

APPENDIX

Rationalisation of the streetscape, including reduction of street clutter, is a principal aspiration to be realised in urban design and integration of the public realm, both generally and in parallel with introduction of the Edinburgh Tram. Introduction of the Tram project to the streetscape offers an unrivalled opportunity to take advantage of the necessary interventions to achieve real and positive change. But without commitment to specific initiatives, undertakings and proposals, there is unlikely to be any improvement on the existing apparently ad-hoc, uncoordinated and un-designed provision of street facilities. In turn, this is likely to result in the continuation of the present state of obstructed footways and unsightly clutter which demeans Edinburgh's street heritage.

For the Edinburgh Tram Public Realm project, it had been assumed that the necessary principles, methodology and specific proposals would emerge from separate designs and presentations for the Tram project as such. But whilst some limited proposals have been made, an overall strategy, data-base and achievable mechanisms are not yet evident. Given the length of time and the number of stakeholders the process is likely to need, time is now of the essence. The City of Edinburgh Council (CEC) could continue to assume that an appropriate way forward will emerge - alternatively, in the interests of achieving resolution in an appropriate timescale, CEC may itself decide to take the initiative. This note sets out an approach which CEC could adopt. It is assumed that any Tram project initiatives taken so far would be made available to CEC.

The underlying principle, adopted by several municipalities in Britain and Europe, is that streets can be greatly improved in terms of usability, efficiency and appearance, by rationalising street furniture and infrastructure, combining appropriate elements and locating these in the most efficient areas or zones within the streetscape. In practice, experience indicates that, in most cases, statutory and legal parameters are not the most difficult to resolve; the most important requirement is the municipal will to achieve the desired and sustainable end result.

As an interim measure, location-specific but exemplar spatial principles and allocation of functions, within design of typical streetscape zones, have been assessed. In themselves, these have real value in terms of illustrating opportunities and aspirations for the public realm. However, it is also important to place these in their overall context, along with their technical, operational and commercial requirements. This note complements the design assessments and sets out principal requirements for this wider context.

Context for general streetscape and infrastructure, without Tram

- Survey and audit of all existing and proposed general street functions, scheduling and mapping all elements of furniture, equipment, hard and soft landscape; including assessment of superfluous and redundant elements, of service utility requirements, as well as of legal, planning and/or statutory status.
- Review of and consultation with technical, statutory and commercial providers of all street services and infrastructure; including ownership, commercial and/or service contracts, as well as requirements for access, servicing, maintenance and safety.
- Assessment of desirable and feasible omissions of elements, as well as typologies and combinations of elements to offer improved better public realm solutions and to reduce street clutter.

Context including Tram infrastructure in addition

- Scheduling and mapping of all street furniture and infrastructure required to be removed and/or relocated as a result of introduction of the Tram project.
- Scheduling and mapping of location-specific technical proposals for Tram infrastructure, including all Tram trackside, Tram-stop, OLE and signalling and signage equipment, furniture and system kit-of-parts and their requirements for access, servicing, maintenance and safety.
- Review and consultation, as generally above, but also taking into account Tram operational requirements, particularly for access, maintenance and safety.
- Assessment of Tram and general street infrastructure together, as above, to establish modified or additional typologies and combinations accordingly.

Proposals for combined Tram and general infrastructure and for free-standing elements

- Scheduling and mapping of combined elements, together with requirements for access, servicing, maintenance and safety.
- Scheduling and mapping of free-standing elements similarly, differentiating between existing elements not to be relocated and those to be relocated.
- Service, access and maintenance regimes and agreements between appropriate parties/ providers.
- Commercial agreements, both new and re-negotiated.

Outline Methodology

- Desk-top audit from OS, Aerial Photography and Tram topographic survey.
- On-site validation check.
- Assessment of compatibility of elements; "support/ framework" elements; attachment elements; locational and visual impacts.
- Consultation with technical, statutory and contractual stakeholders.
- Assessment of potential combinations of elements for function; ownership; operator; servicing; access; maintenance; safety; commercial and contract.

Leith Walk - Walk St



Comments:

Leith Walk - Whitehall Street



Comments:

Leith Walk - Warkfield



Comments:

Leith Walk - Springfield St



Comments:

Leith Walk with Walks Place



Comments:

Leith Walk with Walks Bank St



Comments:

Leith Walk with Walks Place



Comments:

Leith Walk with Walkson Place



Comments:

Leith Walk Walkley St



Comments:

Leith Walk Walkwick St



Comments:

Royal North Walk's Gallery



Comments:

Parliament/Warrack Earth entrance



Comments:

Scottish Parliament Royal Mile



Comments:

Royal Mile Walk's close



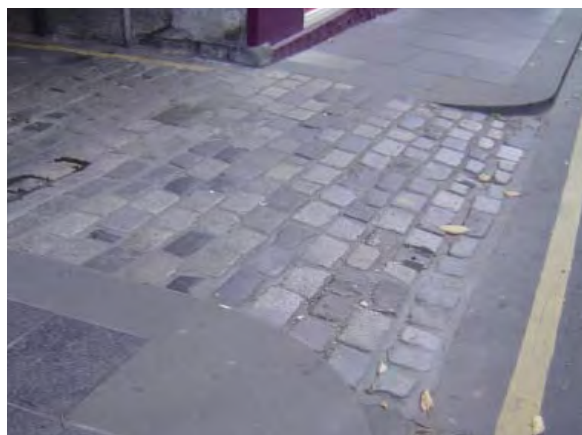
Comments:

Royal Mile Walk's court



Comments:

Royal Mile Walk's Close



Comments:

Royal Mile/Malrose Close



Comments:

Royal Mile/Walk St



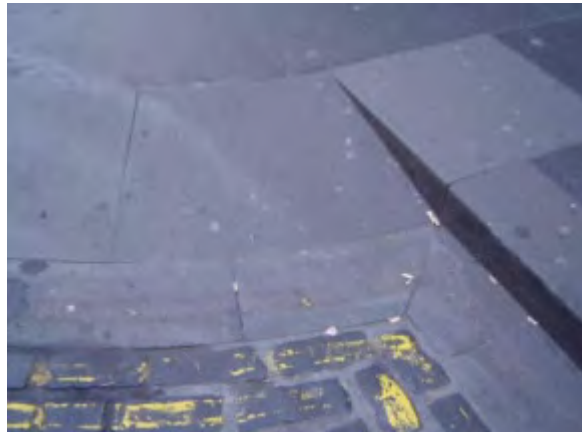
Comments:

Royal Mile/Walkston St



Comments:

Royal Mile/Walkshops Close



Comments:

Royal Mile/Walkley St



Comments:

Royal Mile/Walkburn St



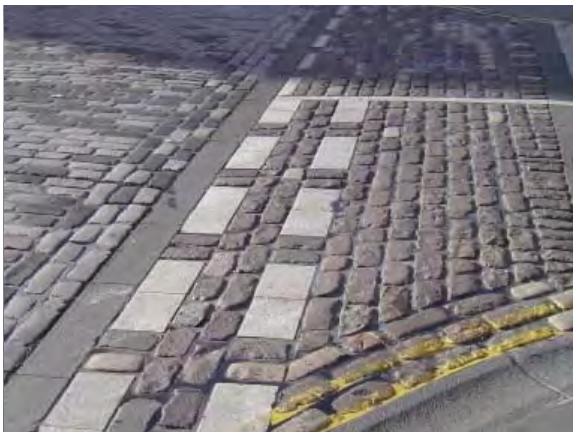
Comments:

Royal Mile/Walkley Buildings



Comments:

Royal Mile/Walkley St



Comments:

Quartermain Walk



Comments:

Darnley Walk



Comments:

Gloucester Walk



Comments:

Forres St



Comments:

Deansgate



Comments:

York Place



Comments:

St Andrew's



Comments:

South St Andrew's St



Comments:

Handover Street



Comments:

Fredrik Street



Comments:

Cassidy Street



Comments:

Cambridge Street



Comments:

Athol Street



Comments:

St Andrew Street



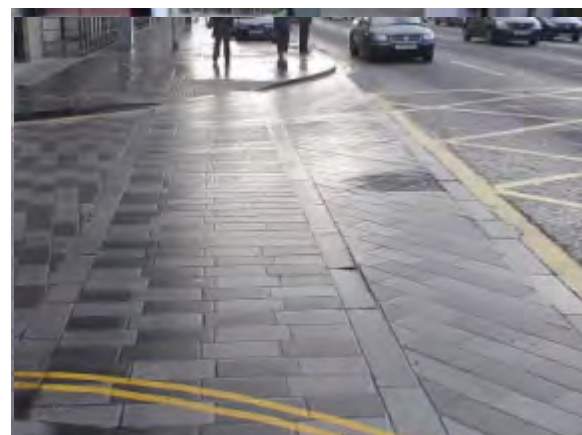
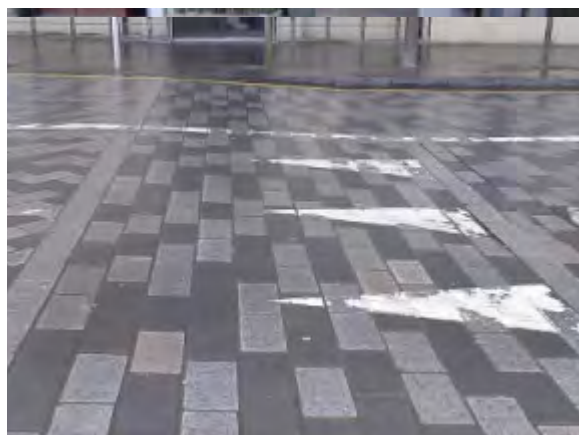
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Waltham Street



