

West of England Partnership Office



West of England Rapid Transit

Cost Overview Report rev A

13th March 2009



West of England Partnership

Bath & North East
Somerset Council



North
Somerset
Council

South Gloucestershire
Council



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This Report has been prepared for the exclusive use of the West of England Partnership Office

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1.0 EXECUTIVE SUMMARY

General

- 1.1 Cyril Sweett have reviewed the available design information and the costings that have been prepared by Bristol Engineering Consultancy for the Bristol City Centre Anti Clockwise Loop and Halcrow Group Ltd for the Ashton Vale to Bristol City Centre schemes.

As a result of this review exercise we identified a number of key risk items and concerns regarding the robustness of the costings.

A meeting was held on the 19th February at Halcrow Group Bristol office attended by Halcrow Group, Steer Davis Gleave, Bristol Engineering Consultancy and Cyril Sweett to review the queries contained in Cyril Sweett's Query Sheet Nrs 1 and 2.

At this meeting it was agreed that Cyril Sweett were to review the available design and cost information and provide a commentary on the quantities and costs where applicable and highlight items of work that do not appear to have been included or which appear to form part of other budgets.

Upon completion of their review, Cyril Sweett would issue a Cost Overview Report summarising our findings.

Following the meeting of the 19th February Cyril Sweett were provided with:

- a) Query Sheet Nr 1 that provided responses from Bristol Engineering Consultancy in respect of the Bristol City Centre Anti Clockwise Loop
- b) Query Sheet Nr 2 that provided responses from Halcrow Group Ltd in respect of the Ashton Vale to Bristol City Centre scheme
- c) Responses to Capital Costs Review
- d) Halcrow Technical Note ref CT-ACF Rev A dated 12th March 2009
- e) Final Capital Cost Estimate 11 03 09(2)

Responses from Bristol Engineering Consultancy and Halcrow Group Ltd to our Query Sheets have been incorporated into this report [in blue font](#).

Cyril Sweett Cost Overview comments have been incorporated into this report [in red font](#).

Halcrow Group 'close out' comments have been incorporated into this report [in green font](#).

This report summarises our findings under the headings contained in the Cost Summary.

1.0 EXECUTIVE SUMMARY (CONT'D)

Ashton Vale to Bristol City Centre scheme

- 1.2 The issues contained in our Query Sheet Nr 2 and our initial issue Cost Overview Report dated 10th March 2009 have been addressed by Halcrow Group Ltd either by adjusting the allowances contained in the Final Capital Cost Estimate 11 03 09(2) as suggested by Cyril Sweett or by clarifying why in their opinion, certain other suggested additional cost allowances should not be incorporated into the Estimate.

Bristol City Centre Anti Clockwise Loop

- 1.3 The issues contained in our Query Sheet Nr 1 and our initial issue Cost Overview Report dated 10th March 2009 have been addressed by Bristol Engineering Consultancy either by adjusting the allowances contained in the Final Capital Cost Estimate 11 03 09(2) as suggested by Cyril Sweett or by clarifying why in their opinion, certain other suggested additional cost allowances should not be incorporated into the Estimate.

Land

- 1.4 We are unable to comment on the allowances made in respect of 'Land' as the allowances have been made on the basis of land values rather than construction costs.

Other

- 1.5 In the Cost Summary, under the heading of 'Other' items allowances are made for ITS Works and Ticket Machines.

The issues contained in our Query Sheet Nr 1 and our initial issue Cost Overview Report dated 10th March 2009 have been addressed by Halcrow Group Ltd either by adjusting the allowances contained in the Final Capital Cost Estimate 11 03 09(2) as suggested by Cyril Sweett or by clarifying why in their opinion, certain other suggested additional cost allowances should not be incorporated into the Estimate.

2.0 PROJECT INFORMATION

- 2.1 The project comprises part of the West of England Rapid Transport Major Scheme Bid (MSB) for the Ashton Vale to Temple Meads via Bristol City Centre Route. The scheme design and cost estimation works is to be carried out in two parts.

Ashton Vale to Bristol City Centre

Halcrow Group Ltd have lead the Ashton Vale to Bristol City Centre scheme and have prepared the costing methodology and rates in response to an invitation to tender from the West of England Partnership initially awarded in August 2007.

City Centre Anti-Clockwise Loop.

Bristol Engineering Consultancy have led the City Centre Anti-Clockwise Loop.

- 2.2 Halcrow Group Ltd and Bristol Engineering Consultancy have prepared a series of sketch plans that illustrate the likely extent of the works that will be required. These drawings have been used for the purposes of taking off quantities to form the basis of a cost estimate that will be used to support a funding application.
- 2.3 A meeting was held on the 19th February at Halcrow Group Bristol office attended by Halcrow Group, Steer Davis Gleave, Bristol Engineering Consultancy and Cyril Sweett to review the queries contained in Cyril Sweett's Query Sheet Nrs 1 and 2.

At this meeting it was agreed with that Cyril Sweett were to review the available design and cost information and provide a commentary on the quantities and cost where applicable and highlight items of work that do not appear to have been included or which appear to form part of other budgets.

Upon completion of their review, Cyril Sweett are to issue a report summarising our findings.

Cost Overview Report

2.0 PROJECT INFORMATION (CONT'D)

2.4 Information received from Halcrow Group Ltd and Bristol Engineering Consultancy for the preparation of this Report :

Ashton Vale to Bristol City Centre

- CTRACF-0700-240 to 255 – Design
- CTRACF-0700-262 to 272 – Cost Estimate Areas

City Centre Anti Clockwise Loop

- DH0245 – 100 to 110 – Design
- DH0245-001-2f-Rev0 – Cost Estimate Areas

Cost Estimates

- Capital Cost Estimate 30.01.09Rev1crw.xls
- Calculations for Costing Workshop

Following the meeting of the 19th February Cyril Sweett were provided with revised Bristol Engineering Consultancy drawing nr DC0245 – 110 Revision -. Certain notes contained on drawing DH0245-001-2f-Rev0 that were queried in Cyril Sweett's Query Sheet Nr 1 have since been removed from the latest drawing and hence we assume that these works do not form part of the current scheme.

2.5 The Capital Cost Estimate 30.01.09Rev1crw.xls comprises a number of linked spreadsheets prepared in Excel format with the following 'tab' titles:

- Costs Summary
- City Centre
- Seg Corridor (Summ)
- Seg Corridor (rev)
- ITS
- Seg Corridor (original)

A technical Note from Halcrow Group dated 16 February 2009 provides commentary on how the costs for the Seg Corridor (rev) have been calculated.

2.6 The Cyril Sweett report which follows examines the capital cost estimate under the following sub-headings:

- City Centre Anti Clockwise Loop
- Ashton Vale to Bristol City Centre
- ITS
- Review of Rates
- Review of Summary Sheets

3.0 CITY CENTRE ANTI CLOCKWISE LOOP

Generally

- 3.1 The costs for the City Centre Loop have been divided into a number of work sections identified on Bristol Engineering Consultancy drawing nr DH0245-001-2f-Rev0 'Feasibility Design General Arrangement'.

Upon receipt of the Bristol Engineering Consultancy drawings, Cyril Sweett carried out a review and forwarded a Query Sheet to Halcrow Group on the 19th February that contained a total of 43 queries.

These queries together with Bristol Engineering Consultancy responses are provided in Appendix A of this Report.

The following comments reflect the work sections identified on Bristol Engineering Consultancy drawing nr DH0245-001-2f-Rev0.

Section B - Redcliff Street, Section E - Victoria Street, Section F - Passage Street - Tower Hill, Section I - Nelson Street, Section M - Baldwin Street, Section N - A4 Bath Bridge

- 3.2 We note that no works are envisaged to any of these sections.

