



MULTI UTILITY DIVERSION FRAMEWORK AGREEMENT (MUDFA)

Report and Recommendation

to

tie Limited

for the

Application of Clauses 46 and 50

**In respect of the Schedule Four Rates
and Prices**

for

Construction Services

Issue No.	Issue Date	Document Issue Ref
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Section 1 Executive Summary

Carillion Utility Services, formerly Alfred McAlpine Infrastructure Services (referred to as AMIS and AMIS MUDFA) executed the MUDFA Agreement on the 4th October 2006, initially undertaking Pre-Construction Services (PCS), commencing Construction Services (CS) on the 2nd April 2007.

Given the congruent obligations between **tie** Limited as Employer, Project Sponsor and Project Manager, the MUDFA Contractor and **SDS Provider**, all as confirmed by **tie** Limited throughout the Tender and CARP process and as scheduled in Section 2 herewith, **Carillion Utility Services** prepared and submitted their Schedule Four Rates and Prices on the following basis:-

- The MUDFA terms and conditions and adherence of all provisions by the parties;
- The Schedule Eight Programme, which defines the basis, sequence and modus operandi of the Schedule Four Rates and Prices ;
- The Tender drawings incorporated under the MUDFA Contract;
- The quantities outlined under Schedule Four reflect the scope of works, given that the Tender Drawings did not identify diversionary routes;
- The scope and likely magnitude of Works identified by **tie** Limited under the Schedule Four Prime Cost and Provisional Sums, within the overall context of the Schedule Eight Programme and Clause 51.2;
- The issue of Statutory Utility Company approved, timely, accurate and robust IFC Designs and Design related information, via the Work Order process contemplated under Clause 8;
- The provision of all approved and integrated Traffic Management Plans/Designs and Temporary Traffic Regulation Orders (TTRO's) by 9th January 2007; and
- The provision of IFC Designs and Technical specifications for the Enabling Works Programme, in advance of Construction Services, via the Work Order process contemplated under Clause 8 and Schedule One, paragraphs 2.50 and 2.51;

All the foregoing obligations and responsibilities were to be prepared and/or discharged by the parties in recognition of and with reliance upon the successful and satisfactory delivery of the parties' mutual and individual contractual obligations; all of which would be executed in recognition of the common Contract objectives.

For the avoidance of any doubt the common Contract objectives for the Design and Construction elements are:-

- Maximise construction productivity;
- Minimise diversion works;
- Maintain safety;
- Minimise outturn cost;
- Minimise disruption to the City of Edinburgh; and



- Assist **tie** Limited in ensuring that best value has been secured in the performance of the MUDFA Works, pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act 2003.

It was upon this premise that **Carillion Utility Services** prepared, submitted and predicated the Schedule Four Rates and Prices.

The MUDFA Contractor's concern in relation to the veracity, integrity and appropriateness of the Rates and Prices was initially notified by **Carillion Utility Services** under cover of letter Ref; AMIS/tie/letter/KAG/Projects/155 dated 3rd April 2007 (*Appendix 3*).

The concern expressed within this early warning notification has now become apparent in the sustainability of the levels of productivity and cost base assumed by the MUDFA Contractor within the existing Schedule Four Rates and Prices.

Carillion Utility Services will demonstrate, beyond all reasonable doubt, that the Contract obligations and common Contract objectives have been compromised by the failure of **tie** Limited to satisfactorily discharge their obligations under the Contract in the following areas:-

- Management of Design and Programme Risk;
- Management of **SDS Provider** and the overall Design deliverables;
- Delivery of Traffic Management Design and TTRO obligations;
- Contract compliance; Work Orders and Work Order Requirements;
- Design Process / Accuracy and Schedule Adherence; and
- Management of Prime Cost and Provisional Sums;

As a direct and unequivocal consequence of the above noted failure of **tie** Limited to discharge their obligations under the Contract, the MUDFA Contractor's Schedule Four Rates and Prices have been fundamentally compromised.

Furthermore the sequence and modis operandi of the Schedule Eight Programme, as incorporated within the MUDFA terms and conditions, has been fundamentally altered as a consequence of the above noted issues and additional constraints and restrictions imposed by **tie** Limited and the Project Stakeholders, impacting on the basis of the Schedule Four Rates and Prices.

These constraints and restrictions were neither contemplated nor notified at the time of Tender, nor were they reflected in the MUDFA Contract terms and conditions.

Section 2 Roles and Responsibilities of the Parties under the Contract

2.1 Roles, Responsibilities & Contract Objectives

All works and services undertaken and completed under the MUDFA Contract are contemplated in accordance with and in recognition of the terms and conditions of the MUDFA Agreement, where the fundamental objectives of the Contract are;

- Maximise construction productivity;
- Minimise diversion works;
- Maintain safety;
- Minimise outturn cost;
- Minimise disruption to the City of Edinburgh; and
- Assist **tie** Limited in ensuring that best value has been secured in the performance of the MUDFA Works, pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act 2003.

Pivotal to these obligations are the timely and accurate provision of IFC Designs and Design related information, together with fully configured, co-ordinated and compatible Traffic Management Plans/Designs, TTRO's, Enabling Works Programme and the like, prepared and executed in support of MUDFA Construction Services schedule adherence.

These critical activities are the responsibility of **tie** Limited under the MUDFA terms and conditions who, as defined under Clause 2.4 have appointed **SDS Provider** as the party who;

".....shall be responsible for the design and specification of the MUDFA Works".

During the Tender / CARP process the compatibility and concurrence of the MUDFA Contractor's obligations with those of **SDS Provider** was confirmed by **tie** Limited.

This confirmation is supported by a review of the contractual relationship between **tie** Limited and **SDS Provider** under the "Provision of System Design Services relating to the Edinburgh Tram Project", summarised as follows:-

Clause 3.1; *".....the SDS Provider agrees to perform the Services and its other obligations under this Agreement fully and faithfully in the best interests of the Client".*

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

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

- Clause 3.3.11; *"In accordance with Good Industry Practice";*

- Clause 3.3.12; *“To ensure that the design of the Edinburgh Tram Network is buildable”*;
- Clause 3.3.13; *“To assist **tie** in ensuring that best value (pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act 2003) has been secured in the performance of the Services;*

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

- Clause 3.4.1; *“Ground conditions (including climatic, geotechnical, ecological, environmental, hydrological and sub-surface conditions.....)”*;
- Clause 3.4.4; *“The obligations assumed or the undertakings given in any Parliamentary Undertakings relative to this Agreement”*; and
- Clause 3.4.5; *“Safety requirements and environmental matters”*.

Consistent with the MUDFA Contractor’s obligations under Clause 2.6 of the MUDFA terms and conditions the **SDS Provider**, under Clause 3.5 of the *“Provision of System Design Services relating to the Edinburgh Tram Project,”* has a corresponding and mutually compatible obligation to:-

- Clause 3.5.1; *“Maximise construction productivity by reference to international best practice”*;
- Clause 3.5.2; *“Minimise disruption to the city of Edinburgh”*; and
- Clause 3.5.3; *“Safeguard efficiency in the obtaining of Consents”*.

Consents, in the context of Clause 3.5.3 are defined as:-

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

2.2 Conclusion

There is a clear, concise and demonstrable compatibility binding the roles, responsibilities and objectives between the **SDS Provider** Contract and those detailed in the MUDFA terms and conditions.

Consequently **Carillion Utility Services** are entitled to rely upon the **SDS Provider** IFC Design and Design related information, managed exclusively by **tie** Limited, prepared in recognition of these obligations, including but not necessarily limited to;

- The Contract objectives;
- To a reasonable level of professional skill, care and diligence;
- In accordance with Good Industry Practice;
- Ensuring best value;



- To take due and proper account of all risks, including those associated with existing ground conditions; and
- Safeguarding efficiency in obtaining all necessary consents.

Carillion Utility Services will demonstrate, beyond all reasonable doubt, within Sections 3 to 7 of this submission that the above noted obligations and common Contract objectives have not been discharged and as a result, this failure has had a fundamental impact on the MUDFA Contractor's Schedule Four Rates and Prices, despite our best endeavours to mitigate and curtail the impact of these factors, all of which are outwith our control.

Section 3 Influence of Design and the Project Life Cycle

The significance and importance of a fully developed, detailed design on the outturn cost of a project, or a programme of Works cannot be underestimated. In the context of MUDFA, Issued for Construction (IFC) Designs and Work Order authorisations are key to cost assurance and Schedule adherence. The MUDFA Contractor relied exclusively on the parties responsible under the Edinburgh Tram Project to manage the inherent Design risks, interrogating existing infrastructure records, ground conditions and the like to ensure the IFC Designs serve construction services on a 'right first time basis' allowing **Carillion Utility Services** to fulfil their obligations under the MUDFA terms and conditions.

Documented evidence from Major Projects and Capital Investment Programmes have identified that significant and substantial savings can be derived from early intervention on detailed optioneering, early confirmation of the design solution and, where appropriate, early Contractor involvement.

Capital investment projects have four distinct phases, through which the opportunity to influence the outturn cost, through Cost and Risk Management (Value Management; VM) is available to the Project Sponsors. However only three of the Project Phases apply to MUDFA specifically.

Through the lifecycle of each phase this opportunity reduces through time constraints and design development. These four phases are as follows:-

Project Phase	VM Category	Activities	Impact
Investment Strategy	Scoping	Confirm global need / outputs, identify priorities, global risks, agree data, success criteria and establish first cut solution.	HIGH
Investment Planning	Analysis	Develop outline design options, confirm solution, prepare preliminary design and determine / implement initial procurement.	MEDIUM
Delivery	Engineering	Issued for Construction (IFC) design, construction, handover, testing and commissioning.	LOW
Operations	Review	Operate the asset, review performance and determine maintenance regime. Not applicable in the case of MUDFA.	MINIMAL

It is evident that the cost effective outturn and schedule adherence of the MUDFA Construction Services is predicated on the implementation of IFC Designs that are on programme and have been prepared with the appropriate duty of care.

A graphic representation of Influence on Total Value is set out below. The principal intervention point, which will have the greatest influence in respect of the total outturn cost (representing the maximum benefit and value for money to **tie Limited**) is the second project phase, Investment Planning.

