interval required but missing.	2				
	Section 7A	Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2	All formal approvals outstanding. Prior approvals for section 7A are outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for	3	3rd party approval status is unclear. Section 7A presents the link from the depot to the Airport. On its route the tram line crosses several water courses.	1								

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 7. Detailed drawings available for proposed footways. No detailed pavement drawings available for carriageway works. No pavement standard details available.	2	Technical Approval (TVA) for section 7A roadworks is programmed for Jul 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	Edinburgh Airport, SEPA and CEC are likely to be the major relevant 3rd parties. Depending on the design element the risk varies.	1	The permissible pavement option specified in spec app 7/1 appears to be excessive with a total blacktop thickness of 300mm. From experience this is a value more common for motorway pavements and a total thickness of 200mm would appear more suitable for the urban environment of this section.	2	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Lighting	Draft lighting layout drawings available. In some areas re-design required to reflect omission of EARL project. Cable routes and feeder pillars not shown. Electrical schematics and calculations missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		1							Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		1	No comments.	1	Only colour drawings available, which is not acceptable for construction drawings. In accordance with industry standard all drawings have to be provided such that all information becomes available when printed in black and white and is readable in A3 format.	2				
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal ducting drawings (HRL series) available. However, traffic signal layout drawings, standard details and controller specifications missing.	2		3		2			Standard details and controller specs missing. Otherwise no comments.	1				
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. Track alignment appears to clash with proposed trough structure underneath S07 Holiday Inn access bridge. It appears that no structural works are required to roads crossing the tram line thus no road alignment drawings would be required. However, alignment drawings for footpath / cycleway along tram line and access ramps to tram stops missing. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2								

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability				Design Quality				Quantities							
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off			
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk		
	Section 3A	General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	1		3		2										
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2	All formal approvals outstanding. Prior approvals for section 3A are outstanding and not due before May 08. (refer to SDS programme V23) Technical Approval (TAA) for section 3A roadworks is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status is unclear. Due to the urban environment this section is in, it is assumed that multiple authorities and interested 3rd part need to be consulted. Depending on the design element the risk varies. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	1										
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) does not include any requirements for section 3A and also no detailed pavement drawings are available for works required on roads. It is assumed that this is because no road works are required in section 3A. Detailed pavement treatment drawings available for proposed footway / cycleway along tram line as well as for proposed paved access ramps to tram stops. No pavement standard details available.	2		3		1										
		Lighting	Detailed lighting layout drawings available. Electrical schematics and calculations missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		1								Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3	
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		1										
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout drawings, standard details and controller specifications missing. Only ducting drawings (HRL series) available for some sections.	2		3		2										

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability				Design Quality				Quantities						
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off		
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	
Phase 1b	Section 3B	Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. Roads alignment drawings required for some areas in section 3B. These are missing. Alignment drawings for footpath / cycleway and access ramps to tram stops missing. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2									
		General Arrangement (Track & Roads)	Detailed roads design drawings and typical cross sections (both HRL series) available. The design for the Morrison's Supermarket junction (Junction 102A) is subject to change. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. However, it is unclear if any RRS will be required in this section. Detailed kerb and footway layout drawings (HRL layout drawings) as well as standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	1		3		2									
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2	All formal approvals outstanding. Prior approvals for section 3B are outstanding and not due before Mar 08. (refer to SDS programme V23) Technical Approval (TAA) for section 3B roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status is unclear. Due to the urban environment this section is in, it is assumed that multiple authorities and interested 3rd part need to be consulted. Depending on the design element the risk varies. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	1									
		Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 3B. Detailed drawings available for proposed footway / cycleway along tram line as well as for proposed paved access ramps to tram stops. No detailed pavement drawings available for works required on roads. No pavement standard details available.	2		3		1									
		Lighting	Detailed lighting layout drawings available. Electrical schematics only provided for some areas. Remainder missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		1								Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.	3
		Traffic Signs and Road Markings	Detailed traffic signs and road marking drawings (HRL drawing series) available. Scheme wide specification appendices 12/1 (traffic signs) and 12/3 (road markings) available.	1		3		1									

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. Traffic signal layout and ducting drawings (HRL series) available. Standard details and controller specifications missing.	2		3		2								
		Alignment (Track & Roads)	Detailed track alignment drawings (TAL & TVA series) available. No roads and footpath / cycleway alignment drawings available. Setting out / alignment information not currently available in an electronic format that we can read.	3		3		2								
		General Arrangement (Track & Roads)	Draft roads design drawings (HRL series) available. Typical cross sections missing. No detailed road restraint system layout drawings (HRL drawing series) and RRS schedules available. No detailed kerb and footway layout drawings (HRL layout drawings) available. Standard kerb details (HRL & CND drawing series) and spec app 11/1 available.	3		3		2								
		Track details	Generic indicative track details (DRG drawing series) available. Structural and construction details, such sub-base, concrete, reinforcement and waterproofing requirements for track form, are missing.	2		3		1								
	Section 3C	Pavement	The available draft specification appendix 7/1 (permitted pavement options) includes section 3C. Detailed drawings missing for proposed footway / cycleway along tram line as well as for proposed paved access ramps to tram stops. Also no detailed pavement drawings available for works required on roads. No pavement standard details available.	3	All formal approvals outstanding. Prior approvals for section 3C are outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for section 3C roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status is unclear. Due to the urban environment this section is in, it is assumed that multiple authorities and interested 3rd part need to be consulted. Depending on the design element the risk varies. Also, due to urban environment, departures from standard will be required for track alignment. It is not clear if these have been approved by the relevant authorities.	1								
		Lighting	Draft lighting layout drawings available. Cable routes and feeder pillars not shown. Electrical schematics and calculations missing. Specification appendices 13 and 14 missing. Only spec app 14/1 available.	2		3		1						Awaiting Pegasus+Bear subcontractor proposal, which should include BoQ.		3
		Traffic Signs and Road Markings	No detailed traffic signs and road marking drawings (HRL drawing series) available. However, a traffic sign register for section 3C is included in spec appendix 12/1 (traffic signs) and a road markings register in 12/3.	2		3		1								