Comments:

Belford



Comments:

Belfast



Comments:

Belfast



Comments:

**Kensington High Street
London**



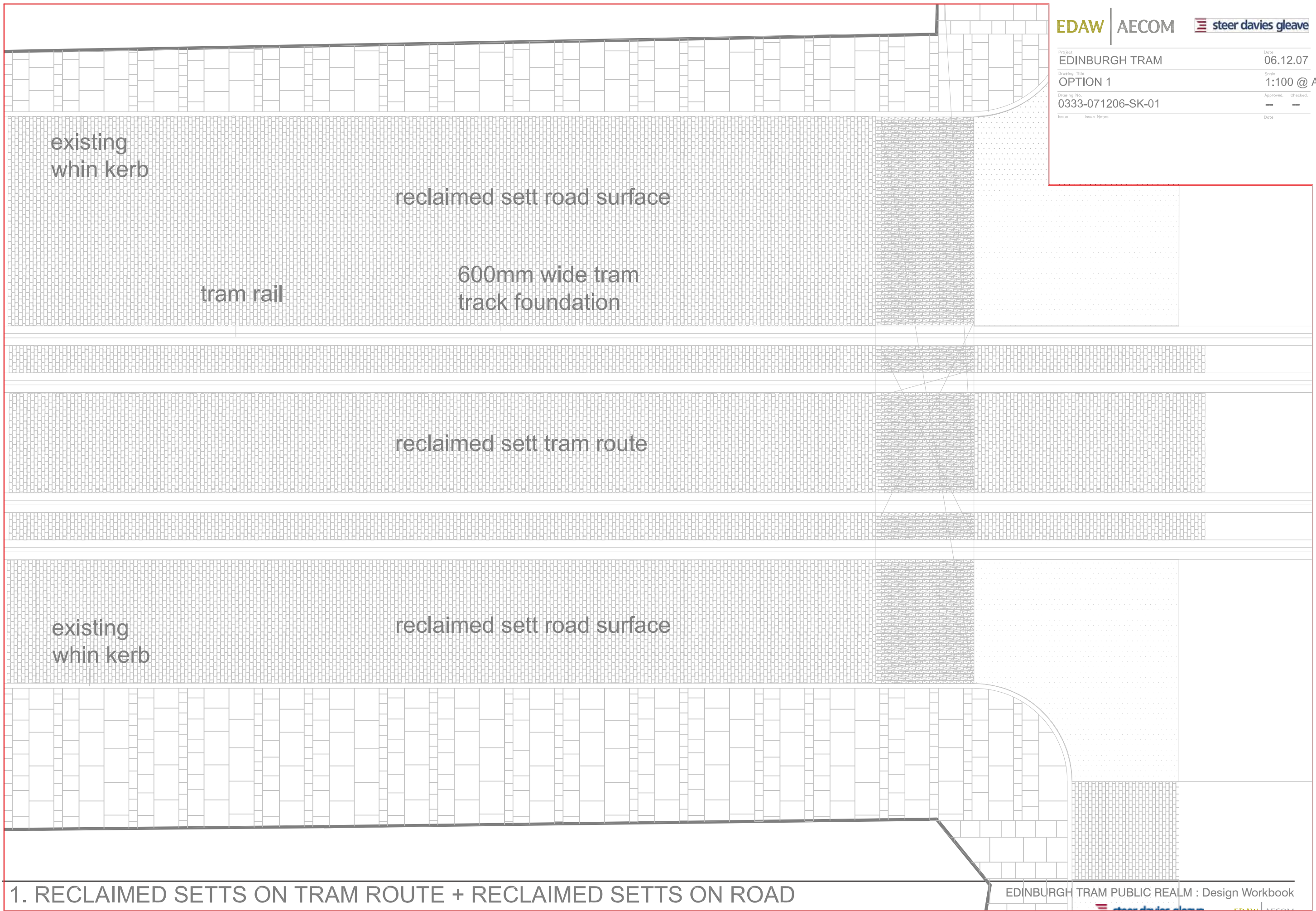
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Dublin



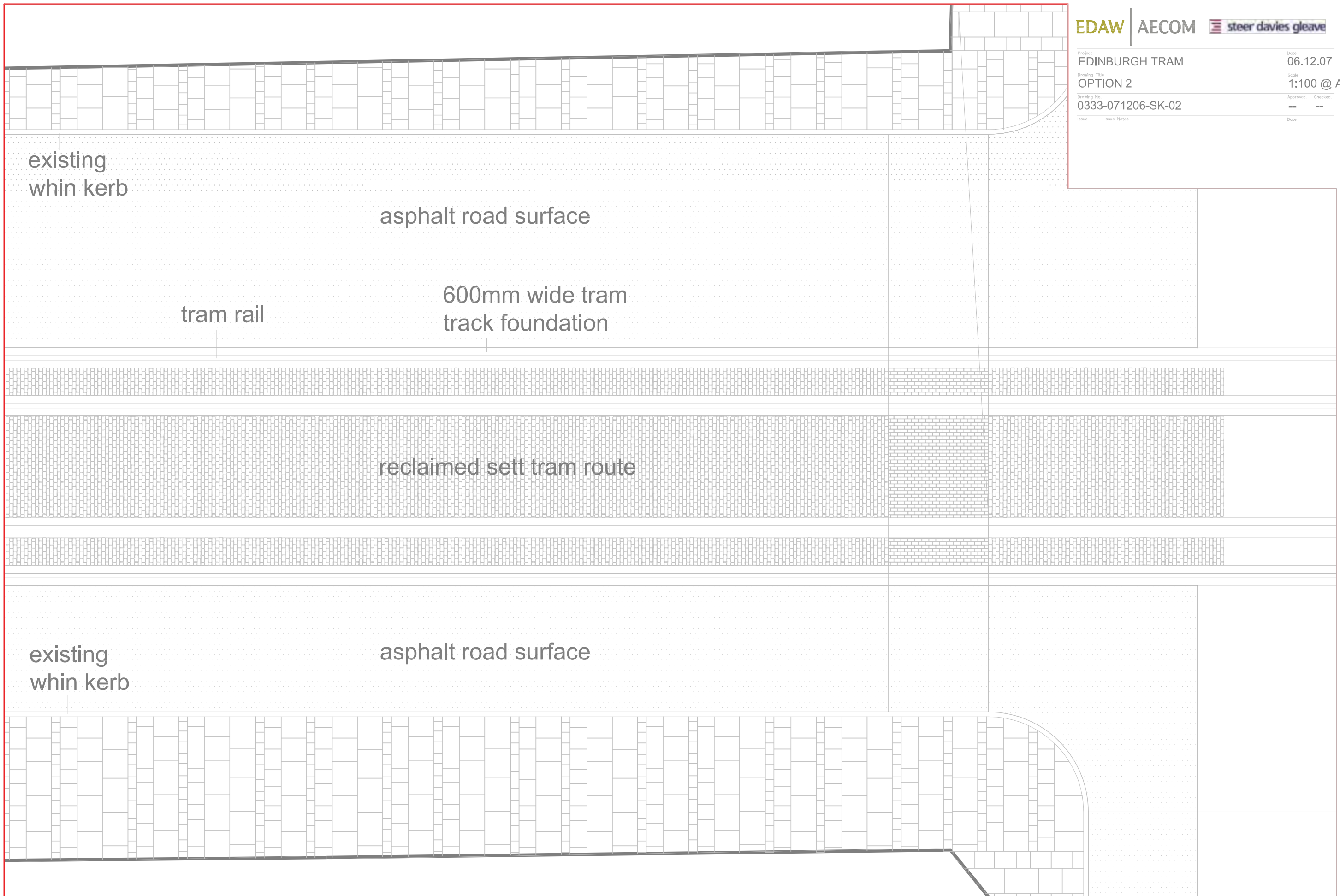
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Drawing No.	0333-071206-SK-01	Approved	Checked
Issue	Issue Notes	Date	



