



KILKENNY CITY
PEDESTRIAN BRIDGE

PART 8 REPORT

OCTOBER 2012

47061456

Prepared for:
Kilkenny County Council

UNITED
KINGDOM &
IRELAND



REVISION SCHEDULE					
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1. Introduction

This report has been prepared in order to comply with Part 8 of the Local Government (Planning and Development) Regulations, 2001. It deals with the proposed Kilkenny City Pedestrian Bridge (Quaylink Bridge).

This document describes the nature and extent of the proposed development and the principal features thereof in accordance with Article 83 of the Regulations.

The background and reasons for the scheme in relation to proper planning and development are set out in section 2 of this report.

Details of the scheme are set out in section 3.

2. Background and Reasons for the Scheme

Kilkenny city centre is an area of high pedestrian activity; primarily due to the historical nature of the city and narrow streetscape. In order to cater for the future economic growth of the city centre consideration must be given to a large pedestrian population within the city centre itself. The Kilkenny City & Environs Development Plan 2008 - 2014 produced by Kilkenny Borough Council proposed development of a pedestrian bridge over the River Nore at the Carnegie Library. The plan identified the importance of a dedicated pedestrian bridge so as to provide a direct route linking areas west of the River Nore, including High St. and Kieran St. to areas east of the river including John's St., John's Green, Michael St. and McDonagh Junction.

The Kilkenny City & Environs Development Plan outlined the following proposals relating to pedestrians within the greater city centre area:

- Kilkenny city centre contains core retail areas and internationally recognised tourist trails. The development plan outlined the need for developing short and long distance walking routes along the river incorporating existing bridges, the proposed Central Access Scheme Bridge and the proposed pedestrian bridge at Johns Quay.
- Kilkenny Borough Council recognised the importance of walking and the need for maintaining and developing high quality amenity and access routes particularly surrounding the castle and both river banks. Development of a dedicated pedestrian bridge at John's Quay would help open up new vistas of the historical city centre.

The Kilkenny Mobility Management Plan 2009 – 2014 was produced by Kilkenny Borough Council. It identified the importance of pedestrianizing key areas of the city centre to ensure Kilkenny remained an attractive place for tourists and shoppers alike. The proposed pedestrian footbridge was outlined as a vital component of the Mobility Management Plan. The development of the pedestrian bridge at John's Quay would enhance the extension and completion of existing and new pedestrian routes, providing additional links to local schools, workplaces and community initiatives.

Specific constraints of the proposed development include

- Provide a functional, non-intrusive structure which shall preserve the historical heritage of the area
- Provide a solution which shall preserve the archaeological heritage of the area through minimising the use of hard engineering solutions
- Provide a solution with minimal visual impact e.g. set against the backdrop of a medieval city
- Provide an economical solution

- Ensure ease of construction

The reasons for providing the Kilkenny City Pedestrian Bridge are to:

- Improve pedestrian and cycling access between the main city centre shopping streets of High St. and Kieran St. through Bank Lane and onto John's Green.
- Connect schools, core retail areas, residential areas and the railway station to the city centre.
- Promote Kilkenny City as a pedestrian and cyclist friendly destination

3. Outline of Options & Selection of Emerging Preferred Option

3.1 Options Considered

The following are the types of options that have been considered as part of the preliminary design and optioneering for the proposed pedestrian bridge.

- Option 1 Beam
- Option 2 Arched Beam/Truss
- Option 3 Lattice Truss
- Option 4 Vierendeel Arch
- Option 5 Vierendeel Half Through Truss
- Option 6 Box Girder with Truss
- Option 7 Cable Stayed
- Option 8 Wooden

3.2 Typical Examples of Options Considered



1 - Typical Beam (Birmingham)



2 - Typical Arched Beam/Truss (Cork)



3 - Typical Truss (UK)



4 - Vierendeel Arch Truss (Newcastle, Co. Down)



5 - Vierendeel Half Through Truss (Portlaoise)



6 - Box Gider (Germany)



7 - Cable Stayed Options (Various – Europe/US)



8 - Wooden Options (Various – Europe)

3.3 Developed Options

From initial options the following were selected to be reviewed and developed in more detail with regard to their overall applicability to the proposed site and the Kilkenny City environs.

- Beam
- Vierendeel Arch
- Lattice Truss (Arched & Straight)
- Cable Stayed

The following table summarises the general assessment of these developed options.