Bristol Engineering Consultancy: No works are planned in these areas at this time.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP

Section A – Redcliff Hill

- 3.3 DH0245-001-2f-Rev0 shows *major* civil engineering and service diversion works being required to turn an existing roundabout into a signalised junction.

We queried where the costs for these works have been allowed and what happens to the existing areas of carriageway, footpaths and car parks that will be made redundant by the proposed revised layouts (i.e. will they become areas of new public realm and if so, are they part of the projects costs?).

We were advised that the costs associated with this section would be borne by others (i.e. Developers costs).

Bristol Engineering Consultancy: This significant work (realignment of Redcliffe Way and a new junction at the north end of Redcliffe Hill) is linked to and essential to a proposed development. The costs will be funded by that development. It will require only modest adjustment for use by Rapid Transit

Development of the public realm and use of land released by the realignment of Redcliffe Way is covered by the development proposals

Cyril Sweett: Noted.

Given that this is the case, we would therefore question the necessity/logic of including the nominal allowances for Series 100: Traffic Safety & Management, Series 200: Site Clearance and Series 1200: Traffic Signs and Road Markings Highway Lining and Signing (total of £34K currently allowed).

Bristol Engineering Consultancy: The relative timing of the completion of the development and start of construction is not certain. However it may be necessary to carry out modest adjustment of road markings, hence the allowance

Cyril Sweett: Noted.

- 3.4 Drawing 001-2f shows Canynge Street being stopped up but no allowance has been made for this in the costings.

Subsequent note: this item has been removed from Bristol Engineering Consultancy drawing DC0245 – 110 and hence we assume that these works do not form part of the current scheme.

Bristol Engineering Consultancy: Changes to streets adjoining Redcliff Way are covered by the development proposals

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section C – Portwall Lane/Temple Street

- 3.5 DH0245-001-2f-Rev0 shows *major* civil engineering and service diversion works being required to existing carriageways and junctions.

We queried where the costs for these works have been allowed and what happens to the existing areas of carriageway, footpaths and car parks that will be made redundant by the proposed revised layouts (i.e. will they become areas of new public realm and if so, are they part of the projects costs?).

We were advised that the costs associated with this section would be borne by others (i.e. Developers costs).

Bristol Engineering Consultancy: This significant work (realignment of Redcliffe Way and a new junction at the north end of Redcliffe Hill) is linked to and essential to a proposed development. The costs will be funded by that development. It will require only modest adjustment for use by Rapid Transit.

Development of the public realm and use of land released by the realignment of Redcliffe Way is covered by the development proposals

Cyril Sweett: Noted.

Given that this is the case, we would therefore question the necessity/logic of including the nominal allowances for Series 100: Traffic Safety & Management, Series 200: Site Clearance and Series 1200: Traffic Signs and Road Markings Highway Lining and Signing (total of £92K currently allowed).

Bristol Engineering Consultancy: The relative timing of the completion of the development and start of construction is not certain. However it may be necessary to carry out modest adjustment of road markings, hence the allowance

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section D – Victoria Street/Temple Way

- 3.6 Drawings 001-2f and 102 refer to a proposed high quality pedestrian/cycle underpass. No allowance has been made for this in the costings.

Bristol Engineering Consultancy: It is considered that this work (providing a new grade separated link into the railway station) will be incorporated into the development of the adjacent land (Plot 6).

Cyril Sweett: It is noted that the provision of the new pedestrian/cycle underpass will be funded from a separate budget.

- 3.7 Drawing 001-2f refers to the provision of a proposed new bus interchange. No allowance has been made for this in the costings.

Bristol Engineering Consultancy: This is a preliminary estimate and only a basic allowance for pavement construction, kerbing, etc has been made. It is considered that the site will be available for development above the interchange and this will be used to fund additional facilities.

Cyril Sweett: It is noted that the provision of the new bus interchange will be funded from a separate budget.

- 3.8 An allowance of £1.1M has been made in respect of Statutory Undertakers. We understand that this allowance has been made on the basis that the statutory services will not require major lowering or diversion costs because the proposed new signalled junction arrangement reverts back to a road layout that was in place prior to the current gyratory system and hence, with the exception of an existing 850mm diameter combined sewer, service diversions are not expected to incur major costs.

The allowance of £1.1M has however been made without the benefit of any estimates and as such, represents a *major* financial risk.

Bristol Engineering Consultancy: This is a preliminary estimate and general allowance for service diversions has been included based on previous experience of city centre works. The road alignment will be similar to the arrangement the predated the roundabout, as soon as detail can be made public the utility companies will be invited to assess their requirements and cost the works.

The QRA for the city centre estimate has included tolerances of up to 160% to take in to account the level of design work undertaken to date.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section D – Victoria Street/Temple Way (cont'd)

3.9 It appears that the measured works have been significantly under measured. To illustrate of the extent of the under provision:

- a) The approximate area of general site clearance shown on drawing 102 is circa 20,000 m² (excluding the development sites) but only 5,000 m² has been priced. No allowance has been made for demolishing the existing buildings on the Portwall Lane East development sites.

Bristol Engineering Consultancy: Agreed. The latest version of the spreadsheet has the corrected site clearance of 18,000 m².

The BRT proposals do not require the removal of any buildings in area D. Demolition (if any) will be carried out as part of that proposed development.

Cyril Sweett: Noted.

- b) Only 30m² of breaking up existing carriageway and pavement has been measured.

Bristol Engineering Consultancy: Agreed. Yes only 30m² of footway was shown but that item was covered in the series 600 (601- 609) items. The series 200 item has now been deleted.

Cyril Sweett: Noted.

- c) Whilst it is difficult to be accurate with the information currently available, drawing 102 appears to indicate a total area of circa 15,000 m² of new carriageway/resurfacing of existing. Only a total of circa 7,000m² has been priced.

Bristol Engineering Consultancy: Agreed. This item has been remeasured. The total carriageway area is 11,458m². The area required on the sketch layout is 7,500m² because Temple Gate and part of Temple Street would remain intact. This includes all new carriageway and resurfacing.

This could be potentially be reduced at design stage depending on the vertical alignment.

Cyril Sweett: With the information available to date, Cyril Sweett are unable to check and confirm the above. We do note that the cost estimate includes circa 7,200m² of new carriageway and resurfacing rather than the 7,500m² referred to above.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section D – Victoria Street/Temple Way (Cont'd)

- d) The approximate length of new kerbs shown on drawing 102 is circa 2,700 m but only 1,100 m has been priced.

Bristol Engineering Consultancy: Agreed. This item has been remeasured as 2,400m. Much of the kerbing alterations on Temple Gate could be designed out as they are cosmetic and the sketch incorporated an improved layout with more bus lane. This would reduce the need for site clearance, kerbing and footway construction.

Cyril Sweett: This re-measurement does not appear to have been incorporated into the cost estimate but it is acknowledged that any resulting financial adjustment would not be significant in overall terms.

- e) The area of the islands created by the revised road layout is circa 9,000 m² (including the development sites) but only a total of circa 6,000m² of footpaths, grass seeding and shrub planting has been priced. In addition to this, the footpaths to the areas between the new road layout and existing adjacent buildings/site boundaries will require either localised making good or total replacement.

Bristol Engineering Consultancy: Agreed. This has been checked and a figure (excluding the development areas) of 5829m² confirmed. It is considered that this figure could be reduced further to approx 4000m² by value engineering. It is therefore not intended to alter this quantity.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section H - Penn Street, Horsefair & Union Street

- 3.10 Section H appears to be limited to the over marking of sections of existing carriageway to form a new bus lane along The Haymarket.