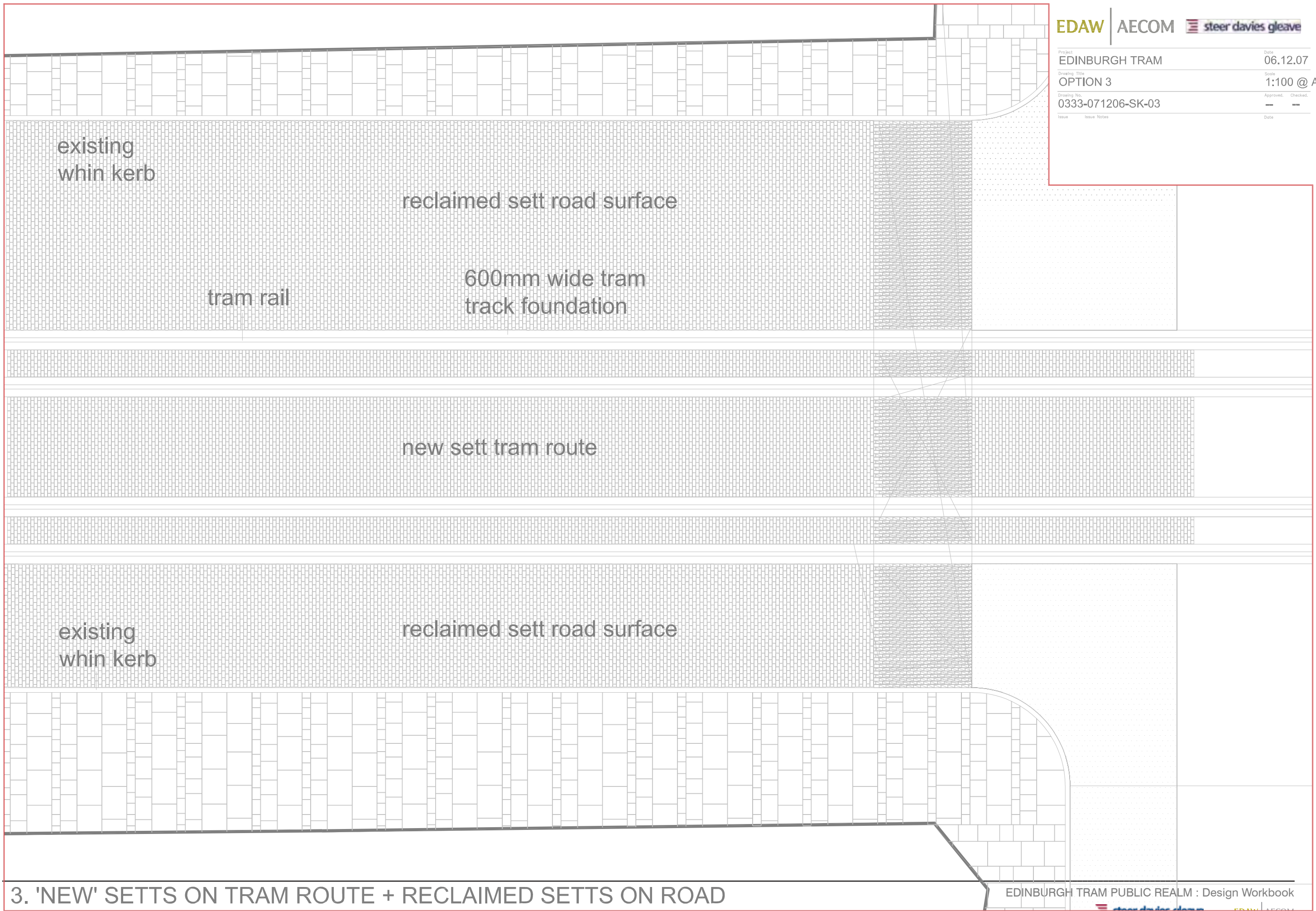
1. RECLAIMED SETTS ON TRAM ROUTE + RECLAIMED SETTS ON ROAD

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Issue	Issue Notes	Checked	---
		Date	