3.4 Summary Pros & Cons of Developed Options

General Criteria	Beam	Lattice Truss	Vierendeel Arch	Cable Stayed
Pros	<ul style="list-style-type: none"> • Simple construction & installation • Foundation loadings • Allows light detailing above deck • Cost effective • Allows use of cladding 	<ul style="list-style-type: none"> • Low landing position • Visually low impact • Arch creates pleasant experience • Lowest east bank ramps • Cost effective • Simple construction & installation 	<ul style="list-style-type: none"> • Statement structure • Dramatic structure allows light detailing of rails and guard rails • Low landing position • Vertical “windows” frame local views 	<ul style="list-style-type: none"> • Cable stay allows flexibility for deck design • Statement structure • Create focal point for west bank
Cons	<ul style="list-style-type: none"> • c. 1m deep • Major visual impact • Increased ramp heights & length on east bank (+10 to 20m) 	<ul style="list-style-type: none"> • Design to improve visual permeability • Not a statement structure (!) 	<ul style="list-style-type: none"> • c. 2.8m in height at apex • Major visual impact • Increased cost (steel & fabrication) 	<ul style="list-style-type: none"> • c. 0.5m deep deck - ramp heights • Major visual impact on skyline (c.15m), conflict with historic sites • Major works for pylon foundations • Complex design to eliminate back stay • Significant cost • Impact on road/traffic on west bank

3.5 General Overall Assessment of Developed Options

General Criteria	Beam	Lattice Truss	Vierendeel Arch	Cable Stayed
AESTHETICS/VISUAL IMPACT	NEGATIVE	POSITIVE	POSITIVE	NEGATIVE
IMPACT ON BANKS	NEGATIVE	NEUTRAL	NEUTRAL	NEGATIVE
URBAN DESIGN/AMENITY	NEGATIVE	POSITIVE	NEUTRAL	NEUTRAL
FLOOD ISSUES	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL
EASE OF CONSTRUCTION	BASIC	BASIC	SLIGHT COMPLEXITY	COMPLEX
MAINTENANCE	NORMAL	NORMAL	ABOVE NORMAL	COMPLEX
ENVIRONMENT (excl. visual impact)	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL
COST (Approximate)	€450,000	€450,000	+€500,000	+€1,000,000 (Est.)

3.6 Emerging Preferred Option

Following review of the developed options the Arched Lattice Truss was chosen as the emerging preferred option to be brought to public consultation.

The following criteria made the lattice truss the most suitable option considering the various constraints at the proposed site:

- Low visual impact, and suitable for centre of Kilkenny City
- Cost effective
- Low impact on River Nore flood constraints
- Straight forward construction

4. Description of the Proposed Works

4.1 The main features of the proposed scheme include:

- Provision of a new 35m pedestrian single span footbridge crossing the River Nore at John's Quay and Bateman Quay. The bridge will consist of arched Lattice Truss design and constructed of steel.
- Provision of ramps, steps and access on both banks from the bridge to the associated walkways and cycleways as well as future walkways and cycleways. Ramps on the eastern banks are estimated to be required to a height of 1.6m excluding railings or other pedestrian restraints.
- Provision of high quality paving on approach ramps and walkways at the abutments.
- Provision of associated street lighting, street furniture and public art.

4.2 The scheme by necessity will include:

- All necessary earthworks required for construction of abutments and approach ramps/steps, including piling where necessary.
- Measures to maintain flows in existing watercourses.
- Measures to ensure no contaminants are allowed enter the River Nore during construction.
- The provision of signage and markings, in compliance with national standards.
- Diversions of utility plant and provision, as appropriate, for future servicing requirements.

4.3 Design Criteria

The following design standards will be used in the structural design of the bridge:

IS EN 1990 - Basis of structural design

IS EN 1991 - Actions on structures

IS EN 1992 - Design of concrete structures

IS EN 1993 - Design of steel structures
IS EN 1997 - Geotechnical design
And their relevant national annexes.

The following guidance documents will also be consulted in relation to the pedestrian/cyclist features of the proposed bridge, and their integration into existing infrastructure:

National Cycle Manual (June 2011)
Traffic Signs Manual 2010
Traffic Management Guidelines

Other relevant local, national, and international standards will also be referenced where appropriate.

4.4 Footbridge Cross Sections

The deck will be 3m wide and will be shared by pedestrians and cyclists.

4.5 Ramps

- Ramps will be approximately 2.5m wide with gradients of 1:20 where practical.
- Rest areas will be incorporated to facilitate mobility impaired users as required by relevant design guidance. (Building Regulations, specifically Technical Guidance Document M).

4.5 Other Issues Relevant to Design

- River Nore ecological status (S.A.C, Natura 2000)
- The requirement for accessibility under the Disability Act 2003.
- Requirements for sharing of space between pedestrians and cyclists
- Aftercare, maintenance and lighting for both bridge, ramps, and any approach works.

