



River Moorings Policy 2017 - 2023

Riverside Options Appraisal

1. Purpose

- 1.1 The purpose of this report is to investigate the feasibility of, and options for, making adaptations to the river bank wall along Riverside in Cambridge to facilitate safe licensed moorings.

2. Overview

- 2.1 Streets and Open Spaces service officers, and an external consultant, have considered the possibility and options for creating safe access from moored boats onto the Riverside public highway adjacent to the river Cam. This took into consideration several factors including: the existing parapet railings, the function of the structural retaining wall, the safety of boat dwellers accessing and egressing from river level to the public highway above and the safety considerations of pedestrians, cyclists and vehicles using Riverside.
- 2.2 In general, the retaining wall along Riverside introduced over 50 years ago was considered as one which was not currently approved by Cambridge City Council for mooring purposes and that the issues of unauthorised mooring had built up over many years prior to the land being registered by the Council.
- 2.3 Nevertheless, the consultant understood from Officers that the immediate issue was to ensure the health and safety of people accessing moored boats along with other users of Riverside. Therefore, if it were to prove practicable to identify an adequate health and safety solution at a proportionate cost this would reduce the immediate urgency of relocating/evicting the moored vessels.
- 2.4 This report concludes that at this point in time it would appear feasible to make adaptations to the riverside wall and parapet rail to enable safe access for up to seven licensed vessels (moored generally in pairs from three floating pontoons accessed by ladders from street level with lockable gates, plus one from the Stourbridge Common river bank adjacent to the end of the retaining wall). This would be subject to further detailed site investigation, design work, construction estimates and liaison with principal stakeholder organisations.

2.5 The costs of undertaking such modifications at this early stage are anticipated to be in the region of £15,000 to £30,000 for each of the locations, requiring a Capital investment of £50,000 to £100,000.

3. Design Options

3.1 Four potential design options have thus far been considered.

1. Do Nothing

This option is not considered practicable given the need for the Council to address the health and safety implications of boat dwellers accessing boats moored along Riverside.

2. Continuous Floating Pontoon with fully compliant access ramps at either end

The second option considered was for the standard design solution to achieve fully compliant access in such circumstances – with a continuous floating pontoon at river level alongside the existing retaining wall. This would include a ramp down at both ends of the pontoon from street level at the top of the wall, with suitable adaptations to the parapet railings. Boats could then be moored along the length of the pontoon and there would be few access / egress impediments. However, such an arrangement would be likely to prove prohibitively costly for the Council and perhaps more importantly would not meet the approval of the Environment Agency nor Cambridgeshire County Council as Highway Authority for local roads.

A minimum permitted navigational width exists for the river at this point in order to facilitate the free passage of boats including rowers passing; and this option would impede upon this. Furthermore, significant adaptation to the riverside wall and parapet railing beyond re-establishing existing ‘grandfather’ rights is expected to require its’ replacement with a full vehicle restraint system.

3. Isolated Floating Pontoons with Vertical Access Ladders, Platforms and Lockable Gates

The third option considered was for individual floating pontoons at isolated points along Riverside with boats moored in pairs upstream and downstream and a vertical access ladder extending up adjacent to the wall to a street level gate and/or access platform. There would be two potential alternative arrangements for the upper platform:

- a) An upper platform on the outside of the parapet railings overhanging the river. This would be structurally more challenging to achieve but would be the preferred option as discussed further below.
- b) An upper platform on the inside (street side) of the parapet. This is a more straightforward technically but would require sections of the existing footway, and carriageway where no footway exists, to be fenced off. Although the flow of road traffic along Riverside is not exceptional the carriageway is narrow in places and such an arrangement may not meet the approval of the Highway Authority. Consequently, it may not prove any less costly than (a) above to achieve.

4. Prohibition, and Enforcement, of unauthorised Moored Boats

The final option considered would be to prevent, and remove, an boats mooring along the length of Riverside adjacent to the retaining wall on the basis of there being no safe current method of access and egress (without adaptations).

- 3.2 Options 3a, 3b and 4 above are considered to be the only ones viable at the current time. It is understood that option 4 is unlikely to be supported by Councillors in the context of the recent comprehensive stakeholder and public consultation on an updated River Moorings Policy. Each of the remaining improvement options would involve some risks for the Council which would require further investigation before progressing with detailed works.

