

of

BRYAN G PORTER (ADJUDICATOR)

In respect of an Adjudication
between

INFRACO, a consortium comprising Bilfinger
Berger (UK) Limited, Siemens PLC and
Construcciones Y Auxiliar de Ferrocarriles S.A,
having a place of business at 9 Lochside Avenue,
Edinburgh Park, Edinburgh, EH12 9DJ
(REFERRING PARTY)

and

tie LIMITED, a company incorporated under the
Companies Acts and having its registered office at
City Chambers, High Street, Edinburgh, EH1 1YJ.
(RESPONDING PARTY)

DUNKELD, 22 SEPTEMBER 2010

PREAMBLE

In a letter dated 16 June 2010 from Infraco's legal agents, Pinsent Masons, I was advised that the parties had agreed to appoint me as adjudicator in respect of a dispute regarding Depot Access Bridge S32 which bridge forms part of the Edinburgh Tram Network currently under construction.

The contract between the parties (the Infraco Contract) is bespoke. It is governed by, among other things, the Infraco Contract Conditions. Clause 97 of the said Conditions provides for disputes between the parties to be dealt with in accordance with the Dispute Resolution Procedure set out in Schedule Part 9 of the Infraco Contract. Paragraph 10.1.2 of Schedule Part 9 provides for the resolution of disputes by adjudication in accordance with paragraphs 14 to 54 of Schedule Part 9.

The dispute before me in this adjudication relates to the value of a Notified Departure concerning changes between the Base Date Design Information (BDDI) and the drawings Issued For Construction (IFC) in connection with Depot Access Bridge S32. The parties are at odds regarding the scope and value of such changes.

At paragraph 8 on page 30 of the Referral, the Redress Sought by the referring party (Infraco) is in the following terms:

8.1 Infraco requests the Adjudicator to find and declare that:

8.1.1 A Notified Departure has occurred at the Depot Access Bridge and the cumulative valuation of those elements of the Notified Departure accepted in principle by the Responding Party is

£1,269,985.02 or such other sum as the Adjudicator shall determine.

8.1.2 The change to the Temporary Works constitutes a Notified Departure and deemed Mandatory tie Change in terms of the Infraco Contract and the true and proper value of such is £549,195.27 or such other sum as the Adjudicator shall determine.

*8.2 Infraco requests the Adjudicator to find **tie** fully liable for the Adjudicator's fees and expenses.*

8.3 Infraco requests that the Adjudicator provides reasons for his decision.

At paragraph 8 of the Response to the Referral, the responding party (**tie**) maintains the value of the Notified Departure in respect of the permanent works and the temporary works are negative values of £4,815,306.43 and £11,810.78 respectively. Accordingly, as at the date of the Response, the amounts in dispute were £6,085,291.45 in respect of the permanent works and £561,006.05 in respect of the temporary works.

JURISDICTION

The negative value contended for by **tie** in respect of the permanent works arises largely from **tie's** argument that the omission of the A8 Retaining Wall (W16) should be taken into account when valuing the Notified Departure for S32. Infraco maintain the dispute before me relates solely to the value of Depot Access Bridge S32 and that the valuation of adjacent structure W16 forms no part of that dispute. Accordingly Infraco contend I have no jurisdiction to consider **tie's** arguments regarding structure W16.

I took legal advice on this jurisdictional point from Mr Robert Howie QC. Following a debate on the matter, Mr Howie provided an Opinion which was sent simultaneously to the parties and to me. Mr Howie concluded that I did have jurisdiction, and indeed an obligation, to entertain **tie's** arguments regarding W16. After inviting and considering the parties' comments upon that Opinion I formed the view that I had jurisdiction to consider the responding party's arguments in relation to retaining wall structure W16 and I advised the parties accordingly.

THE ADJUDICATION PROCESS

During the adjudication process I received three formal written submissions and associated productions from each party. I held a legal debate and took Senior Counsel's opinion. I met with the parties on three separate days during which I heard explanations and comment from both parties in relation to the technical arguments and valuations in dispute. On the second of these three days I also heard legal submissions from the parties' legal agents.

During the meetings regarding technical and valuation issues the parties reached accommodations in relation to a number of matters in dispute. The financial effects of these accommodations were recorded on a spreadsheet which was subsequently issued to me in electronic format. That spreadsheet has been amended by me to reflect my findings in respect of the valuation of the amounts in dispute and is attached to and forms part of this decision. Parties legal agents confirmed that I had authority to decide figure for myself without further recourse to the parties.

The adjudication process was considerably extended to accommodate the availability of key personnel from both parties and at my request the date for my decision was extended to 22 September 2010.

In addition to the formal submissions referred to above, I communicated with and received various communications from both parties during this adjudication. Brief notes of all such communications are contained within my time record sheets which are provided to the parties under separate cover.

KEY CONTRACTUAL PROVISIONS

Definitions (contained at page 3 *et seq* within Schedule Part 4)

2.2 The “**Base Case Assumptions**” means the Base Date Design Information, the Base Tram Information, the Pricing Assumptions and the Specified Exclusions.