5. Drawings

The full extent of the proposed works is detailed on the following drawings which are contained in Appendix 1.

Drawing Number	Title
47061456/P8/100-1	Overall Scheme Location Plan (Street Map)
47061456/P8/100-2	Scheme Location Plan (OS Mapping)
47061456/P8/101	General Layout and Sections
47061456/P8/102	Preliminary Structural Sections
47061456/P8/103-1	Visualisation – View 1 Johns Bridge
47061456/P8/103-2	Visualisation – View 2 East Bank
47061456/P8/103-3	Visualisation – View 3 West Bank

6. Impact on Landowners and Residents

Residents on both banks of the river within sight of the proposed bridge will have their views of the river interrupted by the proposed bridge. However, the understated design should meld with the urban medieval fabric of the river frontage to add interest to these views, and create new improved view points of both the River Nore, it's banks, and the adjacent significant views along the river such as Kilkenny Castle and the linear park on the east bank.

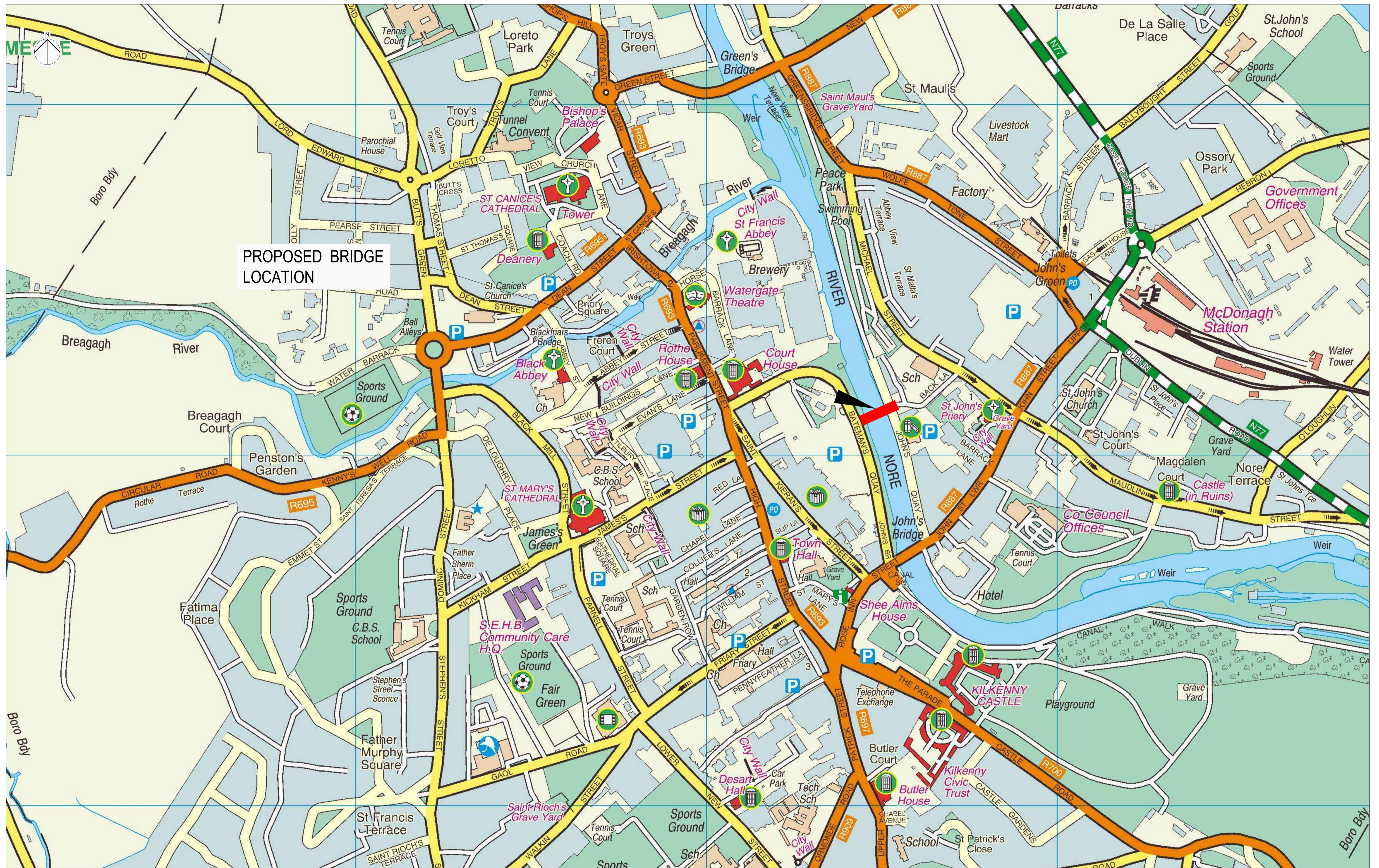
During construction, there will be some disruption due to noise, diverted walkways and delivery of materials to the site. However, this disruption should only last 16 weeks and will be minimised by the fabrication of the bridge off site.