Roads, Track, Traffic Signals & Lighting (CND, DRG, HRL, LTG, TAL, TMG and TVA drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Traffic Signals	Scheme wide specification appendix 12/5 (traffic signals) missing. No traffic signal layout drawings and ducting drawings (HRL series) available. Standard details and controller specifications missing.	3		3		2								

Notes: 1) All comments are based on the documents available at the 14th Dec 2007 design freeze date.  
2) Cells highlighted in blue letters require input by appropriate person.

Risk definition:

1	low
2	medium
3	high

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tle)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
Scheme Wide		Testing Specification	Spec appendix 1/5 (testing to be carried out by the contractor) not available.	3	Design not complete thus all formal approvals outstanding.	3	No 3rd parties relevant for testing spec have been identified. However, document will require CEC approval.	2	Document not available thus no comments possible. The key will be how to prove CBR on made ground. More technical and physical testing will be required, as this was not included in the SI carried out by SDS. Other important information will be guidance on blacktop and concrete testing.	3	Document not available thus no comments possible. We expect a standard spec appendix as per MCHW highways specification.	3	Document not available hence no comment possible.	3	Document not available thus no exact take-off possible. Some allowance is made for testing in the BBS tender offer. That spec is not available is very problematic, as we have no guidance as to the number, i.e. frequency, and type (hence the cost) of tests required.	3
		Earthworks Specification	Spec appendix 6 (earthworks) not available. No technical information to classify suitable sources.	3	Design not complete thus all formal approvals outstanding.	3	No 3rd parties relevant for earthworks spec have been identified. However, document will have to be coordinated with stats and get CEC approval.	2	Document not available thus no comments possible. It will be crucial to know the conditions and constraints, which will apply with regards to re-using site won (cohesive) material as structural embankment fill. our offer is based on assumption that class 2c (boulder clay) fill from depot is permitted to be used as general fill. Also important are monitoring and testing requirements.	3	Document not available thus no comments possible. We expect a standard spec appendix as per MCHW highways specification.	3	Document not available hence no comment possible.	3	Document not available thus no exact take-off possible.	3
Section 1A		Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	No 3rd parties relevant for geotechnical design have been identified. However, geotechnical design will require CEC approval.	1	No geotechnical interpretative reports (the geotechnical design) available. We do not know how existing tunnels (utilities and railway) in section 1A will affect the works. They might interfere with OLE foundations and track foundations. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical.	3	Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some (potentially superseded) typical cross sections available. These do not show services, ducts, OLE poles, service tunnels in sufficient clarity. For majority of section 1A no cross sections at all. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Earthworks	In section 1A the tram line runs primarily at grade at existing road level. Only a 2m high embankment in Newhaven area. Consequently, detailed earthworks plans and sections may not be required for the whole section. However, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	No 3rd parties relevant for earthwork design have been identified. However, design will have to be coordinated with stats and will require CEC approval.	1	In accordance with the geotechnical long sections there is an approx 2m embankment in the Newhaven area (Lindsay Road Retaining Wall). No geotechnical and structural details available for this structure. SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3



Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality						Quantities			
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Drainage	No drainage details available for the far end of section 1A, i.e. the area between Ocean Drive and Newhaven Road. Draft drawings available for remainder of section, which show large sections of the existing drainage network as to be re-used. However, the designer has qualified the survey information and states that further survey will be required prior to finalisation of design. Also, the general notes indicate that drainage design has not been coordinated with latest road alignment, i.e. final gully / manhole levels are in abeyance. No drainage schedules available for section 1A. Section 1A is currently under re design. Consequently the little information that has been provided to date will be subject to change. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme V23 does not state when drainage design is	3	All formal approvals outstanding. Prior approvals for section 1A roadworks are outstanding and not due before Oct 08. (refer to SDS programme V23) Technical Approval (TAA) for section 1A roadworks is programmed for Jun 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3	It is assumed that design will show re-use of existing drainage system wherever physically possible. There is a risk that existing drainage may not be fit for purpose over the required design life.	2	No details available thus no comments possible.	3				
		Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	No 3rd parties relevant for geotechnical design have been identified. However, geotechnical design will require CEC approval.	1	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical.	3	Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
	Section 1B	Earthworks	In section 1B the tram line runs at grade at existing road level. Consequently no cuts or embankments are present in this section and detailed earthworks plans and sections may not be required. However, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	No 3rd parties relevant for earthwork design have been identified. However, design will have to be coordinated with stats and will require CEC approval.	1	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability					Design Quality					Quantities			
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Drainage	Preliminary drawings available, which show large sections of the existing drainage network as to be re-used. However, the designer has qualified the survey information and states that survey is incomplete and that further survey will be required prior to finalisation of design. Also, notes indicate that drainage design has not been coordinated with latest road alignment, i.e. final gully / manhole levels are in abeyance. No drainage schedules available for section 1B. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 1B are outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for section 1B roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3	Design is based on re-using existing drainage system wherever possible. There is a risk that existing drainage may not be fit for purpose over the required design life.	2	Drawings are preliminary only and are based on insufficient survey. Not usable without provision of drainage schedules.	3				
	Section 1C	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	No 3rd parties relevant for geotechnical design have been identified. However, geotechnical design will require CEC approval.	1	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical.	3	Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Earthworks	In section 1C the tram line runs at grade at existing road level. Consequently no cuts or embankments are present in this section and detailed earthworks plans and sections may not be required. However, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	No 3rd parties relevant for earthwork design have been identified. However, design will have to be coordinated with stats and will require CEC approval.	1	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	No drainage drawings available for section 1C. Only one drawings available that indicates drainage for St Andrews Square area. No drainage schedules available for section 1C. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	3	All formal approvals outstanding. Prior approvals for section 1C are outstanding and not due before mid Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for section 1C roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). As no drawings are available it is assumed that discharge consents are outstanding.	3	It is assumed that design will show re-use of existing drainage system wherever physically possible. There is a risk that existing drainage may not be fit for purpose over the required design life.	2	No details available thus no comments possible.	3				

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tle)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 1D	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	No 3rd parties relevant for geotechnical design have been identified. However, geotechnical design will require CEC approval.	1	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical.	3	Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Earthworks	In section 1D the tram line runs at grade at existing road level. Consequently no cuts or embankments are present in this section and detailed earthworks plans and sections may not be required. However, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	No 3rd parties relevant for earthwork design have been identified. However, design will have to be coordinated with stats and will require CEC approval.	1	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Preliminary drawings available, which show large sections of the existing drainage network as to be re-used. However, the designer has qualified the survey information and states that survey is incomplete and that further survey will be required prior to finalisation of design. Also, notes indicate that drainage design has not been coordinated with latest road alignment, i.e. final gully / manhole levels are in abeyance. No drainage schedules available for section 1D. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 1D are outstanding and not due before end of Feb 08. (refer to SDS programme V23) Technical Approval (TAA) for section 1D roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3	Design is based on re-using existing drainage system wherever possible. There is a risk that existing drainage may not be fit for purpose over the required design life.	2	Drawings are preliminary only and are based on insufficient survey. Not usable without provision of drainage schedules.	3				

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 2A	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	Geotechnical design for elements adjacent to railway will be subject of Network Rail approval. No other major 3rd parties relevant for geotechnical design have been identified. However, geotechnical design will require CEC approval.	2	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical.	3	Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Earthworks	In the majority of section 2A the tram line runs at grade at existing road level. Consequently, no cuts or embankments are present in these areas and detailed earthworks plans and sections may not be required. However, in the delta junction area cuts and embankments are present, which need to be shown on drawings. These drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	Network Rail approval may be required for the earthworks sections adjacent to railway line. Otherwise no 3rd parties relevant for earthworks design in this section have been identified. However, design will have to be coordinated with stats and will require CEC approval.	2	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Preliminary drawings available, which show large sections of the existing drainage network as to be re-used. However, the designer has qualified the survey information and states that survey needs to be verified. Also, no drainage infrastructure is indicated between ch 200000+000 and ch 200200+000, which appears to be incorrect. Drainage schedules available for section 2A. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 2A are outstanding and not due before Mar 08. (refer to SDS programme V23) Technical Approval (TAA) for section 2A roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3	Design is based on re-using existing drainage system wherever possible. There is a risk that existing drainage may not be fit for purpose over the required design life.	2	Drawings are preliminary only and are based on insufficient survey.	3				

