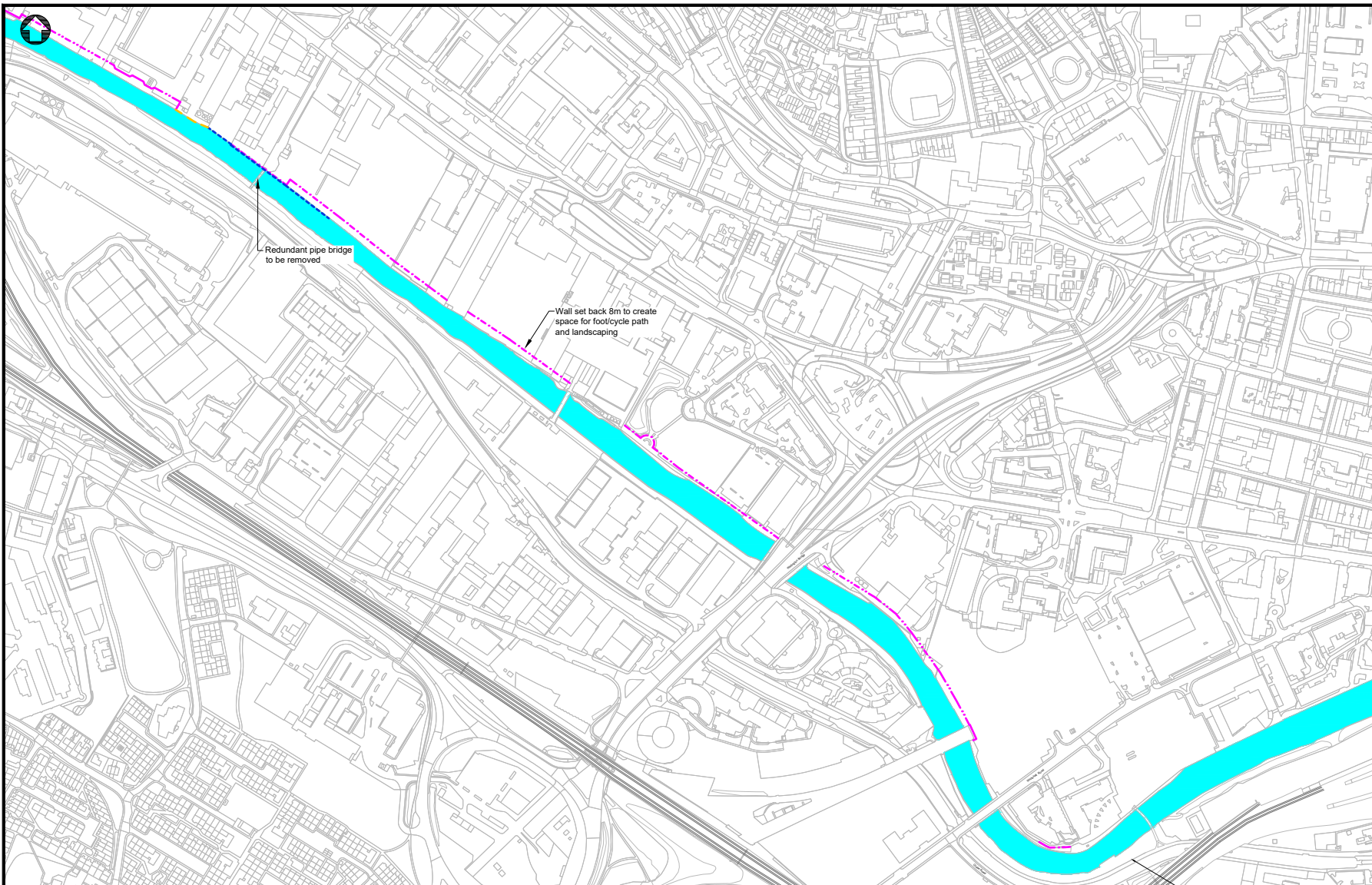


Phase 2 Leeds (River Aire) Flood Alleviation Scheme

Appendix A – LFAS2 Drawings



- Notes
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 - All dimensions are in millimetres unless noted otherwise.
 - Access and working space to be agreed with landowner and tenants.
 - Wall heights are based on a Standard of Protection of 200 year with climate change to 2069 (including NFM) with construction of attenuation at Calverley only.