2.3 The “**Base Date Design Information**” means the design information drawings issued to Infraco up to and including 25th November 2007 listed in Appendix H to this Schedule Part 4.

2.9 “**Pricing Assumptions**” means the assumptions in respect of the Contract Price as noted in Section 3.4 below.

2.10 “**Specified Exclusions**” means items for which Infraco has made no allowance within the Construction Works Price as noted in Section 3.3 below.

2.8 A “**Notified Departure**” is where now or at any time the facts or circumstances differ in any way from the Base case Assumptions save to the extent caused by a breach of contract by the Infraco, an Infraco Change or a Change in Law.

Clause 3.5 (on page 9 of Schedule Part 4)

The Contract Price has been fixed on the basis of inter alia the Base Case Assumptions noted herein. If now or at any time the facts or circumstances differ in any way from the Base Case Assumptions (or any part of them) such Notified

*Departure will be deemed to be a Mandatory **tie** Change requiring a change to the Employer's Requirements and/or the Infraco Proposals or otherwise requiring the Infraco to take account of the Notified Departure in the Contract Price and/or Programme in respect of which **tie** will be deemed to have issued a **tie** Notice of Change on the date that such Notified Departure is notified by either Party to the other.*

Clauses 8.1 and 8.2 (on page 14 of Schedule Part 4)

*8.1 Rates for certain items have been established for determining the value of **tie** Changes as noted in Appendix F.*

8.2 The rates contained in the Appendix F are inclusive of overheads and profit [and] are to be used for the purpose of agreeing Changes (positive and negative).

Clauses 1.1 and 1.2 (on page 52 of Schedule Part 4)

*1.1 The valuation of any **tie** Change shall be made in accordance with Clause 80.6.*

*1.2 Where Clause 80.6.3 or 80.6.4 applies and to the extent that they apply to a **tie** Change then the valuation shall be on the basis of Actual Cost or estimated Actual Cost.*

Clause 80.6 (on page 184 of the Infraco Contract Conditions).

*80.6 The valuation of any **tie** Changes made in compliance with this Clause 80 (**tie** Changes) shall be carried out as follows:*

80.6.1 by measurement and valuation at the rates and prices for similar work in Appendix F to Schedule Part 4....

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

80.6.3 if such rates and prices do not apply and it is not practical to deduce rates and prices therefrom, by measurement and/or valuation at fair rates and prices

*80.6.4 if the value of the **tie** Change cannot be properly ascertained by measurement and/or valuation, the value of the resources and labour employed thereon.....*

BRIEF FACTUAL BACKGROUND

Infraco is contracted to provide all civil engineering works, systems and track works together with the supply and maintenance of the trams. Schedule Part 4 of the contract details the price Infraco is to be paid. Schedule Part 4 also sets out the assumptions upon which the price is based. These assumptions are known as the Base Case Assumptions and they include *inter alia* the Base Date Design Information (BDDI). In addition Schedule Part 4 provides a schedule of rates for valuing changes to the contract works.

Changes to the design or scope of the contract works are dealt with by raising a Notified Departure. An estimate of the value of the changes referred to within such Notified Departure is to be prepared by Infraco and submitted to **tie** for agreement. The valuations of any such changes are to be made in accordance with Clause 80.6 of the Infraco Contract.

On 6 November 2008 Infraco issue advised **tie** by way of Infraco Notice of **tie** Change No 201 (INTC 201) that a Notified Departure had occurred. NTC 201 described that Notified Departure in the following terms: *“...the IFC drawings for Depot Access Bridge differ to a greater extent and complexity than design development...”*

On 16 October 2009, with reference to INTC 201, Infraco submitted its Estimate for additional works on S32 Depot Access Bridge due to the changes in BDDI to IFC design. On 12 January 2010 **tie** replied to the said Estimate and provided its assessment of the value of the work associated with the changes to Depot Access Bridge S32 and the A8 Retaining Wall (Structure W16) from the BDDI. In that reply **tie** maintained that Retaining Walls (W16) were integral to S32 and had been replaced with the additional length of wing walls shown on the IFC drawings for the Depot Access Bridge. **tie's** valuation at that time was a negative sum of £4,927,732.90, although that valuation has since been revised.

The parties cannot agree the valuation associated with the above Notified Departure and as a consequence I was appointed adjudicator as described in the Preamble above.

THE SUBSTANTIVE ISSUES

NOTIFIED DEPARTURE

Firstly within the redress sought in the Referral I am asked to find and declare that a Notified Departure has occurred at the Depot Access Bridge. For the reasons set out later in this decision I so find and declare.

VALUATION OF THE ELEMENTS OF THE NOTIFIED DEPARTURE

Secondly within the redress sought in the Referral I am asked to find and declare the cumulative valuation of those elements of the Notified Departure. The valuation of each such element is set out within Appendix 1 attached to and forming part of this decision. The reasons for arriving at the valuation of each of these elements are set out below.

Vehicle Parapets

The parties agree the values of all items in this section of work except for the IFC values of the safety barrier transition pieces and the stainless steel holding down bolts. Infraco claims the IFC value of the transition pieces is £16,050 (excluding prelims) whereas tie contends the IFC value is £4,500. As far as the holding down bolts are concerned Infraco's IFC valuation is £11,000 and tie's valuation is £3,780.

