

Our ref: **25.1.201/KDR/4961**

8 March 2010

**tie** limited  
CityPoint  
65 Haymarket Terrace  
Edinburgh  
EH12 5HD

**Bilfinger Berger–Siemens– CAF  
Consortium**

BSC Consortium Office  
9 Lochside Avenue  
Edinburgh Park  
Edinburgh  
EH12 9DJ  
United Kingdom

Phone: +44 (0) 131 452 2800

Fax: +44 (0) 131 452 2990

**For the attention of Steven Bell - Tram Project Director**

Dear Sirs,

**Edinburgh Tram Network Infraco  
Infraco Contract: Programme (Revision 3)**

In accordance with the requirements of Clause 60.3 of the Infraco Contract we hereby submit and enclose our proposed Programme (Revision 3) – 31 October 2009 – Sub Revision 0 along with supporting narrative and request your acceptance, in accordance with Clause 60.4 of the Infraco Contract.

This submission follows the agreement reached by Messrs Jeffrey and Darcy in November 2009 to produce a Programme to Revenue Service which takes account of all known facts up to 31 October 2009. The programme has been adjusted for those mitigation measures which can be applied to reduce the overall programme duration and that have a neutral or positive (cost reducing) impact on the overall project cost.

The detailed process being undertaken by both Infraco and tie to attempt to agree a revised Programme has been ongoing since the beginning of 2009.

Under these circumstances as mentioned above it is now necessary to provide some "Programme" history in order to put the Programme and difficulties into perspective.

Prior to Contract award it was agreed between the Parties that Infraco would incorporate the SDS Design Delivery Programme V31 (V31) into the Schedule Part 15 - Programme and the result would be the first tie Change. The proposed Programme was submitted to tie on 02 June 2008, but remained without agreement until 17 December 2008.

In this time, the project experienced vast and unforeseen volumes of change arising from *inter alia* delayed provision of IFC design, increases in the scope of the works from BDDI to IFC stage and incomplete Utility Works.

In October 2008, it was agreed between the Parties that because of the concurrencies of, and complicated interrelationship between these delays, tie's Tom Hickman and Infraco's Stephen Sharp should carry out a time slice analysis to ascertain the effect and culpability of all these changes. A number of time slices would be considered between May and December 2008.

However, in January 2009, despite the time slice analysis progressing well, it was noted that the project was absent of an effective monitoring tool for the progression of the works, and thus it was agreed by the Parties that a revised Programme (Revision 2) was needed and should also be prepared jointly. The time slice analysis was thereby suspended.

However, before the work was stopped (15 January 2009) Hickman / Sharp were asked to undertake a brief analysis of the data compiled at that time. The agreed analysis arrived at an Open for Revenue Service date of 11 October 2012.

Through January, February and March 2009 civil works programmes were prepared for each Intermediate section of the works which incorporated all changes known at that time and it was agreed that a cut off / data date of 31 March 2009 would be used. Each Intermediate section programme was submitted to tie but received little if any response. These programmes were then combined, the Siemens (Systems and Trackwork) activities added, and the proposed Programme (Revision 2) was submitted to tie on 20 May 2009. In parallel, a separate extension of time programme was produced to demonstrate that Infraco had an entitlement to an extension of time (identifying individual changes) that would cover the difference between the Revision 1 and Revision 2 Programmes. Both programmes were baseline at 31 March 2009.

Tie rejected the proposed Programme (Revision 2) on 21 August 2009, stating that, *"continued discussions about your entitlement based on the proposed Rev. 02 Programme are preventing agreement in accordance with the contract."*

Following the informal mediations in June and July 2009 where tie again stepped back from what Infraco considered to be agreed programmes, Infraco considered there to be no alternative other than to utilise the DRP process within the contract and on 4 September 2009, triggered a dispute based on the Rev 8 MUDFA programme details which demonstrated an entitlement to both time and money of 9 months from the cut-off date of 31 March 2009. However following meetings between Messers Jeffrey and Darcy in November 2009 an agreement (without prejudice to Infraco's entitlements) was reached to temporarily suspend the DRP process in an attempt to reach agreement on the entire programme issue by taking an incremental approach.

The incremental approach consisted of 5 steps. Step 1 refers to Schedule Part 15 – Programme known as Programme (Revision 0). Step 2 is the Programme (Revision 1) which adds 38 working days to the Programme (Revision 0) as a result of incorporating the V31 Design Programme. Step 3 takes account of all known facts up to 31 October 2009 and directly incorporates these into the Programme (Revision 1) without mitigation. A first draft of the step 3 programme was sent to tie on 10 February 2010. The latest draft of the step 3 programme which incorporates the "access dates" (received 13 February 2010) and the issue of tie Change Order milestone dates of 15 March / 17 May / 12 July 2010 produces the following Section Completion dates:

A	22 September 2011
B	31 August 2012
C	23 February 2014
D	11 August 2014

However, due to the increased scope of work has resulted in changes to the traffic management. Therefore it has not been practical to incorporate this into the Step 3 programme and the requirement for full depth reconstruction of roadways. This could add up to a further 6 months to the Section C & D completion dates.