This model was incorporated within the **Carillion Utility Services** presentation to **tie Limited** on 22nd June 2006, where this intervention point was identified as critical to determining the Anticipated



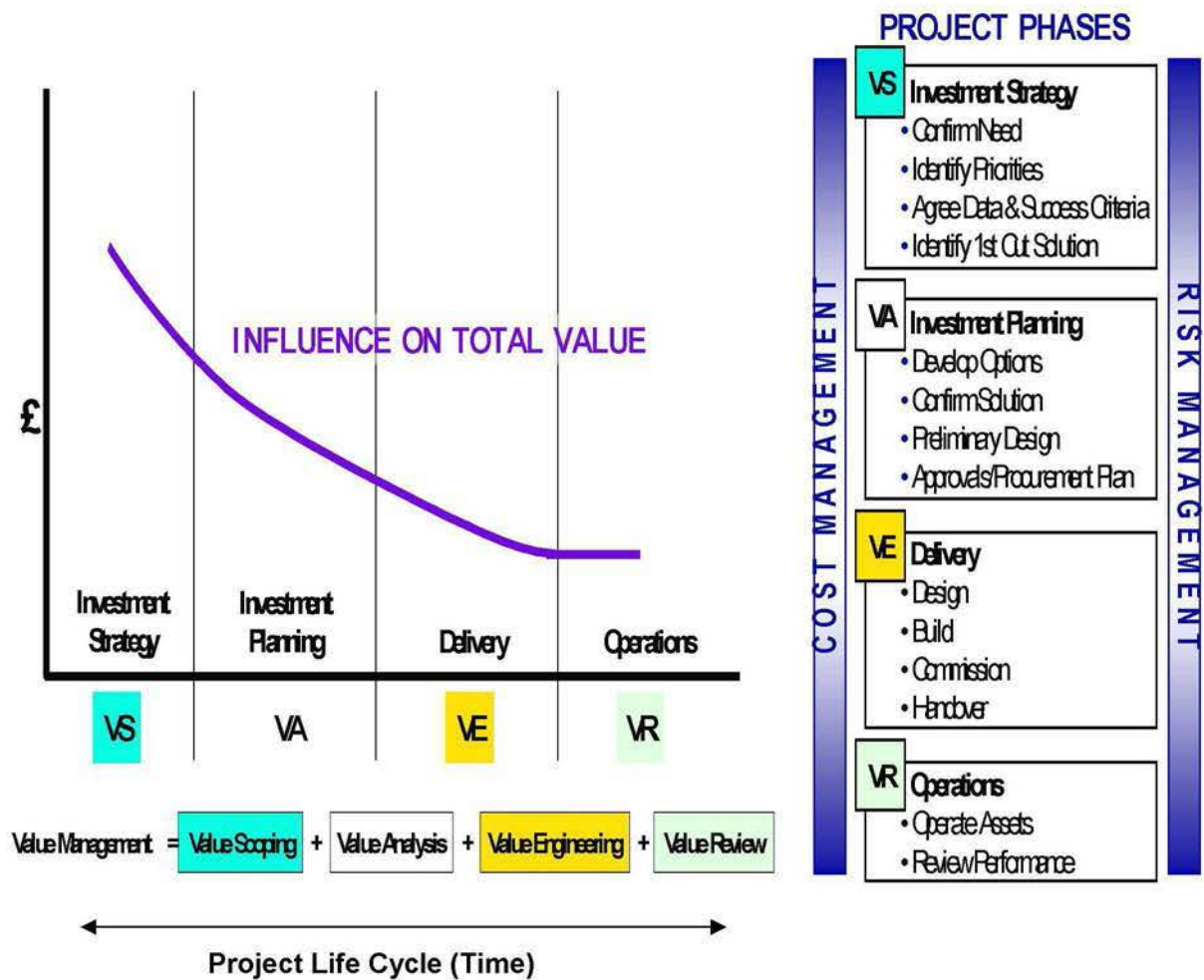
Final Account (AFA) outcome, managing risk and ensuring the design outputs serve effective and efficient Construction Services, by way of controlling outturn cost and timescale dependencies. The Value Management process is represented in the horizontal axis, which measures the development of the project in time against the vertical axis which measures the opportunity for that phase to have a significant impact or influence of the outturn cost of the project.

The appointment of **Carillion Utility Services** as the MUDFA Contractor contemplated that the design for the utility diversions, the provision of approved and integrated Traffic Management Plans/Designs, TTRO's and the Enabling Works Programme was either in the latter stages of Investment Planning (Value Analysis) or the early stages of the Delivery Phase – Value Engineering.

As will be demonstrated within this submission the MUDFA Contractor is now expected to manage and deliver Construction Services, i.e. the “Delivery” or VE phase in the Total Project Value Model detailed below on the basis of Rates and Prices predicated upon IFC Designs and Design related Information developed and fully compliant with the VA phase. This has proved unsustainable as a consequence of:-

- Failure of **tie** Limited to discharge their obligations under the MUDFA terms and conditions;
- Late IFC Designs and Design related Information;
- Inadequate and inaccurate IFC Design and Design related Information;
- Late Traffic Management Plans/Designs Temporary Traffic Regulation Orders; and
- Late IFC Designs and Design related Information for the Enabling Works Programme.

Given the limited influence on total value within the “Delivery” Phase it is the considered opinion of the MUDFA Contractor that the performance of **tie** Limited, as Project Sponsor, Employer and Project Manager, together with **SDS Provider** contravenes the Contract objectives, with a consequential impact on the MUDFA Contractor's Schedule Four Rates and Prices.



In recognition of the above noted illustration and the impact on outturn cost and schedule adherence of the design process on Construction Services it is wholly inappropriate for **SDS Provider** to have completed an Aiden survey for only 34.2% of the tram route on the road and 11% of the overall route.

Furthermore the Tram Director Design “Exemplar” review conducted in December 2006 and January 2007 has engendered no discernible improvement in the content, accuracy, suitability, configuration and representation of the **SDS Provider** IFC Designs and Design related information.

It is also a matter of record that a **tie** Limited response to letter Ref;AMIS/tie/letter/KAG/Projects/457 dated 18th September 2007 remains pending (*Appendix 3*); an overall delay of twenty five (25) weeks.

Section 4 Overview of Factors and Resultant Impact on Schedule Four Rates & Prices

4.1 Design and Scope Factors

The issues pertaining to the availability, veracity, suitability and sustainability of the IFC Designs and Design related information has been the subject of extensive and detailed correspondence since execution of the MUDFA Contract on 4th October 2006.

A significant number of Early Warnings and Mitigation Strategies / Proposals have been tabled by the MUDFA Contractor with minimal engagement from **tie** Limited.

Most recently letter Ref; AMIS/letter/KAG/Projects/816 dated 3rd March 2008 (*Appendix 1*) sought to consolidate all issues within the context of the **tie** Limited and Stakeholder Constrained Programme at Revision 06, which seeks to address the root cause of the Design and Scope Factors, together with Traffic Management and Contract Compliance issues.

4.1.1 Predominate Issues

The predominate issues, where resolution remains outstanding, which have been identified by **Carillion Utility Services** and notified in a timely and expeditious manner to **tie** Limited, in previous reports and contemporaneous correspondence (*See Section 8*) are as follows;

- i. The limited availability of Issued For Construction (IFC) Designs together with the imposed time constraints has culminated in works proceeding on Issued For Information (IFI) drawings. This has resulted in a higher risk profile for **Carillion Utility Services** construction activities, negatively affecting the buildability and associated outputs as a consequence;
- ii. The detail and definition of the IFC Designs and Design Related Information presently prepared and issued by **SDS Provider** does not achieve the standard required to sustain efficient working;
- iii. The availability of the **SDS Provider** design outputs, against the **tie** Limited and Stakeholder Constrained Programme (Revision 06) requirements does not support structured Construction Services in a controlled and planned manner; and
- iv. The **tie** Limited and Stakeholder Constrained (formerly Imposed) Programme (Revision 06 including previous revisions) has introduced a revised modus operandi on the sequence, method of working and commercial structure of the **Carillion Utility Services** Rates and Prices, introducing risk and increased cost, while reducing efficiencies and economies of scale.

4.1.2 Materialisation of Risks

Issues previously highlighted as potential risks, which have now materialised and were notified to **tie** Limited in a similarly timely and expeditious manner are as follows:-

- i. The Work Order process has not been administered in accordance with the MUDFA terms and conditions by **tie** Limited;
- ii. The Technical Query process has not been administered in a manner to support Construction Services;
- iii. The management and administration by **tie** Limited of the Schedule Four Prime Cost and Provisional Sums;

- iv. The consequence of all the above items above have resulted in an increased outturn cost for the diversionary works and will continue to do so if not addressed by **tie** Limited;
- v. The consequence of all the above items have resulted in an Extension of Time entitlement and if unaddressed will continue to do so, representing additional cost to **tie** Limited;
- vi. Strict adherence to the Long Stop date by **tie** Limited will necessitate acceleration to the **tie** Limited and Stakeholder Constrained Programme (Revision 06) being instructed by **tie** Limited, at an additional cost to the project with, given the constraints and unquantifiable risk, no discernable guarantee of success; and
- vii. **Carillion Utility Services** have not received an appropriate reply from **tie** Limited in respect of the various mitigation and acceleration proposals submitted to date.

4.1.3 Divergence from Schedule Four Conditions

An additional factor over and above the Predominate Issues and Materialisation of Risk Events identified above is the level of change between the Schedule Four scope and location, as reflected in the Contract documentation when compared against the actual and emerging scope / location of diversions identified against the IFC Designs and Design related information.

This comparison identifies the following factors which have all contributed to the subsequent impact on the integrity of the Schedule Four Rates and Prices;

- i. Increased Risk profile;
- ii. Inefficient working (resources too densely populated);
- iii. Inability to 'resource level' resulting in peaks and troughs in available working space and inefficiently utilised resources; and
- iv. Increase in diversionary scope.