3.3 At this early stage option 3a is considered to be the most viable and affordable option on the basis of the various factors and constraints assessed. It therefore forms the basis of the preferred option outlined in this report, and is further outlined in drawings SK001 – 003 associated with this report.

4. Considerations and Constraints

4.1 Parapet Railing

4.1.1 The retaining wall and original parapet railing was designed and constructed before the change in design standards requiring vehicle containment, introduced in 1964. The existing parapet railing is a modification from the original 1950 design and is only intended to restrain pedestrians. The original design was for a metal key clamp post and rail parapet; however this was subsequently modified to a more secure vertical infill balustrade arrangement avoiding any large gaps in the fence. The existing parapet railing when installed had several gates at locations along Riverside with ladders extending below, possibly for accessing boats or more likely to allow an escape route from the river.

4.1.2 If significant changes were to be undertaken to the existing parapet the Highway Authority have indicated that they would require it to be brought up to current standards for vehicle containment. It is estimated that the cost for this would be in the region of £1m for the parapet works, with an additional £0.5m to £1m to move public utility equipment located along the length of Riverside wall.

4.1.3 The previous gates within the parapet railing were removed some years ago due to the gates being tied open (most likely by boaters accessing boats) which left open gaps in the railing. Replacing these gates on a like for like basis (size and location) is not thought likely to affect the ‘grandfather’ rights accrued over time, and therefore the parapet could remain in its current configuration; i.e. it would not be a fundamental redesign and therefore vehicular containment would not be a statutory requirement. Due to the previous experience with gates being tied open each gate re-installed would have to be provided with a locking arrangement in order that only permitted users could take access. The design

option (3a above) considered most practicable, cost effective and therefore favoured at this point would prevent an unwanted opening in the railing since it would act similar to a kissing gate with the gate self-closing in the closed position.

4.1.4 Without a vehicle restraint system along the top of the Riverside wall there remains some risk of a vehicle losing control and going through the parapet and potentially into the river or on to any boat moored below. Whilst the risk is slightly greater at points where traffic joins Riverside in overall terms it is considered to be a low risk as there have been no known previous incidents. However this should be considered in any risk assessment undertaken for potential improvement works.

4.2 Highway Retaining Wall

4.2.1 The existing retaining wall is visually inspected by the Highway Authority on a regular cycle of inspections. Any proposed amendments to the highway loadings or the design regulations would require further inspection and assessment of the structural capacity of the retaining wall.

4.2.2 Were the present unauthorised arrangement for moorings to be formalised and improved then consideration should be given to protecting the wall from boats, possibly providing fenders along the lengths under consideration for improvement. Adequate mooring rings should be provided; currently boats are tying up to the base of the parapet which is not designed for this purpose or loading.

4.2.3 The additional loadings resulting from the additional ladders, access platforms and mooring rings are generally not considered significant in comparison with the existing highway loadings. More significant loadings would be applied to the retaining wall from any lowering of the river bed level. It would be beneficial to visually inspect and monitor the river bed levels to ensure there are no adverse effects of facilitating safer mooring along Riverside on the river bed levels, with this aspect should being included in any detailed risk assessment for improvement works proposed.

4.2.4 Such a risk assessment should also give consideration to how a person would be able to exit the river safely, were they to fall in

either intended or otherwise. The design could incorporate a ladder or similar on the floating pontoon to help with egress from the river.

4.3 Vertical Ladder Access

- 4.3.1 Vertical ladders are an accepted means of accessing river banks from water level, however these are generally designed for emergency purposes e.g. when there is no level access from the river or for temporarily moored vessels tied to mooring posts or bollards. Vertical ladders would not generally be the preferred access mechanism for permanently moored vessels in a locality such as Riverside (given their limitations of use); nevertheless they are considered the only practicable arrangement at the present time.
- 4.3.2 The proposed full length vertical ladders, floating pontoons, upper platforms and parapet railing gates (although not ideal) would however provide a safer means of accessing and egressing moored vessels than the current unauthorised arrangement. The arrangement proposed, if adopted, would provide a fixed anchor point and for unladen individuals the opportunity of being able to have both secure foot and handholds when leaving their vessel.
- 4.3.3 Were the suggested means of improvement to be adopted the means of managing mooring along this length of river to approved locations, license holders and key holders would need to be managed – as would how any unauthorised moored boats would be dealt with.