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
Phase 1a	Section 5A	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	Geotechnical design for elements adjacent to railway will be subject of Network Rail approval. Geotechnical design will require CEC approval and consultation with SEPA will be required due to expected contamination issues.	2	No geotechnical interpretative reports (the geotechnical design) available. It is assumed that the ground is extensively contaminated (diesel, metals, rubble) in the area around the Scotrail Haymarket Depot. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required. Bored piles specified for retaining walls between Haymarket and Murrayfield. This is a very narrow corridor and it will be difficult / impossible to get there with piling rig. Also large piling rigs adjacent to railway require possessions. Soft ground and artesian ground water pressure problems in Murrayfield tram stop area.	3	Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards. It would appear that WAC contamination testing has not been carried out even though there is clear evidence that ground will be contaminated around the Scotrail Haymarket Depot.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Earthworks	Tram line runs on embankment over majority of section 5A. Detailed earthworks plans and sections are required. These drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	3	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	Network Rail approval may be required for the earthworks sections adjacent to railway line. Otherwise no 3rd parties relevant for earthworks design in this section have been identified. However, design will have to be coordinated with stats and will require CEC approval.	2	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications. Very narrow corridor between buildings and Network Rail infrastructure (railway and Haymarket Depot) --> Access problems. Reinforced embankments proposed. Design will need to be verified by specialist supplier (e.g. Tensar, Maccafferrri). Offer is based on assumption to use site won class 2c fill from depot. As earthworks design is not available, it is not clear if this is permissible.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer. High water table. Starter layer width / thickness of reinforced earth sections not specified. Class 6C material required? If so, volume of re-usable site won class 2c would be reduced.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Detailed drainage drawings available, which show carrier drain running alongside new tram line. Connections from track drainage to carrier drain not shown. The designer has qualified the survey information of the existing drainage system and states that survey needs to be verified. Drainage schedules available for section 5A. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 5A are outstanding and not due before May 08. (refer to SDS programme V23) Technical Approval (TAA) for section 5A roadworks is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3	No proposal shown for drainage on top of reinforced earth embankments. Filterdrains will be required. There may be constraints as to which drainage system will be permissible due to contamination issues, e.g. filter drains may be a problem.	2	No pre-earthworks drainage shown. Interface with track drainage system not clear. Survey of existing drainage system heavily qualified.	3				

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality						Quantities			
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 5B	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	Geotechnical design for elements adjacent to railway will be subject of Network Rail approval. Coordination bus operator required. Geotechnical design will require CEC approval.	2	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required. Railway property (existing embankments) in poor condition. No info available. Risk of claims against us even though damage was there before. We may want to use alternative fill materials (PFA) for reinforced earth structures to reduce cost.	3	Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Railway not shown on cross sections. However, this is crucial given the sensitivity of rail way infrastructure. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Earthworks	In the majority of section 5B the tram line runs at grade parallel to the railway line. Consequently, no significant cuts or embankments are present in these areas and detailed earthworks plans and sections may not be required. However, at numerous locations large embankments are present, which need to be shown on drawings. These drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	Network Rail approval may be required for the earthworks sections adjacent to railway line. Otherwise no 3rd parties relevant for earthworks design in this section have been identified. However, design will have to be coordinated with stats and will require CEC approval. Operational issues will have to be coordinated with the fast bus operator, as tram route coincides with the guide bus way.	2	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications. Very narrow corridor between buildings and Network Rail infrastructure (railway). Also route follows guided bus way. --> Access and traffic management problems. Reinforced embankments proposed. Design will need to be verified by specialist supplier (e.g. Tensar, Maccafferri). Offer is based on assumption to use site won class 2c fill from depot. As earthworks design is not available, it is not clear if this is permissible.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer. High water table. Starter layer width / thickness of reinforced earth sections not specified. Class 6C material required? If so, volume of re-usable site won class 2c would be reduced. We will require site near land fill sites for cut material unsuitable as fill. Space between railway embankment and new tram embankments in section 5B would be ideal.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Detailed drainage drawings available, which show carrier drains running alongside new tram line. Where the tram line follows the existing guided bus way the existing drainage shall be re-used. Connections from track drainage to carrier drain / existing drainage system not shown. The designer has qualified the survey information of the existing drainage system and states that survey needs to be verified. Drainage schedules available for section 5B. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 5B are outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for section 5B roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3	No proposal shown for drainage on top of reinforced earth embankments. Filterdrains will be required.	2	No pre-earthworks drainage shown. Interface with track drainage system not clear. Survey of existing drainage system heavily qualified.	3				

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability					Design Quality					Quantities			
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 5C	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	Geotechnical design will require CEC approval and consultation with SEPA will be required due to expected contamination issues.	2	No geotechnical interpretative reports (the geotechnical design) available. It is assumed that the ground is extensively contaminated, as Edinburgh Park and Gogar area were used as tip / landfill sites previously. Not possible to appraise contamination risk due to missing interpretative report. Also factual soil investigation is insufficient to allow appraisal of bearing capacity of made ground in Edinburgh Park and Gogar areas. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required.	3	Sub-formation requirements not defined. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	3	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards. It would appear that WAC contamination testing has not been carried out even though there is clear evidence that ground is contaminated in several areas.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Earthworks	In the south-eastern section of section 5C the tram line runs more or less at grade. Consequently, no significant cuts or embankments are present in these areas and detailed earthworks plans and sections may not be required. However, in the section towards the airport the route runs in cuts (A8 underpass and depot retaining walls), which need to be shown on drawings. These drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	3	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	Earthwork design will have to be coordinated with stats and will require CEC approval. Consultation with BAA required at least regarding operational issues.	2	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications. Reinforced embankments proposed. Design will need to be verified by specialist supplier (e.g. Tensar, Maccafferrri). Offer is based on assumption to use site won class 2c fill from depot. As earthworks design is not available, it is not clear if this is permissible.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer. High water table. Starter layer width / thickness of reinforced earth sections not specified. Class 6C material required? If so, volume of re-usable site won class 2c would be reduced.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Detailed drainage drawings available, which show carrier drains running alongside new tram line. Connections from track drainage to carrier drain not shown. The designer has qualified the survey information of the existing drainage system and states that survey needs to be verified. Drainage design in A8 underpass area not complete. Drainage schedules available for section 5C. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 5C are outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for section 5C roadworks is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3	No proposal shown for drainage on top of reinforced earth embankments. Filterdrains will be required. There may be constraints as to which drainage system will be permissible due to contamination issues, e.g. filter drains may be a problem.	2	No pre-earthworks drainage shown. Interface with track drainage system not clear. Survey of existing drainage system heavily qualified.	3				