The allowance of circa £270K for this limited amount of work is excessive but note that an allowance of £96K for general site clearance has been incorporated. This allowance needs to be reviewed.

Bristol Engineering Consultancy: The estimate has been adjusted in response to these comments. The total for section H is now approximately £88k

Cyril Sweett: Noted.

- 3.11 The area of new coloured surfacing appears excessive.

Cyril Sweett: This comment has not been addressed but it is acknowledged that any resulting financial adjustment would not be significant in overall terms.

- 3.12 Drawing 001-2f refers to the provision of a new proposed signalised junction (Union Street & The Horsefair). No allowance appears to have been made for this in the costings.

Bristol Engineering Consultancy: This is now a redundant annotation. Any changes to signals in this area will be part of other city centre proposals.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section J - Colston Avenue - Rupert Street - Broad Quay

- 3.13 Section J appears to be limited to the over marking of sections of existing carriageway to form a new bus lane along Rupert Street and The Centre together with alterations to 2 nr sets of existing controlled pedestrian crossings.
- 3.14 Drawing 107 refers to the provision of a new Bus Gate. We note that an allowance of circa £15K appears to have been made for work to the signals as part of the ITS works. No allowance however appears to have been made for remodelling of the existing central pedestrian refuge island to form the new bus gate.

The proposed modifications to the pedestrian island adjacent to St Stephens Avenue will entail:

- a) Breaking up existing paving and kerbs
- b) Provision of new kerbs
- c) New carriageway construction
- d) New pedestrian pavings
- e) New pedestrian crossing lights
- f) Re-location of drain gullies
- g) New signage and road marking
- h) New traffic bollards
- i) Possible service diversions

We note that an allowance of circa £10K appears to have been made for work to the signals as part of the ITS works but none of the works to the pedestrian island (a to i above) appear to have been included.

- 3.15 We assume that the existing traffic lights at the junction of Baldwin Street and The Centre will not be affected by the proposed modifications to the road layout as no costs appear to have been included for this.

Bristol Engineering Consultancy: Items have been included in the revised estimate including substantially more for traffic signal alterations and for island construction

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section K - Lower Broad Quay

- 3.16 From drawing DH0245-001-2f, Section K all appears to be as existing.

We therefore query the requirement for the current allowance of circa £31K.

Bristol Engineering Consultancy: The estimate has been adjusted in response to these comments. The allowance is now approximately £7k

Cyril Sweett: Noted.

Section L - Prince Street

- 3.17 Drawing 109 appears to show the existing road layout at the junction of Marsh Street and Prince Street Roundabout being un-affected. Drawing 001-2f however shows the road layout being altered. No alteration works have been included in the costings. *Subsequent note: Bristol Engineering Consultancy drawing DC0245 – 110 appears to confirm that these alteration works do not form part of the current scheme.*

Bristol Engineering Consultancy: Tracking suggests that the Rapid transit can manoeuvre around this junction with only minimal works. An additional allowance (15%) for provision of small works that is thought adequate in this instance.

Cyril Sweett: Noted.

- 3.18 Drawing 109 appears to show the existing road layout along Prince Street being un-affected. Drawing 001-2f notes 'Existing Built Out Narrowing Carriageway to One Lane'. No alteration works have been included in the costings. *Subsequent note: Bristol Engineering Consultancy drawing DC0245 – 110 appears to confirm that these alteration works do not form part of the current scheme.*

Bristol Engineering Consultancy: No works required

Cyril Sweett: Noted.

- 3.19 Existing parking ticket machines will have to be removed. No allowance for this appears to have been made in the costings albeit an allowance of £7.5K has been made for general site clearance which will be sufficient to cover these works.

Bristol Engineering Consultancy: This is a preliminary estimate and a general allowance has been made for site clearance that is thought adequate for removal of these isolated items.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section L - Prince Street (cont'd)

- 3.20 Drawing 001-2f notes that the road layout at the junction of Prince Street and The Grove is to be altered. No alteration works appear to have been included in the costings.

Bristol Engineering Consultancy: Tracking suggests that the Rapid transit can manoeuvre around this junction with only minimal works. An additional allowance (15%) for provision of small works that is thought adequate in this instance.

Cyril Sweett: Noted.

- 3.21 We assume that the existing traffic lights at the junction of Prince Street and The Grove will not be affected by the proposed modifications to the road layout as no costs appear to have been included for this.

Bristol Engineering Consultancy: Agreed. An allowance of £65,000 for provision of new signals has been added.

Cyril Sweett: Noted.

- 3.22 We assume that the 'Area to be Pedestrianised' will not form part of this project as no costs appear to have been included for this.

Bristol Engineering Consultancy: It is considered that pedestrianisation will have been introduced in this location by the time of the works construction. It is shown to indicate how the system is to operate.

Cyril Sweett: Noted.

- 3.23 Drawing 001-2f notes that the Princess Street Bridge is to be altered to provide bus and cyclist access only. No alteration works appear to have been included in the costings if for example, the existing lane width restriction bollards need to be relocated to allow bus access.

Cyril Sweett: Subsequent note - we note that an allowance has been included in the Ashton Vale to Bristol City Centre cost estimate for works to this bridge.

We understand that the Princess Street Bridge is still operational and would also query the effect on the bus timetable when this bridge is opened to permit vessel access.

Cyril Sweett: This is an observation that will not affect construction costs.

- 3.24 The area of new coloured surfacing appears excessive.

Cyril Sweett: This comment has not been addressed but it is acknowledged that any resulting financial adjustment would not be significant in overall terms.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section O - Temple Way

3.25 Section O appears to entail the widening of two lengths of existing carriageway and the overmarking of another section of existing carriageway to form a new bus lane along Temple Way.

3.26 We have the following comments relating to quantities:

- No allowance has been made for breaking out existing kerbs

Bristol Engineering Consultancy: Removal of kerbs is included in the £27,000 for site clearance

Cyril Sweett: Noted.

- No allowance has been made for removing and replacing existing bus stops/shelters

Bristol Engineering Consultancy: There are 4 shelters, the one by the City Inn would probably not be relocated and the re-siting of the other ones would be covered by the contingency for smaller items. Any new shelters would be supplied under the Public Transport agreement.

Cyril Sweett: Noted.

- Excavation quantities do not include for new footpath areas

Cyril Sweett: This comment has not been addressed but it is acknowledged that any resulting financial adjustment would not be significant in overall terms.

- Whilst we are unable to check the area of new footpath from the drawings, it appears that either the quantity of breaking up existing surfacing has been over allowed or, the area of new footpath has been over allowed (1,504m² breaking up : 853m² new carriageway : 1,504m² new footpath)

Cyril Sweett: This comment has not been addressed but it is acknowledged that any resulting financial adjustment would not be significant in overall terms.

- No allowance has been made for provision of new pedestrian guardrails at Old Market roundabout

Bristol Engineering Consultancy: Renewal of guard rail will be covered by the smaller items allowance.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section O - Temple Way (Cont'd)

- No allowance appears to have been made for amending the traffic islands at the junction of Temple Way and Temple Back

Bristol Engineering Consultancy: It was anticipated no changes would be made at this signal junction other than the introduction of the bus gate. This is a preliminary estimate. This is an identified risk to be addressed at detail design stage. Appropriate additional risk allowances have been made to address this potential problem. With the bus gate option the island remains intact as the bus lane would have a 1:10 taper leaving the existing alignment. This will be refined at detailed design stage.

Cyril Sweett: Noted.

- The rate of £30/m² for footpaths (including sub-base) is insufficient to allow for reinstating to a similar quality as existing

Bristol Engineering Consultancy: The footway paving is being taken up and reused

Cyril Sweett: Noted.