7. Submissions

Written submissions and observations on the proposed development, dealing with the proper planning and sustainable development of the area may be made in writing to the Senior Engineer, Kilkenny Borough Council, City Hall, High Street, Kilkenny.

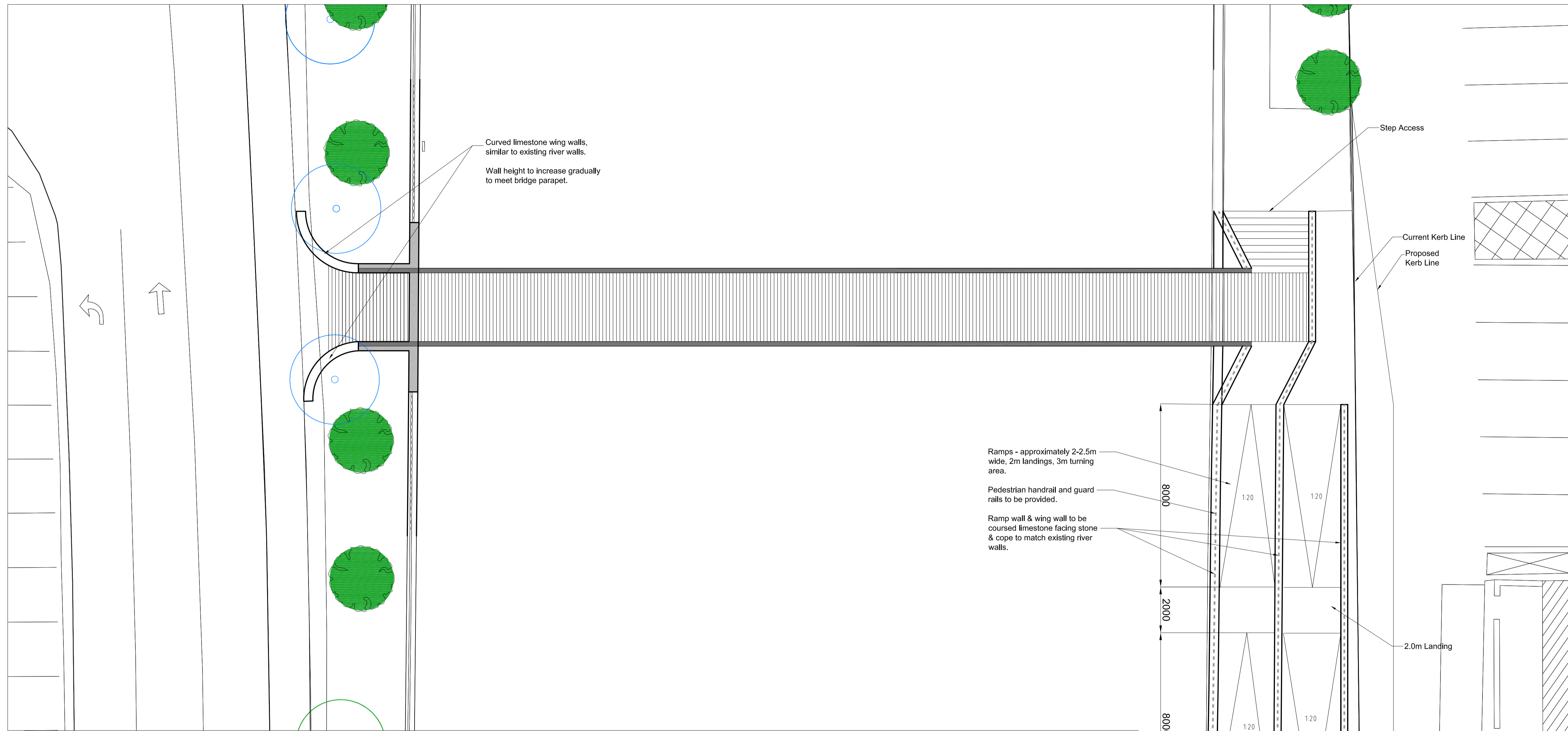
Appendix 1 – Drawings

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47061456/P8/100-1	Overall Scheme Location Plan (Street Map)
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47061456/P8/103-3	Visualisation – View 3 West Bank