Safety Barrier Transitions

It is common ground that four transition pieces are required each of which is 1.5m long. It is also common ground that there are no rates for such transition pieces within Schedule Part 4. The parties are at odds however as to the appropriate method for valuing these transitions.

Infraco maintains the transition pieces require to be of bespoke structural design to cater for the transition from H4a very high containment precast parapet units to N2 steel pedestrian barriers. Relying upon a quotation from George Walker, Fencing Contractor, Infraco values each transition at £4,015, which includes 10% uplift on the Fencing Contractor's price, giving a total value of £16,060 for the four.

Tie's position is that the transition pieces can effectively be constructed from a standard type N2 barrier subject only to the addition of a special joint between the metal barrier and the precast unit. Accordingly tie argues N2 standard rates apply subject only to an allowance for labour and materials carrying out the site modifications to create the special joints. On that basis tie's total value for the four transition pieces is £4,500.

I prefer Infraco's submission. It seems to me the design requirement described on drawing 00825 Rev 2 as '*H4a to N2 containment double rail open box beam safety barrier transition*' is more than a standard N2 barrier with a special joint and that tie's method of valuing the transition pieces is in this instance inappropriate. As far as the value is concerned I am satisfied from the emails lodged as production 49 for the referring party that the price from the Fencing Contractor is a *bona fide* price to which Infraco is entitled to a reasonable mark up and I accept Infraco's valuation of £16,060 for the purposes of this adjudication.

During my meeting with the parties on 8 September 2010, tie queried whether or not best value was being achieved by obtaining only one quotation for these transition pieces. I accept Infraco's view that in this instance where the subcontractor is already on site it is unrealistic to go out for other quotations for what is a relatively small element of the existing subcontractor's works. In any event I note the current subcontractor's quotation is significantly lower than the provisional valuation of £10,000 each put forward by Infraco at its estimate of INTC 201 dated 16 October 2009.

Holding Down Bolts

It is common ground that there are 84 No. stainless steel holding down bolts each 36mm diameter and 1045mm long required for the precast vehicle parapet units. Infraco values these bolts at £11,000 based upon a provisional sum within a quotation from Expanded Structures Ltd, to which I note Infraco has not added any mark up.

Tie's primary position is that the price for the holding down bolts is included within the price for the concrete units but in any event tie maintains £45.00 per bolt is a fair and reasonable price.

It seems to me there is no evidence to support tie's contention that the cost of the bolts is included in the rates for the parapet units. Accordingly I reject that argument entirely. I also reject tie's price of £45.00 per bolt based as it is upon the rate for bar reinforcement. I agree with Infraco that the use of such rates is not appropriate. However I am not convinced that the provisional sum relied upon by Infraco is appropriate either.

During my meetings with the parties it was agreed that in the event that I disagreed with the parties' respective values I had authority to decide values for myself without further recourse to the parties. Given the dimensions and material specified for these bolts they will require to be specially manufactured. However the quantity required is likely to be attractive to prospective manufacturers. I believe a reasonable rate for the stainless steel holding down bolts is likely to be around £100.00 per bolt including fitting and main contractor's mark up. Accordingly I have used that rate for the purposes of this adjudication. In my view therefore a fair valuation for the holding down bolts is £8,400.00.

Taking the above valuations into account I value the Vehicle Parapets at £30,595.15 including prelims as set out in spreadsheet Appendix 1 attached to and forming part of this decision.

Drainage

As I understand it the parties agree the change value for this element of the works is £18,605.52.

Earthworks

BDDI Excavation & Disposal

The parties are in dispute regarding the total volume of excavation and disposal of material to be included at BDDI. In particular the parties are at odds as to whether the cost of forming the two embankments shown adjacent to the north wing walls on BDDI drawing 00630 Rev 5 should be included within the BDDI valuation for the Depot Access Bridge. Tie maintains that it should be included whereas Infraco contends it should not.

Infraco avers that the work to these embankments is included as part of the BDDI valuation of the Depot excavation. In support of that averment Infraco relies upon agreed Change Order 28. A copy of the said Change Order together with the agreement attached to that Change Order is produced at Infraco's Tab 31 Appendix A Production 4.

Change Order 28 expressly refers to Excavation and disposal of additional material at Gogar Depot, as per attached agreement. The attached agreement is headed 'Without Prejudice Proposal to Achieve Settlement' and contains very rounded quantities and a disposal off site rate which is not as Schedule 4. It also contains a list of 11 items which are deemed to be included within the agreed lump sum for Change Order 28. However as far as I can see there is nothing within Change Order 28, or the attached agreement which refers to the embankments in question. Accordingly, in the absence of any support for Infraco's averment, I accept **tie's** submission that the embankments should be included within the BDDI value for structure S32 on the basis that the embankments in question are shown on BDDI drawing BRG-00630 rev 5 entitled 'Depot Access Road Bridge Structure S32'.