The consequential increase in scope has also contributed to the following;

- I. Reduced time constraints;
- II. Enhanced traffic management and associated restrictions (working areas and time, see previous submissions);
- III. Late design;
- IV. Diversions not specifically identified in Schedule Four drawings (assumption made that all diversionary routes would not be congested or would follow the most economical and / or appropriate route) in recognition of the parties' obligations under the Contract, specifically **SDS Provider**, see Section 2 above;
- V. Diversions not contemplated in Schedule Four locations; and
- VI. Premium rates paid for skilled labour to accommodate the increase in scope, a resource that is in short supply and needs to be secured on long term arrangements.

4.1.4 Prime Cost and Provisional Sums

The extent, magnitude and timing of Works anecdotally instructed through the Prime Cost Sum and Provisional Sum items, which require the utilisation of “diversionary” core resources have all had a detrimental impact on the ability of **Carillion Utility Services** to adhere to imposed programme time constraints.

These constraints, driven by Stakeholder requirements not contemplated within the MUDFA terms and conditions or the Schedule Four Rates and Prices, have manifested themselves in increased working hours, weekend working attracting a premium rate and on occasion the inability of the MUDFA Contractor to meet the demands of the programme since additional resources are not readily available on an “on-call” basis.

Most appropriate examples of these consequences are as follows:-

- i. Unidentified utilities;
- ii. Slewing of existing utilities;
- iii. Removal of existing utilities;
- iv. Abandonment and demolishing of manholes and chambers;
- v. Requirement for bespoke Manholes and Chambers, to a greater specification than that contemplated in the Schedule Four Rates and Prices;
- vi. Abandonments where not detailed in advance of the works;
- vii. Trial holes and the additional trial holes required to locate a suitable area capable of supporting the required diversions. This is predominantly as a result of the extent of unidentified utilities and inaccurate details of locations for existing utilities on the IFC Designs and Design related Information;
- viii. Artificial obstructions;
- ix. Time and resources deployed endeavouring to locate utilities which are not in the locations as detailed in the IFC Designs and Design related Information (where provided);
- x. Significant deviations compared to Aiden Survey results captured on IFC Designs;
- xi. A combination of the above factors have all necessitated weekend working to mitigate associated delays (Embargo related decision);
- xii. A combination of the above have necessitated the relocation of planned diversions; and
- xiii. A combination of all the above noted factors has necessitated the procurement of additional materials not detailed in the Work Orders, some of which have long lead in times and affect planned start and completion dates.

4.1.5 Conclusion

All of the above noted issues should have been addressed by a competent designer, in recognition of their obligations scheduled under Section 2 of this submission, Roles and Responsibilities of the Parties under the Contract.

The IFC Designs and Design related Information should have been predicated on a comprehensive Aiden Survey, an appropriate trial hole programme and other associated pre construction surveys, data collection and the like, all of which would have led to the appropriate level of IFC Designs and Design related information being issued to the MUDFA Contractor in recognition of the following exclusive **SDS Provider** obligations:-

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

Clause 3.3.13; ***"To assist tie in ensuring that best value (pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act 2003) has been secured in the performance of the Services;***

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

- Clause 3.4.1; ***"Ground conditions (including climatic, geotechnical, ecological, environmental, hydrological and sub-surface conditions.....)"***;

Please note adoption of bold text in this instance has been added by **Carillion Utility Services** with the express intention of providing emphasis and resultant clarity to the critical elements upon which the MUDFA Contractor relied in the preparation of their Schedule Four Rates and Prices.

The appropriate level of IFC Design and Design related information would represent comprehensive compliance with the Work Ordering Requirements, result in limited Technical Queries and lead to a cost effective Design solution on a *"right first time"* basis.

It is apparent that the significant level of change, delay, disruption and dislocation to the MUDFA Construction Services has arisen as a direct and irrevocable consequence of the **SDS Provider** having failed to exercise and discharge their obligations under the Agreement pertaining to the *"Provision of System Design Services relating to the Edinburgh Tram Project"* fully and faithfully in the best interests of the Client.

Had **SDS Provider** exercised the appropriate and reasonable level of professional skill, care and diligence expected of a properly qualified and competent system design services provider experienced in performing services of this nature for projects of a similar size, scope and complexity the events and circumstances set out in this submission, to a significant extent, would have been mitigated.

4.2 Value Engineering Incentive

Clause 48 of the MUDFA Agreement, *"Value Engineering Incentive"*, provides a framework to share the benefits of the **Carillion Utility Services** buildability input throughout the Design Phase. The purpose of this was to reduce the Tender Total through the following initiatives;

- i. Proposing and agreeing design solutions through value engineering;
- ii. Proposing and agreeing methods for maximising construction productivity;

- iii. Proposing and agreeing disruption mitigation measures;
- iv. Savings in preliminary and setting up costs;
- v. Refinement of the sequence of work shown within the Schedule 8 (Tender) Programme;
- vi. Proposing alternative materials and components;
- vii. Temporary Works savings; and
- viii. Savings associated with risk management and mitigation.

Carillion Utility Services have been denied the opportunity to refine the Schedule 8 Programme by the introduction of the **tie** Limited and Stakeholder Constrained Programme (Revision 06), as approved and 'baselined'.

The parties agreed to implement a revised MUDFA Contractor Value Engineering Incentivisation Proposal, however this revised proposal, presently awaiting formal agreement and execution, has been fundamentally compromised as a consequence of the timescales associated with the preparation and submittal of Work Order Proposals and the **tie** Limited approval process where the majority of "live" Worksites are being progressed without a formal Work Order Confirmation in place.

4.3 Contract and Work Sector Preliminaries

Carillion Utility Services letter Ref; AMIS/tie/Letter/AM/Projects/007, 083 and 816 dated 27th October 2006 (*Appendix 2*), 7th February 2007 (*Appendix 3*) and 3rd March 2008 (*Appendix 1*) respectively detail potential Construction Services delays following issues surrounding:-

- The increase in scope;
- Traffic Management restrictions;
- Prime Cost and Provisional Sums and allocation thereof;
- Relevant compliances by Contract parties;
- Design process / accuracy;
- Schedule adherence by **SDS Provider**; and
- Other additional work streams and obligations;

The necessity to reschedule Worksites and amend the Long Stop Completion Date will be determined by the availability of IFC Designs and Design related Information; the level of Change, the increase in scope, traffic management restrictions with consideration to Schedule 13 and Stakeholder influences; and finally, the ability of each Contract party to comply with their Contractual obligations;

These along with the other issues described in this submission will impact directly on both the Contract and Work Sector Preliminaries.

The level of influence will be determined in a future submission once an impact analysis and assessment has been completed.

4.4 Early Warning Notifications

Carillion Utility Services have endeavoured to notify the issues incorporated within this submission at as soon as they become evident throughout the project life cycle.

The following is a list (not intended to be exhaustive) on topics where Early Warning issues have been corresponded.

- Preliminaries and Work Sector Preliminaries
- Work Orders
- Design programme
- Design development and detail
- Influence of Schedule 13 Stakeholders
- Traffic Management and restrictions
- Work scope
- Obligations of parties (indirect and direct) to the MUDFA Agreement
- Programme

It is concerning that such significant issues have materialised and continue to escalate into further delay, disruption and dislocation for all project resources, despite the various early warnings raised by **Carillion Utility Services**.

On the majority of proposals, early warnings and risk mitigation strategies highlighted and communicated by **Carillion Utility Services**, have received little or no response from **tie Limited**; this indicates that the items have not been realised, prioritised or mitigated in advance of the milestone dates for delivery.

This would suggest no monitoring or early warning processes are in place to measure the incremental progress of the requisite design detail, definition, scope and other factors described above against pre-defined targets and Key Performance Indicators (KPI's).

The majority of these were described or made reference to in letter Ref; AMIS/letter/KAG/Projects/816 dated 3rd March 2008 (*Appendix 1*), the major headings are detailed in Section 4.3 above.

Carillion Utility Services, since execution of the contract on 4th October 2006, have consistently sought to be proactive and diligent in all matters, raising early warning notification of identified risk events, whilst seeking to ensure Contract compliance at all levels and at all times to the best of our ability, given our restricted jurisdiction, responsibility and overall influence.

4.5 Conclusion

It is apparent from Sections 4.1 to 4.4 inclusive that the fundamental basis of the **Carillion Utility Services** Schedule Four Rates and Prices have been compromised as a consequence of:-



- i. Delay, disruption and dislocation to the provision of IFC Designs and Design related information, contemplated as being fully completed by 21st December 2006;
- ii. Delay, disruption and dislocation to the provision of Traffic Management Designs and TTRO's, contemplated as being fully completed by 9th January 2007;
- iii. The IFC Designs and Design related information provided does not support the modus operandi contemplated in the preparation of the Schedule Four Rates and Prices;
- iv. The risks associated with the MUDFA Works have not been satisfactorily managed by **tie** Limited, as Employer, Project Sponsor and Project Manager
- v. The sequence and modus operandi contemplated under Schedule Eight has been amended by the imposition of Stakeholder constraints over and above those contemplated under the MUDFA terms and conditions;
- vi. The Value Engineering Incentives contemplated by the parties has been frustrated as a consequence of items (i) to (iv) above; and
- vii. The MUDFA terms and conditions have not been managed in accordance with the provisions established by the MUDFA Contract.

Section 5 Basis of Entitlement

5.1 Overview

In the context of the Project Life Cycle set out under Section 3.0 above the participation of **Carillion Utility Services** under the Value Management axis is now considered exclusively under Section VE, Delivery, and the lowest intervention point where level of effort does not necessarily generate a discernible value by way of reduced outturn cost to **tie** Limited.

The validation of the **SDS** Design Programme and the current status of the design outputs, which are to be confirmed by **tie** Limited, remain a cause for major concern.

This assessment is predicated on the design detail and development to follow is consistent with that produced to date.

For all intents and purposes a significant majority of designs are still at preliminary or pre-approval stage, currently assessed at 60% and those have not been considered in this assessment. IFC Designs, Design Related Information and Work Order authorisations are key and pivotal to cost assurance and Schedule adherence.

The current level of design detail and definition along with the level of Change and 'scope-creep' experienced has had a fundamental impact on our ability to meet our obligations, in full, under the MUDFA Agreement during the Construction Services phase.

