

Zone 3

Viaduct Road to Wellington Bridge (A58)

Summary

Character:

Urban, industrial / commercial.

Important east - west transport routes linking into the city centre.

This zone falls within the Kirkstall Valley Park (see Zones 1 and 2) and Kirkstall Road Renaissance Area Planning Framework. The right bank of the river also falls within the West Leeds Gateway Area Action Plan.

Key Sites:

Kirkstall Industrial Estate redevelopment site.

Kirkstall Road, a major highway route to / from Leeds runs along the north side of the river within the flood plain.

Kirkstall Viaduct to the west boundary is a Grade II listed structure.

Wellington Road Industrial Estate redevelopment site.

Defence Proposals:

New flood walls are proposed for the full length of the river to protect the industrial businesses and Kirkstall Road.

Context

The Kirkstall Road Renaissance Area Planning Framework promotes the regeneration of the area between the Leeds–Liverpool Canal and Burley Road. It provides guidance to prospective developers and is used as a reference document against which planning applications will be considered. One of the key opportunities identified is the ‘use of the river and canal as a frontage for new development and to open up the waterfront for public access and recreation with new pedestrian and cycle paths connecting it to neighbouring communities.’

The West Leeds Gateway Area Action Plan covers the area south of the river within this zone. It sets out the future for the area in terms of change effecting regeneration and new development.

Key Sites

Kirkstall Industrial Estate

Kirkstall Industrial Estate is a large industrial estate of varied built form with its frontage to Kirkstall Road. Some large buildings are built up to the water edge and effectively form a barrier up to the river. The area is currently being redeveloped under the Kirkstall Road Renaissance Area Planning Framework and has a planning brief prepared. Several parcels of land have planning permission for varied uses including a significant amount of office and residential.

The planning framework specifically refers to the ‘Key Design Corridors – Canal / River / Waterway corridors’ where it states: ‘The land between the waterways forms part of the green corridor linking the city centre with the countryside further out along the Aire Valley. In accordance with aims and objectives of the Waterfront Strategy, it is proposed to protect and enhance this corridor, through the creation of a linear park and to open up the waterfront to public access.’

Steep embankments and industrial land uses characterise this industrial area. The estate is unattractive, has sheer retaining walls along the water edge and no formal public access. Current planning policy restricts any new development 10m away from the waters edge, to enable the later construction of path and cycle routes within a clear margin along the waterfront. However, existing buildings which are built right up to the waters edge obstruct the route and new footways will have to divert around the buildings or cantilever out over the water until such buildings are removed.

Kirkstall Road

Kirkstall Road highway is subject to redevelopment proposals for the Quality Bus Initiative (QBI). The design of the QBI is currently being advanced and a number of details are yet to be finalised. These include the appearance of the central reservation, cycleway details, design and location of bus stops and crossings. The cycle route on Kirkstall Road is an important long distance route and the redevelopment includes a segregated, marked cycle route to increase safety and encourage commuter cycling.

Bridging Points

An aspiration of the Kirkstall Planning Framework is to create better links from the newly refurbished Kirkstall Road to the waterfront and across the river to the canal towpath. The area south of the river has important pedestrian / cycle links to the rest of the Kirkstall Valley, principally the towpath along the Leeds - Liverpool Canal which is part of the Aire Valley Towpath cycleway (National Route 66). There are no useable bridges at present.