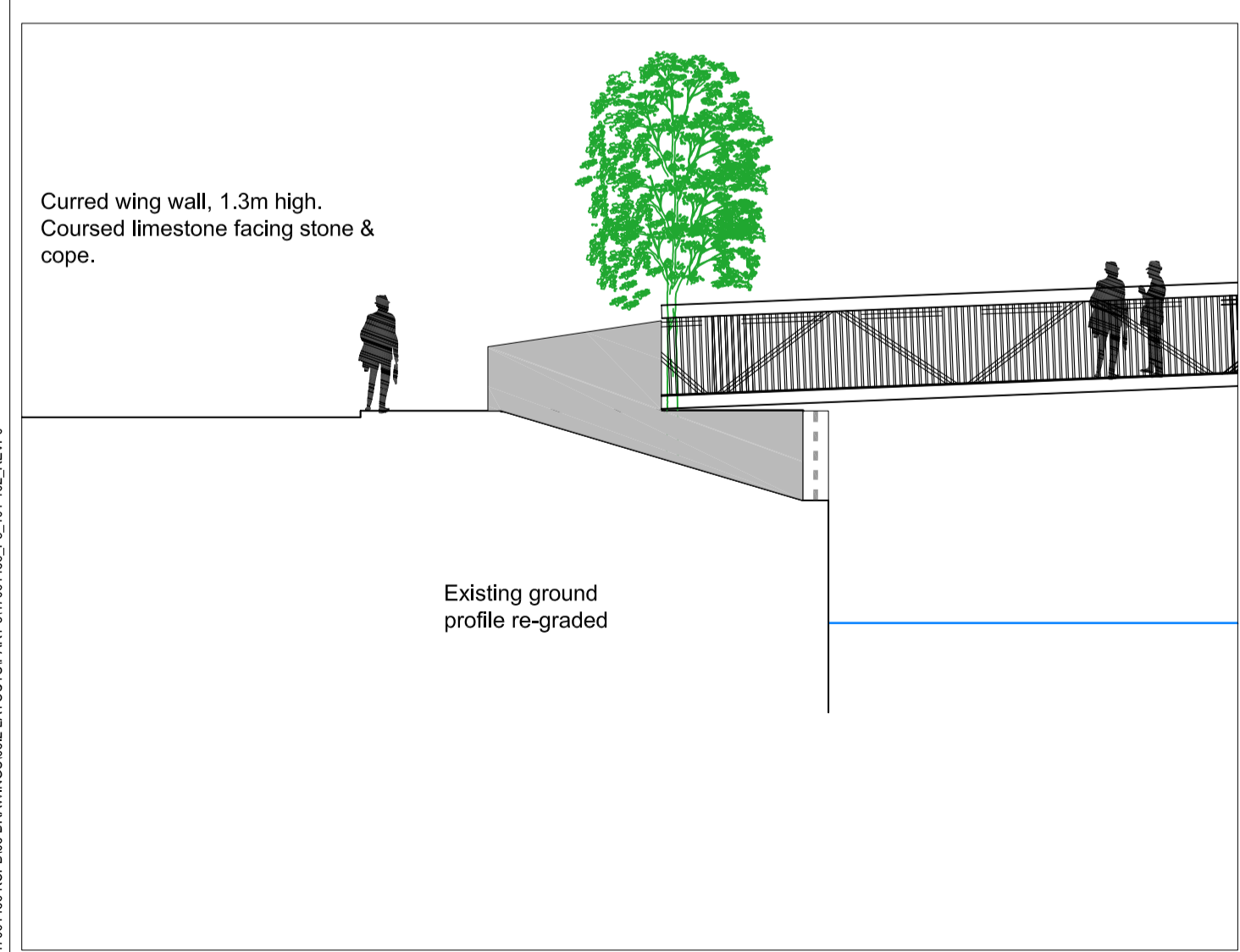


PROPOSED BRIDGE LOCATION

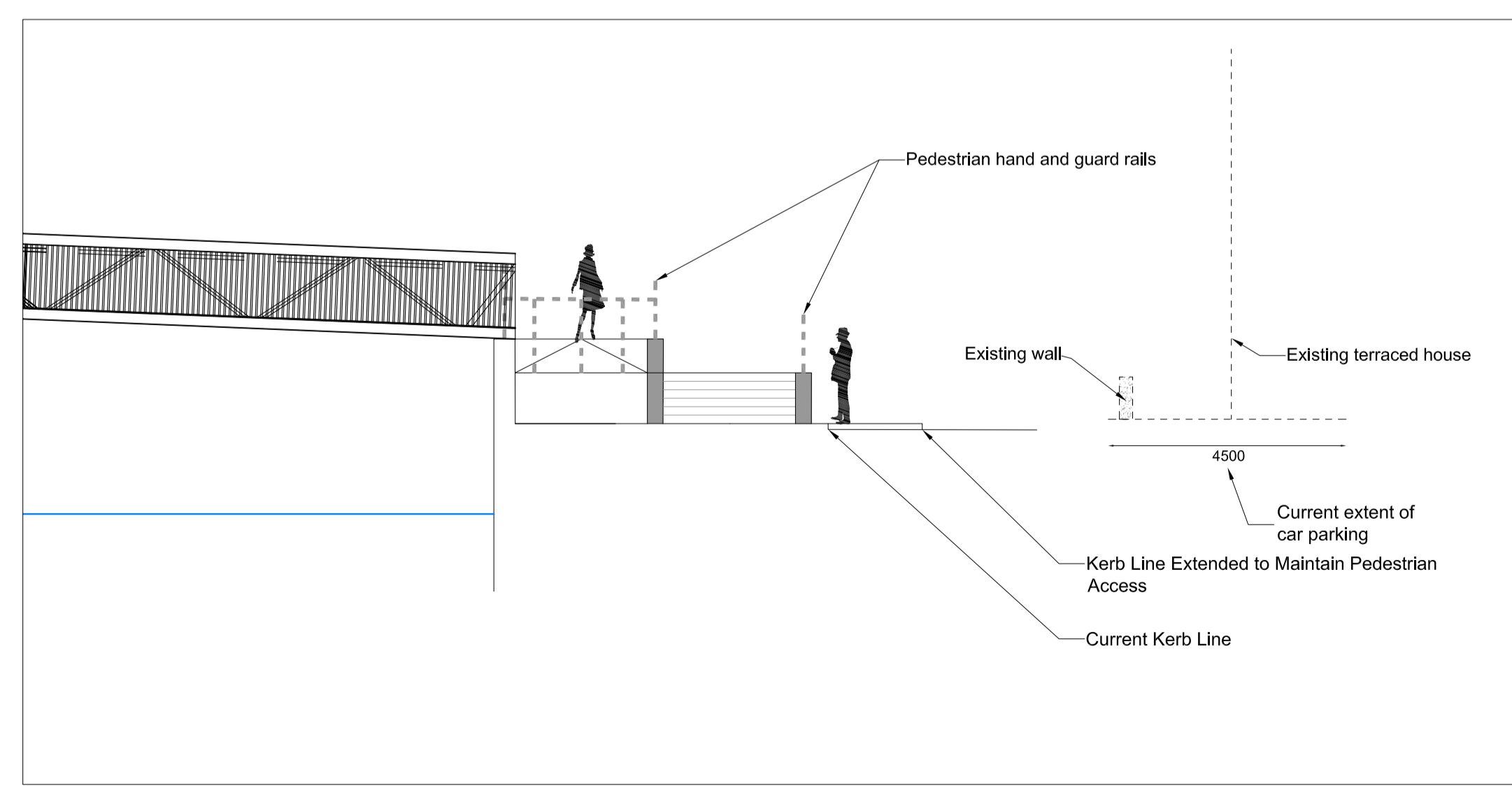
NOTES				Purpose of Issue			Project Title			Drawing Title			Designed			Drawn			Checked			Approved			Date			URS Infrastructure & Environment UK Limited		
				FOR INFORMATION			KILKENNY CITY PEDESTRIAN BRIDGE			SCHEME LOCATION PLAN (STREET MAPPING)			RS			RS			EG			MLR			25/10/2012			URS Infrastructure & Environment UK Limited 6-8 Harcourt Road Dublin 01 415 5100 01 415 5101 www.ursglobal.com		
				Client									URS Internal Project No. 47061456			Scale @ A1			Zone / Mileage			Subsidiary			Drawing Number 47061456/P8/100-1			Rev P0		
				CONSTRUCTION RISKS			MAINTENANCE / CLEANING RISK			DEMOLITION RISKS			In addition to the hazards risks normally associated with the types of work detailed on this drawing take note of above. It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.			SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX														
Revision Details				By			Date			Suffix																				