- Key to symbols
- Proposed Flood Defence features:**
- Type 1 - clad concrete wall up to 600mm high on L foundation
 - Type 2 - clad concrete wall up to 1200mm high on L foundation
 - Type 3 - clad concrete wall up to 1800mm high on mini piles
 - Type 4 - sheet piles with precast capping beam
 - Type 5 - sheet piles with stone coping and cladding
 - Type 6 - earth bund up to 600mm high
 - Type 7 - earth bund up to 4000mm high
 - Flow control structure
- Remedial Work to existing features which will act as a flood defence:**
- Type 8 - Height extension to existing wall up to 3000mm high
 - Type 9 - building/structure with remedial work
 - Type 10 - earth bund with remedial work

Key Plan

DRAFT

0 125m 250m

RESIDUAL RISK ASSESSMENT

Wherever possible, risk is designed-out of this proposal during the design process. Where this is not possible, the risk will be minimised and any residual significant risk will be noted and indicated by the symbol.

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	17/01/19	SAG	Updated as PLanning Submission	PJC	CSG
P1	29/11/17	AM	For Comment	PJC	CSG

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Part Plan on Scheme
Sheet 1 of 6
Scale 1:2500

Leeds
CITY COUNCIL

Title
Leeds Flood Alleviation Scheme

Indicative Scheme Details
Sheet 1 of 6

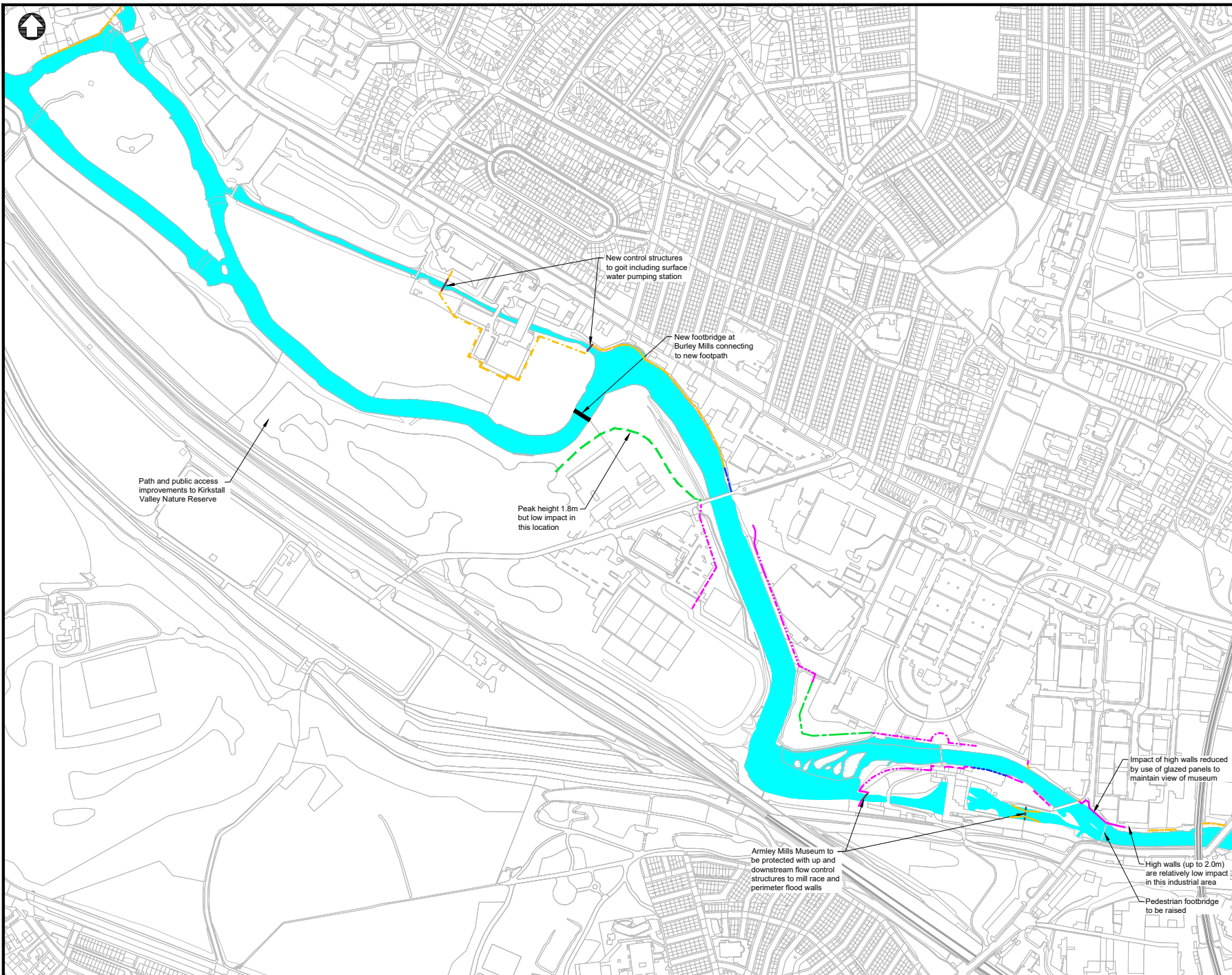
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Drawn	A Marsden	AM	Coordination	P J Charlesworth	PJC
Dwg check	F Buskevicius	FB	Approved	C S Greenhill	CSG