This has frustrated the ability of **Carillion Utility Services** to produce sustainable and cost-effective Construction Services under the Schedule Four Rates and Prices.

The progressive and dislocated release of IFC Design and Design Related Information has repudiated the ability of **Carillion Utility Services** to plan and programme the work on the basis of an overall project as opposed to a series of multiple and isolated work packages, i.e. effectively a Call-Off Contract.

There is a perception within **tie** Limited that the Schedule Four Rates and Prices are "*all inclusive rates*" representing, in essence, a Schedule of Rates to be adopted in each and every instance, location and circumstances, which as evidenced above is not the case.

The opportunity for **Carillion Utility Services** to manage resources efficiently, secure advantageous terms from the supply chain for mainstream and long-lead items, manage risk and contingency through visibility of the Revision 06 Programme requirements have all been significantly compromised, as recorded within correspondence to date.

This will also have a significant impact on the level of resources contemplated in our Preliminaries, both Work Sector and General, together with the allowables for plant, labour and materials contemplated in our rates and prices.

This submission represents the formal substantiation of the potential risks not reflected in the November 2007 settlement, which have now materialised. The resultant additional, unproductive, inefficient and disruptive costs are now being incurred, without appropriate recovery under the Contract by **Carillion Utility Services**.

5.2 Relevant Extracts

Throughout the Tender a number of Tender Queries were raised by all Bidders, with the Queries and subsequent responses circulated comprehensively by tie Limited.

These responses established the basis for the inclusion and coverage of the MUDFA Contractors Schedule Four Rates and Prices.

To facilitate a basis for entitlement the following Queries and their relevant response are transcribed below for ease of reference;

5.2.1 Relevant Tender Query Clarifications:

a) Tender Query No. 12

“Query: There does not appear to be any diversion routes, details or criteria shown in any of the Tender Documents.

How do we relate the BoQ items to what will be required. For example BT Diversions on Drg No 203011/EDIN/PU/0628 Rev P2 shows 8 separate locations where the tram track impinges on BT apparatus whereas the BoQ Divn BT/0628A/1 lists 3 diversions and BT/0628A/2 lists 3 diversions totalling only 6 and not the same overall length. Please clarify.”

“Response: The diverted routes are not shown, where apparatus crosses the tram route the billed length may broadly accord with the existing; by inspection the 3 diversions scheduled within BT/0628A/1 accord with the crossings between building nos 45/47; centre of Broughton Street and opposite building no2. Where a feature such as an existing manhole or chamber lies under the tram route, this will have been assumed to be replaced off-line consequently there maybe an observable difference between the existing lengths as shown on the combined utility drawings and the lengths to be constructed as scheduled in the BoQs.

BT/0628A/2 schedules the long crossing below the bend in the tram route; the aggregate of the 5 individual tracks connected to the existing chamber within the tram route and lastly; a part of a separate slow crossing.

The balance of the diversions are scheduled on BT/0629. Where overlaps between drawings occurs inspection of the adjacent sheet is necessary. It is the items scheduled in the BoQ that are to be priced.”

Basis of Schedule Four Rates and Prices:- for estimating purposes and incorporated into our Schedule Four Rates and Prices **Carillion Utility Services** concluded from this that the location of the diversions would “... broadly accord with the existing...”.

b) Tender Clarification No. 27

“Query: All Work Sector BoQs. Please advise which location on the drawings each specified Diversion in the BoQ relates to.”

“Response: The individual diversions can be determined by inspection. No scheduling will be issued.”

Basis of Schedule Four Rates and Prices:- For estimating purposes this was considered impractical. Therefore locations had to be deduced by adopting a “best fit” approach (i.e. where the

length in the BoQ best related to an equivalent length on the drawings where infracting into the DKE).

c) Tender Clarification No. 68

Relevant Extracts Tender Query No. 68 Annex A:

<u>No</u>	<u>Query</u>	<u>Answer</u>
3.2	Lateral position i.e. underneath, 1,2 or 3m to the side or something else;	The minimum distance from the dynamic kinetic envelope (DKE) to the edge of a utility trench still has to be established with the utilities but it is expected to be in the order of 1m.
4	What are the criteria for diverting an existing longitudinal service	
4.1	Depth;	Minimum acceptable to the utilities
4.2	Lateral position i.e. which side of track, offset from trackbed; for: <ul style="list-style-type: none"> ▪ Electricity ▪ Gas ▪ Water ▪ Sewer ▪ Telecoms 	Minimum distance from DKE as per above

Basis of Schedule Four Rates and Prices:- for estimating purposes and incorporated into our Schedule Four Rates and Prices **Carillion Utility Services** concluded from this that no works would be required outwith 1m of the DKE so reducing the risk of an infringement, conflict and congestion with other utilities outwith this envelope.

5.2.2 Relevant CARP sections:

Throughout CARP the MUDFA Contractor provided within their submissions a number of statements relative to the basis of their Schedule Four Rates and Prices; these are transcribed below for ease of reference;

- a) Part 5A.1 (General arrangement drawing B137101/SK01 Rev A); Section 3A has been deferred from within the MUDFA scope of Works. This Section was intended to be a risk and contingency location where resources subject to delay, disruption and dislocation could be redeployed effectively and efficiently. As a consequence labour and resources deployed to deliver all Works associated with the Prime Cost & Provisional Sum items would have been employed risk free. However the current deployment is unproductive, inefficient and in excess of the allowables contemplated in the Schedule 4 Rates and Prices.
- b) Part 5A.1 (Example of Work Site Programme); demonstrates a “levelled resource approach” to constructing diversions.
- c) Part 5A.3 (MUDFA Labour Histogram); demonstrates that between 10 and 25 labour teams would be utilised for the duration of the works.
- d) Part 5A.4 (Unknown services within Programmes); the programme and Schedule Four Bill of Quantities make no allowance for unknown services.
- e) Part 5A.9 (Risk management update); risk identified as failure to agree and adhere to programme; implication of designs not being available along with associated delay,

disruption and inefficient work pattern; mitigation through timely planning and programming, and responding to problems in advance.

- f) Part 6 Page 12 (Prime Cost & Provisional Sums); on the basis that the Provisional and Prime Cost Sums (Excluding EARL Prime Cost) set out in the Bill of Quantities can be undertaken during our current programme period, there are no further costs as the existing management structure is sufficient to manage this work.

Note; Provisional and Prime Cost Sums does not adequately provide or allow for an increase in scope for those utility diversions not identified in the Bill of Quantities; please refer to (*Appendix 9*).

The CARP statement considers that Provisional and Prime Cost Sum activities can be undertaken by teams other than the diversionary teams; therefore an increase in scope or reduction in productivity for diversionary works will have a direct impact on schedule adherence.

5.2.3 Relevant MUDFA Agreement sections:

- a) Clause 2.3.9 MUDFA Contractors General Responsibilities *“to assist **tie** in ensuring that the design of the MUDFA Works prepared by the SDS Provider is buildable insofar as this is compatible with the obligations on the MUDFA Contractor under this Agreement”*;

This objective has proved to be incompatible with the emerging nature of the IFC Designs and Design related Information. The condensed timescales imposed on the Work Order process caused in part by late IFC Designs has limited and on occasions negated the ability of **Carillion Utility Services** to efficiently plan resources, thereby reducing the opportunity to exploit any value engineering initiatives.

Although works still remain “buildable” in the context of the MUDFA terms and conditions the outturn costs incurred by **Carillion Utility Services** are likely to exceed that anticipated within the Schedule Four Rates and Prices as a direct and irrevocable consequence of this lost and/or impaired opportunity.

- b) Clause 2.3.10 MUDFA Contractors General Responsibilities *“to assist **tie** in ensuring that best value (pursuant to the Local Government (Scotland) Act 1973 as amended by the Local Government in Scotland Act 2003) has been secured in the performance of the MUDFA Works”*;

In recognition of this responsibility the MUDFA Contractor has prepared this report to reduce the likelihood of disputes escalating to the extent that parties are focused on identifying solutions and risk mitigation as opposed to commercial safeguarding that is at divergence with the Project objectives.

The following outlines areas where the MUDFA Contractors has exceeded their Contract obligations:-

- Site resolutions for deficient IFC Designs and Design related Information (i.e. proposing, resolving and progressing Technical Query issues in critical areas and where **tie** Limited have failed to respond promptly);
- Traffic Management design and processes;
- Relaxation on **tie** Limited obligations for Work Ordering (i.e. proceeding with no Work Order in place); and
- Increased scope, requiring additional resources which have attracted a premium when considering the limited resources available in the market place.

All of these represent our best endeavours to:-

- Clause 2.6.2 “*minimise disruption to the city of Edinburgh*”
- Clause 2.6.3 “*minimise the diversionary work in relation to the Apparatus*”
- Clause 2.6.5 “*minimise out-turn costs*”

Carillion Utility Services has endeavoured to comply with this by:-

- Clause 2.6.1 “*maximis[ing] construction productivity by reference to international best practise*”;

Such an analysis should also consider the initiative to test power jointing prior to commissioning of the relevant power diversion, additional and prolonged resources to mitigate the potential of associated future delays and utilisation of foam concrete in a large majority of the works with no recovery of costs in an attempt to meet the strict time constraints.

c) Clause 2.6.4 “*maintain safety*”

Where there is an increase in scope and density of utilities within a given working area and when considering the same time constraints for a lesser anticipated scope and a less dense work site; then it is not possible to utilise effectively and efficiently the additional resources required to sustain delivery (confined working area hinders productivity).

The consequences of this situation can, to an extent, jeopardise safety. **Carillion Utility Services** are currently absorbing the associated costs that this attracts.

An increased risk profile is being experienced due to the lack of adequate IFC Design, HAZID information and other associated information in accordance with Clause 8.9. **Carillion Utility Services** are currently absorbing the associated costs that this attracts, OCIP insurance deductibles and the like.

d) Pursuant to Clause 2.13 it stipulates “*The MUDFA Contractor shall liaise with Infraco, the SDS Provider, the Utilities, tie, any tie Party, and any other parties as may be required tie to facilitate the production ...*”

Carillion Utility Services has on a number of occasions expressed to **tie** Limited our concerns regarding the impact that any pending delays might have on the INFRACO Programme. This is viewed as a critical dependency; no information on programme, risk management, stakeholder considerations and the like has been provided by **tie** Limited. Our contractual objective (Clause 2.13) is to provide input, highlight / mitigate configuration risks and provide a platform for schedule adherence.

e) Clause 2.14 “*The MUDFA Contractor shall collaborate and liaise with tie and the SDS Provider throughout carrying out the MUDFA Works, inter alia, to ensure due consideration is given to type of materials, optimum and cost effective construction methods, construction programme and temporary works, as appropriate*”.