- The rate of £15,000/hr for removing and reinstating the trees in this particular location appears excessive

Bristol Engineering Consultancy: Other items of street furniture include several lamp columns, legible city signing, trees and some signs are covered by item 201 and 207.

Cyril Sweett: Noted.

3.27 In terms of risk items:

- The allowance of £100K for statutory undertakers could prove to be inadequate given that there are existing telecommunication services that will require diverting in order to accommodate the Southern length of carriageway widening
- At the junction of Temple Way and Old Market Roundabout the road widening works will be carried out over an existing pedestrian underpass and adjacent to an existing retaining wall. We raise the query as to whether these existing structures are able to withstand the revised loadings that will be placed upon them without the need for any alteration/strengthening works.

Bristol Engineering Consultancy: No separate allowance has been made. It is included in the £110,000 allowed for works to signals. Part of the allowance of £110,000 has been made for provision of works to the existing signal crossing on the north bound approach to the roundabout. An additional allowance (15%) for provision of small works that is thought adequate in this instance.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section P - Grove Road

- 3.28 Existing parking ticket machines will have to be removed. No allowance for this appears to have been made in the costings albeit an allowance of £19K has been made for general site clearance which will be sufficient to cover these works.

Bristol Engineering Consultancy: This is a preliminary estimate and a general allowance has been made for site clearance that is thought adequate for removal of these isolated items

Cyril Sweett: Noted.

- 3.29 The existing signal controlled pedestrian crossing with central physical island limits the Eastbound carriageway to approximately 5m wide. This does not appear to be sufficiently wide enough to accommodate both a bus lane and another vehicle traffic lane hence the two lane arrangement shown on drawing 001-2f does not appear viable with the existing layout. The costs do not appear to allow for any alteration works to this crossing (i.e. removal of the existing central physical island).

Bristol Engineering Consultancy: The restriction is acknowledged however this is a preliminary estimate and a general allowance has been made for site clearance and an additional allowance (15%) for provision of small works which is thought adequate in this instance. In this case it is unlikely to be possible to provide a mid way refuge for pedestrians.

An additional allowance (15%) for provision of small works that is thought adequate in this instance.

Items have been included in the revised estimate

Cyril Sweett: Noted.

- 3.30 There is an existing bus stop opposite the Thekla that protrudes into the carriageway. To provide the bus lane arrangement shown on drawing 001-2f will necessitate (as a minimum):

- a) Reducing pavement width
- b) Increasing carriageway width
- c) Removing bus shelter
- d) Service diversions

No works to this bus stop (items a to d above) have been included.

Bristol Engineering Consultancy: An additional allowance (15%) for provision of small works that is thought adequate in this instance. Items have been included in the revised estimate

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

Section P - Grove Road (Cont'd)

3.31 The proposed signalised junction between the end of The Grove and Welshback will entail as a minimum:

- a) Breaking up existing kerbs and surfacing
- b) New kerbing
- c) New footpath paving
- d) Re-profiling of carriageway levels
- e) Re-location of drain gullies
- f) Re-location of the central island
- g) Modifications to the central pedestrian refuge on Redcliffe Bridge
- h) New signage and road marking
- i) Modifications to street lighting
- j) Adjusting cover levels of drainage chambers/inspection chambers
- k) Possible service diversions

None of these works appear to be included.

Bristol Engineering Consultancy: This is a preliminary estimate and a general allowance has been made for site clearance that is thought adequate for removal of these isolated items.

An additional allowance (15%) for provision of small works that is thought adequate in this instance.

An allowance of £110,000 has been made for provision of new signals and £6,500 a cantilever mast arm.

Items have been included in the revised estimate

Cyril Sweett: Noted.

3.32 The existing Eastbound carriageway over Redcliffe Bridge is only approximately 6m wide. We therefore query whether this is wide enough to accommodate both a bus lane and another vehicular lane as indicated on drawing 101.

Bristol Engineering Consultancy: The restriction is acknowledged and it is no longer proposed to include a separate bus lane across the bridge.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

General Queries

- 3.33 Drawing 001-2f shows Canynge Street being stopped up. No allowance has been made for this in the costings.

Subsequent note: this item has been removed from Bristol Engineering Consultancy drawing DC0245 – 110 and hence we assume that these works do not form part of the current scheme.

Bristol Engineering Consultancy: Changes to streets adjoining Redcliffe Way are covered by the development proposals.

Cyril Sweett: Noted.

- 3.34 Drawing 001-2f refers to the removal of an existing footbridge. No allowance appears to have been made for this in the costings.

Subsequent note: this item has been removed from Bristol Engineering Consultancy drawing DC0245 – 110 and hence we assume that these works do not form part of the current scheme.

Bristol Engineering Consultancy: This is now a redundant annotation as it is no longer intended to run Rapid Transit down Lower Castle Street.

Cyril Sweett: Noted.

- 3.35 Drawing 001-2f refers to 'Capacity Improvements to Bath Bridge Roundabout'. No allowance appears to have been made for this in the costings.

Subsequent note: this item has been removed from Bristol Engineering Consultancy drawing DC0245 – 110 and hence we assume that these works do not form part of the current scheme.

Bristol Engineering Consultancy: No other works are planned in the area of Bath Bridges at this time.

Cyril Sweett: Noted.

- 3.36 Drawing 001-2f refers to 'Introduce One-Way System on Mitchell Lane'. No allowance appears to have been made for this in the costings.

Subsequent note: this item has been removed from Bristol Engineering Consultancy drawing DC0245 – 110 and hence we assume that these works do not form part of the current scheme.

Bristol Engineering Consultancy: Changes to streets adjoining Redcliffe Way are covered by the development proposals.

Cyril Sweett: Noted.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

General Queries (cont'd)

- 3.37 Many of the drawings refer to the provision of new BRT Stops. No allowance appears to have been made for these in the costings.

Bristol Engineering Consultancy: Items have been included in the revised estimate.

Cyril Sweett: Noted.

- 3.38 We note that no allowances have been made for:

- a) Real time information (BRT Stops?)
- b) Temporary and Permanent Traffic Regulation Orders
- c) Stopping Up Orders
- d) Land Purchase
- e) Topographical Surveys

Bristol Engineering Consultancy: These are covered elsewhere in the build up to the overall estimate.

Cyril Sweett: Noted.

- 3.39 There is a small technical error in the spreadsheet – Section P row Z004 in that the 5% addition for Supervision has been applied to the wrong cell resulting in an under allowance of £2,695.95.

Cyril Sweett: This error has been corrected in the latest version of the spreadsheet.

3.0 CITY CENTRE ANTI CLOCKWISE LOOP (CONT'D)

General Allowances

3.40 The following percentage allowances all appear reasonable given the current level of information:

- Series 100: Health and safety, staff, site welfare facilities, plant and equipment, temporary works, traffic safety & management etc – 20% has been applied to the measured works costs
- Series 100: Restricted working off peak and night time – 15% has been applied to the measured works costs
- Contingencies – 15% has been applied to the measured works and Series 100 costs
- Preparation (Design, CDM and Safety Audit) – 20% has been applied to the measured works and Series 100 costs
- Supervision – 5% has been applied to the measured works and Series 100 costs

3.41 Please note however that whilst the above percentages have been applied to the measured works costs in the 'City Centre' spreadsheet, the allowances for Preparation and Supervision have inadvertently *not* been carried forward and included in the Cost Summary.

Cyril Sweett: This error has been corrected in the latest version of the spreadsheet.

4.0 ASHTON VALE TO BRISTOL CITY CENTRE

Generally

- 4.1 The costs for the Ashton Vale to Bristol City Centre scheme have been divided into a number of work sub sections identified on Halcrow drawings nr CTRACF-0700 / 262 – 271 Route layout plan – sheets 1 - 10.