Scale at A1

As Shown	PRE	Rev	P2
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Drawing Number
LFD-BMM-ZX-XX-DR-CC-01100

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- Notes**
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- Key to symbols**
- Proposed Flood Defence features:**
- Type 1 - clad concrete wall up to 800mm high on L foundation
 - Type 2 - clad concrete wall up to 1200mm high on L foundation
 - Type 3 - clad concrete wall up to 1800mm high on mini piles
 - Type 4 - sheet piles with precast capping beam
 - Type 5 - sheet piles with stone coping and cladding
 - Type 6 - earth bund up to 600mm high
 - Type 7 - earth bund up to 4000mm high
 - Flow control structure
- Remedial Work to existing features which will act as a flood defence:**
- Type 8 - Height extension to existing wall up to 3000mm high
 - Type 9 - building/structure with remedial work
 - Type 10 - earth bund with remedial work

Key Plan

DRAFT

0 125m 250m

1:2500

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Reference drawings

Rev	Date	Drawn	Description	Chk'd	App'd
P2	17/01/19	SAG	Updated as Planning Submission	PJC	CSG
P1	29/11/17	AM	For Comment	PJC	CSG

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United Kingdom
T +44 (0)114 2761242
F www.motomac.com

Arup thomas mackay

Environment Agency



Title
Leeds Flood Alleviation Scheme

Indicative Scheme Details
Sheet 2 of 6

Designed	F Buskevicius	FB	Eng check	P J Charlesworth	PJC
Drawn	A Marsden	AM	Coordination	P J Charlesworth	PJC
Dwg check	F Buskevicius	FB	Approved	C S Greenhill	CSG