4.4 Gated Access through Parapet Railing

- 4.4.1 The number of potential gated accesses would have to be limited to the original gate locations, since any additions would require a redesign of the parapet which would include vehicle containment.
- 4.4.2 The Highway Authority requires no mooring below or adjacent to, for 25m either side, of any structure over the river – on the basis that were boats to be permitted to moor inside this length then there is a risk of severe compromise, and possible failure of, the

structure should a boat catch fire. It would be prudent to consider the potential for such damage in such circumstances to the Riverside retaining wall but this is not currently considered to cause impediment to an improvement scheme.

4.4.3 The upper platform is required to allow safe access through the parapet gate. The gate design will ensure there are no open sections of parapet, with the gates being self-closing and locking.

4.4.4 Any mooring improvement scheme risk assessment should consider the potential for someone exiting a mooring at street level stepping out into the carriageway where there are no sections of footway (eastern end of Riverside). However this is not expected to pose any exceptional risk.

5. Other User Considerations

5.1 Whilst it is important not to exaggerate the health and safety concerns arising from locating gates and ladders into this area, several potential issues have been identified.

5.2 Consideration should be given to whether installing gates and ladders at the potential locations suggested is likely to encourage more people to attempt to access the river and moored boats than would otherwise be the case.

5.3 Including self-closing and locking gates should limit river access to authorised key-holders. The responsibility for opening and securing the gates at point of use would be that of the individual boat occupiers who would be provided by keys/electronic fobs as appropriate to the design. Careful control would require to be exercised during this activity to prevent unauthorised public access being created.

5.4 Gate locks/securing mechanisms might be vulnerable to vandalism or other similar anti-social behaviour. It is likely that any new gate and locks could be the same key as used elsewhere on the river by boaters. Whilst effective design can reduce some of this potential the cost of replacing and maintaining gate mechanisms needs to be factored into the design.

6. Planning, Heritage and Environmental Considerations

- 6.1 In general, the design and location of any proposal should respect the historic and naturalistic aspects of the locality and that the installation should be of sufficient quality to match the character of the area.
- 6.2 The impact from the opposite riverbank also needs to be considered. Whilst this length of riverbank is not generally significantly overlooked, this would require further consideration during the detailed design. Initial discussions with Planning officers have not highlighted any likely significant difficulties with the arrangement suggested.
- 6.3 The suggested design arrangement has been reviewed by the Cam Conservators, Environment Agency and Highway Authority whom, in principal, have not raised any significant concerns or objections at this stage. However, a final proposed detailed design solution still needs to be worked up and these primary stakeholders have made comments which would need to be considered should the proposal be adopted.

7. Likely Costs

- 7.1 The costs of the potential arrangement outlined and suggested in this report have been estimated (at this preliminary stage) to be in the region of £10,000 to £20,000 for each of the locations, requiring a Capital investment of some £30,000 to £60,000. Further detailed investigatory and design work would be needed on the river bed and bank retaining wall structure, and public highway supported above, including seeking further potential specialist contractor market pricing, to confirm the likely funding needed.

8. Conclusions and Recommended Actions

- 8.1 During the recent stakeholder and public consultation on an updated River Moorings Policy, the strength of feeling of some local people and representative groups around the potential to

moor along Riverside was evident, and therefore discussions with the County Council around the opportunity to develop a safe moorings scheme recommenced.

- 8.2 Officers have considered the possibility and options for creating safe access from the river level onto the footway/carriageway at street level adjacent to the river. This took into consideration several factors including:
- a) the parapet railing's purpose as a road vehicle containment barrier, the function of the bankside wall as a structural supporting wall for the roadway,
 - b) the safety of the boat dwellers accessing and egressing from river level to the pavement and
 - c) the safety considerations of riverbank users' pedestrians, cyclists and vehicle occupants.
- 8.3 Officers have developed a solution which they believe would be technically feasible and financially viable based upon re-establishing previous gated access points that are currently welded closed in an improvement and relatively safe manner. A developed scheme would be expected to create moorings for 7 boats without impeding river navigation.
- 8.4 If supported, further detailed work would be needed to develop the scheme including technical feasibility, risks and likely costs.