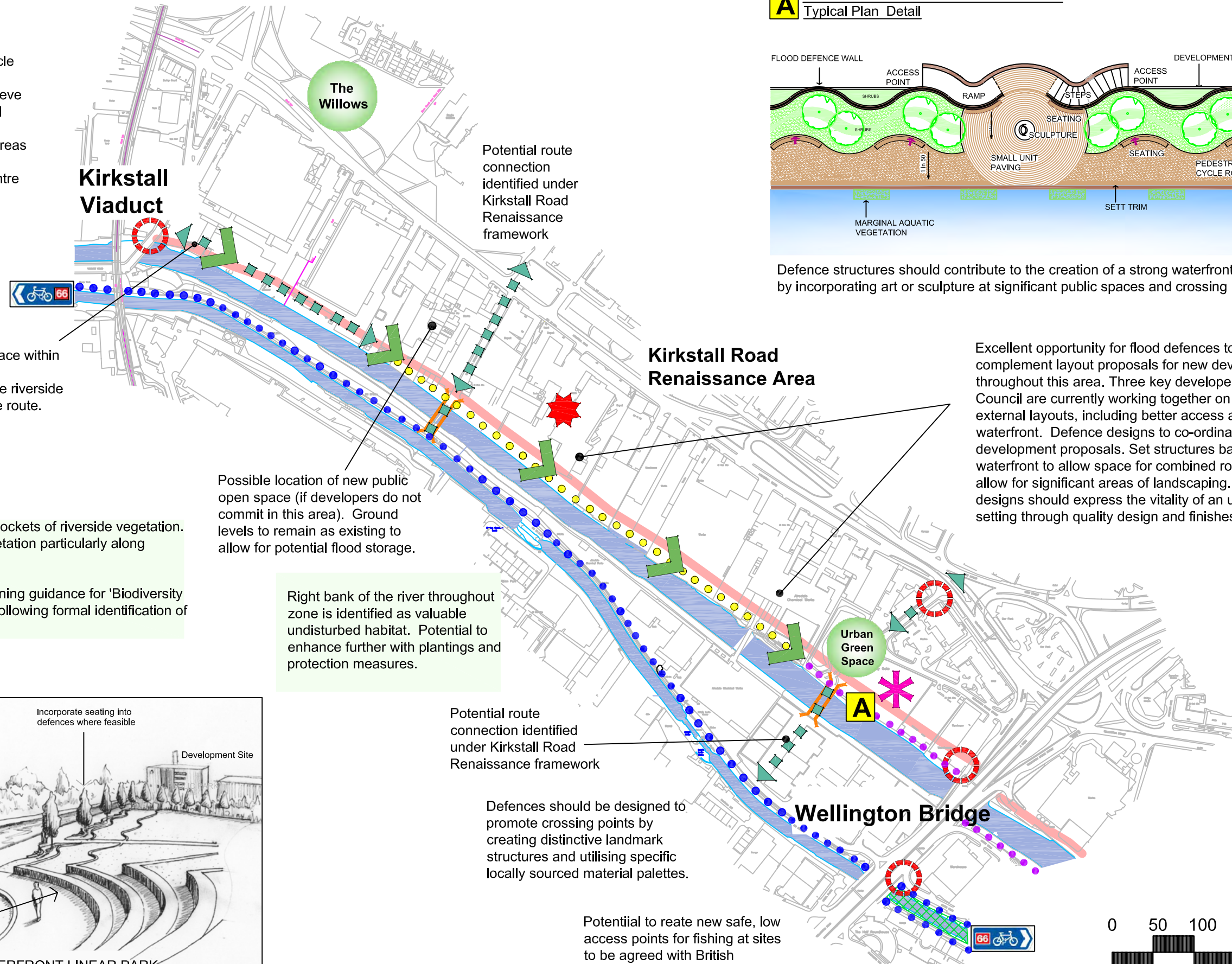
The Planning Framework proposes two new pedestrian / cycleway bridges, one to be sited at the end of Washington Street, within the heart of the industrial estate, and one at the existing 'pocket park' to the eastern end of the industrial estate.

The flood alleviation scheme should integrate both river crossings into the proposed defence structures and / or ground alterations and there is scope to emphasise the bridge structures as distinctive landmarks for important north / south connections.

Wellington Road Industrial Estate

Wellington Road Industrial Estate is situated on the south bank of the river at the eastern end of the zone. It is largely unaffected by flood defence proposals but it is worth noting that it is a redevelopment site with similar improvement objectives to Kirkstall Road Industrial Estate. The Leeds Waterfront Strategy proposes the future development should 'introduce a strong sequence of landscape spaces to link the canal and river environments', and, 'ensure buildings front the river and canal positively and access is provided to the water edge'.

New defences should aim to provide integral pedestrian /cycle routes along the waterfront. Establishing new links will achieve a significant aim of the Kirkstall Renaissance Area Planning Framework; to 'maximise the areas strategic location as a key connector between the city centre and the local communities of Kirkstall and Burley'.



Existing space within this area to accommodate riverside walk / cycle route.

Protect and enhance existing pockets of riverside vegetation. Increase marginal aquatic vegetation particularly along engineered banks.