Upon receipt of the Halcrow drawings, Cyril Sweett carried out a review and forwarded a Query Sheet to Halcrow Group on the 19th February that contained a total of 56 queries.

These queries and Halcrow responses are provided in Appendix B of this Report.

The following comments reflect the work sections identified on Halcrow drawings nr CTRACF-0700 / 262 – 271 Route layout plan – sheets 1 - 10 and the responses to our Query Sheet Nr 2.

Where errors in quantities or formula have been identified these have been highlighted and adjusted in a revised spreadsheet in order to more clearly show the possible errors and suggest what amendments might need to be made. This was issued to Halcrow for their review and comment.

Risk Items

Ashton Vale to Bristol City Centre

- 4.2 Our main areas of concern are:

- a) Working over and alongside the existing railway. Discussions will be required with Rail Track in order to determine the extent of their requirements and costs associated with the proposed works adjacent to the rail tracks

Halcrow Group: Preliminary discussions with Network Rail have been undertaken and they have advised on the bridge solution rather than an at-grade crossing. We need further discussions with Network Rail but are of the view that as we have a large allowance for closure of what is a minor, infrequently used freight line, we should have some flexibility and will check on the level of usage as it is monitored on the RMS system

Cyril Sweett: Noted

- b) The allowance for works to the existing bridges (Aston Avenue and swing bridge). Investigation works will be required to determine the extent of works required and whether the allowances are adequate.

Halcrow Group: Ashton Avenue Bridge costs are based on an actual quotation received by Bristol City Council for the strengthening of the Bridge, Additional sums have been added for the construction of appropriate surfacing. Detailed investigation is advisable for Prince Street Bridge however limiting this to single way traffic.

Cyril Sweett: Noted

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

- c) The allowance for the new footbridge seems inadequate for a 90m by 5m wide footbridge and will need to be reviewed.

Halcrow Structures team has reviewed and have revised their estimate. £800k has now been included in the works figure.

Cyril Sweett: Noted

- d) The level of contamination in the excavated material, the estimate includes for large quantities of removal. Ground investigation would enable the allowances to be confirmed or reduced if the contamination can be reclassified as non hazardous.

Halcrow Group: This came from the Halcrow environment team and may be cautious so the risk tolerances could be reduced but for prudence has been left as is. Ground investigation will be undertaken at the next stage.

Cyril Sweett: Noted

Level of Accuracy of Current Estimates

- 4.3 We are concerned regarding the overall level of accuracy of the current estimates.

The main areas of concern are:

- a) The numerous quantity related adjustments that we have identified as being required to the Ashton Vale to Bristol City Centre scheme – refer to Item 4.5 to 4.48 of this report for details.

Cyril Sweett: This comment has yet to be fully confirmed by Halcrow Group.

- b) That for the reasons detailed elsewhere in this report, no allowances for the following items have currently been included in the Cost Summary:

- Series 100 Preliminaries costs associated with the Ashton Vale to Bristol City Centre Scheme
- Series 100 Out of hours working associated with the Ashton Vale to Bristol City Centre Scheme
- Contingencies associated with the Ashton Vale to Bristol City Centre Scheme
- Preparation (Design, CDM and Safety Audit) Fees associated with the Ashton Vale to Bristol City Centre Scheme
- Supervision Fees associated with the Ashton Vale to Bristol City Centre Scheme

Cyril Sweett: See Halcrow comments to 4.49 – 4.52.

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Action Required

- 4.4 No review or comments seem to have been generated from Halcrow on the proposed amendments as detailed in the following sub sections A to J inc of the Aston Vale spreadsheet. Only those items of risk that were identified have been justified or adjusted.

This spreadsheet is a Halcrow produced document and should not be labelled as C Sweett. We produced an amended sheet in order to clearly show the possible errors and suggested what amendments might need to be made, Halcrow need to review and confirm if the amendments are correct as owners of this estimate.

Cyril Sweett: This comment has yet to be fully confirmed by Halcrow Group.

Halcrow Group: The spreadsheet has been amended by the various suppliers of the information and is now believed to incorporate all items.

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section A

4.5 CTRACF-0700 / 262 & 263 shows Rapid transit track and cycleway.

4.6 We have the following comments relating to quantities on this sub section.

- The site clearance quantity didn't include for the junction with the park and ride or the path to the platforms. This has been adjusted to include all areas of work.
- The quantity of manholes allowed seems low. A further allowance has been added. (Changed from 6nr to 11nr)
- The excavation quantity didn't include for the transit track. This has been added in.
- The sub base quantity to the non guideway construction didn't include for the junction with the park and ride. This has been added in.
- The road base course quantity to the non guideway construction was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted and the area of the junction with the park and ride added in. The rate seems high and has been adjusted.
- The wearing course quantity to the non guideway construction was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted and the area of the junction with the park and ride added in.
- The kerb quantity to the non guideway construction didn't include the junction with the park and ride. This has been added in.
- The rate for the new kerb to the highway reconstruction was different from the kerb rate elsewhere. This has been adjusted to match.
- The cycleway base course rate seems too high. This has been adjusted.
- The cycleway base course didn't include the junction with the park and ride. This has been added in.
- The cycleway wearing course quantity was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted and the area of the junction with the park and ride added in.
- The cycleway kerb quantity didn't include the junction with the park and ride. This has been added in.
- The cable quantity appears low. This has been adjusted.

4.7 Overall section adjustment equates to an addition of £ 289,069.

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section B

4.8 TRACF-0700 / 263, 264 & 265 shows Rapid transit track and cycleway.

4.9 We have the following comments relating to quantities on this sub section.

- The haul road quantity was incorrect (m² x 4 x 0.5) this should have been (m x 4 x 0.5). This has been adjusted.
- The site clearance quantity contained an error. This has been corrected.
- The quantity of manholes allowed seems low. A further allowance has been added. (Changed from 6nr to 11nr)
- The road base course rate seems high and has been adjusted.
- The cycleway basecourse quantity was measured as a m³ quantity but rated at a m² rate and stated as a m² unit. The quantity has therefore been adjusted..
- The cycleway base course rate seems too high. This has been adjusted.
- The cycleway wearing course quantity was measured as a m³ quantity but rated at a m² rate and stated as a m² unit. The quantity has therefore been adjusted.

4.10 Overall section adjustment equates to a reduction of (£ 73,210)

Cost Overview Report

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section C

4.11 CTRACF-0700 / 265 shows Rapid transit track, elevated section and cycleways.

4.12 We have the following comments relating to quantities on this sub section.

- The excavation quantity calculation wasn't consistent through the spreadsheet (see query sheet nr 2 item 13). This has been adjusted to be the same throughout.
- The road base course quantity to the non guideway construction was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted. The rate seems high and has been adjusted.
- The wearing course quantity to the non guideway construction was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted. The cycleway base course rate seems too high. This has been adjusted.
- The cycleway base course quantity was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted
- The cycleway wearing course quantity was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted.
- The duct and cable quantity didn't include for the short length of lighted cycleway. This has been added in.

4.13 The drainage allowance assumes underground drainage but this sub section includes the elevated section over the railway lines. It is assumed that the allowed costs are sufficient to cover the cost of the above ground drainage to the elevated section.

4.14 In terms of risk items:

- The allowance of £ 510,000 for rail closures for constructing the elevated section is an estimated figure.
- There is no allowance in the costs for Rail Track supervision, which will be required as the works are constructed within close proximity of the rail lines.

Discussions with Rail Track will be required to confirm costs are adequate and to confirm costs associated with supervision requirements.