Notwithstanding the above dispute as to whether the embankments should be accounted for within the BDDI value for structure S32, the parties agree the volume and rates for the excavation and disposal associated with these embankments. Accordingly I have incorporated the agreed volume and rates within spreadsheet Appendix 1 attached to and forming part of this decision.

IFC Compaction of Fill

The parties agree that the type of imported fill material required for structure S32 is class 6N. The parties also agree that the appropriate rate for such material is £19.05/m³. However Infraco claims a further rate of £2.25/m³ for compacting 6N fill material. **tie** contends that compaction is included within the rate of £19.05m³ and **tie** rejects Infraco's claim for compaction.

The S32 rate relied upon by **tie** for imported fill material is found at item 006 on page 220 of 331 of Schedule 4. The rate is £19.05/m³. The description of the fill material is in the following terms '*Imported acceptable materials Class 6A in 150mm layers*'. **tie** maintains there is no difference between Class 6A and Class 6N fill material. **tie** points to the words '*in 150mm layers*' and argues those words signify that the fill is to be compacted in 150mm layers. Accordingly **tie** concludes there is no need to provide a separate rate for compaction.

In support of its position **tie** refer to the Civil Engineering Standard Method of Measurement (CESMM3). Whilst **tie** accepts CESMM3 does not apply to Schedule Part 4 rates, **tie** argues it gives guidance to the industry's practice that items for fill are deemed to include compaction.

Infraco contends there is a difference between Class 6A and Class 6N fill material and that item 006 relied upon by **tie** is not applicable. Infraco maintains the appropriate rate for Class 6N material is to be found at *inter alia* item 006 on page 207 of 331 of Schedule Part 4. As with the item relied upon by **tie** the rate for the item relied upon by Infraco is £19.05/m³ the item description is '*Imported acceptable material Class 6N in fill to structures*'; there is no mention of 150mm layers. Immediately following the item for Class 6N fill is an item for compaction. Item 007 on page 207 of 331 states '*Compaction of acceptable material in fill to structures*'. Item 007 makes no reference to 150mm layers and it is rated at £2.53/m³.

Infraco took me to other items within Schedule Part 4 that have the same rate and description for Class 6N fill material and are followed by the same rate and description for compaction. Infraco argue that since the material here is Class 6N and not Class 6A, the appropriate rates to be applied are those for Class 6N fill together with compaction. As far as CESMM3 is concerned Infraco submit it has no relevance in respect of this contract.

In my view Infraco are correct. As I understand it there is a difference in the permitted aggregate size between Class 6A and Class 6N fill materials. Whether or not that understanding is correct the fact remains that the material in question is to be Class 6N and not Class 6A. Accordingly it seems to me entirely appropriate to use the Schedule Part 4 rates for Class 6N material rather than the rate for Class 6A. There is no need to ponder the meaning of the Class 6A reference to 150mm layers or to imply the application of CESMM3 when there are specific rates for Class 6N within Schedule Part 4. Accordingly I have incorporated Infraco's valuation for compaction within Appendix 1 attached to and forming part of this decision.

Taking all of the above matters into consideration I have valued the Excavation Works for the purposes of this adjudication at £311,516.57 including prelims all as set out at Appendix 1.

Waterproofing

As I understand it the parties agree the change value for this element of the works is £35,178.86 including prelims.

Pavements

As I understand it the parties agree the change value for this element of the works is £NIL.

Piling

BDDI Piling

It is common ground that the BDDI requirement for piling to the Depot Access Bridge comprised a total of 92 No.1180mm diameter secant piles to the north and south abutments and wing walls; and a total of 18 No. 1180mm diameter bored piles to the centre pier.

However the parties are in dispute regarding the length of the piles required at BDDI and the extent of the reinforcement within these piles.

Relying upon a 'note' on BDDI drawing 0630 Rev 5, Infraco maintains the length of each pile is 12m with the length at the wing wall piles decreasing from 12m in accordance with the ground profile. The 'note' relied upon by Infraco is in the following terms; *'Embedded secant piled retaining return wing wall typical pile length = 12m. Length to be reduced with proposed ground profile.'*

Infraco also maintains that when constructing secant piling it is standard practise for the female piles to be shorter than the male piles. That is because the female piles are not load bearing and do not require to be bored to the bearing stratum. Accordingly Infraco has assumed all female piles would be constructed to a depth 2m less than the male piles.

At section D-D on BDDI drawing 0631 Rev 5 the male piles are described as 'reinforced' whereas there is no mention of the word 'reinforced' for the female piles. Infraco submit this is because when constructing secant piled retaining walls the female piles are formed first and the male piles subsequently driven through the sides of the female piles. Infraco submit this would not be practical if the female piles were reinforced. Accordingly Infraco has allowed for reinforcement to the male piles only.

As far as the 18 No. 1180mm bored piles to the central pier are concerned, Infraco has allowed a length of 12m for each of these piles.

Tie submits that the pile length of 12m shown on BDDI drawings 0630 relates solely to the return wing walls. **Tie** argues that these drawings do not prescribe the pile lengths for either the abutments or the centre pier. Instead these pile lengths are to be found within Approval in Principal (AIP) document for Structure 32 dated 2 March 2007 which proposes typical pile length of 12m for wing wall, 16.3m pile length for the central pier and 15.9m and 17.9m pile lengths for the northern and southern abutments respectively.