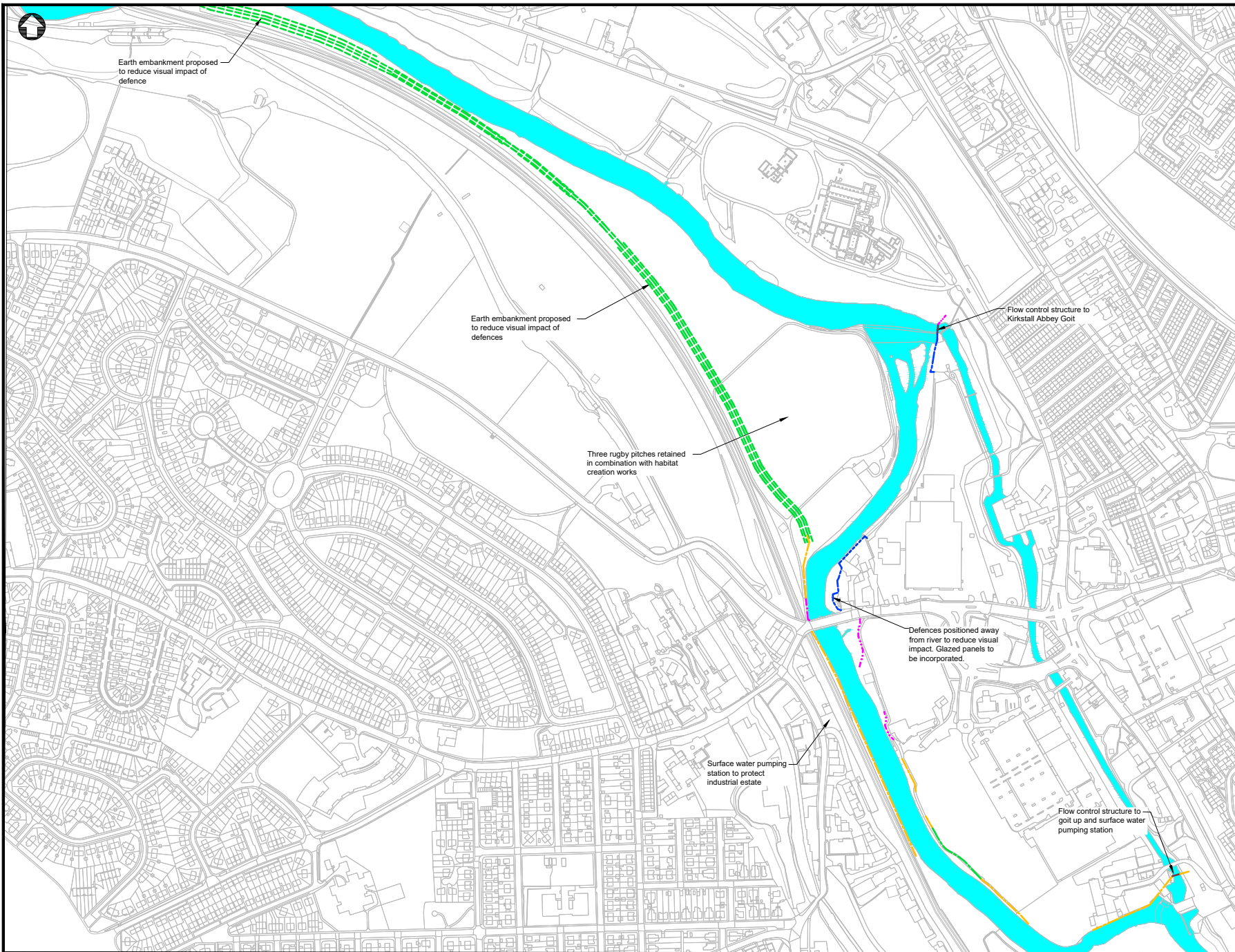
Scale at A1

As Shown	Status	Rev
As Shown	PRE	P2

Drawing Number
LFD-BMM-ZX-XX-DR-CC-01101

Part Plan on Scheme
Sheet 2 of 6
Scale 1:2500

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- Key to symbols
- Proposed Flood Defence features:**
- - - - - Type 1 - clad concrete wall up to 600mm high on L foundation
 - - - - - Type 2 - clad concrete wall up to 1200mm high on L foundation
 - - - - - Type 3 - clad concrete wall up to 1800mm high on mini piles
 - - - - - Type 4 - sheet piles with precast capping beam
 - - - - - Type 5 - sheet piles with stone coping and cladding
 - - - - - Type 6 - earth bund up to 600mm high
 - - - - - Type 7 - earth bund up to 400mm high
 - - - - - Flow control structure
- Remedial Work to existing features which will act as a flood defence:**
- - - - - Type 8 - Height extension to existing wall up to 3000mm high
 - - - - - Type 9 - building/structure with remedial work
 - - - - - Type 10 - earth bund with remedial work

Key Plan

DRAFT

1:2500 0 125m 250m

RESIDUAL RISK ASSESSMENT

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Reference drawings

P2	17/01/19	SAG	Updated as PLanning Submission	PJC	CSG
P1	29/11/17	AM	For Comment	PJC	CSG
Rev	Date	Drawn	Description	Chk'd	App'd