4.15 Overall section adjustment equates to an addition of £ 47,747

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section D

4.16 CTRACF-0700 / 265 shows Rapid transit track, level crossing and cycleways.

4.17 We have the following comments relating to quantities on this sub section.

- The haul road quantity was incorrect (m² x 4 x 0.5) this should have been (m x 4 x 0.5). This has been adjusted.
- The site clearance quantity contained an arithmetical error. This has been corrected.
- The quantity of manholes allowed seems low. A further allowance has been added. (Changed from 0nr to 4nr).
- The excavation quantity calculation wasn't consistent through the spreadsheet (see query sheet nr 2 item 13). This has been adjusted to be the same throughout. Also some areas were missing these have now been added in.
- The road base course quantity to the non guideway construction was measured as a m³ quantity but rated at a m² rate and stated as a m² unit. The quantity has therefore been adjusted. The rate seems high and has been adjusted.
- The wearing course quantity to the non guideway construction was measured as a m³ quantity but rated at a m² rate and stated as a m² unit. The quantity has therefore been adjusted.
- The rate for the new kerb to the highway reconstruction was different from the kerb rate elsewhere. This has been adjusted to match
- The cycleway base course rate seems too high. This has been adjusted.
- The cycleway base course quantity was measured as a m³ quantity but rated at a m² rate and stated as a m² unit. The quantity has therefore been adjusted.
- The cycleway wearing course quantity was measured as a m³ quantity but rated at a m² rate and stated as a m² unit. The quantity has therefore been adjusted.
- The edging kerb quantity didn't include all the cycleway. This has been added in.
- The sub total formula for level crossings didn't pick up all the values. This has been corrected.

4.18 In terms of risk items:

- The allowance of £ 200,000 for revision to existing level crossing is an estimated figure.
- There is no allowance in the costs for Rail Track supervision, which will be required as the works are constructed within close proximity of the rail lines

Discussions with Rail Track will be required to confirm costs are adequate and to confirm costs associated with supervision requirements

4.19 Overall section adjustment equates to a reduction of (£ 1,867,389)

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section E

4.20 CTRACF-0700 / 265, 266, & 267 shows Rapid transit track and cycleway.

4.21 We have the following comments relating to quantities on this sub section.

- The quantity of manholes allowed seems low. A further allowance has been added. (Changed from 8nr to 16nr).
- The excavation quantity calculation wasn't consistent through the spreadsheet (see query sheet nr 2 item 13). This has been adjusted to be the same throughout.
- The rate for contaminated excavation seems high. This has been adjusted.
- The road base course rate seems high and has been adjusted.
- The rate for the new kerb to the highway reconstruction was different from the kerb rate elsewhere. This has been adjusted to match.
- The cycleway base course rate seems too high. This has been adjusted.
- The cycleway base course quantity was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted.
- The cycleway wearing course quantity was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted.
- The edging kerb quantity didn't include all cycleways. This has been adjusted.

4.22 The excavation of contaminated material has been based on the assumption that where rails have been present that the ground is contaminated with hazardous material. Is this assumption justified or could this allowance be down graded to contaminated non hazardous?

4.23 In terms of risk items:

- The allowance for excavation of contaminated material is an area where further investigation works could result in clearer understanding of the extent and type of contaminated material and the likely costs.

4.24 Overall section adjustment equates to a reduction of (£21,729)

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section F

- 4.25 CTRACF-0700 / 267 shows Rapid transit track, cycleway and new footbridge.
- 4.26 We have the following comments relating to quantities on this sub section.
- No haul road has been allowed. This has been added in.
 - The site clearance quantity contains errors. This has been corrected.
 - The quantity of drain pipes, gullies and manholes allowed seems low. A further allowance has been added.
 - The excavation quantity calculation wasn't consistent through the spreadsheet (see query sheet nr 2 item 13). This has been adjusted to be the same throughout.
 - The excavation quantity included areas of existing cycleway. This has been corrected.
 - The excavation of contaminated material didn't include for all the areas of cycleway and non guided track north of the river. This has been adjusted.
 - The rate for contaminated excavation seems high. This has been adjusted
 - The road base course rate seems high and has been adjusted.
 - The highway reconstruction wearing course didn't include the resurfaced area. This has been added in.
 - The rate for the new kerb to the highway reconstruction was different from the kerb rate elsewhere. This has been adjusted to match
 - The planing off and tack coat quantity has been adjusted as discussed with Andy Seek.
 - The cycleway base course rate seems too high. This has been adjusted.
 - The cycleway base course was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted.
 - The cycleway wearing course quantity was measured as a m3 quantity but rated at a m2 rate and stated as a m2 unit. The quantity has therefore been adjusted.
 - The cycleway kerb quantity included lengths of existing path. This has been corrected.
 - The white lining formula didn't pick up the quantity. This has been corrected.
- 4.27 The non guideway construction (concrete slab and tarmacadam) has been taken over the existing bridge. Is this required as it would increase the loading on the bridge.
- 4.28 The excavation of contaminated material has been based on the assumption that where rails have been present that the ground is contaminated with hazardous material. Is this assumption justified or could this allowance be down graded to contaminated non hazardous.

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

4.29 In terms of risk items:

- The allowance for excavation of contaminated material is an area where further investigation works could result in clearer understanding of the extent of contaminated material and the likely costs.
- The allowance of £600,000 for the new footbridge seems inadequate for a 90m by 5m wide footbridge. This item needs to be revisited.

Halcrow Structures team has reviewed and have revised their estimate. £800k has now been included in the works figure

Cyril Sweett: Noted

- The allowance of £1,000,000 for Ashton Avenue Bridge is considered adequate at this stage, for refurbishing and strengthening works to accommodate the Rapid transit scheme

4.30 Overall section adjustment equates to an addition of £ 445,007. (NOTE: This includes the additional £200,000 added by Halcrow structures)

Sub Section G

4.31 CTRACF-0700 / 268 and 269 shows Rapid transit track and cycleway.

4.32 We have the following comments relating to quantities on this sub section.

- The quantity of highway crash barrier seems low. A further allowance has been added.
- New gullies have been allowed but no drain pipes or chambers. An allowance for pipes and chambers has been added in.
- The excavation quantity calculation wasn't consistent through the spreadsheet (see query sheet nr 2 item 13). This has been adjusted to be the same throughout.
- The quantities of highway reconstruction have been adjusted following discussions with Andy Seek to include full length of road
- The coloured surfacing quantity didn't include for the area on drawing 268. This has been added in.
- The feeder pillar lining formula didn't pick up the quantity. This has been corrected.

4.33 The non guideway construction (concrete slab and tarmacadam) has been taken over the existing bridge. Is this correct?

4.34 In terms of risk items:

- The extent of resurfacing works needs verifying. The allowances have been increased following discussion with Andy Seek.

4.35 Overall section adjustment equates to an addition of £ 109,836.22

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section H

- 4.36 CTRACF-0700 / 269 and 270 shows Rapid transit track and cycleway.
- 4.37 We have the following comments relating to quantities on this sub section.
- The drainage sub total formula didn't pick up the chambers quantity. This has been corrected.
 - The road base course rate seems high and has been adjusted.
 - The rate for the new kerb to the highway reconstruction was different from the kerb rate elsewhere. This has been adjusted to match
- 4.38 Overall section adjustment equates to a reduction of (£4,450).

Sub Section I

- 4.39 CTRACF-0700 / 270 shows Rapid transit track and cycleway.
- 4.40 We have the following comments relating to quantities on this sub section.
- The tram construction doesn't go the full length of sub section I, so the quantities have been adjusted following discussion with Andy Seek, to reflect excavation and construction of the unguided track and cycleway
 - The rate for contaminated excavation seems high. This has been adjusted.
 - The cycleway base course rate seems too high. This has been adjusted.
- 4.41 The excavation of contaminated material has been based on the assumption that where rails have been present that the ground is contaminated with hazardous material. Is this assumption justified or could this allowance be down graded to contaminated non hazardous
- 4.42 In terms of risk items:
- The allowance for excavation of contaminated material is an area where further investigation works could result in clearer understanding of the extent of contaminated material and the likely costs.
- 4.43 Overall section adjustment equates to an addition of £107,073.