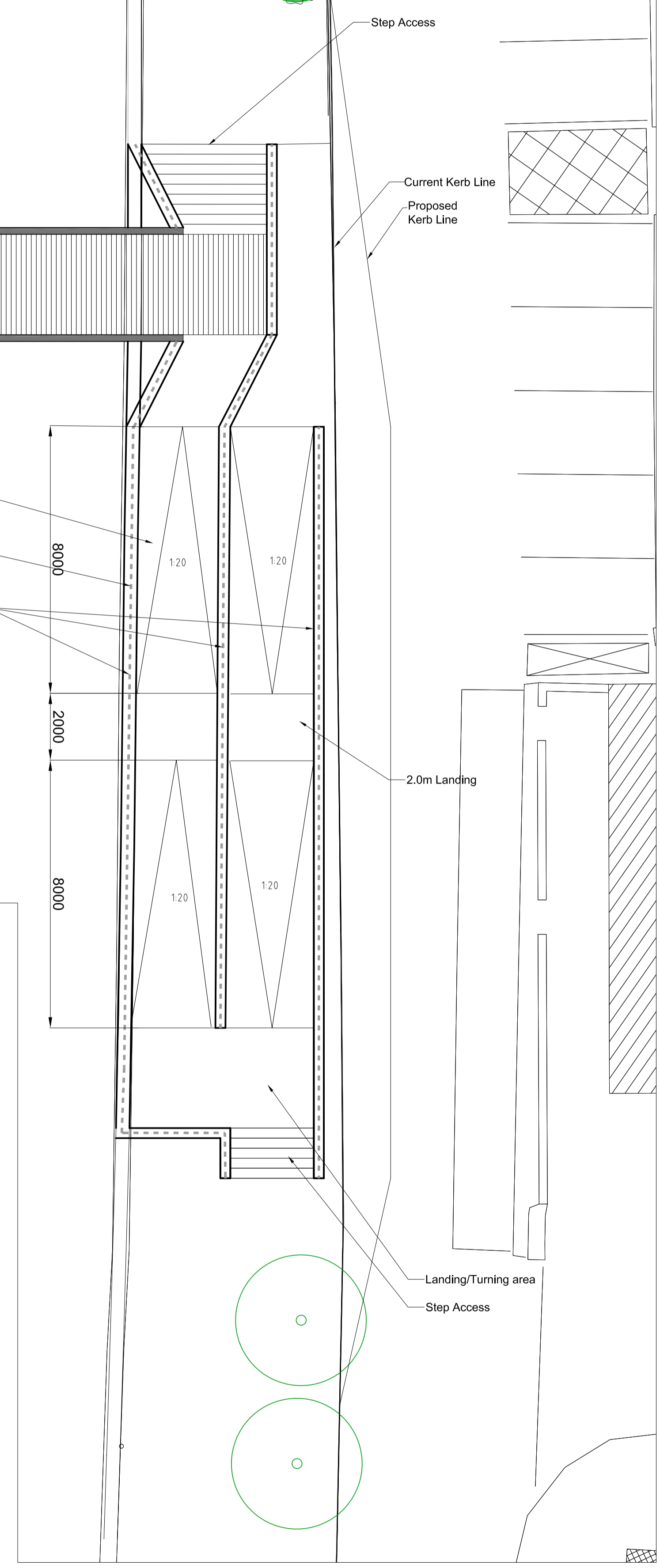
Plan
Scale 1:1000



Elevation West Bank
Scale 1:100



Elevation East Bank
Scale 1:100



CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISK	DEMOLITION RISKS
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NOTES

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Revision Details	By	Date	Suffix
	Check		

Purpose of Issue
FOR DRAFT



Project Title
KILKENNY CITY PEDESTRIAN BRIDGE

Drawing Title
PROPOSED FOOT BRIDGE GENERAL LAYOUT & ELEVATION LATTICE TRUSS

Designed EG	Drawn MM	Checked EG	Approved EG	Date 25/10/12
URS Internal Project No. 47061456			Stability N/A	
Scale @ A1 AS SHOWN			Zone / Mileage N/A	