	<p style="font-size: 8pt;">4th Floor, Derwent House 150 Arundel Gate Sheffield, S1 2JY United Kingdom T +44 (0)114 2761242 F +44 (0)114 2761242 www.motemac.com</p> <p>Arup thomas mackay</p>
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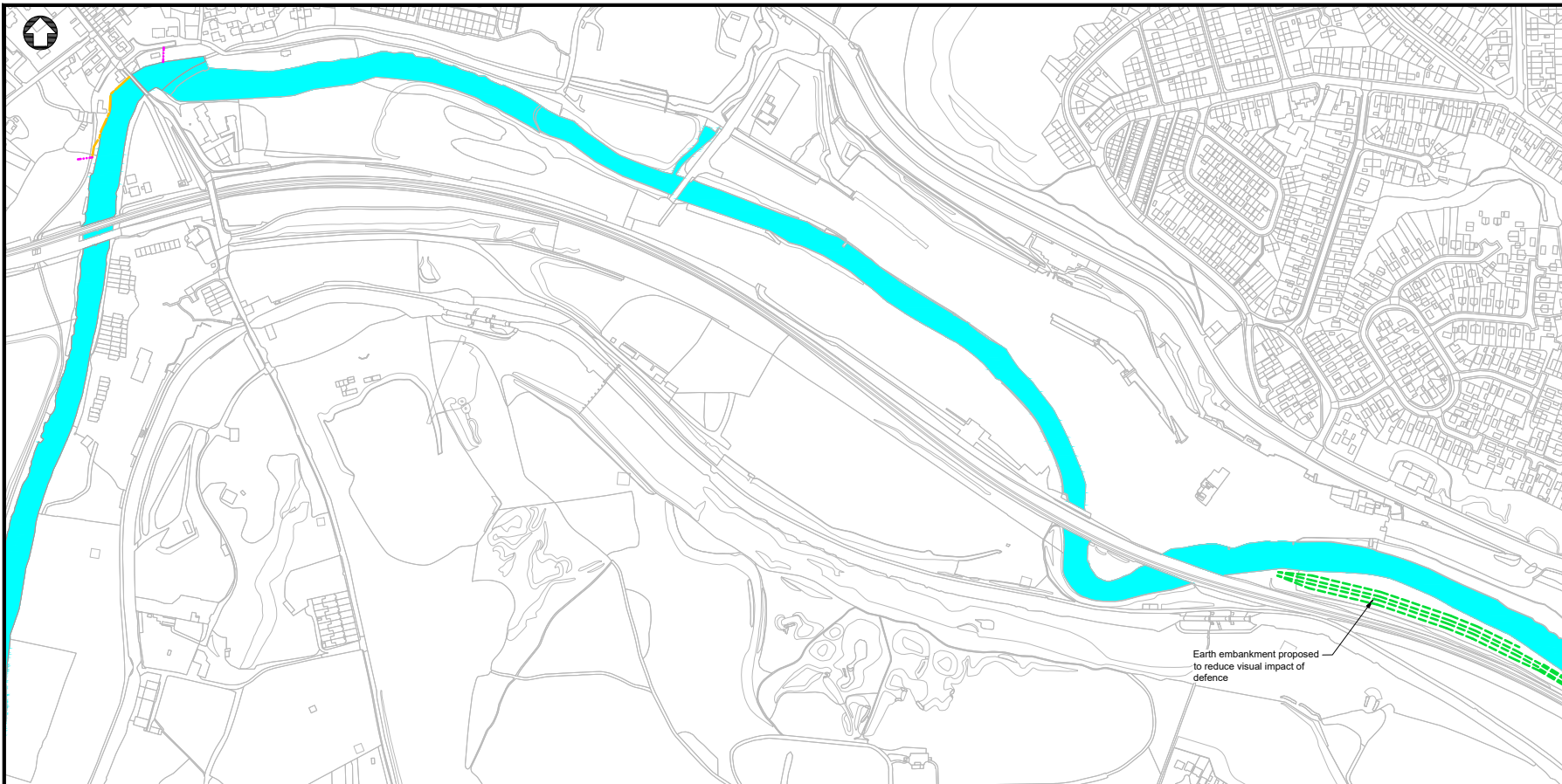
Title
Leeds Flood Alleviation Scheme

Indicative Scheme Details
Sheet 3 of 6

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Drawn	A Marsden	AM	Coordination	P J Charlesworth	PJC
Dwg check	F Buskevičius	FB	Approved	C S Greenhill	CSG
Scale at A1	As Shown	Status	PRE	Rev	P2
Drawing Number LFD-BMM-ZX-XX-DR-CC-01102					