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 6	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	Geotechnical design will require CEC approval and consultation with SEPA will be required due to expected contamination issues.	2	No geotechnical interpretative reports (the geotechnical design) available. It is assumed that the ground is extensively contaminated, as ink works were previously present on this site. Not possible to appraise contamination risk due to missing interpretative report. Tie have interfered with ground and removed large quantities of soil as part of the MUDFA works. BBS had assumed to use all site won class 2c fill (boulder clay) from the depot site as general fill elsewhere. Also, as tie have broken the surface and exposed the clay, the quality deteriorates by the day due to water ingress and deficient drainage (mud).	3	Sub-formation requirements not defined. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for depot foundations may change once geotechnical design has been completed.	3	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards. It would appear that WAC contamination testing has not been carried out even though there is clear evidence that ground is contaminated in several areas.	3	No detailed geotechnical and earthworks design available. Depot currently under re-design. Levels will change. MUDFA have changed the existing condition. No survey available for state that BBS will take over.	3
		Earthworks	Significant earthworks are required in section 6, as the proposed depot FGL is much lower than the EGL. Detailed earthworks plans and sections are required. These drawings are missing. The depot design is currently being changed. The change includes lifting the proposed depot level. Information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	3	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	Earthwork design will have to be coordinated with stats and will require CEC approval. Consultation with BAA required at least regarding operational issues.	2	Earthwork are currently under re-design, i.e. depot level will change. This will have a knock-on effect on earthworks and structures (e.g. A8 retaining wall). No detailed comments possible due to missing design info.	3	Sub-formation requirements not defined. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer. MUDFA have changed the existing condition. No survey available for state that BBS will take over.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Depot currently under re-design. Levels will change. MUDFA have changed the existing condition. No survey available for state that BBS will take over.	3
		Drainage	Detailed drainage drawings available, which show carrier drains running alongside new depot access road. Drainage likely to change due to ongoing re-design of section 6. Drainage schedules for section 6 missing. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	3	All formal approvals outstanding. Prior approvals for section 6 are outstanding and not due before Aug 08. (refer to SDS programme V23) Technical Approval (TAA) for section 6 roadworks is programmed for Oct 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3								
		Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	Geotechnical design will require CEC approval and consultation with SEPA will be required due to presence of water courses / culverts.	2	No geotechnical interpretative reports (the geotechnical design) available. The factual report identifies section 7A as an area of low CBRs (less than 3%). However, SDS do not offer an engineering solution for this problem. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed and road. Special treatment to ducts may be required.	3	Sub-formation requirements not defined. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed. Section under re-design due to cancellation of EARL project.	3	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3



Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability					Design Quality					Quantities			
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[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 7A	Earthworks	In large areas of section 7A the tram line runs at grade. Consequently, no significant cuts or embankments are present in these areas and detailed earthworks plans and sections may not be required. However, at numerous locations large embankments are present, which need to be shown on drawings. These drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	Earthwork design will have to be coordinated with stats and will require CEC approval. Consultation with BAA required at least regarding operational issues.	2	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications. The factual report identifies section 7A as an area of low CBRs (less than 3%). However, SDS do not offer an engineering solution for this problem.	3	No useful information available. Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer. No engineering solution for low CBR problem available. Design may change as result of changed alignment due to cancelation of EARL project.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Detailed drainage drawings available, which show carrier drains running alongside new tram line. Connections from track drainage to carrier drain not shown. The designer has qualified the survey information of the existing drainage system and states that survey needs to be verified. Connections of new drainage to proposed culverts is unclear. Drainage schedules for section 7A are missing. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 7A are outstanding and not due before Jun 08. (refer to SDS programme V23) Technical Approval (TAA) for section 7A roadworks is programmed for Jul 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3								
		Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	3rd party approval status is unclear. Consultations will be required with land owners whose properties will be affected by the works. Also, design will have to be coordinated with stats, SEPA, Cyclists Groups and will require CEC approval.	2	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical. Route follows old railway corridor. Contamination and environmental problems (e.g. japanese knotweed) to be expected but not yet identified by the designer.	3	Factual SI info insufficient. Only shallow hand dug trial pits and no soil testing. Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
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[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 3A	Earthworks	In the majority of section 3A the tram line runs either in a cut or on an embankment. Retaining structures are proposed at numerous locations. Consequently, detailed earthworks plans and sections are required. However, these drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	3	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	3rd party approval status is unclear. Consultations will be required with land owners whose properties will be affected by the works. Also, design will have to be coordinated with stats, SEPA, Cyclists Groups and will require CEC approval.	3	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications. Piling and soil nailing will be difficult in tight working corridor. Extensive temp works close to houses.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Detailed drainage drawings available, which show carrier drain running alongside new tram line. Connections from track drainage to carrier drain not shown. The designer has qualified the survey information of the existing drainage system and states that survey needs to be verified. Drainage schedules available for section 3A. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 3A are outstanding and not due before May 08. (refer to SDS programme V23) Technical Approval (TAA) for section 3A roadworks is programmed for May 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3								
		Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	3rd party approval status is unclear. Consultations will be required with land owners whose properties will be affected by the works. Also, design will have to be coordinated with stats, SEPA, Cyclists Groups and will require CEC approval.	2	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical. Route follows old railway corridor. Contamination and environmental problems (e.g. Japanese knotweed) to be expected but not yet identified by the designer.	3	Factual SI info insufficient. Only shallow hand dug trial pits and no soil testing. Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
Phase 1b	Section 3B	Earthworks	In the majority of section 3B the tram line runs at existing road level (partly on the road and partly parallel to the road). Consequently, no large number of cuts or embankments are present in this section and detailed earthworks plans and sections may not be required everywhere. However, in the areas where earthworks are required, these need to be shown on drawings. These drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	2	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	3rd party approval status is unclear. Consultations will be required with land owners whose properties will be affected by the works. Also, design will have to be coordinated with stats, SEPA, Cyclists Groups and will require CEC approval.	3	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications. Piling and soil nailing will be difficult in tight working corridor. Extensive temp works close to houses.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Detailed drainage drawings available, which show carrier drain running alongside new tram line. Connections from track drainage to carrier drain not shown. The designer has qualified the survey information of the existing drainage system and states that survey needs to be verified. Drainage schedules available for section 3B. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 3B are outstanding and not due before Mar 08. (refer to SDS programme V23) Technical Approval (TAA) for section 3B roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3								
	Geotechnical	Only factual SI reports and SI summary report (desk study) available. Interpretative geotechnical report (i.e. the geotechnical design) is not available thus it is not possible to assess how SI results have been considered in the design and which residual risks are associated with geotechnical design. As the majority of the factual SI reports have only been issued in Nov 2007, there is a risk that structural and road / trackwork design will have to be revised to take into account of the new findings.	3	Design not complete thus all formal approvals outstanding.	3	3rd party approval status is unclear. Consultations will be required with land owners whose properties will be affected by the works. Also, design will have to be coordinated with stats, SEPA, Cyclists Groups and will require CEC approval.	2	No geotechnical interpretative reports (the geotechnical design) available. Comms and power ducts shown to be in the zone of influence of traffic immediately below the track bed. Special treatment to ducts may be required. Also current design would require multiple separate operations to take place prior to casting of track slabs (top soil stripping, installation of pre-earthworks drainage, installation of carrier drains, installation of comms & power ducts, placing of sub-base). As all this will happen within a very narrow corridor, this is not really practical. Route follows old railway corridor. Contamination and environmental problems (e.g. Japanese knotweed) to be expected but not yet identified by the designer.	3	Factual SI info insufficient. Only shallow hand dug trial pits and no soil testing. Sub-formation requirements not defined. Not possible to appraise contamination risk due to missing interpretative report. Only some typical cross sections (DRG series) available. These do not show services, ducts, OLE poles in sufficient clarity. Due to missing geotechnical design there is a risk that the design for foundations to structures may change once geotechnical design has been completed.	2	Document not available hence no appraisal possible. It is crucial that design will be in accordance with MCHW and CEC standards.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3	

Geotech, Earthworks & Drainage (GEO, DNE & SCH drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 3C	Earthworks	In the majority of section 3C the tram line runs at existing road level (partly on the road and partly parallel to the road). Consequently, no large number of cuts or embankments are present in this section and detailed earthworks plans and sections may not be required everywhere. However, in the areas where earthworks are required, these need to be shown on drawings. These drawings are missing. Also, information is required for treatment of track and roads formation (ground improvements, treatment of soft spots, etc). Specification appendix 6 (Earthworks) and earthworks standard details missing.	3	Earthworks design not available / complete thus it is assumed that all formal approvals are outstanding.	3	3rd party approval status is unclear. Consultations will be required with land owners whose properties will be affected by the works. Also, design will have to be coordinated with stats, SEPA, Cyclists Groups and will require CEC approval.	3	SDS have not carried out sufficient physical formation testing along the whole route to provide information about formation stiffness and therefore sub-base requirements. BBS will have to carry out further testing (CBR, Dynamic Cone Penetration) to allow works planning. This may have programme and cost implications. Piling and soil nailing will be difficult in tight working corridor. Extensive temp works close to houses.	3	Sub-formation requirements not defined. Typical cross section do not show all elements, e.g. filter drains, carrier drains, OLE foundations, ducts, kerbs, etc. Detailed cross sections required at 10m intervals. (refer to comment on roadworks design). Standard earthworks details not available. There is a risk that required typical CBR value below track slab might be higher than the 10% value that we have assumed for our offer.	3	Earthworks design not available therefore no comment possible.	3	No detailed geotechnical and earthworks design available. Therefore quantities can only be based on track alignment plus assumptions regarding typical cross sections. Anything below earthworks outline cannot be considered due to unavailability of design.	3
		Drainage	Detailed drainage drawings available, which show carrier drain running alongside new tram line. Connections from track drainage to carrier drain not shown. The designer has qualified the survey information of the existing drainage system and states that survey needs to be verified. Drainage schedules available for section 3C. Scheme wide specification appendix 5 and standard details available. The latest SDS design programme v23 does not state when drainage design is programmed to be IFC.	2	All formal approvals outstanding. Prior approvals for section 3C are outstanding and not due before Apr 08. (refer to SDS programme V23) Technical Approval (TAA) for section 3C roadworks is programmed for Apr 08. (refer to SDS programme V23) Final tie / CEC approval outstanding.	3	3rd party approval status unclear. Discharge consents will be required from relevant statutory undertakers (e.g. Scottish Water) or relevant authorities (e.g. SEPA, CEC). Note on drawings states that discharge consents are outstanding.	3								