In my view Infraco's submission is to be preferred. The 'note' relied upon by Infraco for the 12m pile length is repeated at Section E-E North Abutment on BDDI drawing 0631. It seems to me from drawing 0631 that the typical pile length of 12m is therefore not restricted to the return wing walls but applies to the North abutment too.

As far as the piles to the South abutment and the central pier are concerned Infraco accept there are no pile lengths stated on drawings 0630 or 0631. However by reference to levels shown on these drawings Infraco explained at the Technical Meeting held on 31 August 2010 why they considered from the BDDI drawings that 12m was the appropriate length for those

piles. On balance I was satisfied with that explanation and accordingly I have incorporated Infraco's BDDI figures within the valuation set out at Appendix 1.

With regard to the information contained within the AIP document lodged by **tie**, I consider it is unnecessary to look beyond the BDDI drawings in this instance given my view that the BDDI drawings contain sufficient information from which the value of the piling work to S32 can be estimated.

BDDI Reinforcement to Piles

At the Technical meeting held on 31 August 2010 the parties advise that if I preferred one party's quantity for the BDDI piles then I should accept that party's reinforcement figures as being correct. Accordingly I have accepted Infraco's BDDI valuation for piling reinforcement.

IFC Piling

It is common ground that the IFC requirement is for 900mm diameter piles and the parties agree the quantity of such piles. However the parties are in dispute regarding the rate to be applied to that quantity. Infraco maintains the rate should be £269.44/m whereas **tie** contends the appropriate rate is £203.56/m.

Infraco contends that the rate of £269.44/m was previously agreed although that contention is denied by **tie**. Notwithstanding that alleged agreement Infraco considers the methodology adopted in arriving at that 'agreed' rate was wrong and Infraco suggests a more appropriate rate is £300.85/m. That rate is based upon Infraco's contention that irrespective of the reduced pile diameter from 1180mm to 900mm, there are fixed costs which ought not to be reduced on a pro rata basis. **Tie** maintains the basis of Infraco's calculation is misconceived and that the correct approach is to pro rata the piling rate based upon the cross sectional area for each pile. In my view **tie's** approach is to be preferred. It seems to me the fixed cost element of piling operations relate to matters such as establishment and rig set-up which both parties price the same for both BDDI and IFC values. I believe it is more likely than not that the time taken to bore for and concrete the 900mm piles is likely to be less than for 1180mm diameter piles. Accordingly I have accepted **tie's** rate for the IFC piles.

Proof Loading

The parties are in dispute regarding the value for Proof Loading 8No. piles. Infraco claims a value of £13,300 per pile whereas **tie's** valuation is £0 per pile.

Item 017 under the heading "*Piling and Embedded Retaining Walls, Cast-in Place Piles 1180mm diam.*" on page 221 of 331 of Schedule Part 4, provides a rate for Proof Loading. The rate for that item is £0.00. **tie** relies upon that rate to value proof loading in respect of the 900mm diameter piles.

At the second paragraph of section 3.21.12 within the referring party's production 31, Infraco contends that the BDDI information does not provide any specification for testing piling work to the Depot Access Bridge and that the rate of £0.00 was inserted on the assumption that integrity testing would be sufficient. Infraco maintains it had no reason to assume that an integrity test would produce an abnormal result and accordingly no proof loading would be required in connection with the Depot Access Bridge.

At the third paragraph of section 3.21.12 Infraco refers to a Department of Transport document as "The IFC specification". Infraco states that document "*provides the following specific requirement for static load testing (proof loading)*". Infraco then go on to explain those requirements.

It seems to me from what Infraco write at section 3.21.12 that Infraco was well aware of what was involved in Proof Loading and for reasons of their own took it upon themselves to value it at £0.00 on the assumption that integrity testing would be sufficient. It seems to me that Infraco cannot now complain that **tie** wishes to apply that rate in accordance with Clause 80.6. I reject Infraco's argument that this work should be valued in accordance with Clause 80.6.4. Clause 80.6 sets out a 'pecking order' for the evaluation of changes. It does not provide a mechanism for either party to escape from the sufficiency or otherwise of the rates inserted within Schedule Part 4. In my view **tie** correctly values this work at £0.00.

Conclusion

Taking all of the above matters into consideration I have valued the changes to the Piling Works for the purposes of this adjudication at negative £47,869.41 including prelims, all as set out at Appendix 1.

Structural Concrete

As I understand it the parties agree the change value for this element of the works is £207,806.82.

Surface Finishing – Formwork

The parties are in dispute regarding the valuation of the bridge slab formwork at BDDI. Infraco values both the BDDI and IFC slab formwork at £277.57/m². **tie** values the IFC slab formwork at £277.57/m² but values the BDDI slab formwork on an entirely different basis. **Tie** maintains the appropriate rate for BDDI formwork is £50.73 and that temporary supports and false work should be measured and valued separately. The rate of £277.57/m² is inclusive of such temporary supports.