Step 4 is the mitigation of the delays and prolongations occurring in the step 3 programme mentioned above. It is a final draft of this step 4 programme which is submitted under cover of this document.

The mitigation measures , which are applied to reduce the overall programme duration and that have a neutral or positive (cost reducing) impact on the overall project cost are as follows:

### **MUDFA**

To enable the Infraco Works to be constructed all service utilities that conflict with either the works to be built or with the operation of the tram need to be diverted. These diversion works are undertaken by the utilities contractor, MUDFA and the Utility Companies in advance of the Infraco Works.

The Base Case Assumptions and Schedule Part 15 - Programme reflect the agreement that the Infraco works can be undertaken in a manner which is not disrupted by the MUDFA and Utility Companies Works.

This agreed logic ensured that not only would the physical Infraco and MUDFA works not conflict, but also for the avoidance of no clashes between traffic management schemes, difficulties of working around live services, access conflicts, congestion of contractors vehicles, space for storage of materials, responsibility and ownership of the sites in respect of HSE and other factors that could either reduce productivity or suspend the works. As a result of this agreement efficiencies assumed in the Programme (Revision 1) and associated cost savings were made possible

The Programme (Revision 1) is the version currently accepted by tie pursuant to clause 60.4.

The Programme (Revision 1) has 10 milestones, each representing the date for which MUDFA were assumed to be completed in each Intermediate Section. Without modification to the agreed logic in the Programme, these dates constitute the start milestones for the Infraco works in the corresponding Intermediate Section.

It is further noted that these dates are also listed in the Programming Assumptions document bound into Schedule Part 15 of the Infraco Contract and were not changed from the Schedule Part 15 Programme to the current Programme (Revision 1).

To mitigate the delays caused to the works the submitted proposed Programme (Revision 3) considers "access dates" supplied by tie under cover of their e mail T Hickman to S Sharp dated 13 February 2010. These "access dates" are the planned dates for completion of utility works for each traffic management phase identified in the Programme to construct the Infraco works. It is these "access dates" which in the proposed Programme (Revision 3) constitute the start milestones for the Infraco works.

These mitigation measures not only improve the planned completions in the Intermediate Sections but also the Section Completion dates are brought forward. However the aforementioned risks of working in close proximity to the utilities contractors are increased and the efficiencies and cost savings made may not be realised.

### **Preferred Construction Sequence**

The Programme (Revision 1) contained, in addition to normal construction logic, preferred construction sequences that represented an economic methodology for Infraco to construct the works. To obtain the most economic use of materials, continuity of employments for skilled labour resource and the optimum supervision levels the start and finish of some activities were linked together. These links are to be found between bridgework, earth works, track works and OHLE activities. In addition to providing a logical and economic sequence to construct the works they

also provided a levelling and limiting of the total amount of resources required to construct the works.

To mitigate the delays caused to the works the submitted proposed Programme (Revision 3) changes the intended construction sequences by completely removing this preferential logic.

Construction activities are therefore programmed to start based on the following criteria:

- Completion of MUDFA & Utilities Works.
- Date of IFC drawings.
- Standard construction sequence (e.g. foundations before walls etc.)
- Agreed traffic management sequences and constraints.
- Issue of tie Change Orders.
- Actual start dates.

The number of working areas has therefore been maximised in the proposed Programme (Revision 3). This has had a dramatic effect e.g. consider Section 1B Leith Walk which forms one of the critical traffic management sequences on the project. The works in Leith Walk were originally programmed to start on 5 August 2008 and to be completed by 5 November 2010 an overall duration of 27 months. However despite an abortive attempt to start the works in September 2008 the works are programmed to commence on 14 July 2010 (almost 2 years later). In addition the scope of the works has increased for the following reasons;

- Ground improvements beneath track – excavation support (provide concrete surround to ducts) (10 weeks), additional excavation (3 weeks), sub base (2 weeks), track improvement slab (11 weeks).
- Full depth road construction – additional excavation (5 weeks), capping (4 weeks), sub base (5 weeks).
- Additional traffic management constraints, parking bays within working area (12 weeks), keeping McDonald Road junction open (5 weeks).

The above additional durations would have added 57 weeks (13 months) to the programme. However, the proposed Programme (Revision 3) shows these works to be completed by 24 April 2013, an overall duration of 33 months. This mitigation of 7 months has been achieved by removing the preferential logic and working on the maximum number of works sites allowed by the traffic management constraints.

The Programme (Revision 1) is constrained by the track laying and OHLE resources. To maintain this restraint the activities for each gang are linked by finish start relationships. The reason for this preferred logic (as it has been termed) is that the production levels are based upon the resources having continuity of work. If this continuity is broken, by an obstruction to progress and the resource has to be moved elsewhere on the project, a demobilisation / remobilisation time is incurred and production lost. Activities have been inserted into the programme to allow for this disruption to production. In the proposed Programme (Revision 3) these links have been deleted, resource levelling will be achieved through the use of the Primavera software. Therefore the additional disruption caused to these activities by more movements around the site has been absorbed.

The Programme (Revision 1) showed the E & M works to commence only when the civil engineering works was completed in each intermediate section. The proposed Programme (Revision 3) identifies individual cable lengths as programme activities and allows these works to commence once the civil works directly associated with them have been completed. This brings forward the start of E & M works in each intermediate section.