Carillion Utility Services have demonstrated our commitment on a number of occasions, including, but not limited to:-

- i Forward planning, detailed in letter Ref; AMIS/tie/letter/KAG/Projects/780 dated 14th February 2008 (*Appendix 4*), **tie** Limited response outstanding;

- ii Foam concrete proposal; detailed in letter Ref; AMIS/tie/letter/KAG/Projects/588 dated 9th November 2007 (*Appendix 3*), **tie** Limited response outstanding. **Carillion Utility Services**, recognising the necessity and criticality to ramp up productivity have continued with this proposal at commercial risk since **tie** Limited financial approval has not been provided;
- iii Increase in commercial and technical risk exposure due to Work Order process not being administered in accordance with the MUDFA terms and conditions by **tie** Limited, most recently corresponded through letter Ref; AMIS/tie/letter/TL/Projects/779 dated 14th February 2008 (*Appendix 4*), **tie** Limited response outstanding.
- iv Increase in commercial and technical risk exposure for pending **tie** Limited responses to Technical Queries where works have the subsequently been either disrupted or progressed with a certain degree of risk, most recently corresponded through letter Ref; AMIS/tie/letter/KAG/Projects/723 dated 14th January 2008 (*Appendix 4*), **tie** Limited response outstanding.
- v Increase in traffic management scope and obligations, most recently corresponded through letter Ref; AMIS/tie/letter/TL/Projects/740 dated 24th January 2008 (*Appendix 4*), **tie** Limited response outstanding.
- vi **Carillion Utility Services** multiple requests for INFRACO planning and scheduling associated information in order to better prioritise the areas where there are most likely to be integration issues, most recently corresponded through letter Ref; AMIS/tie/letter/KAG/Projects/571 dated 1st November 2007 (*Appendix 3*), **tie** Limited response outstanding.
- vii Concerns expressed in letter Ref; AMIS/tie/letter/KAG/Projects/152 dated 3rd April 2007 (*Appendix 3*) regarding pending procurement issues surrounding required lead in times and lack of availability of Issued For Construction (IFC) designs and schedules.
- viii The significance of Work Ordering in relation to contract requirements, the practicalities in terms of timescales and dependencies, together with the consequential impact on the agreed Stakeholder Constrained Programme (Revision 06) were the subject of the following correspondence and early warning information flow, as illustrated in the following key and critical correspondence;
 - Letter Ref; AMIS/tie/letter/KAG/Projects/034 dated 16th November 2006 (*Appendix 2*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/330 dated 3rd August 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/337 dated 6th August 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/399 dated 21st August 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/400 dated 21st August 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/TL/Projects/460 dated 19th September 2007 (*Appendix 3*);
 - Mr. Roddy Aves' email dated 5th October 2007, timed at 0823hrs (*Appendix 5*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/487 dated 8th October 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/532 dated 22nd October 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/547 dated 25th October 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/560 dated 29th October 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/672 dated 6th December 2007 (*Appendix 3*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/747 dated 29th January 2008 (*Appendix 4*);
 - Letter Ref; AMIS/tie/letter/KAG/Projects/782 dated 18th February 2008 (*Appendix 4*); &
 - Letter Ref; AMIS/tie/letter/KAG/Projects/790 dated 21st February 2008 (*Appendix 4*)

- f) Clause 2.16 *“In carrying out the MUDFA Works, the MUDFA Contractor will have regard to the constraints imposed by the Programme and to the objective of keeping the overall costs of the MUDFA Works within any budgetary constraints notified to the MUDFA Contractor by tie.”*

To date no budgetary information with all applicable risks considered has been provided by tie Limited.

- g) Clause 2.19 *“The Parties undertakes to co-operate with each other in order to facilitate the carrying out of the MUDFA Works and in particular will:”*

- 2.19.1 *“approach all pricing, estimating and budgeting functions on a collaborative and Open Book Basis in respect of the MUDFA Works and subject to Clause 46.5”;*

All **Carillion Utility Services** Work Order Estimates have been provided to tie Limited within the required timescales regardless of how late the Work Orders have been received.

tie Limited have failed to approve Work Order Proposals within the required timescales and in accordance with the MUDFA Agreement, many of which remain outstanding.

tie Limited have provided limited opportunity for **Carillion Utility Services** to collaborate on budget functions when considering that no tie Limited budgetary information has been provided to **Carillion Utility Services** to date.

- 2.19.2 *“use reasonable endeavours to avoid unnecessary complaints, disputes and claims against each other”;*

This Report and Recommendation, together with the extensive correspondence provided by **Carillion Utility Services** reaffirms our commitment to this; the lack of tie Limited responses to the various issues raised does however not afford **Carillion Utility Services** with many options.

- 2.19.3 *“not interfere with the rights of the other party in performing its obligations under this Agreement, nor in any other way hinder or prevent the other party from performing those obligations or from enjoying the benefits of its rights”;*

Carillion Utility Services has lost the opportunity to benefit from any Value Engineering initiatives relevant to the Work Orders and the quantum thereof. This is predominantly due to tie Limited’s failure to administer the issue of IFC Designs and manage the Work Order process in accordance with Clause 8 of the MUDFA Agreement.

tie Limited have also hindered the progress of certain work items due to the excessive time taken to respond to Technical Queries and approve CVI/ Record Sheets, many of which are directly related to the insufficient design detail and definition.

- 2.19.4 *“take reasonable steps to mitigate any costs, unnecessary acts, foreseeable losses and liabilities of either party; and”*

tie Limited have failed to address and in many circumstances failed to respond to or make recommendations for the foreseeable losses and liabilities communicated by **Carillion Utility Services**.

tie Limited have not communicated any proposals to mitigate costs nor advise **Carillion Utility Services** of any foreseeable losses and liabilities that may be of concern, and in so doing not affording the opportunity for any of these to be mitigated.

2.19.5 *“take all reasonable steps to manage, minimise and mitigate all costs.”*

See comments in 2.19.1 to 2.19.4 above.

Furthermore the supplementary Notes and Assumptions submitted and progressively updated by **Carillion Utility Services** with each and every iteration of the **tie** Limited and Stakeholder Constrained (formerly Imposed) Programme are a testament to this.

- h) Clause 2.22 *“The MUDFA Contractor shall take full responsibility for the adequacy, stability and safety of all site operations and methods of construction.”*

See item (c) above.

5.3 Conclusion

It is clear and unambiguous, as demonstrated through contemporaneous records, that **Carillion Utility Services** have used their best endeavours to discharge their obligations, in full, under the MUDFA terms and conditions.

Carillion Utility Services have been diligent, proactive and professional to the identification of all risks and opportunities within our limited authority and jurisdiction.

However the opportunity and ability of **Carillion Utility Services** to discharge their obligations in full has been frustrated by the ongoing failure of **tie** Limited to discharge their own obligations.

This Report and Recommendation endeavours to identify all the major issues and items impacted upon to date. Impending concerns, risks and realised escalatable items are also identified, where known or identified at this juncture by **Carillion Utility Services**.

In recognition of the status of the MUDFA Works in the Project Life Cycle it will, however, be difficult to curtail the impending associated costs that these matters will attract; notwithstanding it is apparent that the integrity and viability of the Schedule Four Rates and Prices have been compromised.

The intention of this Report and Recommendation is to evaluate the current status of the MUDFA Works against the inherent logic, assumptions, including perceived risks, mutual understandings and agreements established within the context of the MUDFA Agreement, the Schedules, the Formal Offer, the Letter of Appointment et al.

Each of the issues and items detailed within this Report and Recommendation will attract additional costs on an exclusive basis; however these associated costs have escalated when the issues and items are considered inclusively together (i.e. synergic costs). This is a consequence of each issue/item or part thereof being related to a degree or in whole (indirectly or directly or potentially a portion of both) with one another.

Ultimately this demonstrates entitlement beyond what is currently being recovered through the Schedule Four Rates and Prices.

Section 6 Substantiation and Documentary Evidence

6.1 Introduction

The purpose of this Section is to provide substantiation and documentary evidence relating to the current representative Worksites where progressed to a substantial level of completion.

The data collected from this representative sample has been adopted to agreed values in order to demonstrate the validity of the various Anticipated Final Account submissions, primarily the **tie** Limited imposed AFA (October 2007) and the MUDFA Contractors AFA at Revision 05 (August 2007).

Once the data has been analysed for each respective Work Site a representative factor will be calculated.

The representative factor by default will include the issues, effects and impacts experienced to date as highlighted in Section 1 through Section 5 above; this will be expressed as a ratio on the measured linear diversions.

6.2 Work Order Status

The MUDFA Agreement contemplates the following:-

Clause 8.8; *“Before the MUDFA Contractor is permitted by **tie** to commence carrying out the Construction Works (which shall include the provision of vehicles and accommodation in accordance with Schedule 1 (Scope of Works and Services)) in any Work section, the following procedure shall be followed (unless expressly varied by **tie** in writing):*

- 8.8.1 ***tie** shall issue a Work Order in accordance with the Programme and each Work Order shall include the Work Order Requirements;*
- 8.8.2 *within 10 Business Days (or such other period as **tie**, acting reasonably, may expressly agree in writing) of the receipt of any Works Order, the MUDFA contractor shall submit a Work Order Proposal (which shall take account of any agreed **tie** Changes);*
- 8.8.3 *within 5 Business Days of the receipt of any Work Order Proposal, **tie** shall either:*
 - 8.8.3.1 *confirm the relevant Work Order by issuing a Work Order Confirmation Notice; or*
 - 8.8.3.2 *withdraw the Work Order; or*
 - 8.8.3.3 *discuss the issues set out in the Work Order Proposal. From such discussions, **tie** may modify its original Work Order and, if required by **tie**, the MUDFA Contractor shall submit an amended Work Order Proposal within 3 Business Days. The provisions of this Clause 8.8.3 shall be reapplied until the relevant Work Order is either confirmed or withdrawn by **tie**.”*

Up to and including 23rd February 2008 a total number of **28** Work Order Estimates have been completed by **Carillion Utility Services** of these **27** Work Order Proposals have been submitted for **tie** Limited approval (*Appendix 6*).