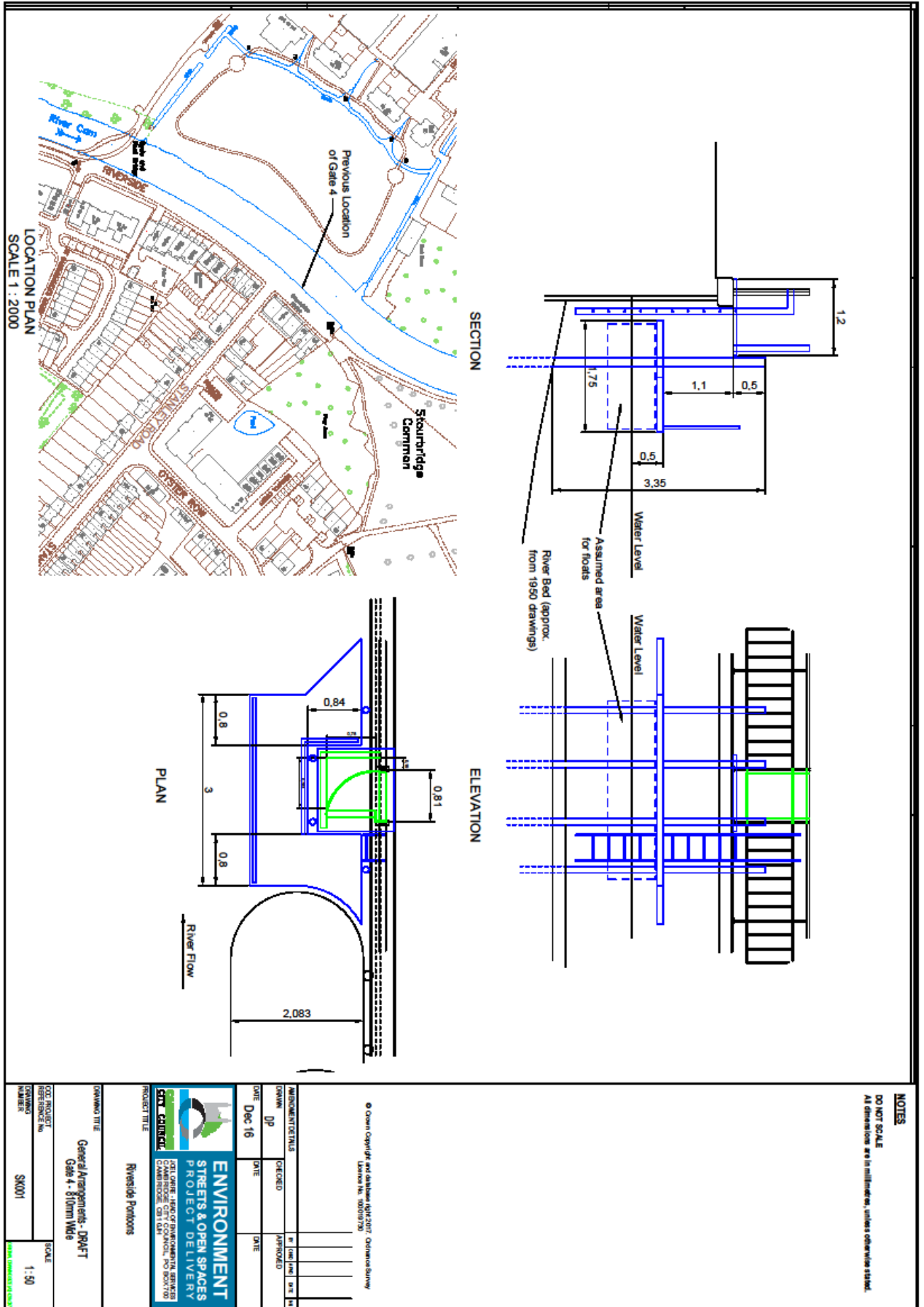
Drawings accompanying report:

General Arrangement – DRAFT, Gate 4: SK001

General Details – DRAFT: SK002

Potential Locations for Riverside Pontoons – DRAFT: SK003

Appendix D – River Mooring Policy 2017 -2023
Riverside Options Appraisal



NOTES
 DO NOT SCALE
 All dimensions are in millimeters, unless otherwise stated.