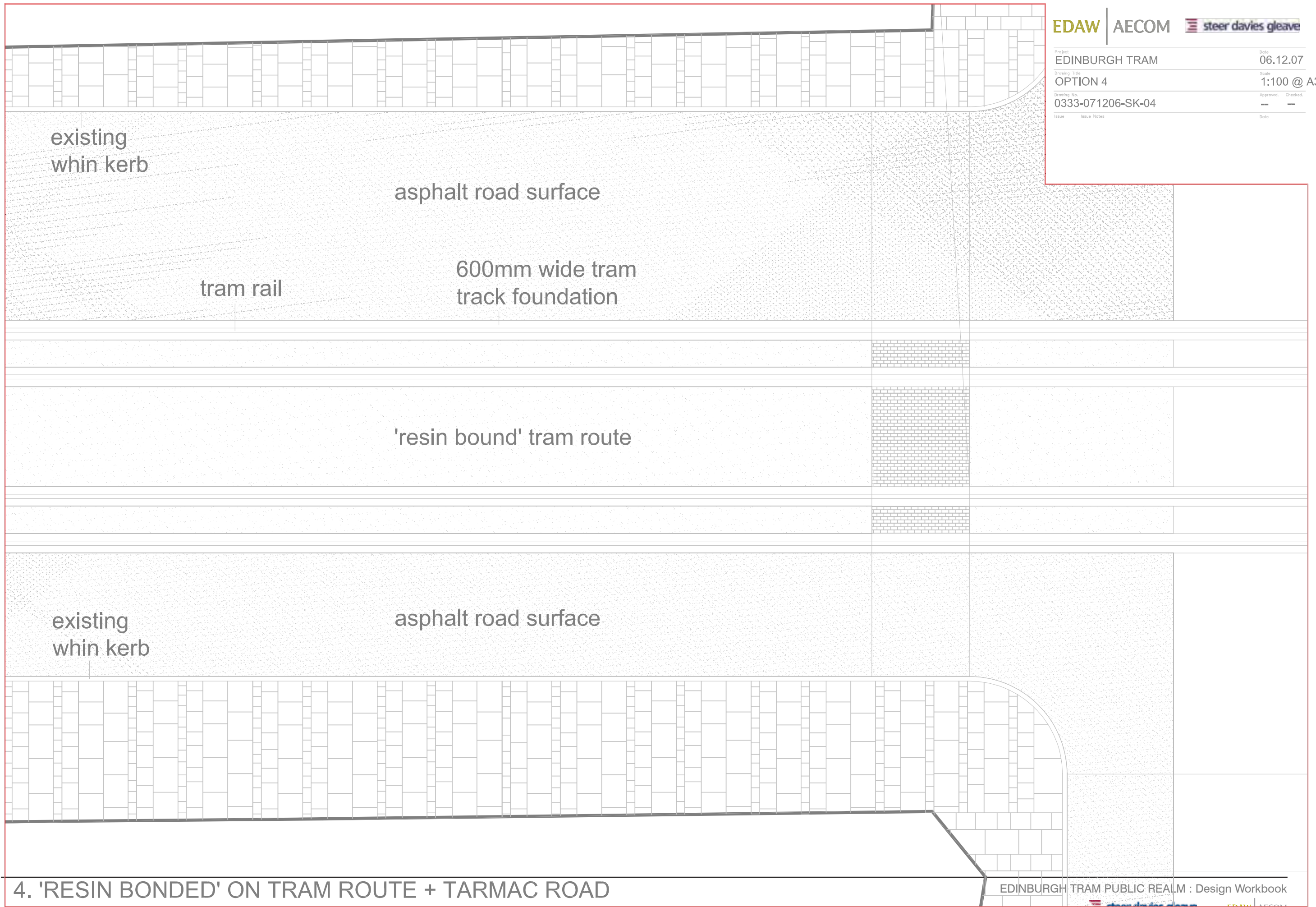


2. RECLAIMED SETTS ON TRAM ROUTE + TARMAC ROAD

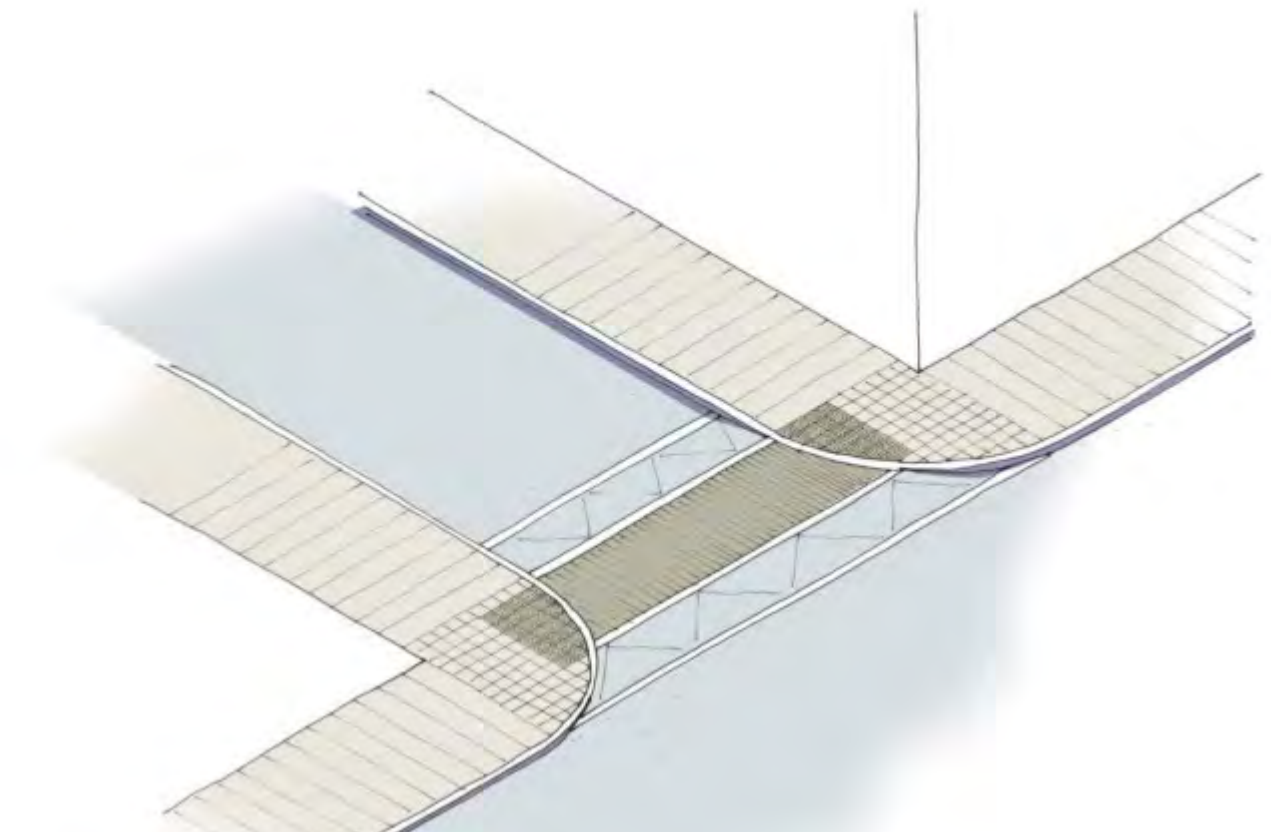
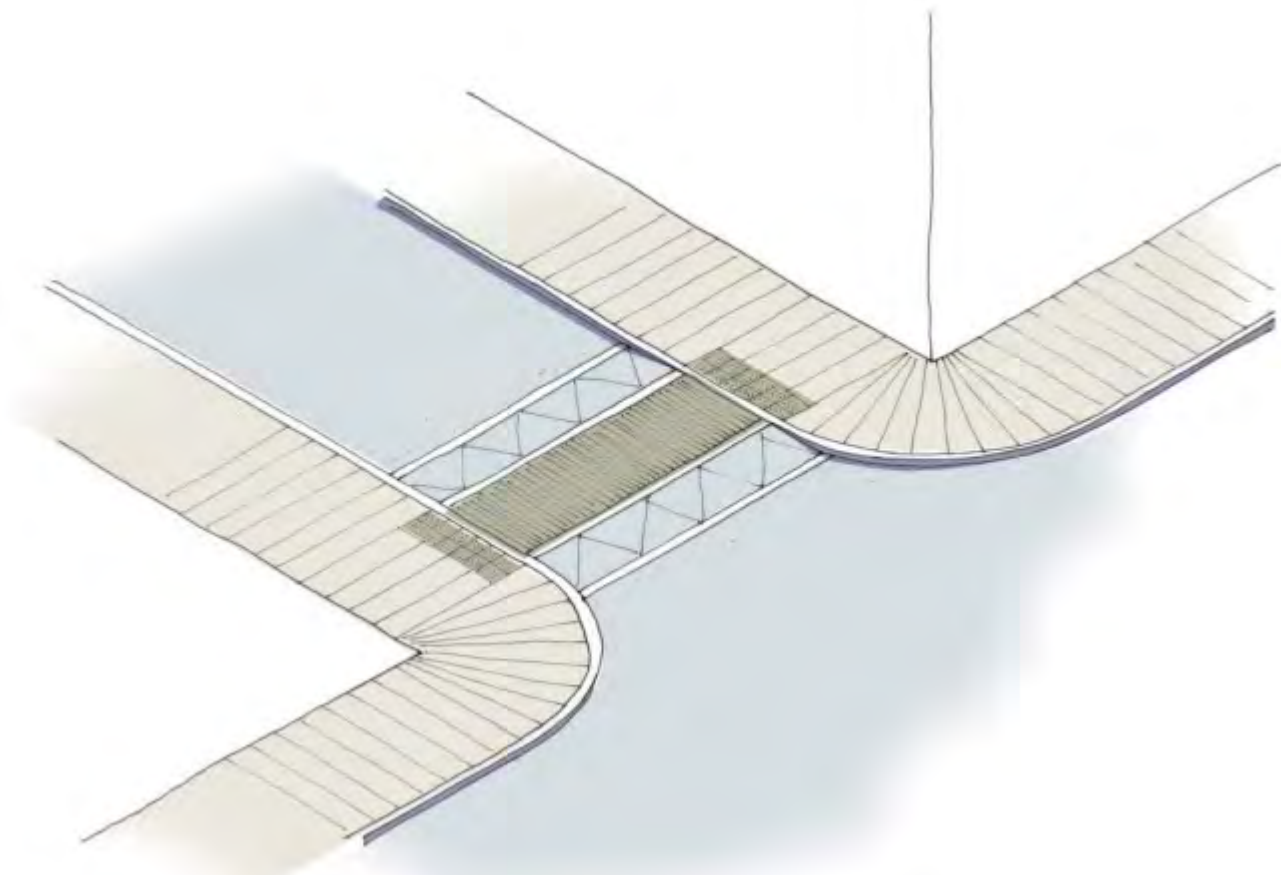
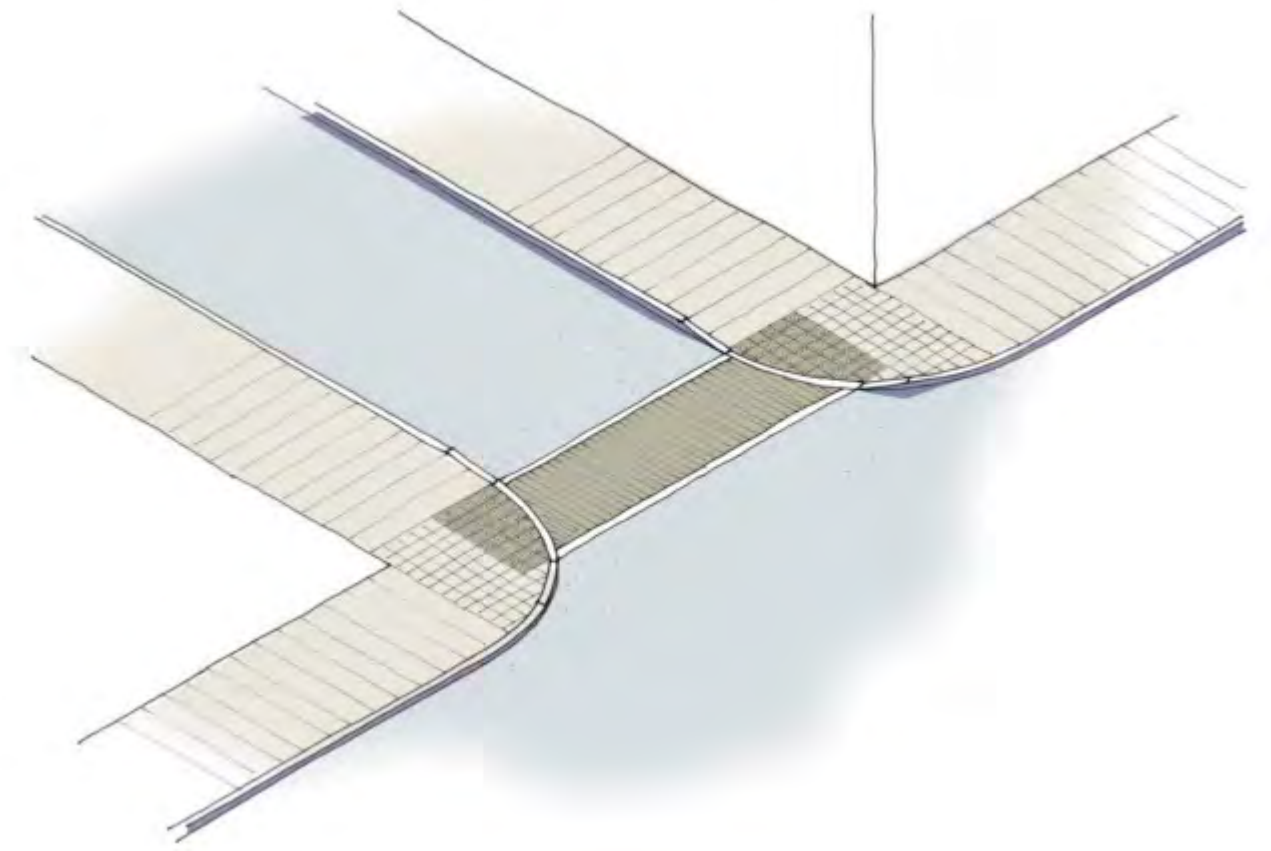
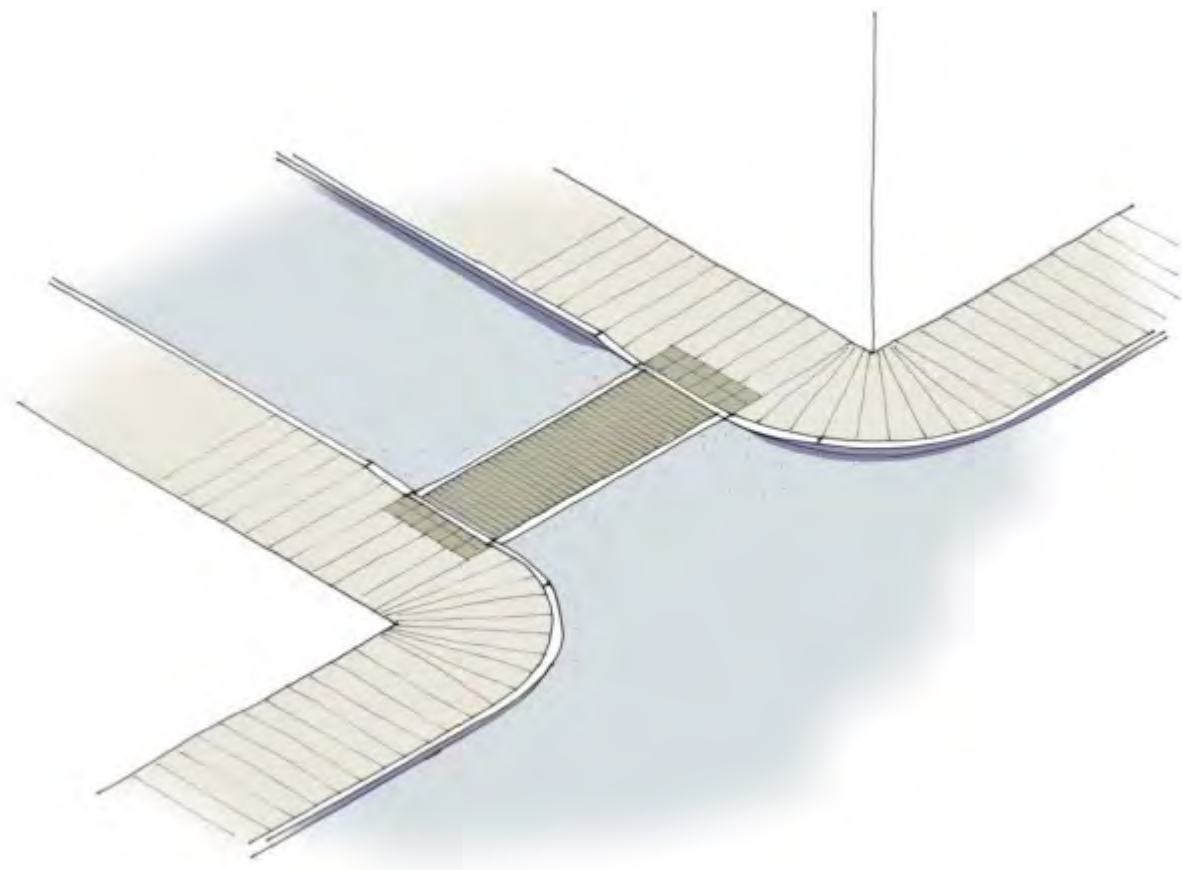
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Issue	Issue Notes	Date	