Further mitigation has been achieved by incorporating the EAL programme for the works between Ingliston and Edinburgh Airport, agreed ideas from the tie/BSC mitigation workshop held on

3 February 2010, improvement to excavation outputs and commencing earlier with track work preparation in the area of bridgeworks.

The result of the above mitigation measures has improved the Section Completion dates as follows;

A 09 August 2011  
B 06 April 2012  
C 16 July 2013  
D 12 January 2014

In addition to the 7 months of mitigation demonstrated by the difference of the step 4 (12 January 2014) and step 3 (11 August 2014) programmes a further period (approximately 6 months) should be added for the effect of the full road reconstruction not accounted for in the step 3 programme.

The process to compile the proposed Programme (Revision 3) in conjunction with tie has included, in addition to the exchange and agreement of data, a number of workshops and meetings. Copies of all emails, attachments, minutes of meetings etc associated with the production of this proposed Programme (Revision 3) is enclosed.

Yours faithfully

  
**M Foerder**  
Project Director  
Bilfinger Berger Siemens CAF Consortium

Encl: ETN Revision 3 Step 4 Programme (sub revision 0) 100305  
List of Documents for Revision 3 Programme on CD  
1 x Compact Disk  
Programme Revision 3 Narrative Final

cc: M. Berrozpe  
A. Urriza  
M. Hecht  
S. Sharp

## EDINBURGH TRAM NETWORK

### Programme (Revision 3) Narrative (100305)

The assumptions and factual statements that have been made to compile the Programme (Revision 3) are set out as follows:

- Our Programme for the works recognises the allowed working hours stated in the Code of Construction Practice of 0700 to 1900 Monday to Friday and 0800 to 1300 on a Saturday. However, a 40 hour effective working week has been used to calculate the duration of activities to take account of rest breaks, un-exceptional weather delays and travel between work sites. However, construction work will be required outside the hours stated in the Code of Construction Practice for Rail Possessions, work on busy road junctions, works associated with piling at the A8 underpass, stringing catenary cables etc. Prior approval will be sought for such works in accordance with the contract documents and the Programme assumes that such approval will be granted as necessary to maintain the programme.
- Allowance has been made for the August and Christmas embargoes as defined in the Contract, through a "moth balling" of the works during these periods. There is no allowance for demobilisation and re mobilisation of the effected works.
- The phasing of the works is in accordance with the traffic management schemes approved at 31 October 2009
- The agreed baseline date for this programme is 31 October 2009. All information that became available after this date has not been considered. The scope of the works comprises that which was envisaged by the IFC drawings issued up to and including 31 October 2009. Provisional construction periods have been allowed for Roseburn Street Viaduct, Murrayfield Tram Stop, Haymarket Crew Relief facility and works in Intermediate Section 1C between York Place and London Road.
- Access to the various worksites is dependant upon the completion of the MUDFA and Utilities works. The programme assumes that the dates stated in the matrix of access dates received by e mail on 13 February 2010 will be achieved.
- We understand that a "Utilities Conflict Schedule" is currently being prepared by tie; however no allowance for these activities is currently included. Any delays resulting from these works may have a considerable effect on construction periods.
- The scope of work includes for;
  - Excavation and full depth reconstruction of the roads including a 600mm capping layer.
  - Traffic Management and access issues related to the loss of working street width as a result of increased excavation depth.
  - Support to excavation due to adjacent live traffic.
  - Ground improvements beneath the track slab.
  - Addition of an R.C. Track Improvement Slab.
  - Additional traffic management constraints which include parking bays, bus stops and taxi bays within working areas.
- There is no allowance for unforeseen issues e.g. below ground obstructions, voids, soft or contaminated material.
- There is no allowance for noise and vibration measures for the track work.
- A decision regarding the extent of the Infraco construction works at South Gyle Access Bridge will need to be made prior to 17 May 2010 to allow works to commence on that date.

- V51 of the SDS design programme has been incorporated as the source document of the IFC dates.
- The programme reflects the progress of works under construction at 31 October 2009.
- The programme is resourced levelled for the ability to lay track in three areas and erect OHLE posts and string cables in two areas.
- In section 7 the design of the Airport Canopy and other objections raised by BAA will be resolved to allow the works to progress as programmed.
- This is no programme allowance for the proposed Gogar Interchange works as advised by tie. (GRIP)
- Gogarburn Tram Stop does not include for the proposed Royal Bank of Scotland improvements.
- Traffic Management constraints in the Morrison's third Party agreement have been ignored.
- Other off street Utility works yet to be completed and which have not been transferred to Infraco will be undertaken to allow the works to progress as planned.
- There is no allowance for the public realm works at St Andrews Square and Bernard Street.
- Tie has challenged the drainage design in section 5B which detrimentally affects the start of track work construction between Edinburgh Station Tram Stop and Bankhead Drive Tram Stop. It is assumed the design will be verified to allow the construction of these works to commence by 15 March 2010.
- Where the scope of the works has changed from the Base Date Design to the Issue for Construction Drawings and a tie Change Order is necessary for the works to precede the following dates have been assumed as to when that Order will be issued.
  - 15 March 2010 for the off street works between Edinburgh Airport Tram Stop and, but not including, Bankhead Drive Tram Stop and the on street works between Haymarket Station and Lothian Road junction. This includes all works in Intermediate Sections 7A, 6A, 5C and 5B as far as but not including Bankhead Drive Tram Stop and the completion of Intermediate Section 1D.
  - 17 May 2010 for the remainder of the off street works between Bankhead Tram stop and Haymarket Viaduct and the extension of the on street works to the track cross over in York Place. This includes all remaining works in Intermediate Sections 5B, 5A and 2A and 1C works as far as but not including the Picardy Place junction.
  - 12 July 2010 for the on street works between Picardy Place and Newhaven Tram Stops. This includes all remaining works in Intermediate Sections 1C, 1B and 1A.