Part Plan on Scheme
Sheet 3 of 6
Scale 1:2500

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- Key to symbols
- Proposed Flood Defence features:**
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 - Type 5 - sheet piles with stone coping and cladding
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 - Type 7 - earth bund up to 4000mm high
 - Flow control structure
- Remedial Work to existing features which will act as a flood defence:**
- Type 8 - Height extension to existing wall up to 3000mm high
 - Type 9 - building/structure with remedial work
 - Type 10 - earth bund with remedial work

Key Plan

DRAFT

0 125m 250m

1:2500

RESIDUAL RISK ASSESSMENT

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Part Plan on Scheme
Sheet 4 of 6
Scale 1:2500

Reference drawings

P2	17/01/19	SAG	Updated as PLanning Submission	PJC	CSG
P1	29/11/17	AM	For Comment	PJC	CSG
Rev	Date	Drawn	Description	Ch'k'd	App'd

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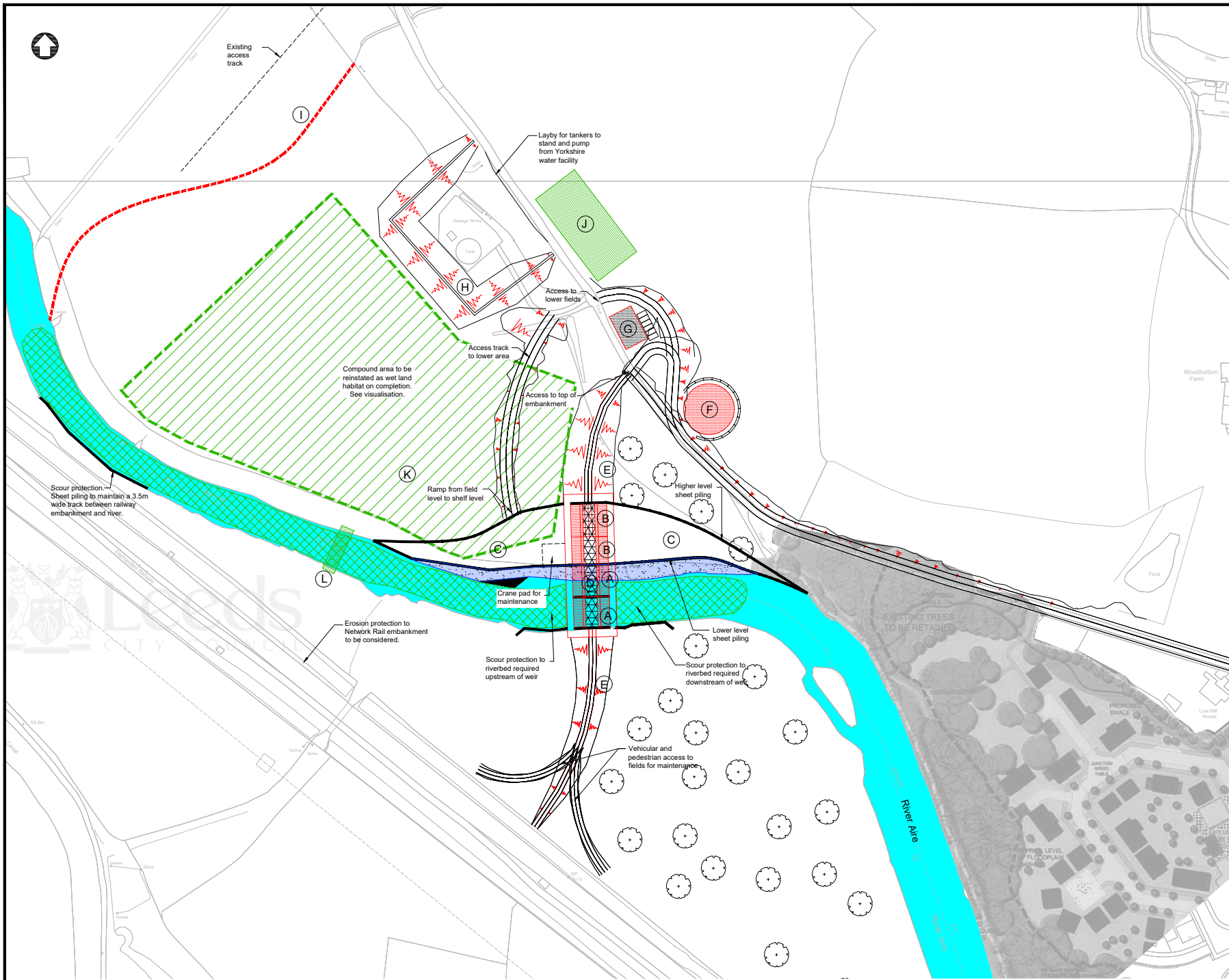