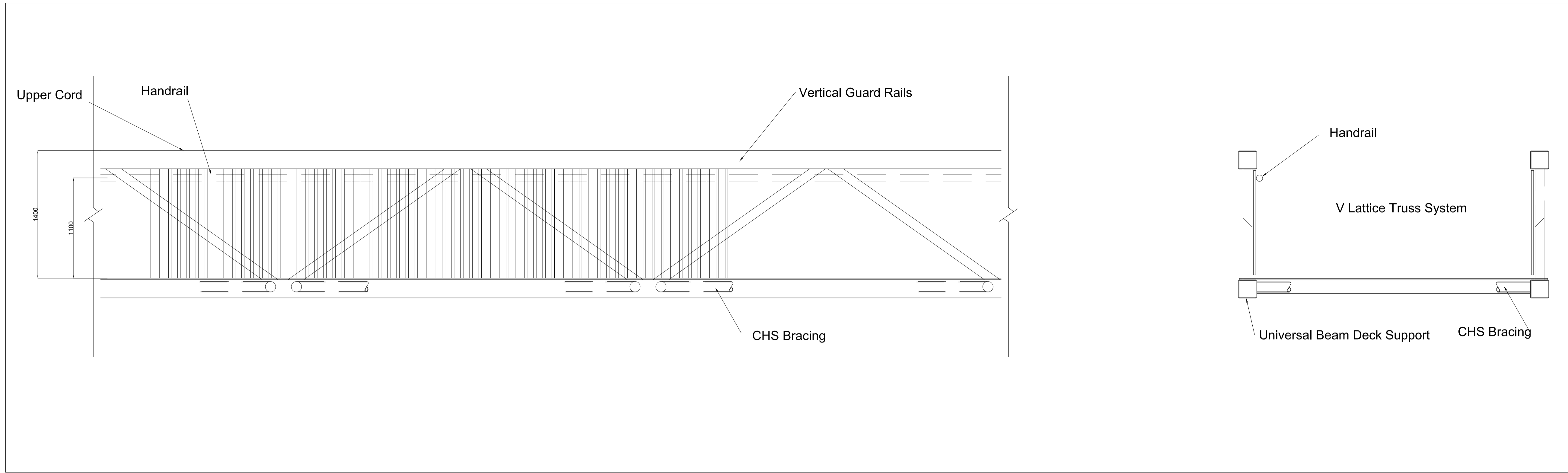
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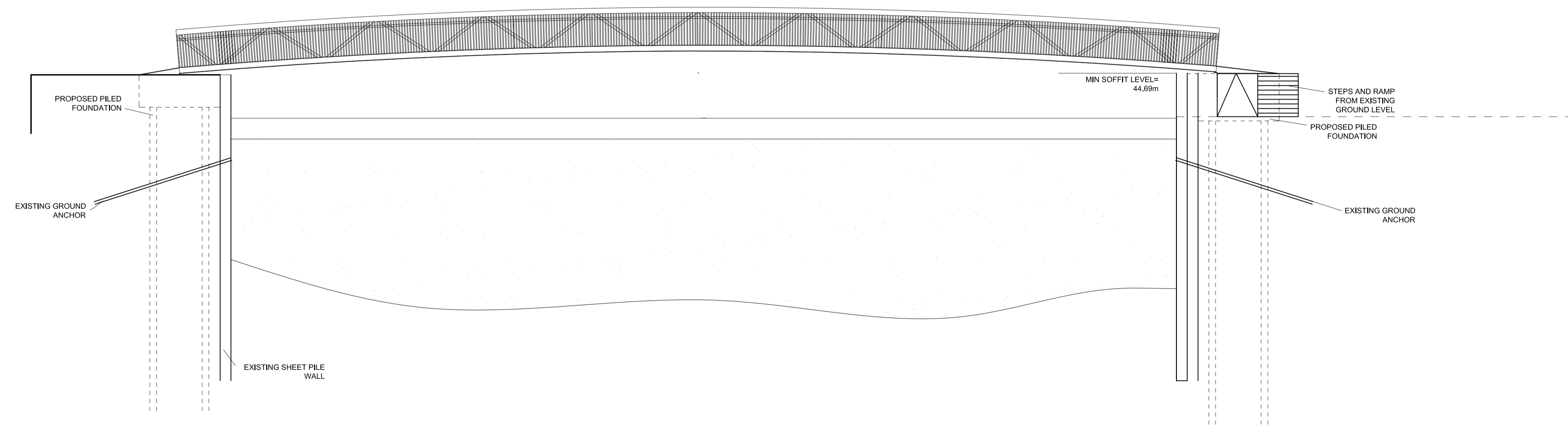
Drawing Number 47061456/P8/101	Rev P0
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Partial Elevation
Scale 1:25

Section
Scale 1:25



Elevation
Scale 1:100

CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISK	DEMOLITION RISKS
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

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Revision Details	By	Date	Suffix
	Check		

Purpose of Issue
FOR DRAFT



Project Title
KILKENNY CITY PEDESTRIAN BRIDGE

Drawing Title
PROPOSED FOOT BRIDGE PRELIM STRUCTURAL SECTIONS LATTICE TRUSS

Designed EG	Drawn MM	Checked EG	Approved EG	Date 25/10/12
URS Internal Project No. 47061456		Subsidiary N/A		
Scale @ A1 AS SHOWN		Zone / Mileage N/A		

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Kilkenny City Pedestrian Bridge. View 1 – Johns Bridge



Kilkenny City Pedestrian Bridge. View 2 – West Bank (Bateman Quay)



Kilkenny City Pedestrian Bridge. View 3 – East Bank (Johns Quay)