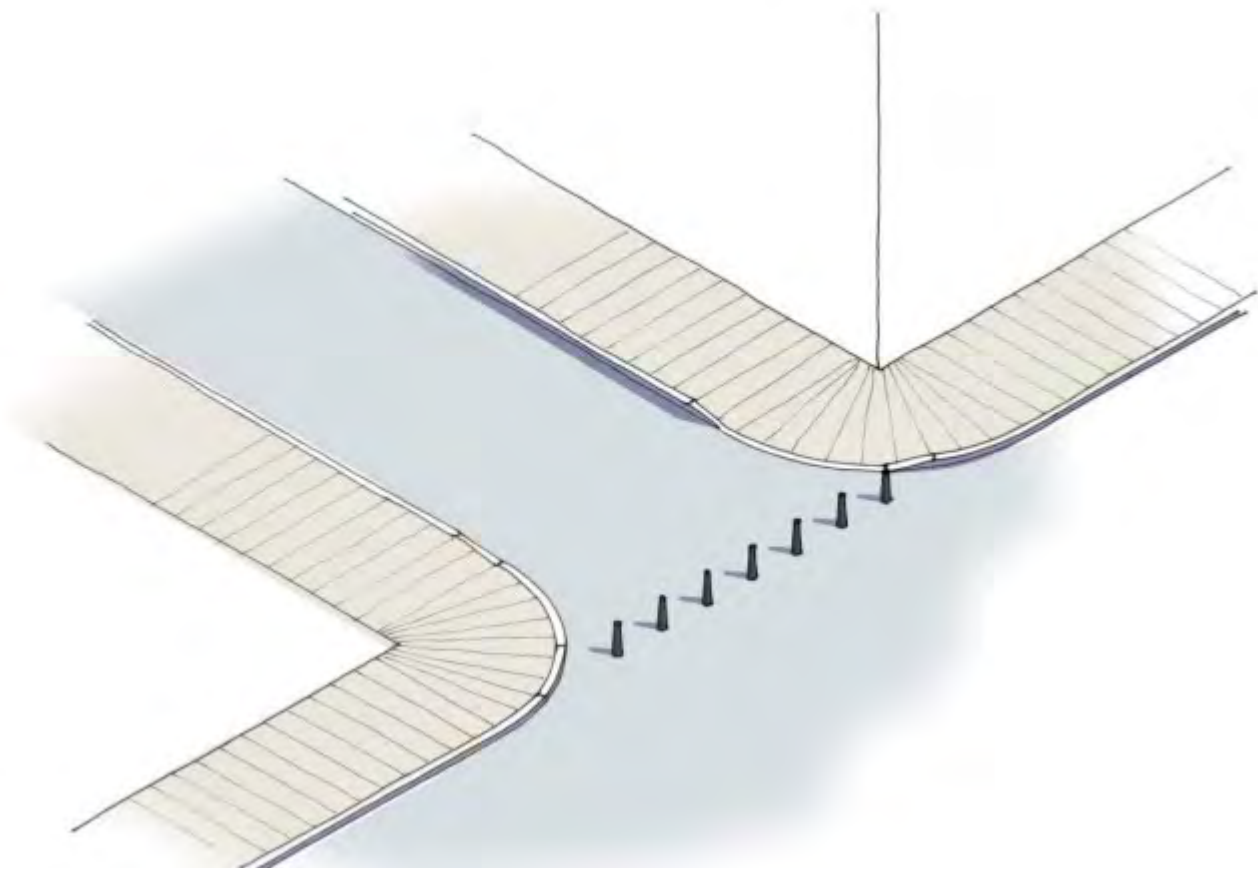
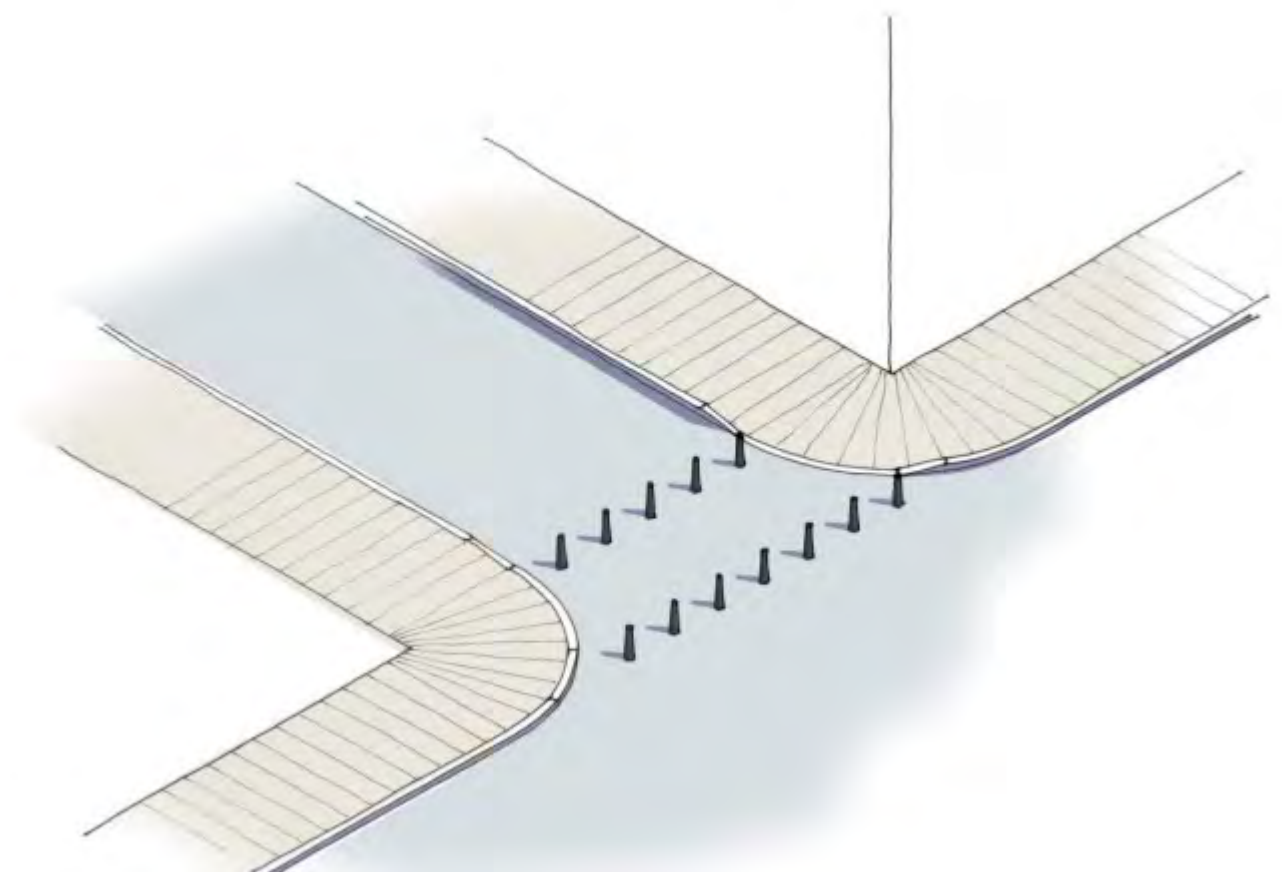
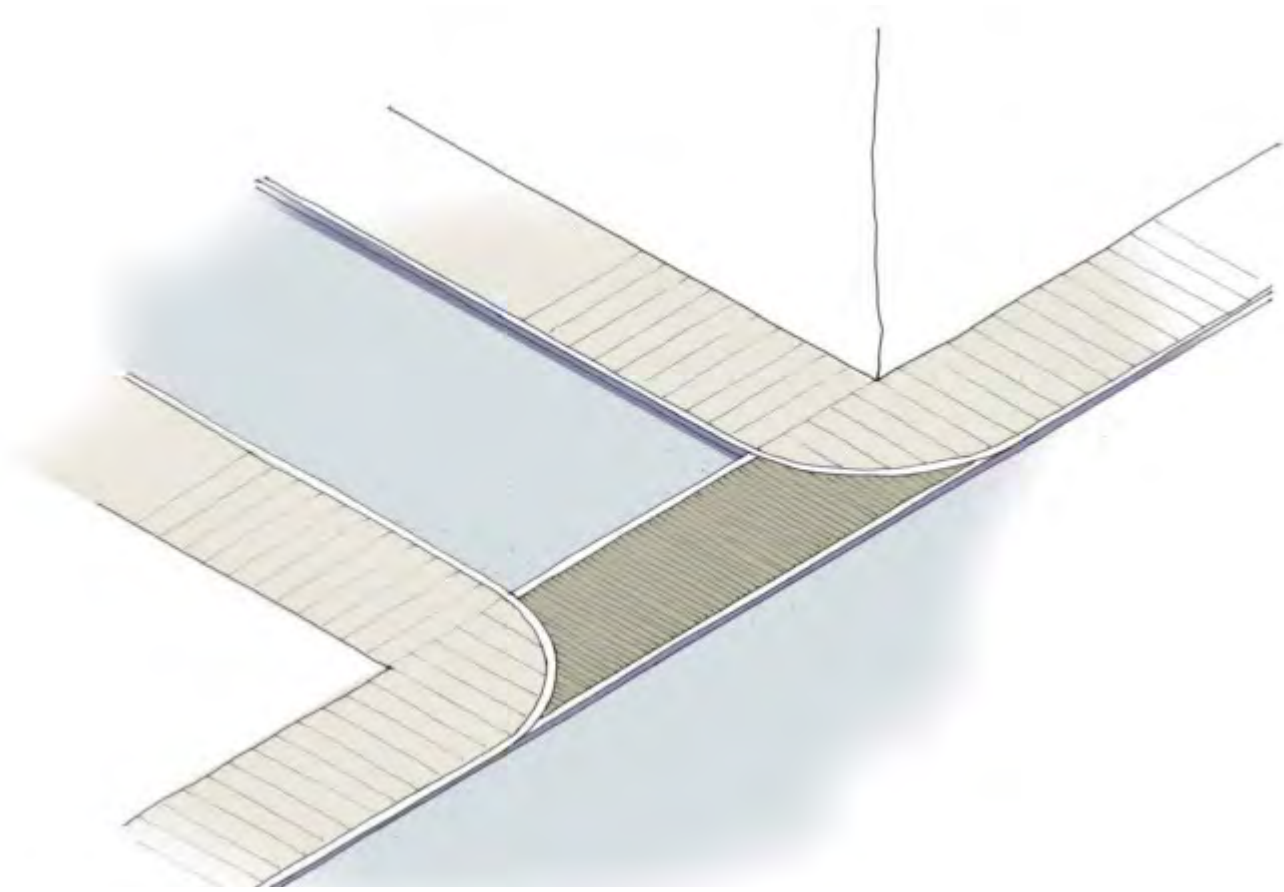