Title
Leeds Flood Alleviation Scheme

Indicative Scheme Details
Sheet 4 of 6

Designed	F Buskevicius	FB	Eng check	P J Charlesworth	PJC
Drawn	A Marsden	AM	Coordination	P J Charlesworth	PJC
Dwg check	F Buskevicius	FB	Approved	C S Greenhill	CSG
Scale at A1	Status		Rev		
As Shown		PRE		P2	
Drawing Number LFD-BMM-ZX-XX-DR-CC-01103					

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Notes

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- Key to symbols**
- River and Flood**
- River Aire
 - River Widening
- Permanent Works**
- (A) Twin 15 metre wide raising weirs comprising steel plate supported on water filled bladder, normally on river bed that can be raised to a height of 47.82 metres AoD.
 - (B) Twin 15 metre wide fixed weirs with a fixed crest at a height of 47.7 m AoD
 - (C) Raised shelf area at a height of 45 m AoD and usually dry except during major flood events when the flood barrier is raised
 - (D) Light vehicle and footbridge spanning over the river channel and fixed crest weir with soffits at 50.6m AoD or higher.
 - (E) Approach embankment with 4m wide crest at a height of 50.3 metres AoD capable of taking light vehicles and with 1 in 3 side slopes. Downstream face to incorporate erosion protection measures.
 - (F) Water storage tank (used to inflate flow control barriers) with a 2 metre wide maintenance strip around its circumference. Water tank to be 25 metre diameter and 2.5m high with its base at 53 metres AoD. The hill side would be retained by gabions or other retaining structure.
 - (G) Control building for flow control / storage equipment. Assumed as single storey building with 216m2 footprint plus 6 parking spaces.
 - (H) Flood bund with 1m wide crest at 50.3 metres AoD and 1 in 3 side slopes to protect pumping station. Ramped access to be considered from access track to the immediate east. Contractor to consider surface water drainage.
 - (I) Back to be diverted
- Temporary Works**
- (J) Upper level temporary offices and welfare facilities for use during construction. Field to be reinstated on completion.
 - (K) Lower level temporary construction work site area of 2.1 ha
 - (L) Temporary bridge for use during construction
- Other symbols:**
- Earthworks
 - Compensatory tree planting area
 - Sheet piling
 - Dredging and river clearance for construction to be considered by contractor

Reference drawings

P1	17/01/19	SAG	For Planning Submission	DJS	CG
Rev	Date	Drawn	Description	Chk'd	App'd

bmmjv Mott MacDonald
 2nd Floor, 2 Brewery Wharf, Kendal Street, Leeds LS10 1UR, United Kingdom
 T +44 (0)113 394 6700
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bam nuttall MOTT MACDONALD