At the Technical Meeting held on 1 September 2010 **tie** took me to page 7 of Infraco's original Estimate dated 16 October 2009 and to a note under the heading "Contractor's Other Charges". That note is in the following terms: "*The Contractor has entered hereunder any*

specific item of work or service or any other thing which is necessary for the execution of the Works as required by the Contract which has been omitted from or has not been separately itemised elsewhere within the Pricing Schedule and for which a separate charge is required. The Contractor shall insert hereinafter such additional items and pages as he deems necessary and include same on the Collection Summary Sheets.”

The various item descriptions and rates that follow that page 7 note include among other things items and rates for temporary supports and false work. **tie** argue these items and rates should form the basis for the BDDI valuation of the slab formwork. The rate of £50.73 relied upon by **tie** as the base price for the formwork is taken from item 28 on page 222 of 331 of Schedule Part 4.

As I understand it **tie's** rationale for valuing the BDDI bridge formwork in this way is that the Estimate of 16 October 2009 effectively indicated the method by which Infraco intended to carry out the work to the bridge slab and accordingly Infraco should be held to that methodology for the purpose of valuing the work at BDDI.

Infraco's position is that the rate of £277.57 for both BDDI and IFC is the rate contained at item 14 on page 179 of 331 of Schedule Part 4. Infraco denies any methodology can be derived from the original estimate and the Schedule of rates should apply.

In my view Infraco is correct. BDDI drawing 00630 Rev5 specifies an F2 finish to the slab soffit. The rate of £50.73 relied upon by **tie** is for an F3 finish. The items and rates relied upon by **tie** for the temporary works are not Schedule Part 4 rates. The note on page 7 makes it clear that these items and rates are intended for use where there are no scheduled rates. That is not the case here. The rate of £277.57 which both parties use for the IFC formwork valuation is a Schedule Part 4 formwork rate for an F2 finish and in my view is the appropriate rate for both BDDI and IFC.

Accordingly I have valued this element of the work at £210,234.04 including prelims as set out within Appendix 1.

Reinforcement

As I understand it the parties agree the change value for this element of the works is £154,148.41.

Bearings

As I understand it the parties agree the change value for this element of the works is negative £5,225.57.

Sealing – Expansion Joints

As I understand it the parties agree the change value for this element of the works is £23,064.82.

Ground Anchors

It is common ground that Ground Anchors specified within the BDDI drawings were not required within the IFC drawings. Accordingly a reduction is due to reflect this negative change. It is also common ground that the total quantity for the BDDI specified anchors is 608m. However the parties are in dispute regarding the rate for these anchors.

The anchors specified within the BDDI drawings are approximately 18m long. Item 007 on page of Schedule Part 4 provides a rate of £96.43/m for ground anchors exceeding 5m but not exceeding 10m long. Infraco maintains that same rate should apply to the 18m long anchors whereas **tie** contends that a factor of 1.5 should be applied to that rate on the basis that it will take more time per metre to drill anchors that are significantly greater in length. Applying the stated factor of 1.5 **tie** seeks to apply a rate of £144.65/m. Infraco denies any increased time per metre is required.

I agree with Infraco that the existing Schedule Part 4 rate should not be multiplied by a wholly unsubstantiated factor of 1.5, which **tie** accepted at the Technical meeting was simply a guess. I also agree with Infraco that the output per metre for the 18m anchors is unlikely to be significantly different from the output for the 5-10m category and I further agree that **tie**'s production 32 extract regarding additional time per metre for piling at Tower Place is not relevant and does not assist. Accordingly I accept Infraco's valuation based upon £96.43/m.

For the reasons stated above I have valued this element of the works as a negative change amounting to £73,228.17 as set out within Appendix 1.

Brickwork

As I understand it the parties agree the change value for this element of the works is negative £62,213.44.

Kerbs

As I understand it the parties agree the change value for this element of the works is negative £5,295.76.

Contractor's Charges

As I understand it the parties agree the change value for this element of the works is

Associated Wing & Retaining Walls

As recorded earlier in this decision, following a challenge from the referring party that I had no jurisdiction to consider the responding party's arguments regarding A8 Retaining Wall W16, I concluded that I did have such jurisdiction. Accordingly I have considered the responding party's arguments regarding W16 and I reject **tie's** contention that the Depot Access Bridge (S32) and the A8 Retaining Wall (W16) are a single integrated structure, the whole of which was the subject of the Notified Departure to which this adjudication relates.

As I understand it the responding party contends that Infraco's Notice of **tie** Change does not limit the extent of the Notified Departure. Instead it makes a general reference to IFC Drawings for the Depot Access Bridge which clearly show the Depot Access Bridge and its associated walls. That may be so but in my view that does not incorporate changes to W16 into the said Notified Departure.

tie argues that BDDI drawing 06-DEP-001 Rev 7 depicts the associated walls as a continual wing wall retaining the A8 and that BDDI drawing 05-RTW-00521 Rev 2 depicts the retaining wall as a continuous structure which does not differentiate between bridge wing walls and retaining walls. The conclusion being that the entire retaining wall structure W16 is therefore part of and cannot be separated from Depot Access Bridge S32. It seems to me that is entirely misleading. These drawings referred to are General Arrangement drawings and as such require to be amplified to give further detail.