3. 'NEW' SETTS ON TRAM ROUTE + RECLAIMED SETTS ON ROAD



4. 'RESIN BONDED' ON TRAM ROUTE + TARMAC ROAD





Specifications are set out in four categories, each with a number of sub-categories, one or more sub-categories in each case being subject to availability of additional funding by CEC in the short-term or longer-term. The categories comprise:

Tram responsibility:

- Base case (default) provision (like-for-like)
- Full reinstatement of MUDFA works (within LoDs)
- Enhancement/ betterment (subject to short-term funding)

MUDFA responsibility

- Short-term/ temporary reinstatement
- Full reinstatement (like-for-like)

CEC complementary and additional responsibility:

- Complementary to Tram Base case
- Enhanced specification (subject to short-term funding)

CEC longer-term aspiration:

- Initiation and/ or completion of full enhanced specification

Delineation for each category/ sub-category can be marked on plan and can also be marked on detailed cross-sections, when these become available. Delineations are notional until full detailed designs are available and provisional during construction and subject to re-measurement.

Specifications are defined for principal elements only, at this stage. However, this approach allows additional elements to be similarly defined, as required, in due course. Elements included so far comprise:

Tram System

- Tramway surface
 - Infill between rails (concrete strips)
 - Within swept-path/ DKE
 - Kerbs
- Tramway central reserve
 - Kerbs
 - Infill
- Tram-stop platform
 - General surface
 - Ramps
 - Kerbs
 - Tactile, other DDA and special surface paving

Highways, Footways and Pedestrian areas

- Road carriageway
 - General surface
 - Channels
 - Kerbs
 - Dedicated parking/ loading bays
 - Pedestrian crossings
 - Raised tables/ side street entries
 - Side streets
- Footway/ Pedestrian areas
 - General surface
 - Kerbs/ dropped kerbs
 - Tactile, other DDA and special surface paving
 - Shared-surface short-stay parking/ loading bays
 - Sub-base

- Surface
- Kerbs

- Planters/ Plinths/ Other Features
 - Channels
 - Kerbs/ upstands
 - Surface (if any)

Trees and Soft Landscaping

- Trees to be removed by Tram and MUDFA
- Trees to be replaced by Tram and CEC
 - Mature
 - Semi-mature
 - Saplings
- Other soft landscaping

Tram Furniture

- Elements
- Combinations of Tram elements
- Combinations of Tram elements with general Street Furniture to be relocated/ replaced

Street Furniture

- Elements
- Combinations of general Street Furniture without Tram Furniture
- Wider combinations with Tram Furniture
- Upgrading of general elements to Tram typology
- Locational zones

A key element of street furniture and equipment involved with introduction of the Tram is the Overhead Line Electric (OLE) infrastructure, comprising an array of fixings to buildings, support poles, cantilever arms, span, draw-off and running wires. The OLE array can have a significant effect on views along, across or outwards from streets and spaces within the public realm. Equally, the OLE array forms an important part of the infrastructure to be considered in the context of rationalising and minimising street furniture and equipment and in reducing street clutter. In particular, OLE poles can be one of the most important elements with which other elements, such as street and footway lighting, signage, cameras etc can be combined and attached.

The OLE array, both on its own and in combination with other street furniture, therefore needs to be assessed for its visual impact on the public realm and carefully designed accordingly. This assessment would be expected to be based at least in part on visualisations of the Tram infrastructure, required as part of the process of obtaining detailed planning consent (sign-off by CEC of Prior Approvals). However, the designs and visualisations so far presented by SDS have not sufficiently detailed the OLE infrastructure, nor a realistic representation of its visual effects - in this SDS may not have done their designs justice.