ETN Programme Revision 3  
List of Emails and Attachments on CD

091111 SC to SCS ETN Revision 3 - the road map.pdf  
091111 SCS to TH Rev 3 Programme Template.pdf  
091111 TH to SCS REV 3 PROGRAMME TEMPLATE(1).pdf  
091111 TH to SCS REV 3 PROGRAMME TEMPLATE.pdf  
091118 TH to SCS Rev 3 Programme Template.pdf  
091119 KR to SB draft OSSA construction programmes.pdf  
091119 TH to SCS Meeting invitation.pdf  
091119 TH to SCS Rev 3 Programme Template.pdf  
091120 SCS to SC Notes of 18 Nov Meeting.pdf  
091120 TH to SCS Rev 3 Programme Information.pdf  
091123 SCS to SC Revision 3 Programme section 2 Data Sheets.pdf  
091124 SCS to SC Revision 3 Database Section 6.pdf  
091124 SCS to SC Revision 3 Programme Data Sheets.pdf  
091130 SCS to SC Notes of 25 November Meeting.pdf  
091201 SCS to SC Step 3 Data Sheet for Section 1B.pdf  
091201 SCS to SC Step 3 Data Sheet for Section 1C.pdf  
091201 SCS to TH Notes of 26 Nov Meeting.pdf  
091202 SC to SCS ETN STEP 3 Data Sheet for Section 1C.pdf  
091204 SCS to TH Data Sheet Section 1D.pdf  
091207 SCS to TH Notes of meeting 02 & 03 December 2009.pdf  
091207 TH to SCS ETN Programme Workshop.pdf  
091207 TH to SCS OSSA Programme Review and Comments (1).pdf  
091207 TH to SCS OSSA Programme Review and Comments.pdf  
091209 TH to SCS ETN Notes of Meeting 26 November 2009.pdf  
091211 TH to SCS ETN Mitigation Workshop on 16 December 2009.pdf  
091212 TH to SCS OSSA Programme Review and Comments.pdf  
091213 TH to SCS Agenda for Workshop.pdf  
091214 FM to MF MUDDA Programme.pdf  
091214 SCS to TH Agenda for Workshop.pdf  
091214 SCS to TH Data Sheet for 5B.pdf  
091214 SCS to TH Data Sheet for 5C.pdf  
091214 TH to SCS Agenda For Workshop (1).pdf  
091214 TH to SCS Agenda For Workshop (2).pdf  
091214 TH to SCS Agenda For Workshop.pdf  
091215 SCS to TH Data Sheet for 1A.pdf  
091215 SCS to TH Data Sheet.pdf  
091215 TH to SCS Agenda.pdf  
091216 TH to SCS Utility Programmes.pdf  
091217 JC to TH OSSA Programme Review and Comments (1).pdf  
091217 JC to TH OSSA Programme Review and Comments.pdf  
091218 SCS to TH Notes of Meeting 091218.pdf  
091219 MF to SCS OSSA Programme Resources - Comments.pdf  
091223 TH to SCS Section 1A Programme Datasheet Review.pdf  
091223 TH to SCS Section 1A Programme Workshop.pdf  
091224 TH to SCS Section 1B Workshop (1).pdf  
091224 TH to SCS Section 1B Workshop.pdf  
091224 TH to SCS Section 5A Responses to BSC.pdf  
091231 TH to SCS Section 1A Programme Workshop.pdf  
100104 SCS to TH Section 1B Workshop.pdf  
100104 TH to SCS Section 1B Programme Workshop.pdf  
100105 JC to TH Comments on OSSA Resource Profiles.pdf  
100106 TH to SCS Section 1A Programme Workshop.pdf  
100106 TH to SCS Section 1B Programme Workshop.pdf  
100107 SCS to TH Part Response to 5B Data Sheet.pdf  
100107 SCS to TH Section 2A Responses.pdf  
100107 TH to SCS Notes from Programme Workshop.pdf  
100107 TH to SCS Part Update of Section 5B Data Sheet.pdf  
100108 TH to SCS 1C Programme Workshop.pdf  
100108 TH to SCS 1D Programme Workshop.pdf  
100110 TH to SCS Step 3 Data Sheet for Section 1B.pdf  
100111 SCS to TH Actions from 18 & 25 Nov. Meetings.pdf  
100111 SCS to TH Basis of Rev 3 Programme.pdf