The corresponding value of Work Order Proposal Estimates is circa **£19m**, of this, circa **£1m** has not yet been submitted to **tie** Limited with only circa **£6m** having received a corresponding **tie** Limited Work Order Confirmation Notice.

The remainder of Work Order Proposals currently being progressed on site, without a corresponding **tie** Limited Work Order Confirmation Notice in contravention of Clause 8.8, is circa **£12m**. This demonstrates a failure by **tie** Limited to manage and administer the terms and conditions of the MUDFA Agreement.

As a consequence of the absence of **tie** Limited input and engagement in relation to the requirements of Clause 8.8.3, circa **£12m** of Construction Services has proceeded on the MUDFA Contractor's Work Order Proposals, each of which contain a series of notes, assumptions and exclusions with no consensus in place between the parties on the application of Clauses 51 and 46.

Carillion Utility Services is therefore exposed to a major commercial risk in the event **tie** Limited retrospectively seek to amend the aforementioned terms, notes, assumptions and exclusions.

Despite these concerns being corresponded to **tie** Limited on numerous occasions most recently letter Ref; AMIS/tie/letter/TL/Projects/779 and 816 dated 14th February (*Appendix 4*) and 3rd March 2008 (*Appendix 1*) respectively, a suitable response addressing the concerns remains outstanding from **tie** Limited.

In recognition of this and in anticipation of this submission all Work Order Proposals and Change Estimates submitted by **Carillion Utility Services** have been withdrawn under letter Ref; AMIS/tie/letter/TL/Projects/832 dated 10th March 2008 (*Appendix 4*), following expiry of the 28th February 2008 deadline.

The Schedule Four Rates and Prices are reliant on each party discharging their obligations, in full and totality under the MUDFA Agreement.

6.3 Technical Queries (TQ's) / CVI's / Record Sheets

In the attached Appendices specifically (*Appendix 7*) an analysis has been undertaken to calculate the extent of design and scope related issues currently affecting the works.

The TQ analysis identifies the extent of design related issues. A total number of **426** Technical Queries have been raised up to and including 29th February 2008. The current completed or Work Orders still in progress (in some cases not yet 50% complete) represents circa **3,190m** of utility diversion areas.

Note:- the **3,190m** of utility diversion areas represents the Work Order Proposal plates in their entirety, no adjustment has been made for Worksites partially complete in terms of Work in Progress.

From this we can deduce that for every **100m** progressed on each Work Site it has been necessary to raise thirteen (**13**) design and/or technical specification related Technical Queries; this ratio will increase as TQ's are raised on the balance of utility diversion areas where physical Construction Services activity has not commenced.

This has impacted on both the performance and efficiency of resources deployed on the respective Worksites.

Furthermore when raising a TQ the onus has been put on **Carillion Utility Services** to both identify the design / buildability issues and develop a suitable solution proposal. With consideration to the number of TQ's raised, and **Carillion Utility Services'** request for a **3 day** turnaround; the average



time taken for **SDS Provider / tie** Limited to respond, is currently in excess of **20 days**; **Carillion Utility Services** have as a consequence experienced an increase in the MUDFA contemplated obligations with a delay, disruption and dislocation not anticipated in our Schedule Four Rates and Prices and not incorporated into the current Contract Programme.

A CVI/Record Sheet process and procedure has been implemented by **Carillion Utility Services** in order to capture the occurrence of change events and progress activities timeously, where **tie** Limited have failed to fulfil the Work Order and Change Order obligations or adhered to the processes stipulated in the MUDFA Agreement. **tie** Limited have also resorted to utilising these sheets to enable works without Work Orders to commence.

To date a total number of **583** CVI/Record Sheets have been raised predominantly by **Carillion Utility Services**, this equates to **18** Changes for every **100m** of Work Site progressed.

The consolidated impact of these issues represents in the region of thirty one (**31**) IFC Design / Technical Specification issues for every **100m** of Work Site progressed, the equivalent of one (**1**) issue every **3.2m** of diversion area.

Had this magnitude of change and technical clarification been contemplated by the parties the MUDFA terms and conditions would have incorporated the following administrative aspects;

- i. A Technical Query Process with clear and concise process and supporting procedures, together with a definition / delineation of roles and responsibilities; and
- ii. A Confirmation of Verbal Instruction, or Site Instruction process, supported by a clear and concise definition / delineation of roles and responsibilities.

The exclusion of these processes and procedures from the drafting of the MUDFA terms and conditions, demonstrates beyond all reasonable doubt, that the magnitude of change and the consequential impact on schedule adherence, cost impact et al were not considered a risk by **tie** Limited, particularly when the very same processes and procedures, as drafted and introduced by the MUDFA Contractor have become instrumental and pivotal to the successful day to day management of the MUDFA Works.

Notwithstanding no formal amendment has been incorporated into the MUDFA Agreement to accommodate the CVI/Record Sheet process and to confirm the Contractual standing despite various requests by **Carillion Utility Services**, most recently corresponded in letter Ref; AMIS/tie/letter/TL/Projects/738 dated 23rd January 2008 (*Appendix 4*).

This relates to where **Carillion Utility Services** are subsequently exposed to an increased commercial risk profile to the extent corresponded in letter Ref; AMIS/tie/letter/TL/Projects/779 dated 14th February 2008 (*Appendix 4*), where it is contemplated that all current Work Orders without a Work Order Confirmation Notice will be formally withdrawn, as subsequently confirmed by letter Ref; AMIS/tie/letter/TL/Projects/832 dated 10th March 2008 (*Appendix 4*).

The increased obligations, together with the increase in risk, impact on performances and loss in efficiency of resources are considerably in excess of that contemplated in the Schedule Four Rates and Prices and the MUDFA Agreement.

6.4 Diversion Linear Lengths; Tender vs. Work Order vs. AFA(tie) vs. AFA(CUS) vs. Actual on measured works

This assessment has been undertaken to determine the quantum in diversionary lengths currently being undertaken compared to that envisaged in both the Tender and respective AFA's.

Although the Tender quantities have little relevance when considering the Revision 06 Contract Programme which incorporate **tie** Limited Imposed AFA quantities, **Carillion Utility Services** considered it prudent to include these in the assessment in order to demonstrate the extent of additional scope already incorporated into the works without necessitating Clause 38 (Extension of Time for Completion).

Furthermore the Schedule Four quantities reflect the demands and constraints considered by **Carillion Utility Services** in the derivation and compilation of the Schedule Four Rates and Prices.

For the representative Work Sites considered (*Appendix 8*) the Work Order diversion lengths cumulate to **194%** more than (almost triple) that perceived in the Schedule Four Quantities.

For illustration purposes this has been sketched onto the IFC Design Drawings included in (*Appendix 12, 13, 14, 15 and 16*) where the diversions highlighted in 'pink' are the additional diversions not considered in Schedule Four, and the diversions highlighted in 'yellow' are equivalent to those included in Schedule Four as deduced from the Schedule Four drawings (*Appendix 17*). The Schedule Four diversions have had to be 'deduced' since the anticipated diversions and their locations were not demarcated on the Schedule Four drawings.

When analysing the **tie** Limited Imposed AFA and the **Carillion Utility Services** AFA (Revision 5), it is apparent that for the same representative Worksites within the **tie** Limited Imposed AFA in terms of diversionary linear quantities is currently being exceeded by **107%** (doubled), and the **Carillion Utility Services** AFA (Revision 5) is currently being exceeded by **74%**.

With consideration to all current live Work Orders (*Appendix 8*) the quantum of diversionary lengths calculated exceed the **tie** Limited Imposed AFA and the **Carillion Utility Services** AFA (Revision 5) by **95%** and **71%** respectively.

Taking cognisance the diversion linear lengths from Schedule Four, the respective AFA's, and the Emerging AFA (Rev 06); along with the allocated Prime Cost Sums and Provisional Sums the following can be determined (*from Appendix 8*):-

	Schedule Four	AFA(tie)	AFA(CUS)	AFA (Emerging Rev 06)
Diversion Linear Length (m)	43,594	59,125	66,770	66,634
Diversion Linear Length (m) / Tram Route Length (m)*	2.00**	2.71	3.06	3.06

* Considers Tram Route Length of 21,800m (Line 1 + Line 2)

** Does not consider a reduction in Schedule Four diversion linear lengths.

It was the parties' intention that the diversion linear lengths be decreased through Value Engineering

This magnitude of additional open trench excavation in each Work Site will necessitate that additional resources be procured and mobilised in order to complete the works within the same timeframes identified within the Revision 06 **tie** Limited Constrained Programme.

The increase in scope and resources within a given Worksite will be further impacted on and will also consequently affect the following:-

- i. Resources externally sourced at rates in excess of the allowable within the Schedule Four Rates and Prices predominantly due to the current market and skills shortages;
- ii. Confined resources (more in the same Working Area) will effect productivities and efficiencies contemplated in Schedule Four Rate Build-ups;
- iii. Extent of open trench excavations accessible to maintain productivities will be restricted by Traffic Management Designs, TTRO details et al;
- iv. A combination of (ii) and (iii) requiring additional Work Sector and Contract Preliminary expenditure;
- v. Reduction in available storage areas within the Work Site;
- vi. Additional resources requirements i.e. road plates, fencing, hiab et al to facilitate the undertaking of diversions with considering the complexity thereof and the impending traffic management restrictions and Stakeholder/Schedule 13 interface issues; and
- vii. A combination of (ii), (iii), (v) and (vi) requiring additional welfare, PPE and facilities expenditure possibly in disproportionate levels when considering the current level Work Sector and Contract Preliminaries.

Notwithstanding the MUDFA Contractors obligations to use their best endeavours these factors are insurmountable, given the magnitude and diversity of change, the cumulative effect will detrimentally impact on the viability and sustainability Schedule Four Rates and Prices.