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

Sub Section J

- 4.44 CTRACF-0700 / 271 shows Rapid transit track and cycleway.
- 4.45 We have the following comments relating to quantities on this sub section.
- The site clearance formula didn't pick up the quantity. This has been corrected.
 - The excavation quantity calculation wasn't consistent through the spreadsheet (see query sheet nr 2 item 13). This has been adjusted to be the same throughout.
 - No excavation or construction has been allowed for the non guideway transit track. This has been added in.
 - The rate for contaminated excavation seems high. This has been adjusted.
 - The rate for the new kerb to the highway reconstruction was different from the kerb rate elsewhere. This has been adjusted to match
 - The cycleway base course rate seems too high. This has been adjusted
- 4.46 The excavation of contaminated material has been based on the assumption that where rails have been present that the ground is contaminated with hazardous material. Is this assumption justified or could this allowance be down graded to contaminated non hazardous.
- 4.47 In terms of risk items:
- The allowance for excavation of contaminated material is an area where further investigation works could result in clearer understanding of the extent of contaminated material and the likely costs.
 - The allowance of £1,000,000 for the swing bridge replacement could prove to be in-adequate and is more likely to be an allowance to cover for refurbishment only.
- 4.48 Overall section adjustment equates to an addition of £493,733

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

General Comments

- 4.49 Whilst an allowance for traffic management has been included, this only equates to about 6%. In our opinion an allowance for preliminaries, which would include for site welfare, H&S, Traffic management etc should be in the order of 20% (Including OH&P). The City Centre Loop estimate contains an allowance equating to 20%.

Halcrow Group: Much of the works will be built as closed sites and £220,000 in TM costs has been allowed for this. The health and safety is included in the rates under the design and build contract proposed

Cyril Sweett: We are concerned that that this section of works doesn't include enough for preliminaries and Contractors OH&P. We would expect a minimum of 20%.

Halcrow Group: The City Centre design will be constructed on live carriageway where we would expect to have a high cost of TM and preliminaries for both site operative safety as well as the general public. As the Ashton Vale is closed site with little need of TM, the rates include the cost for Contractors Welfare and H&S and an allowance of 20% of the final cost for these items is over rated. We have however allowed a further sum of £160,000.00 for this item which is felt to be more than adequate for the proposed construction method.

- 4.50 No allowance for restricted off peak or night time working has been allowed. While this would not be applicable to all sections, it would have to be considered for sub sections C, D, E, F, G and H. The City Centre Loop estimate contains an allowance equating to 15%.

Halcrow Group: We have not included for night time working on the segregated corridor section. It is considered that there is no need for night working in view of the fact that as Cumberland Road/Ashton Avenue is lightly trafficked for much of the day there may be a need for some temporary closures and this has been allowed for. This was discussed with BCC Network Management informally. Detail will depend on how the contractor intends to do the works and will need to be included in a Code of Construction Practice

Cyril Sweett: Noted

- 4.51 An allowance of 20% is shown on the "seg corridor (sum)" page, but this has not been carried forward to the cost summary.

Halcrow Group: Contingency has not been included in base estimates as this was then put through QRA for risk provision.

Cyril Sweett: Noted

- 4.52 No allowance has been made for Consultancy Fees (preparation) associated with the Ashton Vale estimated costs. The City Centre Loop estimate contains an allowance equating to 20% for preparation (Design, CDM and safety audits).

Halcrow Group: Preparatory costs, including detailed design, have been calculated separately from the capital costs estimate.

Cyril Sweett: Noted

4.0 ASHTON VALE TO BRISTOL CITY CENTRE (CONT'D)

General Comments

- 4.53 No allowance has been made for Consultancy Fees (Supervision) associated with the Ashton Vale estimated costs. The City Centre Loop estimate contains an allowance equating to 5% for supervision.

Halcrow Group: Preparatory costs, including detailed design, have been calculated separately from the capital costs estimate. As we are proposing a Design and Build contract and the rates for the main sectional construction allow for the design time then the only real design costs are detailed design for the signals the current layouts have been tracked etc so just need detectors etc adding and some client approval time for testing etc. The sums included for site supervision of the Centre equate to an allowance that is sufficient for the entire project given the limited size of the site and linked nature of the proposals.

Cyril Sweett: Noted

5.0 ITS

General Comments

5.1 No allowance appears to have been made for the following items:

- a) Ducting and chambers associated with the traffic signalisation.

Halcrow Group: These are included in the main rate items under rogue items

Cyril Sweett: We cannot find an item for rogue items associated with the ITS costs and hence are not convinced that these items have currently been included. Halcrow Group to clarify where this allowance has been incorporated.

Halcrow Group: the overall costs for ITS ducting included an allowance for the traffic signals ducts and chambers. As the layout of this element is not designed until the detailed construction drawings are produced as it requires cable calculations to be determined then the quantity of ducting etc was over measured as this is actually a minor sum. We have now done this calculation and created a specific area for this measurement and adjusted the overall ITS ducting allowance accordingly.

- b) Builders work in connection with the remaining ITS, CCTV, RTI and ticket machine installations.

Halcrow Group: Costs are included in the costs of CCTV RTI etc, the costs assumed for stops includes for suitable ground preparation.

Cyril Sweett: Noted.

- c) Series 100: Traffic Safety & Management - Health and safety, site welfare facilities, Chapter 8 - temporary traffic management etc.

Note: 20% applied to the measured works costs for these items in the City Centre Loop costings.

Halcrow Group: All rates are inclusive of preliminary items, TM will be shared with the main contractors costs and will be negligible given the closed nature of much of the site

Cyril Sweett: Noted but would recommend that unless these works are to be procured directly under separate contracts, a percentage allowance for (albeit minimal) main Contractors preliminaries, overheads and profit should be applied to the ITS costs.

Halcrow Group: the specifics of this depend on the item as follows: The traffic signals rates include for traffic management within them.

All construction for ITS will done by the main contractor the rates current quoted allow for all of the installation costs including supply of equipment, traffic management and fixing for a single item. Costs for the quantities specified in the contract would be below this level especially given the value of the contract. There are no real design costs for these equipment as standard specifications exist. The only design would be confirming the location of the cabinets etc equipment which is covered by the main works items. Taking this into account then the contractors profit element is included.

5.0 ITS

General Comments (Cont'd)

- d) Series 100 : Restricted working off peak and night time.

Note: 15% applied to the measured works costs for this in the City Centre Loop costings.

Halcrow Group: There is little need for off peak working etc as the works are not especially invasive and much work (cabinets etc can be done with out affecting the flow of traffic.

Cyril Sweett: Noted.

- e) Contingencies associated with the ITS estimated costs.

Note: whilst a 20% allowance for contingencies has been made on the 'ITS' spreadsheet, the allowance has not been carried forwards to the Cost Summary

Note: 15% applied to the measured works and Series 100 costs in the City Centre Loop costings.

Halcrow Group: Contingencies related to the ITS contract items are a lower order of risk than for the civil elements this has been allowed for in the QRA process that has allocated appropriate risk to the project

Cyril Sweett: Noted.

- f) Consultancy Fees associated with the ITS estimated costs.

Note: 20% applied to the measured works and Series 100 costs in the City Centre Loop costings.

Cyril Sweett: This comment has yet to be addressed by Halcrow Group.