ETN Programme Revision 3  
List of Emails and Attachments on CD

100111 SCS to TH Meeting 25 November.pdf  
100111 TH to SCS Programme Workshops.pdf  
100111 TH to SCS Section 1A Programme Workshop.pdf  
100111 TH to SCS Section 1C Programme Workshop.pdf  
100111 TH to SCS Section 1D Programme Workshop.pdf  
100111 TH to SCS Step 3 Data Sheet for Section 1B.pdf  
100112 JC to SC OSSA Section 1A.pdf  
100112 SCS to SC Section 1B.pdf  
100113 MF to SB OSSA & Programme.pdf  
100113 SC to SCS ETN Section 1B.pdf  
100113 TH to SCS 1C Programme Workshop.pdf  
100113 TH to SCS Step 3 Data Sheet for Section 1C.pdf  
100115 CN to SCS Notes Actions from Programme Workshop.pdf  
100115 SCS to TH Indicative Programme London Road to St Andrews Square.pdf  
100115 SCS to TH Outputs used in OSSA Programmes.pdf  
100115 SCS to TH Section 6 Responses.pdf  
100115 SCS to TH Workshop for 1A.pdf  
100115 TH to SCS Programme Information for Inclusion.pdf  
100117 MF to SB Programme Rev3.pdf  
100118 MF to SB Programme Revision 3.pdf  
100118 MH to TH Notes Actions from Programme Workshop.pdf  
100118 TH to SCS Programme Information for Inclusion.pdf  
100119 CN to SCS Notes Actions from Programme Workshop.pdf  
100119 SB to MF Programme Rev 3.pdf  
100120 TH to SCS Programme Information for Inclusion.pdf  
100120 TH to SCS Rev 3 Programme Timetable.pdf  
100125 SB to MF Programme.pdf  
100125 SB to SCS Programme.pdf  
100127 TH to SCS Programme Workshop.pdf  
100128 SCS to SB Revision 3 Programme.pdf  
100201 SCS to TH Revision 3 Step 4 (first draft).pdf  
100201 TH to SCS REU 3 Programme Agenda.pdf  
100201 TH to SCS Revision 3 Step 4 (first draft).pdf  
100204 SCS to TH Clash with Ducts Section 1B.pdf  
100204 SCS to TH Rev 3 Step 4 Mitigation Ideas.pdf  
100204 TH to SCS Rev 3 Step 4 Mitigation Ideas.pdf  
100205 SCS to TH Rev 3 Step 4 Mitigation Ideas.pdf  
100205 TH to SCS Rev 3 Mitigation Proposals and Ideas.pdf  
100209 TH to SCS Rev 3 Programme.pdf  
100210 SCS to SC Mitigation Measures.pdf  
100210 SCS to SC Revision 3 Step 3.pdf  
100211 SCS to SC Revision 3 Step4 (Second Draft).pdf  
100213 TH to SCS Access Dates.pdf  
100215 ETN Rev 3 Step 4 (second draft).pdf  
100216 TH to SCS Mitigation in REU 3 Review.pdf  
100217 SC to SCS Rev 3 Step 4.pdf  
100222 SCS to SC Notes of 17 February Meeting.pdf  
100224 SCS to TH Resource Levelling.pdf  
20091209131617929.pdf  
Actions from 18 & 25 November.doc  
Analysis of Section 2 drainage.xls  
Comments On All OSSA Construction Programmes\_BSC response 16Dec09.pdf  
Comments On OSSA Construction Programmes Received from BSC 19Nov09 (1).docx  
Comments On OSSA Construction Programmes Received from BSC 19Nov09 TH LIVE.docx  
Comments On OSSA Construction Programmes Received from BSC 19Nov09.docx  
Comments On OSSA Resource Profiles Received from BSC 11Dec09 TH LIVE.docx  
Comments On OSSA Resource Profiles\_BSC response 04Jan10.docx  
ETN Notes of Meeting 091105.pdf  
ETN Notes of Meeting 091118.doc  
ETN Notes of Meeting 091125.pdf  
ETN Notes of Meeting 091126.doc  
ETN Notes of Meeting 091202.pdf