I do not accept **tie's** argument that the dispute before me has as its subject matter the valuation of the Notified Departure by comparing the BDDI general arrangement drawings with the IFC general arrangement drawings. As Infraco points out, correctly in my view, the general arrangement drawings encompass all elements of the Depot area but it is not changes to all such elements that are the subject of the Notified Departure for the Depot Access Bridge.

I agree it is difficult to see from the BDDI drawings where the southern wing wall begins and the A8 retaining wall ends, but again as Infraco points out that difficulty has not prevented the parties from agreeing the length of the parapets, nor has it prevented the parties from agreeing the extent of the piling.

INTC does not mention W16 nor does it mention associated walls. It is only **tie** that does so in an attempt to introduce a significant negative sum for the change to W16. Infraco's primary argument regarding that change was that it was a change which took place prior to concluding the Infraco Contract and that a significant reduction in the contract price had been made to reflect that change. In a response to a question by me regarding that matter **tie** advised me that the question of price was beyond my jurisdiction in this adjudication. I accept that is the case and accordingly I have not considered any such changes in respect of W16.

During the Technical Meetings I was taken through **tie's** measurement and valuation for the omission of W16. It seemed to me that omission could only be measured by reference to drawings other than drawings relating to S32. Accordingly I have omitted all value claimed in respect of W16 from the value of the Depot Access Bridge.

With regard to arguments relating to a possible two bridge solution it seemed clear to me when reviewing **tie's** very broad brush measurements and valuation for that design that that design was never seriously contemplated and that it was impossible to place any realistic value upon it on the basis of the minimum information available.

In my view the dispute before me relates solely to changes to Structure S32. The IFC drawings referred to ne by Infraco are listed on IFC drawing 824. All 33 drawing that are listed relate to Structure S32; none relate to W16.

SUMMARY OF CHANGE VALUES

Description	Change Values between BDDI and IFC (Incl. 7.4% +17.5% Prelims)
Parapet Barrier	30,595.15
Drainage	18,605.52
Earthworks	268,834.31
Waterproofing	35,178.86
Pavements	0.00
Piling	- 47,869.41
Structural Concrete	207,806.82
Surface Finishing - Formwork	210,234.04
Reinforcement	154,148.41
Bearings	- 5,225.57
Sealing – Expansion Joints	23,064.82
Ground Anchors	- 73,228.17
Brickwork	- 62,213.44
Temporary Works	433,307.03
Kerbs	- 5,295.76
Contractor Charges	0.00
Associated Wing & Retaining Walls	0.00
TOTAL CHANGE VALUE (Incl Temporary Works)	£1,230,624.88
Change value of Temporary Works	£433,307.03
TOTAL CHANGE VALUE (Excl Temporary Works)	£797,317.85

TEMPORARY WORKS

Thirdly within the redress sought in the Referral I am asked to find and declare that the Change to the Temporary Works constitutes a Notified Departure and deemed Mandatory **tie** Change and to find and declare its value.

At paragraph 3.29.2 of Appendix 1 of the Response **tie** accepts that temporary measures to facilitate changes to the construction of the permanent works form part of the overall Notified Departure. Accordingly I find and declare that the Change to the Temporary Works constitutes a Notified Departure and deemed Mandatory **tie** Change,

Valuation of the Temporary Works

Site Compound

The first item claimed in connection with the temporary works is the installation of a site compound, lay down area for piling, pile platform and temporary haul road. At first glance it appears that the parties are in dispute regarding the valuation of this element of the temporary works because **tie** allows a nil value whereas Infraco values it at £92,686. However both parties allocate their respective values to both BDDI and IFC. Accordingly the parties agree the change value from BDDI to IFC for the site compound is nil. The fact that the parties do not agree the BDDI or IFC values in this instance is therefore of no relevance as far as this adjudication is concerned.

Earth Retention System

The major area of dispute regarding the temporary works relates to the provision of a temporary earth support system.

It is common ground that the IFC drawings show bridge S32 has been moved away from the A8 and that as a consequence the design of the bridge wing walls and abutments changed. It is also common ground that in order to construct these redesigned elements of the bridge it was necessary to install a temporary earth support system. However the parties are at odds regarding the valuation of that earth support system. Infraco claims a value of £431,942.37. At the Technical Meeting held on 10 September 2010 **tie** conceded its previous valuation of £47,626.02 should be increased by £115,465.50 to correct errors in the valuation of excavation disposal and backfill. Accordingly as I understand it **tie's** valuation for the Earth Retention System is now £163,091.52.

The initial design for the temporary earth support system is shown on Expanded UK drawing A2581/S32/DWG/104. (Expanded UK is Infraco's subcontractor for this element of the works.) The system comprises a series of 10m long vertical metal posts which are set into boreholes.

(These posts are referred to as King Posts) Reinforced concrete panels are then fitted between the king posts and the concrete panels are subsequently fixed to the sides of the excavations by means of ground anchors.