Standard specifications exist for these elements which would be included in the design and build specification for ITS items. Further design of the traffic signal element would be included in the general fee costs for the remainder of the project. It is small in nature as the sites are not complex.

5.0 ITS

General Comments (Cont'd)

- g) Supervision Fees associated with the ITS estimated costs.

Note: 5% applied to the measured works and Series 100 costs in the City Centre Loop costings.

Cyril Sweett: This comment has yet to be addressed by Halcrow Group.

The Supervision of the ITS elements are contained in the cost estimate for the back office system, in reality then the other elements which expensive would be covered by the standard RE staff as there are only 30 pole bases to be erected. It is worth noting that the value of these machines is down to the complex but standard software required to count change and process charge /smart cards. There has been a downwards trend in the costs of this type of system recently due to increased competition in the market and greater interchangeability with machines such as parking machines. As such the costs with this are included within the overall sums.

6.0 REVIEW OF RATES

- 6.1 We note that there are numerous discrepancies between the rates used in the pricing of the City Centre Anti Clockwise Loop and the Ashton Vale to City Centre cost exercises.

In order to ensure a more consistent level of pricing between the two schemes, we suggest that the following rates are used for both cost exercises.

Series 500: Drainage

£70.00/m for 150mm pipework.

£115.00/m for 225mm pipework.

£450.00/nr for road gullies including connections.

£1,250.00/nr for manholes.

Series 600: Earthworks

£25.00/m³ for offsite disposal of 'inert' material.

£130.00/m³ for offsite disposal of 'contaminated' material.

£180.00/m³ for offsite disposal of 'hazardous' material.

Series 700: Pavements

£30.00/m³ for type 1 granular material.

£50.00/m² for 175mm thick fibre reinforced concrete road base.

£20.00/m² for 150mm DBM roadbase.

£12.00/m² for 40mm HRA wearing course.

£5.00/m² for scarifying existing wearing course.

Series 1100: Kerbing and Footways/Cycleway Construction

£20.00/m for new precast concrete kerbs.

£18.00/m² for DBM cycleway base course.

6.0 REVIEW OF RATES (CONT'D)

Series 1200: Traffic Signs, Road Markings, Highway Lining and Signing

£300.00/nr for signs on new 100mm diameter posts.

£1.50/m for whitelining.

£15.00/m² for coloured surfacing.

Series 1300: Street Lighting and Electrical Works

£33.00/m for ducts (2 x 100 supply and fit).

Cyril Sweett: The above rate changes were intended to ensure a more consistent level of pricing between the two schemes. The rate changes have yet to be incorporated by either Bristol Engineering Consultancy or Halcrow Group.

There is unlikely to be a significant financial effect on either scheme.

Halcrow Group: Agreed. Segregated spreadsheet to be updated accordingly except where noted in the 'Response to Cyril Sweett Cost Overview Report' Technical Note.

7.0 COMMENTS ON COST SUMMARY

General Comments - Seg Corridor (Summ) 'tab'

- 7.1 We understand that the Seg Corridor (Summ) 'tab' on the spreadsheet has been superseded by the Cost Summary 'tab'.

We would still wish to raise the following queries in respect of the Seg Corridor (Summ) 'tab'

- a) It is unclear how the 'Temple Meads' figure of £706,496.83 has been arrived at as it comes from a linked spreadsheet that we are unable to access.

We note however that this allowance has not been carried forward and hence has not been allowed in the Cost Summary.

We therefore query whether this is intentional.

These costs refer to a different City Centre Scheme than the one being put forward. This has now been amended and the legacy items removed from the schedules.

Cyril Sweett: Noted.

- b) It is unclear how the 'City Centre' figure of £568,090.00 has been arrived at as it comes from a linked spreadsheet that we are unable to access.

We note however that this allowance has not been carried forward and hence has not been allowed in the Cost Summary.

We therefore query whether this is intentional.

These costs refer to a different City Centre Scheme than the one being put forward. This has now been amended and the legacy items removed from the schedules.

Cyril Sweett: Noted.

7.0 COMMENTS ON COST SUMMARY (CONT'D)

General Comments – Cost Summary ‘tab’

- 7.2 A lump sum allowance of £1,750,000 has been included for ‘Land’ but we have no indication as to what this is for or how it has been calculated.

Details provided in cost update

Cyril Sweett: On the latest cost estimate the allowance has been revised to £1,684,900. We are unable to comment on the allowances made in respect of ‘Land’ however as they have been made on the basis of land values rather than construction costs.

- 7.3 A lump sum allowance of £80,000 has been included for ‘Ticket Machines’ but we have no indication as to how it has been calculated. There may be an element of double counting however in that the ITS ‘tab’ also includes an allowance of £350K for Ticketing machines (complex).

Details provided in cost update. The 80,000 sum has been removed from the cost summary

Cyril Sweett: the double counting still appears in the latest cost spreadsheet in that £700K has been included in the ITS costs and a further £500K has been added into the Cost Summary.

Halcrow Group: Agreed. Tab ‘Inputs - ITS’ cell D5, there is an amount for £700k for ticket machines which gets carried over to the Cost Summary tab in the final cost of ITS.

Tab ‘Inputs - Tkt Machines’, there is an amount of £525k for ticket machine of a lower number, which is carried over in the Cost Summary sheet cell F28

The latest spread sheet has been amended to reflect lower costs for Centre ticket machines that this element reflects.

- 7.4 Where figures have not been carried forward correctly to the Cost Summary, allowances have currently *not* been included for:

- a) Preparation (Design, CDM and Safety Audit) and Supervision Fees associated with the City Centre estimated costs.

Cyril Sweett: This has been corrected in the current spreadsheet.

- b) Contingencies associated with the Segregated Corridor estimated costs.
- c) Preparation (Design, CDM and Safety Audit) and Supervision Fees associated with the Segregated Corridor estimated costs.

As we are proposing a Design and Build contract and the rates for the main sectional construction allow for the design time then the only real design costs are detailed design for the signals the current layouts have been tracked etc so just need detectors etc adding and some client approval time for testing etc.

The allocation of time is the equivalent of £1,587,145 which is considered sufficient for the CDM and Design of the standard items especially considering that the main contract is to be let on a design and build basis.

7.0 COMMENTS ON COST SUMMARY (CONT'D)

General Comments – Cost Summary ‘tab’

- 7.5 No allowances have been included for the Optimism Bias percentage additions that will be required in order to achieve the 50% and 80% confidence levels noted on the Cost Summary.

Optimism Bias is subsequently addressed through appraisal process.

Cyril Sweett: Noted.

- 7.6 No allowances have been made in respect of tender price fluctuations from 3rd Qtr 2008 to the estimated start on site date and beyond.

This is included through the QRA process

Cyril Sweett: Noted.

7.0 COMMENTS ON COST SUMMARY (CONT'D)

Cost Exclusions

7.7 We suggest that the Cost Summary should state that the following items are not included in the cost exercise:

- a) Site acquisition costs (other than the £1.685M allowance).
- b) Legal fees.
- c) Building Regulation and Planning fees
- d) Temporary and Permanent Traffic Regulation Orders
- e) Stopping Up Orders
- f) Survey works
- g) Value added tax.
- h) Finance costs.
- i) Compensation of existing owners/tenants
- j) Soil Contamination/asbestos removal
- k) Public Art
- l) Inflation from 3rd Qtr 2008 to Start on Site date and beyond
- m) Client costs
- n) Developer costs

APPENDIX A – CITY CENTRE LOOP QUERY SHEET NR 1

APPENDIX B – ASHTON VALE QUERY SHEET NR 2

APPENDIX C – RESPONSES TO CAPITAL COSTS REVIEW

APPENDIX D – HALCROW TECHNICAL NOTE DATED 13TH MARCH 2009