Several factors appear necessary to address:

- Choice of circular, stepped or polygonal, tapered poles. The general principle of tapered poles in sensitive areas has been agreed with CEC and tapered columns are generally being pursued by CEC Street Lighting as equipment is upgraded, potentially giving the benefits of coordination. However, a more flexible approach, retaining flexibility to change between tapered and stepped poles as appropriate to particular locations and applications, may be advisable to consider, particularly those involving the effects of brackets to attach other OLE, signage and lighting equipment. For example, there might appear to be advantages of combined centre poles to be stepped, whereas side poles could always be tapered to co-ordinate with other separate street lighting. In any case, there is an argument to be made for designs to be appropriate and specific to their location.
- Design and specification of attachment brackets on OLE and combined poles. There appear to be three possible approaches:
 - Use of standard collar attachments - these are almost invariably constant section tube fittings, so they do not conform to the taper of the pole. These therefore have either to be packed out at the “wider” upper end, or cut and welded on site to fit. This will be unsightly and likely to cause additional expense, which may not yet have been factored in. This problem does not occur with stepped poles
 - Use of custom-designed tapered collar attachments. These would have to be non-standard, again causing additional expense which may not yet have been factored in
 - Use of minimal pre-welded/ attached brackets. This appears to be the best solution aesthetically, for both tapered and stepped poles but, as few, if any, pole applications are likely to be completely standard in terms of height and orientation of brackets, there is likely to be a considerable number of poles which will require brackets to be added to suit, on site. This would not be a problem technically, but again a non-standard, additional expense which may not have been factored in
- Design of OLE poles, both tapered and stepped, as well as attachment brackets, by the Infraco. There do not appear to be specifications or illustrations which complement designs agreed as part of sign-off of Prior Approvals. It is not clear whether or not CEC will have any remit in terms of these designs, even if these do not entirely accord with earlier approvals.
- Colour and materials of OLE poles and brackets. Visualisations so far appear to indicate a light grey reflective finish, which as illustrated is visually dominant and obtrusive. A darker grey matt finish might well prove to be more successful in allowing the OLE infrastructure to have a much less unacceptable impact. CEC may need to advise SDS and the Infraco further in “striking a balance between gradation with buildings and the skyline as well as achieving a co-ordinated effect with other elements of street furniture and equipment”.

- Overall, an optimal, integrated design of the OLE array, through the detailed design and procurement stages, which takes full account of specific locations, potential impacts and mitigation of these.

An essential requirement in the process of integrating the Tram project interventions into the streetscape and public realm is the availability of full data on long and cross-sections and levels for the new infrastructure. Without such data, it is impossible to assess either the full physical impact of the Tram infrastructure or the scope of the necessary surface tie-ins to the adjacent streetscape and public realm. The latter is particularly important, in terms of the accessibility and usability of the public realm, when the Tram infrastructure design is to be taken as given.

General information provided so far, by the System Designer for the Edinburgh Tram Project (SDS) indicates that, for the most part, existing kerb lines and levels are to be maintained. However, this evidently cannot entirely be the case in some key locations, such as at Picardy Place; at the junctions of St Andrew Street with York Place and Princes Street; and possibly along much of Princes Street as a whole. In these locations in particular, the detail of line and level introduced by the Tram is essential to be known for the integrated design of the public realm.

It is understood that SDS may now have made some such data available in the form of highways design drawings, but it is not known whether these represent a final integrated design with the Tram permanent way alignment, or if further iteration between the two is still required.

Assessment of these designs for line and level has not yet been possible.

In any case, further iterations between p-way and highways alignments are likely to be necessary during the detailed design stage by Infracore and will need also to be assessed during detailed design of the wider public realm.

In common with practice for most modern tram systems, the System Designer for the Edinburgh Tram Project (SDS) has developed an approach to furniture and equipment for Tram-stops which is based on a set of standardised elements - the so-called Kit-of-Parts. This concept has been developed through an agreed minimalist design approach, with the kit-of-parts being capable of being treated as a menu of elements, from which specific selections and combinations can be allocated to each location as appropriate. Designs and combinations of elements are intended to optimise their impact overall and to minimise visual “clutter”. However, the “designs” for each element and combination are not final, this being subject to further development and procurement by the appointed contractor for the Tram project (Infraco).

The City of Edinburgh Council (CEC) initially required that each Tram-stop should have a full allocation of all elements available within the kit-of-parts. Subsequently it became apparent that for some Tram-stops there would be insufficient space for this approach; for others that a completely minimalist design approach would be more appropriate. CEC is understood to have discussed all Tram-stops with SDS and to have arrived at specific allocations and combinations of elements for each. However, these allocations have not yet been made available to the Public Realm design team.

Three further factors need to be taken into account and it is not yet clear whether either has been fully considered, either by SDS or by CEC:

- First, Tram-stops need to be considered in terms of their potential role as generators of pedestrian movement, social and commercial activity, including both the potential effects and opportunities generated within the streetscape and the possible incorporation of Tram-stops within buildings or wider public realm developments, as well as their potential role as centres for interchange. The overall design of each Tram-stop, including its furniture and equipment, needs to take account of and to respond to this specific context.
- Secondly, Tram-stops and their furniture and equipment need to be designed specifically for the context and requirements of each location, taking full account of the surrounding public realm.
- Thirdly, the impact of allocations and combinations of kit-of-part elements needs to be considered in the context of wider initiatives to rationalise street furniture and equipment and to minimise street clutter. Again, this is a key element of design of the wider public realm in each Tram-stop location.

In order to take these issues further forward, in terms of designs for the wider Public Realm, data and status reports from both SDS and CEC are required. It is also recommended that CEC, as planning authority, ensures that it has a full understanding of the remit of the Infraco to make changes to any interim agreements concerning Tram-stop Kit -of-Parts at each Tram-stop location, as well as concerning Tram and street furniture and equipment generally. It is further recommended that CEC should also have a clear understanding of what role it may itself be able to take during the continuing detailed design and procurement process under the remit of the Infraco.

A key element of street furniture and equipment involved with introduction of the Tram is the Overhead Line Electric (OLE) infrastructure, comprising an array of fixings to buildings, support poles, cantilever arms, span, draw-off and running wires. The OLE array can have a significant effect on views along, across or outwards from streets and spaces within the public realm, particularly as viewed from footways. Equally, the OLE array forms an important part of the infrastructure to be considered in the context of rationalising and minimising street furniture and equipment and in reducing street clutter. In particular, OLE poles can be one of the most important elements with which other elements, such as street and footway lighting, signage, cameras etc can be combined and attached.

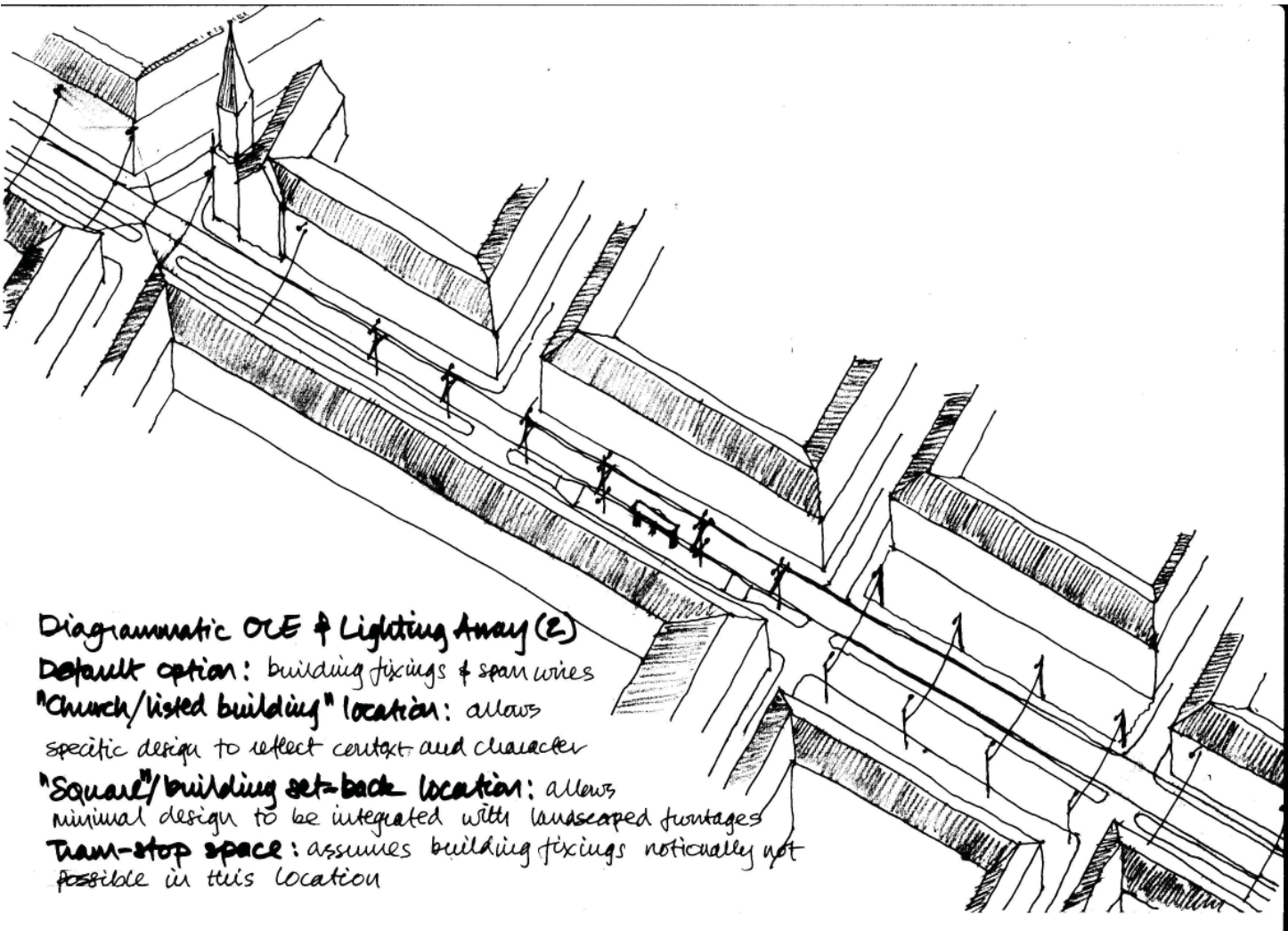
The OLE array, both on its own and in combination with other street furniture, therefore needs to be assessed for its visual impact on the public realm and carefully designed within each specific location and section of alignment, accordingly. This assessment would be expected to be based at least in part on visualisations of the Tram infrastructure, required as part of the process of obtaining detailed planning consent (sign-off by CEC of Prior Approvals). However, the designs and visualisations so far presented by SDS have not sufficiently detailed the OLE, as well as other street infrastructure, nor a realistic representation of its visual effects - in this SDS may not have done their designs justice.