Notes: 1) All comments are based on the documents available at the 14th Dec 2007 design freeze date.  
 2) Cells highlighted in blue letters require input by appropriate person.

Risk definition:

1	low
2	medium
3	high

Acc works, Lscp & Noise Fencing (ACC, LDS & SCL drawing series)			Design Availability				Design Quality				Quantities							
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off			
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk		
Scheme Wide	Accommodation Works		Draft versions of so-called 'boundary and accommodation works' drawings for all sections together with a scheme wide 'accommodation works schedule' have been produced by SDS. However, these documents merely define the design scope and are insufficient for construction purposes as stand alone documents, as they only provide brief descriptions of the works required and make reference to informal consultations and agreements between tie and 3rd parties.		It is not possible to check if all accommodation works requirements are already reflected in the various design elements (e.g. site clearance, earthworks, roadworks, structures, ect). However, as all formal approvals for each of these individual disciplines are outstanding, it has to be assumed that accommodation works details have also not been approved.													
			All requirements arising from 3rd party agreements need to be incorporated in the design and translated into construction details, which should be produced by SDS and must be shown on the appropriate drawings. References to the text of agreements are insufficient for construction. In particular standard details for fencing, street furniture and landscaping are required. Also earthworks design to take account of steps, access ramps, boundary retaining walls, etc. Detailed and complete property owners / tenants schedule of acc works required.															
Section 1A	Accommodation Works		Draft 'boundary and accommodation works' drawings available. Refer to general comment above.  Also, drawings state that Forth Ports section is under re-design, which means that drawings are superseded and subject to change.	3	Refer to general comment above.	3	3rd party approval status unclear.	3										
	Site Clearance		No design drawings available. Spec appendix 2 (site clearance) does not include section 1A. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2										
	Landscaping		No design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2										
	Noise Fencing		no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2										
	Accommodation Works		Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3										

Acc works, Lscp & Noise Fencing (ACC, LDS & SCL drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tle)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 1B	Site Clearance	Detailed drawings (HRL series) available. Spec appendix 2 (site clearance) available, which includes details for section 1B. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	No design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 1C	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	Detailed drawings (HRL series) only available for St Andrews Square area. Spec appendix 2 (site clearance) available, which includes details for section 1C. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	2	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	No design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 1D	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	Detailed drawings (HRL series) available. Spec appendix 2 (site clearance) available, which includes details for section 1D. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	No design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 2A	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 2A. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								

Acc works, Lscp & Noise Fencing (ACC, LDS & SCL drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
Phase 1a		Landscaping	Design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	2	not approved	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 5A	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 5A. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	No design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 5B	Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 5B. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
	Section 5C	Landscaping	Design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	2	not approved	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
	Section 5C	Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 5C. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	Design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	2	not approved	2	3rd party approval status unclear.	2								
			Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2							

Acc works, Lscp & Noise Fencing (ACC, LDS & SCL drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 6	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	No design drawings available. Spec appendix 2 (site clearance) does not include section 6. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	No design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 7A	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.  Section is under re-design following omission of EARL project, which means that drawings may be subject to change.	3	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 7A. Section is under re-design due to cancellation of EARL project, which may affect site clearance in some area. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	2	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	No design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 3A	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3								
		Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 3A. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2								
		Landscaping	Design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	2	not approved	2	3rd party approval status unclear.	2								
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								



Acc works, Lscp & Noise Fencing (ACC, LDS & SCL drawing series)			Design Availability						Design Quality						Quantities			
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tle)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off			
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk		
Phase 1b	Section 3B	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3										
		Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 3B. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2										
		Landscaping	Design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	2	not approved	2	3rd party approval status unclear.	2										
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2										
	Section 3C	Accommodation Works	Draft 'boundary and accommodation works' drawings available. Refer to general comment above.	2	Refer to general comment above.	3	3rd party approval status unclear.	3										
		Site Clearance	Detailed drawings (SCL series) available. Spec appendix 2 (site clearance) available, which includes details for section 3C. Archaeological design missing. No info about site constraints such as Japanese Knotweed available.	1	Site clearance drawings are part of roads design design package in accordance with SDS programme v23. All formal approvals for roads design are outstanding.	2	3rd party approval status unclear.	2										
		Landscaping	Design drawings available. No landscape area schedule available. No spec appendix 30 (landscape and ecology) available.	2	not approved	2	3rd party approval status unclear.	2										
		Noise Fencing	no info	3	Design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2										

Notes: 1) All comments are based on the documents available at the 14th Dec 2007 design freeze date.  
 2) Cells highlighted in blue letters require input by appropriate person.