ETN Programme Revision 3  
List of Emails and Attachments on CD

ETN Notes of Meeting 100217.pdf  
ETN Production of Revision 3 progress to 100126.pdf  
ETN Production of Revision 3.pdf  
ETN Revision 3 Step 3 Programme (first draft) 100209.pdf  
ETN Revision 3 Step 4 Programme (first draft) 100201.pdf  
ETN Revision 3 Step 4 Programme (second draft) 100211.pdf  
ETN Sub Section 1B rev005.pdf  
Haymarket Viaduct Rebar Quantities.xer  
HaymarketShandwickDraft08.pdf  
London Rd-SthSt AndrewSt.pdf  
Mitigations Ideas for Rev3\_Combined.xls  
Narrative to draft OSSA construction programmes 20091119.pdf  
notes from 1C + 1D Rev 3 prog mtg 13-01-10.pdf  
OUTPUTS\_Global.xls  
Outstanding Actions to Inform Rev 3 Programme Rebuild to BSC 20JAN10.pdf  
Preliminary Draft Construction Programme Section 1A - (19.11.2009).pdf  
Programme meeting 1A + 1B - 12-01-10.pdf  
Programme Review Workshop 16Dec09 Notes.docx  
Programme Revision 3 Step 3 data base (1).xls  
Programme Revision 3 Step 3 data base (2).xls  
Programme Revision 3 Step 3 data base (3).xls  
Programme Revision 3 Step 3 data base (4).xls  
Programme Revision 3 Step 3 data base (5).xls  
Programme Revision 3 Step 3 data base (6).xls  
Programme Revision 3 Step 3 data base (7).xls  
Programme Revision 3 Step 3 data base (8).xls  
Programme Revision 3 Step 3 data base Section 1A.pdf  
Programme Revision 3 Step 3 data base Section 2 (091123).pdf  
Programme Revision 3 Step 3 data base Section 5A.pdf  
Programme Revision 3 Step 3 data base Section 5B.pdf  
Programme Revision 3 Step 3 data base Section 6 (091124).pdf  
Programme Revision 3 Step 3 data base.xls  
PROGRAMME WORKSHOPS wC 11JAN10.docx  
REV 3 PROGRAMME ACCEPTANCE STATUS TO BSC 15JAN10.pdf  
REV 3 PROGRAMME ACCEPTANCE STATUS TO BSC 18JAN10 - SECTION 5.pdf  
REV 3 PROGRAMME WORKSHOP AGENDA 16DEC09 (1).docx  
REV 3 PROGRAMME WORKSHOP AGENDA 16DEC09 prompts.docx  
REV 3 PROGRAMME WORKSHOP AGENDA 16DEC09.docx  
REV 3 PROGRAMME WORKSHOP AGENDA WED 3RD FEB.docx  
REV 3 STEP 4 MITIGATION IDEAS AND PROPOSALS FROM COMBINED WORKSHOP 03FEB10.pdf  
Rev 3 WBS Programme Template (1).xlsx  
Rev 3 WBS Programme Template(3).xlsx  
Rev 3 WBS Programme Template(4).xlsx  
Rev 3 WBS Programme Template.xlsx  
Revision3 Step3 100209.xer  
Revision3 Step4 100201(1).xer  
Revision3 Step4 100211.xer  
S23CarrickKnoweUBrg revscs.mpp  
Section 1A - DRAFT CONSTRUCTION PROGRAMME REV 08a (15.12.2009)-Overall.pdf  
Section 1A - DRAFT CONSTRUCTION PROGRAMME REV 08a (15.12.2009).pdf  
Section 1A - DRAFT CONSTRUCTION PROGRAMME REV 09 (12.01.2010)-Overall.pdf  
Section 1A - DRAFT CONSTRUCTION PROGRAMME REV 09 (12.01.2010).pdf  
Section 1B BDDI to IFC.xls  
Section 1C BDDI to IFC.xls  
Section 1D BDDI to IFC.xls  
SthStAndrewSt.pdf  
TH to SCS OSSA Programme Review and Comments.pdf  
Utility and Telecoms Dates 12Feb10.pdf  
185 File(s) 25,858,019 bytes

Revision3 Step4 100305.xer  
ETN Revision 3 Step 4 Programme (sub revision 0) 100305.pdf

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2010												2011				2012				2013																							
						Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4																							
						N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
<b>ETN Revision 3 Step 4 Programme</b>						0																																											
<b>Design Stage Consents</b>						934																																											
<b>TIE Consents</b>						934																																											
<b>Key Dates</b>						602																																											
313	Section Completion A	0	09-Aug-11	09-Aug-11	885	◆ Section Completion A																																											
314	Section Completion B	0	06-Apr-12	06-Apr-12	343	◆ Section Completion B																																											
281	Construction Completion Phase 1a Edinburgh Airport to Haymarket	0	19-Sep-12	19-Sep-12	300	◆ Construction Completion Phase 1a Edinburgh																																											
310	Commencement of Revenue Service Phase 1a Edinburgh	0	18-Mar-13	18-Mar-13	300	◆ Commencement of Revenue Service Phase 1a Edinburgh																																											
311	Construction Completion Phase 1a Haymarket to Newhaven	0	16-Jul-13	16-Jul-13	0	◆ Construction Completion Phase 1a Haymarket to Newhaven																																											
315	Section Completion C	0	16-Jul-13	16-Jul-13	180	◆ Section Completion C																																											
312.8	Commencement of Revenue Service Phase 1a Haymarket to Newhaven	0	12-Jan-14	12-Jan-14	0	◆ Commencement of Revenue Service Phase 1a Haymarket to Newhaven																																											
325	Section Completion D	0	12-Jan-14	12-Jan-14	0	◆ Section Completion D																																											
<b>Commissioning Phase 1a Edinburgh Airport to Haymarket</b>						205																																											
<b>Commissioning Phase 1a Haymarket to Newhaven</b>						0																																											
<b>M &amp; E Design</b>						644																																											
<b>Track Finishes</b>						85																																											
<b>SECTION 01 NEWHAVEN ROAD TO HAYMARKET</b>						119																																											
<b>Opening Sequence B (Haymarket to Newhaven Road)</b>						119																																											
<b>01A Newhaven Road (inc.) to Foot of the Walk (exc.)</b>						119																																											
<b>E &amp; M Installations</b>						90																																											
<b>Newhaven Road (inc.) to Ocean Terminal (exc.)</b>						119																																											
<b>Design (based on SDS V51 Programme)</b>						982																																											
<b>MUDFA &amp; UTILITIES</b>						789																																											
<b>NEWHAVEN TRAM STOP</b>						682																																											
<b>TTM PHASE 8 (CH. ~ 0-160)</b>						788																																											
<b>TTM PHASE 7 (CH. ~ 160-450)</b>						292																																											
<b>TTM PHASE 5A (LINDSAY ROAD EAST BOUND)</b>						607																																											
<b>TTM PHASE 5B (LINDSAY ROAD WEST BOUND)</b>						764																																											
<b>TTM PHASE 6 (CH. ~ 450-600)</b>						527																																											
<b>LEITH SANDS SUB STATION(3)</b>						795																																											
<b>TTM PHASE 9 (CH. ~ 600-685)</b>						207																																											
<b>TTM PHASE 4A (CH. ~ 685-830)</b>						313																																											
<b>TTM PHASE 4B (CH. ~ 830-1080)</b>						175																																											
<b>OCEAN TERMINAL TRAM STOP</b>						119																																											
<b>Ocean Terminal (inc.) to Port of Leith (exc.)</b>						651																																											
<b>Design (based on SDS V51 Programme)</b>						971																																											
<b>MUDFA &amp; UTILITIES</b>						433																																											
<b>SECTION WIDE (OFF TTM)</b>						898																																											
<b>TTM PHASE 3A (CH. ~ 1080-1200)</b>						473																																											