Infraco admits there are two changes between the original design and the work that is actually being carried out on site. Firstly trench boxes are being used in every second bay in lieu of concrete panels and secondly the king posts are now UC sections rather than PFC channels.

Within the Reply Infraco stated there was a potential saving involved by using trench boxes in lieu of concrete panels. However in its 'Further Submission 07 September 2010' Infraco produced a letter from Expanded which advised there would be no cost saving for using the alternative trench box panels nor for using the UC channels. These changes were described as 'cost neutral'. Notwithstanding these changes to the specified materials Infraco contends that the system depicted in Expanded UK's drawing is being carried out on site.

As I understand it Infraco's valuation of £431,942.37 for the earth support system is based upon a 'quotation' in the sum of £363,616.00 sent from MG Construction to Expanded UK on or around 24 August 2009. To that sum Infraco has added an 8% uplift for Expanded UK plus a further 10% for Infraco. Following criticism regarding a lack of supporting documentation, on 7 September 2010 Infraco lodged various productions and brief narratives regarding *inter alia* the MG quotation and Expanded UK's 8% mark up. These productions and narratives were commented upon by both parties at the Technical Meeting held on 10 September 2010 and at that meeting further productions were lodged including Method Statements for the construction of the king post walling and for the associated Ground anchors

Despite all of the productions lodged by Infraco I have some difficulty with their valuation of the earth support system. Firstly, although I have the quotation from MG to Expanded UK, as far as I am aware I have not been provided with any quotation from Expanded to Infraco or any evidence of the price or prices being charged by Expanded for this work. Secondly it is now apparent that MG's quotation was not accepted by Expanded and that other companies (namely LB Foundations and Albion Drilling) are carrying out this work. Yet I have not been provided with any evidence of the rates or prices being charged by those companies. Thirdly Infraco contend there are 48 king posts but as far as I am aware offer no evidence to support that contention. There is however evidence which suggests there are only 44 king posts. Albion Drilling's Method Statement describes its work to be done as "44 No Ischebeck Titan Ground Anchors" and mentions a quotation dated 7 May 2010. And within LB Foundations' Method Statement the Description of Works refers to the installation of 44 No king posts.

It seems to me more likely than not that Expanded obtained cheaper prices from Albion Drilling and LB Foundations than were quoted by MG. The fact that Expanded have gone to

two separate subcontractors to carry out different elements of the earth retention system suggests to me that there was good commercial reason for doing so.

Absent any evidence regarding rates and prices from these two companies I believe it would not be unrealistic in this economic climate to obtain a saving of a least 10% on MG Construction's price. That belief is strengthened by the change in specification referred to above. On the basis of the two Method Statements I believe it is more likely than not that there are 44 king posts rather than 48 referred to within MG's quotation. By applying a 10% reduction to MG's quotation and adjusting the reduced price to reflect only 44 king posts I arrive at a base figure of £299,983 for the earth retention system. Allowing the 8% and 10% uplifts that figure is increased to £356,380 and I have used that figure for the purposes of this adjudication.

I have considered **tie's** measurement and 'derived' rates. However given the evidence of 44 king posts rather than 31 contended for by **tie** I have some doubts regarding the responding party's figures. If tie's figures are apportioned to reflect 44 king posts in lieu of 31 there would be a considerable increase in value even at the rates contended for by **tie**. As far as the derived rates are concerned I believe the Schedule Rates relied upon by **tie** are not applicable for this work and I have doubts about the assumptions that are made. It seems to me that by using MG Construction's quotation as the basis for my calculation I have at least derived a price from bona fide rates for this specialist work.

Piling Platform

It seems to me there is no requirement within LB Foundations' Method Statement for a piling platform and accordingly I have rejected Infraco's valuation in respect of that element of the works.

Conclusion

For all of the above reasons I have valued the change to the Temporary Works at £433,397.03 as set out in Appendix 1 attached to this decision.

ADJUDICATOR'S FEES & EXPENSES

The referring party was entirely unsuccessful in respect of its jurisdictional challenge. Accordingly I find the referring party liable for my fees and expenses in connection with that matter.

The referring party was largely successful in respect of the substantive issues and accordingly I find the responding party liable for my fees and expenses in connection with those matters.

**HAVING CONSIDERED ALL OF THE MATTERS BEFORE ME IN THIS ADJUDICATION I
HEREBY FIND AND DECLARE that:**

1. A Notified Departure has occurred at the Depot Access Bridge and the cumulative valuation of those elements of the Notified Departure is £797,317.85.
2. The change to the Temporary Works constitutes a Notified Departure and deemed Mandatory tie Change in terms of the Infraco Contract and the true and proper value of such is £433,307.03
3. Without prejudice to the parties' joint and several liability for payment of the adjudicator's fees and expenses, Infraco is to pay the adjudicator's fees and expenses associated with the jurisdictional challenge and **tie** is to pay one the adjudicator's fees and expenses in respect of the substantive issues.

This page together with the preceding 19 pages and Appendix 1 attached to and forming part of this Decision, is signed by me at Dunkeld on 22 September 2010 before this witness, Eleanor Porter, Dunkeld.

BRYAN G PORTER

WITNESS