Risk definition:

1	low
2	medium
3	high

Tram stops, Substations & Depot (DEP, STP, SUB & TSU drawing series)			Design Availability					Design Quality					Quantities			
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
	Section 1A	TS Newhaven	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Tram North Leith Sands Substation (NLE)	tender design	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Ocean Terminal	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Port of Leith	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Bernard Street	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Foot of the Walk	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 1B	Tram Leith Walk 163 Substation (LWE)	tender design	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Balfour Street	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 1C	TS McDonald Road	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Picardy Place	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Tram Cathedral Lane Substation (CAE)	tender design	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS St. Andrew Square	detail design, incomplete During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	2	Final detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								

Tram stops, Substations & Depot (DEP, STP, SUB & TSU drawing series)			Design Availability						Design Quality						Quantities		
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off		
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	
Phase 1a	Section 1D	TS Princes Street	detail design, incomplete During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	2	Final detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS Shandwick Street	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
	Section 2A	Tram Haymarket Terrace 1 Substation (HTE)	tender design	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS Haymarket	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		Russell Road TPH Substation (RRE)	tender design	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
	Section 5A	TS Murrayfield Stadium	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
	Section 5B	TS Balgreen	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		Tram Jenners Depository Substation (JDE)	tender design	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS Saughton	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		Tram Bankhead Drive Substation (BDE)	tender design	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS Bankhead	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS Edinburgh Park Station	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									

Tram stops, Substations & Depot (DEP, STP, SUB & TSU drawing series)			Design Availability						Design Quality						Quantities	
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		TS Edinburgh Park Central	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 5C	TS Gyle Centre	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Gogarburn	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Depot - Building and Infrastructure	re-design expected for raised depot level, current detail design similar and incomplete	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 6	Tram Gogar Depot Substation (GDE)	re-design expected for raised depot level, current detail design similar and incomplete	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Tram Eastfield Road Substation (ERE)	tender design, re-design expected for EARL deletion	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 7A	TS Ingliston Park & Ride	tender design, re-design expected for EARL deletion During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Edinburgh Airport	tender design, re-design expected for EARL deletion During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
	Section 3A	TS Roseburn	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Ravelston	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Craighleith	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		Tram South Groathill Avenue Substation (SGE)	detail design, incomplete	2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								

Tram stops, Substations & Depot (DEP, STP, SUB & TSU drawing series)			Design Availability						Design Quality						Quantities		
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off		
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	
Phase 1b		TS Telford Road	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS Crewe Toll for Western General Hospital	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS West Pilton	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
	Section 3B	Tram Granton Mains East 15 Substation (GME)	tender design		2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								
		TS Carolin Park	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
	Section 3C	TS Saltire Square	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		TS Granton	tender design During PB negotiations tie have changed the tram stop requirements. Consequently the available design is superseded and will have to be revised.	3	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2									
		Tram Granton View Substation (GVE)	tender design		2	Detailed design not available hence all approvals outstanding.	2	3rd party approval status unclear.	2								

Notes: 1) All comments are based on the documents available at the 14th Dec 2007 design freeze date.  
2) Cells highlighted in blue letters require input by appropriate person.

Risk definition:

1	low
2	medium
3	high



Utilities (UTL & UBT drawing series)			Design Availability				Design Quality				Quantities					
Phase	Section	Element	Design Status / Completeness		Design Approval Status (tie)		Design Approval Status (Relevant Authorities and Third Parties)		Feasibility / Constructability / VE Opportunities		Plausibility / Drawing Standard / Clarity of Documents		Compliance with Contract Requirements and Specifications		Status Quantity Take-Off	
[-]	[-]	[-]	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk	Comment	Residual Risk
		Telewest Thus Transco Verizon														
Phase 1b	Section 3A	Scottish Power	Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.	
		Scottish Water														
		Gas														
		British Telecom														
	Section 3B	Cable & Wireless	Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.	
		Telewest														
		Thus														
		Transco														
	Section 3C	Verizon	Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.		Utility diversions are outwith our scope of works. Consequently no due diligence has been carried out for this aspect of SDS' design.	
		Scottish Power														
		Scottish Water														
		Gas														

Notes: 1) All comments are based on the documents available at the 14th Dec 2007 design freeze date.  
 2) Cells highlighted in blue letters require input by appropriate person.

Risk definition:

1	low
2	medium
3	high





# Appendix 3

## Not used