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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2010												2011												2012												2013											
						Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4														
						N	D	J	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D									
Bankhead Drive Substation		169	10-May-10	18-Jan-11	743	18-Jan-11, Bankhead Drive Substation																																															
Bankhead Retaining Wall (W11)		110	17-May-10	20-Oct-10	797	20-Oct-10, Bankhead Retaining Wall (W11)																																															
Bankhead Tram Stop		156	22-Jun-11	13-Feb-12	521	13-Feb-12, Bankhead Tram Stop																																															
South Gyle Access Bridge (S26)		238	17-May-10	05-May-11	229	05-May-11, South Gyle Access Bridge (S26)																																															
Trackwork (1260m)		113	15-Feb-11	27-Jul-11	611	27-Jul-11, Trackwork (1260m)																																															
Bankhead (exc.) to Edinburgh Park Station (inc.)		248	15-Feb-10	17-Feb-11	722	17-Feb-11, Bankhead (exc.) to Edinburgh Park Station (inc.)																																															
Trackwork (790m)		159	15-Feb-10	30-Sep-10	811	30-Sep-10, Trackwork (790m)																																															
Edinburgh Park Station Tram Stop		125	11-Aug-10	17-Feb-11	722	17-Feb-11, Edinburgh Park Station Tram Stop																																															
Edinburgh Park Station (exc.) to Edinburgh Park Central (inc.)		357	23-Nov-09	16-May-11	662	16-May-11, Edinburgh Park Station (exc.) to Edinburgh Park Central (inc.)																																															
Edinburgh Park Central Tram Stop		154	23-Sep-10	16-May-11	662	16-May-11, Edinburgh Park Central Tram Stop																																															
Trackwork (854m)		189	15-Mar-10	09-Dec-10	761	09-Dec-10, Trackwork (854m)																																															
Edinburgh Park Station Bridge (S27)		133	23-Nov-09	16-Jun-10	886	16-Jun-10, Edinburgh Park Station Bridge (S27)																																															
05C Edinburgh Park Central (exc.) to Gogarburn (inc.)		530	08-Mar-10	30-Apr-12	441	30-Apr-12, 05C Edinburgh Park Central (exc.) to Gogarburn (inc.)																																															
E & M Installations		314	20-Dec-10	06-Apr-12	441	06-Apr-12, E & M Installations																																															
Edinburgh Park (exc.) to Gyle Centre (inc.)		490	15-Mar-10	12-Mar-12	501	12-Mar-12, Edinburgh Park (exc.) to Gyle Centre (inc.)																																															
Trackwork (760m)		245	22-Jun-10	20-Jun-11	637	20-Jun-11, Trackwork (760m)																																															
Gyle Centre Tram Stop		217	22-Apr-11	12-Mar-12	501	12-Mar-12, Gyle Centre Tram Stop																																															
Gyle Centre Tram Stop Retaining Wall (W16)		95	15-Mar-10	28-Jul-10	292	28-Jul-10, Gyle Centre Tram Stop Retaining Wall (W16)																																															
Gyle Centre (exc.) to Depot Stop (inc.)		530	08-Mar-10	30-Apr-12	466	30-Apr-12, Gyle Centre (exc.) to Depot Stop (inc.)																																															
A8 Underpass (W28)		395	08-Mar-10	07-Oct-11	560	07-Oct-11, A8 Underpass (W28)																																															
Depot Access Bridge (S32)		265	15-Mar-10	11-Apr-11	685	11-Apr-11, Depot Access Bridge (S32)																																															
Trackwork (562m)		213	12-Apr-11	23-Feb-12	472	23-Feb-12, Trackwork (562m)																																															
Depot Stop		275	21-Mar-11	30-Apr-12	466	30-Apr-12, Depot Stop																																															
Depot Stop (exc.) to Gogarburn (inc.)		288	12-May-10	12-Jul-11	622	12-Jul-11, Depot Stop (exc.) to Gogarburn (inc.)																																															
Trackwork (562m)		188	12-May-10	16-Feb-11	722	16-Feb-11, Trackwork (562m)																																															
Gogarburn Tram Stop		129	24-Dec-10	12-Jul-11	622	12-Jul-11, Gogarburn Tram Stop																																															
<b>SECTION 06 GOGAR DEPOT</b>		921	02-Nov-09	24-Jul-13	113	24-Jul-13, SEC																																															
<b>Opening Sequence A (Airport to Haymarket)</b>		921	02-Nov-09	24-Jul-13	113	24-Jul-13, Ope																																															
<b>06A Gogar Depot</b>		921	02-Nov-09	24-Jul-13	113	24-Jul-13, 06A																																															
<b>Depot</b>		921	02-Nov-09	24-Jul-13	113	24-Jul-13, Dep																																															
Earthworks		125	15-Mar-10	09-Sep-10	825	09-Sep-10, Earthworks																																															
Trackwork (3492m)		227	12-May-10	13-Apr-11	683	13-Apr-11, Trackwork (3492m)																																															
Depot Building		395	02-Nov-09	16-Jun-11	639	16-Jun-11, Depot Building																																															
Depot Substation		267	27-Apr-10	26-May-11	653	26-May-11, Depot Substation																																															
Access Roads		255	12-May-10	24-May-11	536	24-May-11, Access Roads																																															
E & M Installations		150	23-Dec-10	09-Aug-11	602	09-Aug-11, E & M Installations																																															
Operation Control Center (OCC)		676	29-Oct-10	24-Jul-13	113	24-Jul-13, Ope																																															
<b>SECTION 07 GOGAR TO EDINBURGH AIRPORT</b>		568	11-Jan-10	26-Apr-12	427	26-Apr-12, SECTION 07 GOGAR TO EDINBURGH AIRPORT																																															
<b>Opening Sequence A (Airport to Haymarket)</b>		568	11-Jan-10	26-Apr-12	427	26-Apr-12, Opening Sequence A (Airport to Haymarket)																																															
<b>07A Gogarburn (exc.) to Edinburgh Airport (inc.)</b>		568	11-Jan-10	26-Apr-12	427	26-Apr-12, 07A Gogarburn (exc.) to Edinburgh Airport (inc.)																																															
E & M Installations		197	30-Nov-10	21-Sep-11	599	21-Sep-11, E & M Installations																																															
Gogarburn (exc.) to Inglishton Park & Ride (inc.)		523	15-Mar-10	26-Apr-12	427	26-Apr-12, Gogarburn (exc.) to Inglishton Park & Ride (inc.)																																															