6.5 Prime Cost and Provisional Sums

For a Provisional Sum or a Prime Cost Item under the MUDFA Agreement, it is tie Limited's responsibility to either order or instruct any additional works or expenditure against these items under Clause 8, Work Orders.

In terms of both scope and value and with consideration to the Work Orders submitted to date it is evident that expenditure against the Provisional Sums and Prime Cost Items is occurring.

Carillion Utility Services are yet to receive a corresponding tie Limited order or instruction.

Extract from Section 4.2 above:-

"Relevant CARP sections:

"Part 6 Page 12 (Prime Cost & Provisional Sums); On the basis that the Provisional and Prime Cost Sums (Excluding EARL Prime Cost) set out in the Bill of Quantities can be undertaken during our current programme period, there are no further costs as the existing management structure is sufficient to manage this work.

Provisional and Prime Cost Sums do not allow for an increase in scope for those utility diversions not identified in the Bill of Quantities. The above statement considers that Provisional and Prime Cost Sums can be undertaken by teams other than the diversionary teams; therefore an increase in scope or reduction in productivity for diversionary works will have a direct impact on the Preliminary costs and programme."



Furthermore an assessment has been undertaken on those items within the Prime Cost and Provisional Sums that could be associated with an increase in diversionary lengths.

The Prime Cost and Provisional Sums for diversionary items from **tie** Limited's Imposed AFA (*Appendix 9*) anticipates a growth of **55%** over the **tie** Limited's estimation of utility direct costs based on linear meters.

The growth currently experienced is **95%** over the **tie** Limited Imposed AFA (*Appendix 9*) and **40%** over the Prime Cost and Provisional Sums incorporated into **tie** Limited's Imposed AFA. This level of growth in diversionary length has not been considered in Revision 06 of the Contract Programme.

This will impact directly on both the planned completion and Longstop date. The factors described in Section 3.1 will also impact on schedule adherence.

6.6 Schedule 8 Programme

The MUDFA Agreement, under Clause 35 "*Programme*" contemplates that a Construction Programme would be produced to incorporate all the requirements detailed within Schedule 1 (*Scope of Works and Services*).

Carillion Utility Services has used its best endeavours to fulfil these requirements, however the development of a robust and Contract compliant Programme is dependant on the performances of other parties and contemplates that the appropriate obligations are correspondingly discharged, in full, under the MUDFA Agreement.

A full schedule of notes and assumptions has been submitted and progressively updated with each and every iteration of the **tie** Limited and Stakeholder Constrained Programme. The notes and assumptions are intended to achieve various objectives detailed most recently in letter Ref; AMIS/tie/letter/KAG/Projects/713 dated 9th January 2008 (*Appendix 4*).

To date **Carillion Utility Services** has not been able to fully develop the Construction Programme as contemplated in the MUDFA Agreement for reasons outwith our control; please refer to letter Ref; AMIS/tie/letter/KAG/Projects/816 dated 3rd March 2008 (*Appendix 1*).

The Programme, Labour Histogram, and Cumulative Labour Profile (*Appendix 10*) illustrates the variances between the original Schedule 8 Programme, the **tie** Limited and Stakeholder Constrained Programme at Revision 06 Contract, together with the emerging Revision 07 **tie** Limited and Stakeholder Constrained Programme.

Given the nature of the single utility diversionary growth, the magnitude of change and the resultant delay, disruption and dislocation (none of which is contemplated in the Programme at Revision 06) the necessity to re-programme the Works is now apparent.

No amendment has been made to the emerging Revision 07 requirement duration outlined in (*Appendix 10*).

Should the magnitude of growth and change, together with Traffic Management considerations necessitate prolongation of Worksite durations this could only be considered and reflected upon receipt of the IFC Designs, Design related Information, Traffic Management Designs, TTRO details et al.

The current assessed requirement of outstanding IFC Designs and Design related Information is 402 drawings, circa 59% of the overall requirement; receipt of this information will facilitate preparation of the Traffic Management Designs, TTRO details et al.

From this the MUDFA Contractor deduces the following:-

- The fragmentary profile for both Revision 06 and the imminent necessity to re-programme at Revision 07 illustrates that resource requirements will fluctuate to a much larger degree than would have been anticipated within the Schedule Four Rate and Prices, given that **Carillion Utility Services** are unable to adequately identify, manage and/or mitigate the risk;
- The fluctuations between peaks and troughs in the profile, particularly when consideration is given to the limited availability of specific skilled labour resources where it is not possible to procure “off the shelf” and then demobilise on an adhoc and uncontrolled basis. This risk intensifies when the mobilisation/demobilisation is required over a relatively short period, leading to the likelihood of resources being inefficiently and ineffectively utilised;
- As demonstrated above it is apparent that the completion date under Revision 06 is likely to be significantly compromised given the IFC Designs received by **Carillion Utility Services** after Revision 06 of the Contract Programme was submitted, have generated an increase in scope and associated resource demand/requirement (as projected) of approximately **100%** in excess of that contemplated in the Revision 06 Contract Programme.
- Furthermore it is evident from the emerging Revision 07 requirement that the IFC Designs received by **Carillion Utility Services** after Revision 06 of the Contract Programme was submitted, have generated an increase in scope and associated resources of approximately **200%** in excess of that contemplated in the original Schedule 8 Contract Programme.

This is far in excess of what was contemplated in the Schedule Four Rates and Prices and/or the Prime Cost / Provisional Sums within the MUDFA Agreement; this assessment is congruent with and affirmed by the balance of the substantiation provided within this Report and Recommendation.

6.7 Emerging AFA (CUS) vs. AFA(tie Imposed) vs. AFA(CUS at Revision 05)

This assessment has been undertaken with consideration to the measured works, including all other project items and Change Control Items to generate a MUDFA Contractors emerging AFA which will materialise at Revision 06, predicated on data collected that reflects current actual project performance.

However this AFA will exclude any assessment of the increased profile in respect of Preliminary items, General and / or Work Sector, the impact of which can only be determined upon Revision 07 of the **tie** Limited and Stakeholder Constrained Programme.

For this assessment and to compare on a ‘like for like’ basis both **tie** Limited’s AFA and **Carillion Utility Services** AFA has been calculated to generate a factor of uplift anticipated from the Provisional Sum and Prime Cost Sums and the like incorporated into the respective AFA’s.

From this (*Appendix 11*) it is evident that for **tie** Limited’s diversionary linear lengths value circa **£16m** that a factor of **2.81** should be applied to any works measured to date to incorporate the anticipated scope increases.

From this (*Appendix 11*) it is evident that for **Carillion Utility Services** diversionary linear lengths value circa **£31m** that a factor of **1.87** should be applied to any works measured to date to incorporate the projected increase in scope.

These factors are then applied to those Worksites progressed at the date of this submission and compared on a “like for like” basis with, in effect, the newly anticipated and deduced values for the respective Worksites.



To ensure accuracy and consistency in the uplift factor applied, only those sites sufficiently progressed (*Appendix 11*) have been considered. The uplift factor applied considers the following:-

- The certified Work Site measured works to date;
- The certified Work Site Change Control Items to date;
- The certified Project Wide Change Control Items to date;
- The Gain Share Items certified to date; and
- 100% of the value of disputed items to date.

From this assessment of the best and available contemporaneous data it is evident that for the newly anticipated and deduced diversionary linear lengths considered (from a representative sample of circa **£2.5m**) that a factor of **1.54** should be applied to any Work Orders going forwards.

For those Worksites where Work Order Estimates have been produced (*Appendix 11*) the resultant **Carillion Utility Services** emerging AFA at Revision 06 is assessed at circa **£22m** compared to an equivalent **tie** Limited Imposed AFA of circa **£16m**, and a **Carillion Utility Services** AFA, Revision 05 (August 2007) of circa **£22m**.

This further validates **Carillion Utility Services** AFA assessment of circa **£71m**, Revision 05, as determined and submitted on the 6th August 2007.

6.8 Conclusion

Carillion Utility Services wish to formally express their concern in relation to the viability and integrity of the **tie** Limited's Imposed Anticipated Final Account, which unilaterally and outwith the contract provisions, determined an AFA of circa **£57m** via email on the 9th October 2007.

In consideration of the data presently available **Carillion Utility Services** maintain an appropriate Anticipated Final Account (AFA) for the MUDFA Works to be consistent with the overall value contemplated under AFA Revision 05, in the total amount of **£70,011,002**, as submitted under cover of letter Ref; AMIS/tie/letter/KAG/Projects/342 dated 7th August 2007 (*Appendix 3*).

Carillion Utility Services are presently unable to analyse the extent, value and overall effect that this will impact on Construction Services in terms of schedule adherence and cost; however the assessment determined in AFA Revision 05 is more appropriate than that determined in the **tie** Limited Imposed AFA, i.e. **£57,158,203**.

A response to **Carillion Utility Services** letter Ref; AMIS/tie/letter/KAG/Projects/523 dated 19th October 2007 (*Appendix 3*) in relation to the above noted variance (**£12,858,819**; the equivalent of **22%**) is presently pending; specifically the statement:-

"In the professional opinion of AMIS MUDFA these adjustments will not accurately reflect the potential outturn for the MUDFA works should these issues not be satisfactorily addressed through the appropriate application of risk management techniques and mitigation planning"

Carillion Utility Services have sought to mitigate a number of the delays, to an extent, by working longer hours (i.e. 10 hour shift as apposed to the 8 hour shift that was incorporated into our programme and Schedule Four Rates and Prices).



This will however not mitigate the delay experienced in full nor compensate for the full extent of delay, disruption and dislocation experienced by **Carillion Utility Services** and Subcontractor / Supply Chain resources.

To address this aspect **Carillion Utility Services** contemplate the submission of Revision 07 of the Contract Programme in accordance with Schedule 1 and Clause 35.