Title Leeds Flood Alleviation Scheme

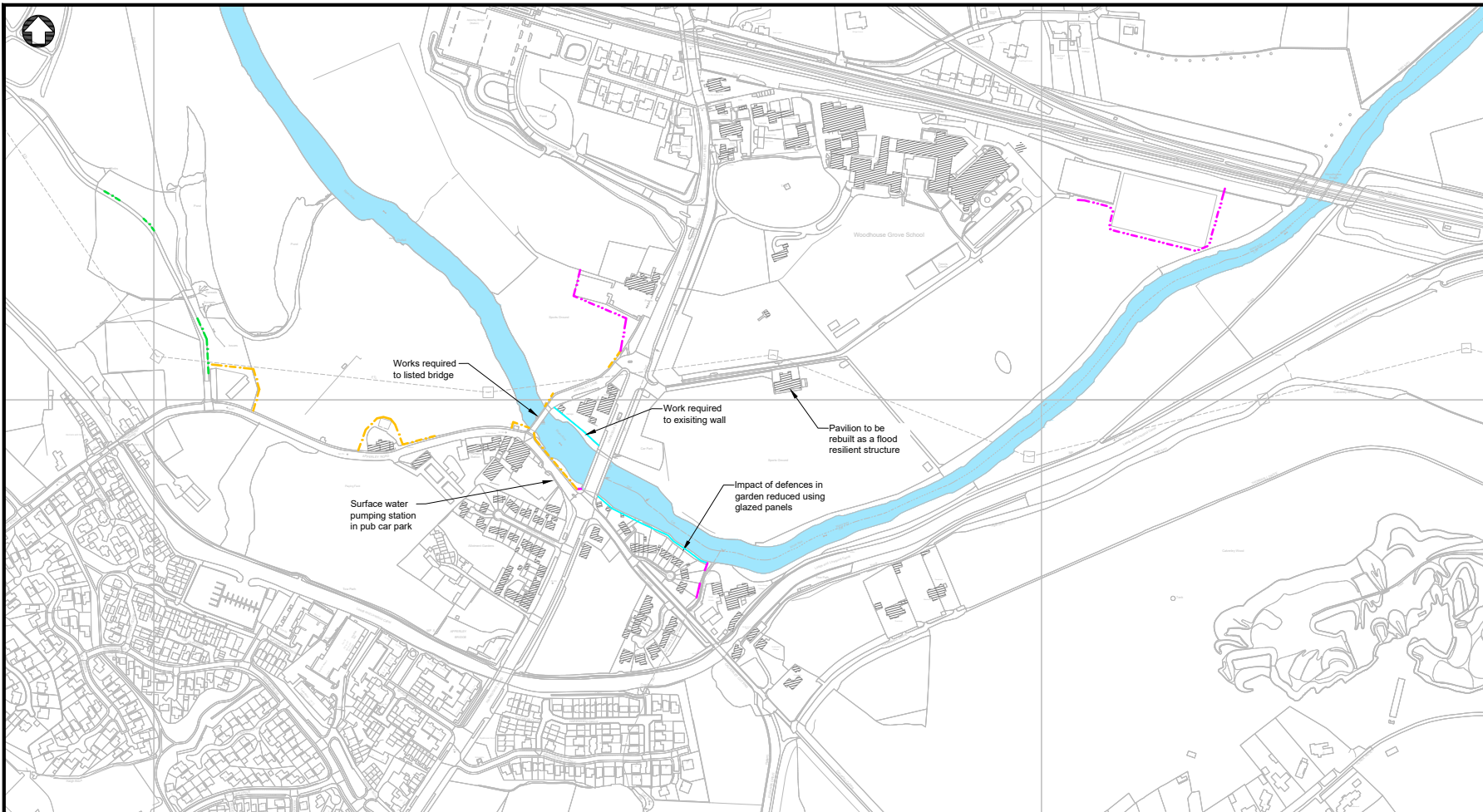
Indicative Scheme Details
 Sheet 5 of 6

Designed	P Charlesworth	PJC	Eng check	D Stirling	DJS
Drawn	S A Gretton	SAG	Coordination	J Smith	JAS
Dwg check	A Marsden	AM	Approved	C Greensall	CG
Scale at A1	NTS	Status	PRE	Rev	P1
Drawing Number: LFD2-BMM-Z14-XX-DR-CC-01104					

Part Plan on Scheme - Calverley
 Sheet 5 of 6

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 - Type 10 - earth bund with remedial work

Key Plan

DRAFT

0 125m 250m

RESIDUAL RISK ASSESSMENT

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Reference drawings

P2	17/01/19	SAG	Updated as Planning Submission	PJC	CSG
P1	29/11/17	AM	For Comment	PJC	CSG
Rev	Date	Drawn	Description	Chk'd	App'd

Part Plan on Scheme - Apperley Bridge
Sheet 6 of 6
 Scale 1:2500

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<p>Arup thomas mackay</p>	



Leeds Flood Alleviation Scheme

Indicative Scheme Details
Sheet 6 of 6

Designed	F Buskevicius	FB	Eng check	P J Charlesworth	PJC
Drawn	A Marsden	AM	Coordination	P J Charlesworth	PJC
Dwg check	F Buskevicius	FB	Approved	C S Greenhill	CSG
Scale at A1	Status	Rev			
As Shown	PRE	P2			
Drawing Number LFD-BMM-ZX-XX-DR-CC-01105					

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