Several factors appear necessary to address:

- Choice of circular, stepped or polygonal, tapered poles. The general principle of tapered poles in sensitive areas has been agreed with CEC and tapered columns are reported as being pursued by CEC Street Lighting as equipment is upgraded, potentially giving the benefits of coordination. However, a more flexible approach, retaining flexibility to change between tapered and stepped poles as appropriate to particular locations and applications, may be advisable to consider, particularly those involving the effects of brackets to attach other OLE, signage and lighting equipment. For example, there might appear to be advantages of combined centre poles to be stepped, whereas side poles could be tapered to co-ordinate with other separate street lighting, where appropriate. In any case, designs overall should be appropriate and specific to their location.
- Design and specification of attachment brackets on OLE and combined poles. There appear to be three possible approaches:
 - Use of standard collar attachments - these are almost invariably constant section tube fittings, so they do not conform to the taper of the pole. These therefore have either to be packed out at the “wider” upper end, or cut and welded on site to fit. This will be unsightly and likely to cause additional expense, which may not yet have been factored in. This problem does not occur with stepped poles
 - Use of custom-designed tapered collar attachments. These would have to be non-standard, again causing additional expense which may not yet have been factored in
 - Use of minimal pre-welded/ attached brackets. This appears to be the best solution aesthetically, for both tapered and stepped poles but, as few, if any, pole applications are likely to be completely standard in terms of height and orientation of brackets, there is likely to be a considerable number of poles which will require brackets to be added to suit, on site. This would not be a problem technically, but again a non-standard, additional expense which may not have been factored in
- Design of OLE poles, both tapered and stepped, as well as attachment brackets, by the Infraco. There do not appear to be specifications or illustrations which complement designs to be agreed as part of sign-off of Prior Approvals. It also needs to be made clear to the Infraco that it will be necessary for any designs which depart from those forming part of Prior Approvals will be required to resubmitted for further approval by CEC.
- Colour and materials of OLE poles and brackets. Visualisations so far appear to indicate a light grey reflective finish, which as illustrated is visually dominant and obtrusive. A darker grey matt finish might well prove to be more successful in allowing the OLE infrastructure to have a much less unacceptable impact. CEC may need to advise SDS and the Infraco further in “striking a balance between gradation with buildings and the skyline as well as achieving a co-coordinated effect with other elements of street furniture and equipment”.
- Overall, an optimal, integrated design of the OLE array, through the detailed design and procurement stages, which takes full account of the character of specific locations and sections of alignment, as well as potential impacts on and mitigation of these.

Design of the OLE array overall should be a conscious, specific exercise, taking full account of the requirements of the public realm and the character and context of each location or section of the alignment. There will be technical constraints for the design of the OLE array in each case but, equally, there may be options and opportunities for OLE solutions which should be considered on their merits, as a part of the design process, rather than assuming that a single solution may be best along major sections of the alignment. Combination of street lighting and potentially of other elements of street furniture with the OLE array and visualisations of these, makes this specific design approach all the more important.

The sketches attached are intended to illustrate opportunities for the ways in which location and character-specific design of the OLE array may be achieved. The sketches are therefore diagrammatic rather than specific designs solutions.



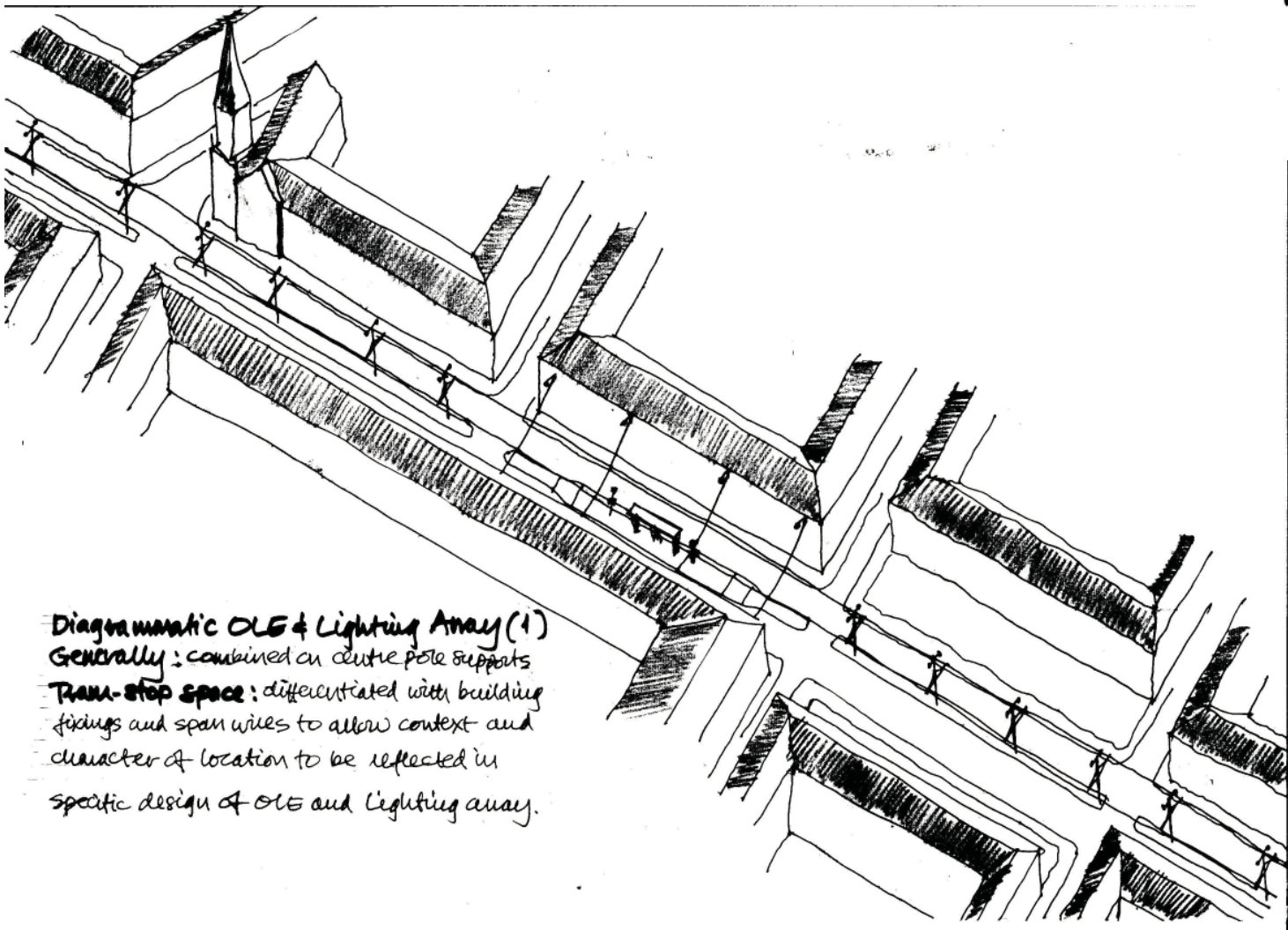
Diagrammatic OLE & Lighting Array (2)

Default option: building fixings & span wires

"Church/Listed building" location: allows specific design to reflect context and character

"Square/building set-back location: allows minimal design to be integrated with landscaped frontages

Tram-stop space: assumes building fixings not usually not possible in this location



Diagrammatic OLE & Lighting Array (1)

Generally: combined on centre pole supports

Tram-stop space: differentiated with building fixings and span wires to allow context and character of location to be reflected in specific design of OLE and lighting array.