As demonstrated above, in Sections 6.1 to 6.7 inclusive, through the structured and demonstrable analysis of contemporaneous records, that the following areas have all been subject of excessive and uncontrolled change, impacting directly on the viability and integrity of the Schedule Four Rates and Prices:-

ID	Issue	Impact
6.1	Work Order Compliance	Delay, disruption, dislocation and increased cost over allowables.
6.2	TQ's, CVI's & Record Sheets	Delay, disruption, dislocation and increased cost over allowables.
6.3	Growth in Diversion lengths	Delay, disruption, dislocation and increased cost over allowables, together with Schedule adherence and tie Limited budgetary concerns.
6.4	Growth in Prime Cost & Provisional Sums	Delay, disruption, dislocation and increased cost over allowables, together with Schedule adherence and tie Limited budgetary concerns.
6.5	Schedule Eight Programme vs. Revision 06	Delay, disruption, dislocation and increased cost over allowables, together with Schedule adherence and tie Limited budgetary concerns.
6.6	AFA Escalation	tie Limited budgetary concerns.

Section 7 Conclusion and Way Forward

7.1 Conclusion

It is apparent from contemporaneous records that the IFC Designs and Design related information provided to the MUDFA Contractor does not meet the most fundamental requirements of the “*Provision of System Design Services relating to the Edinburgh Tram Project*” or the MUDFA terms and conditions.

The ability of the MUDFA Contractor to meet the Contract objectives and fulfil the obligations and demands as imposed on **Carillion Utility Services** by virtue of the **tie** Limited and Stakeholder Constrained Programme at Revision 06 have been severely frustrated and impaired as a direct and unequivocal consequence of factors outwith the MUDFA Contractor’s control.

The successful completion of Construction Services (under the current level of IFC Design and Design related Information, i.e. an ongoing concern relative to the accuracy of the detail and definition provide) is presently untenable, from a perspective of;

- Managing safety, and
- Managing risk, time and cost going forward.

Furthermore the increase in scope and obligations for those issues and considerations detailed in Section 1 to 6 of this submission have not been reflected in the Construction Programme revisions, predominantly as a direct consequence of the following **tie** Limited risks having now materialised:-

- The deficient and delayed design detail and definition;
- The growth in linear length of single utility diversions;
- The late completion of Traffic Management Design and the TTRO process;
- The increased Traffic Management Requirement;
- The misalignment of Prime Cost and Provisional Sum expenditure;
- The inability of **tie** Limited to discharge their obligations under the Contract; and
- The ongoing Enabling Works programme.

The issues surrounding the management and mitigation of these risks have been fully substantiated by **Carillion Utility Services** most recently through letter Ref; AMIS/tie/letter/KAG/Projects/816 dated 3rd March 2008 (*Appendix 1*).

It is a matter of record that **Carillion Utility Services** have consistently advised **tie** Limited of their concerns in relation to the poor design detail and lack of definition. In addition there is an ongoing concern relating to the capacity of **SDS Provider** to meet the milestone dates necessitated by the **tie** Limited and Stakeholder Constrained Programme (Revision 06), in order to support Construction Services.

Carillion Utility Services have regularly and diligently advised **tie** Limited of potential Construction delays as a consequence of the disruption and dislocation associated with IFC Designs and Design



related Information availability, together with non-compliance of the Work Order process by **tie** Limited.

In recognition of the foregoing it is the opinion of **Carillion Utility Services** the existing contractual framework and the precisely defined nature of the obligations of the parties, including responsibility and ownership for risk, exposure to Liquidated Damages for Delay and the like, have become a major obstacle to the successful delivery of the MUDFA works.

The above noted risks will continue to jeopardise schedule adherence and expose the MUDFA Works to escalating cost unless appropriate mitigation strategies and treatment plans are taken by the risk owner, **tie** Limited.

Consequently this submission seeks to formalise data from contemporaneous records and request the review and formal determination by **tie** Limited of the MUDFA Contractor's entitlement by way of appropriate remedy and evaluation.

This approach has been preferred to a formal contractual entitlement submission, which could ultimately prove to be to the detriment of the Project.

This strategy is consistent with the **Carillion Utility Services** proactive approach adopted on the Project to date where we have sought to utilise our resources and expertise to fulfil other Stakeholders obligations.

As a consequence the MUDFA Contractor confirms that the statement relating to "*estimated quantities of the works*" under Clause 50.1 and 50.2 "*Measurement*" remains valid, in respect of the obligation of the MUDFA Contractor having to carry "*.....out the whole or any part of the MUDFA Works in accordance with any Work Order.....*" only.

It is apparent that the Schedule Four Bill of Quantities contain errors and omissions, as contemplated in Clause 50.2; notwithstanding the issues pertaining to the veracity and schedule adherence of the IFC Designs and Design related Information, all of which have a fundamental impact on the sustainability and applicability of the existing Schedule Four Rates and Prices.

As a consequence the provisions of Clause 46.5, 46.6.3 and/or 46.6.4 only shall apply, with "**tie's** Representative" under Clause 13 requested to '*correct*' the error with immediate effect.

7.2 Proposed Way Forward and Action Plan for Success

7.2.1 Summary and Objectives

In light of the foregoing considering both the current and potential impacts along with the associated delays and costs overruns that this will cause the Edinburgh Tram Project, **Carillion Utility Services** require that the existing MUDFA terms and conditions, and Rates and Prices be amended to mitigate these effects accordingly.

Carillion Utility Services considers a cost plus management fee of 15% with realigned terms and conditions to be the most appropriate strategy.

This approach, driven and supported by an integrated team, eliminating man marking, will more readily ensure the successful delivery, in terms of time and cost, while ensuring the statutory health, safety and environmental requirements associated with the project are not compromised in any way.



In the event this proposal is not acceptable to **tie** Limited then a global adjustment to the Schedule Four Rates and Prices would also be appropriate, subject to agreement of a satisfactory level.

7.2.2 tie Limited, supported by **Carillion Utility Services**, to review existing approach; as a minimum a Timescale Risk Analysis should be completed on the overall Tram Programme and Risk Management approach to verify Schedule adherence and most likely outturn based on a P80 assessment.

7.3 Critical Action Key to Success

In recognition of the lack of jurisdiction and control over key / critical activities to dutifully support Construction Services and given **Carillion Utility Services'** genuine and unquestionable drive to successfully deliver the Edinburgh Tram Utility Works it is imperative that an Extraordinary MUDFA Board Meeting is convened to discuss this report and the conclusions / recommendations contained therein, as follows: -

- **tie** Limited / **Carillion Utility Services** MUDFA Extraordinary Board Meeting – Wednesday 12th March 2008 (1600hrs to 2000hrs).

Agenda to follow / Location to be agreed.



Section 8 – Appendices

Appendix 1

Letter Ref; AMIS/letter/KAG/Projects/816 dated 3rd March 2008

Appendix 2

Letters 2006

Letter Ref; AMIS/tie/Letter/AM/Projects/007, dated 27th October 2006; and
Letter Ref; AMIS/tie/letter/KAG/Projects/034, dated 16th November 2006.

Appendix 3

Letters 2007

Letter Ref; AMIS/tie/Letter/AM/Projects/083, dated 7th February 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/152, dated 3rd April 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/155, dated 3rd April 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/330, dated 3rd August 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/337, dated 6th August 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/342, dated 7th August 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/399, dated 21st August 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/400, dated 21st August 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/457, dated 18th September 2007;
Letter Ref; AMIS/tie/letter/TL/Projects/460, dated 19th September 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/487, dated 8th October 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/523, dated 19th October 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/532, dated 22nd October 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/547, dated 25th October 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/560, dated 29th October 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/571, dated 1st November 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/588, dated 9th November 2007;
Letter Ref; AMIS/tie/letter/KAG/Projects/632, dated 26th November 2007; and
Letter Ref; AMIS/tie/letter/KAG/Projects/672, dated 6th December 2007.

Appendix 4

Letters 2008

Letter Ref; AMIS/tie/letter/KAG/Projects/713, dated 9th January 2008;
Letter Ref; AMIS/tie/letter/KAG/Projects/723, dated 14th January 2008;
Letter Ref; AMIS/tie/letter/TL/Projects/738, dated 23rd January 2008;
Letter Ref; AMIS/tie/letter/TL/Projects/740, dated 24th January 2008;
Letter Ref; AMIS/tie/letter/KAG/Projects/747, dated 29th January 2008;
Letter Ref; AMIS/tie/letter/TL/Projects/779, dated 14th February 2008;
Letter Ref; AMIS/tie/letter/KAG/Projects/780, dated 14th February 2008;

Letter Ref; AMIS/tie/letter/KAG/Projects/782, dated 18th February 2008;
Letter Ref; AMIS/tie/letter/KAG/Projects/790, dated 21st February 2008; and
Letter Ref; AMIS/tie/letter/TL/Projects/832, dated 10th March 2008.

Appendix 5

Mr. Roddy Aves email dated 5th October 2007, timed at 0823h

Appendix 6

Work Order Status

Appendix 7

TQ and CVI Status (Level of Change)

Appendix 8

Diversion Length Comparison: Work Order vs. AFA (tie) vs. AFA (CUS)

Appendix 9

Growth in Diversion Length Considered in Prime Cost and Provisional Sums

Appendix 10

Schedule 8 Programme vs. tie Limited Constrained Rev 06 Programme vs. Emerging Rev 07 Programme

Appendix 11

Emerging AFA (CUS) vs. AFA (tie Imposed) vs. AFA (CUS at Revision 5)

Appendix 12

Drawings (All Utility IFC): Diversion Length Comparison: Work Order vs. Tender (Plates 13 to 15 and Plates 27 to 31)

Appendix 13

Drawings (Gas IFC): Diversion Length Comparison: Work Order vs. Tender (Plates 13 to 15 and Plates 27 to 31)

Appendix 14

Drawings (Power IFC): Diversion Length Comparison: Work Order vs. Tender (Plates 13 to 15 and Plates 27 to 31)

Appendix 15

Drawings (Telecoms IFC): Diversion Length Comparison: Work Order vs. Tender (Plates 13 to 15 and Plates 27 to 31)



Appendix 16

Drawings (Water IFC): Diversion Length Comparison: Work Order vs. Tender (Plates 13 to 15 and Plates 27 to 31)

Appendix 17

Drawings (Tender): Diversions (Equivalent Plates 13 to 15 and Plates 27 to 31); diversions are not indicated only location of existing.