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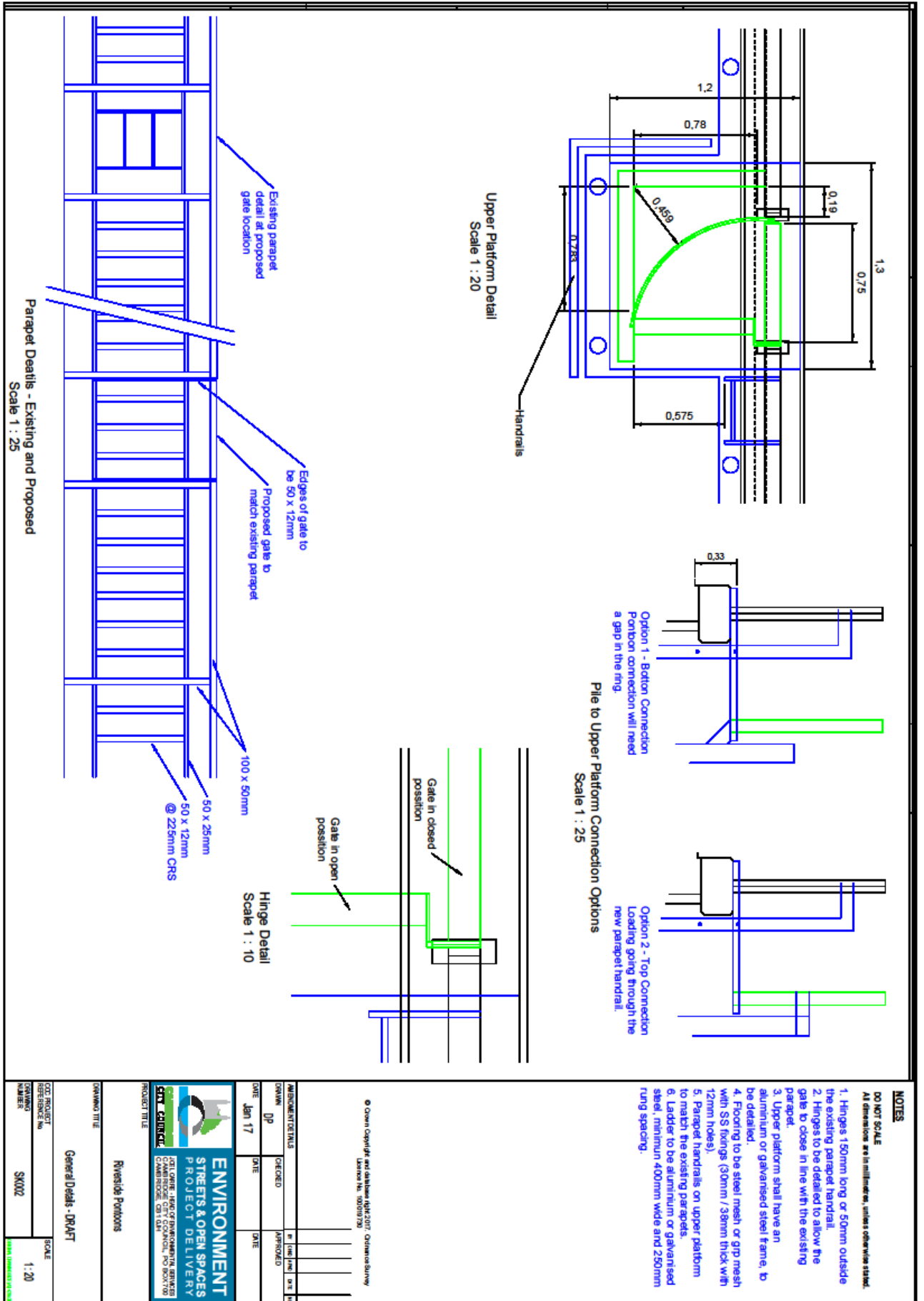
PROJECT TITLE
 Riverside Pavings

DRAWING TITLE
 General Arrangements - DRAFT
 Gate 4 - 810mm Wide

DWG. PRODUCT REFERENCE NO.
 SK001

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PROJECT TITLE: **ENVIRONMENT STREETS & OPEN SPACES PROJECT DELIVERY**
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CLIENT: **CITY OF CHICAGO**
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PROJECT TITLE: **Riverside Moorings**

GENERAL TITLE: **General Details - DRAFT**

SCALE: **1:20**

DATE: **17 Jan 17**

REFERENCE NO: **SK002**

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