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						Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4														
						N	D	J	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
	Design		24-Mar-10	24-Mar-10	288	▼ 24-Mar-10, Design																																															
	Trackwork (1750m)	326	15-Mar-10	08-Jul-11	624	08-Jul-11, Trackwork(1750m);																																															
	Ingliston Park and Ride Tram Stop	262	17-Mar-11	09-Apr-12	481	09-Apr-12, Ingliston Park and Ride Tram Stop																																															
	Ingliston Park and Ride Substation	124	01-Nov-10	10-May-11	665	10-May-11, Ingliston Park and Ride Substation																																															
	Tram	14	06-Apr-12	26-Apr-12	308	▼ 26-Apr-12, Tram																																															
	Ingliston Park & Ride (exc.) to Edinburgh Airport (inc.)	353	11-Jan-10	14-Jun-11	642	14-Jun-11, Ingliston Park & Ride (exc.) to Edinburgh Airport (inc.)																																															
	Design	0	24-Mar-10	24-Mar-10	239	▼ 24-Mar-10, Design																																															
	EAL Programme	191	11-Jan-10	08-Oct-10	230	08-Oct-10, EAL Programme																																															
	Trackwork (833m)	196	24-Mar-10	12-Jan-11	747	12-Jan-11, Trackwork (833m)																																															
	Edinburgh Airport Tram Stop	142	08-Nov-10	14-Jun-11	642	14-Jun-11, Edinburgh Airport Tram Stop																																															
	<b>Tram Delivery &amp; Commissioning</b>	799	02-Nov-09	04-Feb-13	235	04-Feb-13, Tram Delivery & Commissioning																																															
	Deliver & Commission Remaining 26 Trams	186	04-May-12	04-Feb-13	235	04-Feb-13, Deliver & Commission																																															
	Other Tram Milestones	401	02-Nov-09	27-Jun-11	633	27-Jun-11, Other Tram Milestones																																															
	Deliver & Commission First Tram	531	09-Apr-10	01-Jun-12	401	01-Jun-12, Deliver & Commission First Tram																																															

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