Reference supplementary planning guidance for 'Biodiversity and Waterfront Development' following formal identification of existing habitats.

Possible location of new public open space (if developers do not commit in this area). Ground levels to remain as existing to allow for potential flood storage.

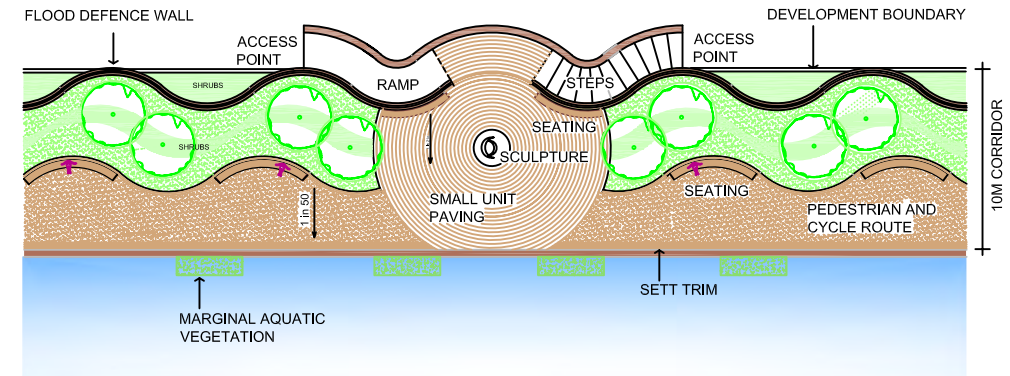
Right bank of the river throughout zone is identified as valuable undisturbed habitat. Potential to enhance further with plantings and protection measures.

Potential route connection identified under Kirkstall Road Renaissance framework

Defences should be designed to promote crossing points by creating distinctive landmark structures and utilising specific locally sourced material palettes.

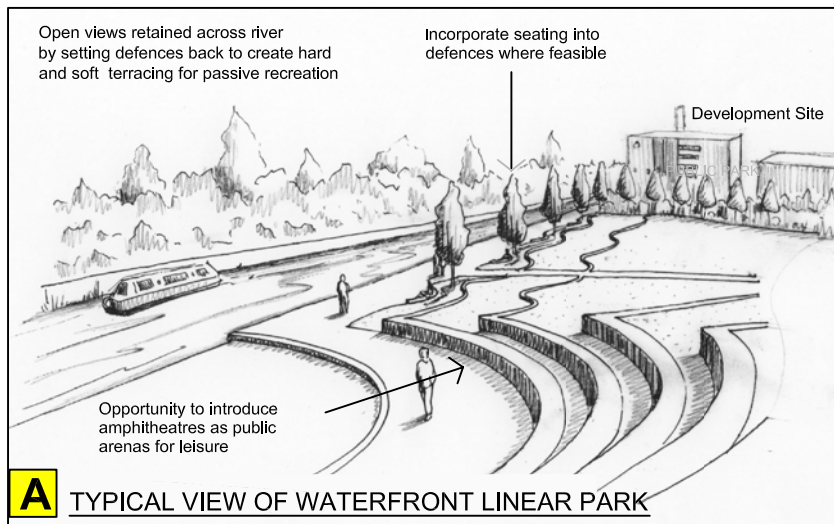
Potential to create new safe, low access points for fishing at sites to be agreed with British Waterways and Leeds City Council.

A KIRKSTALL ROAD WATERFRONT PARK
Typical Plan Detail



Defence structures should contribute to the creation of a strong waterfront identity by incorporating art or sculpture at significant public spaces and crossing points.

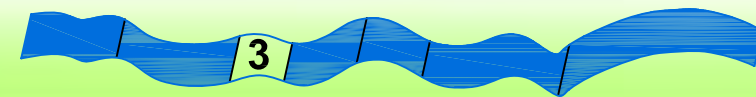
Excellent opportunity for flood defences to complement layout proposals for new developments throughout this area. Three key developers and City Council are currently working together on new external layouts, including better access and a green waterfront. Defence designs to co-ordinate with the development proposals. Set structures back from the waterfront to allow space for combined routes and allow for significant areas of landscaping. Defence designs should express the vitality of an urban park setting through quality design and finishes.



A TYPICAL VIEW OF WATERFRONT LINEAR PARK

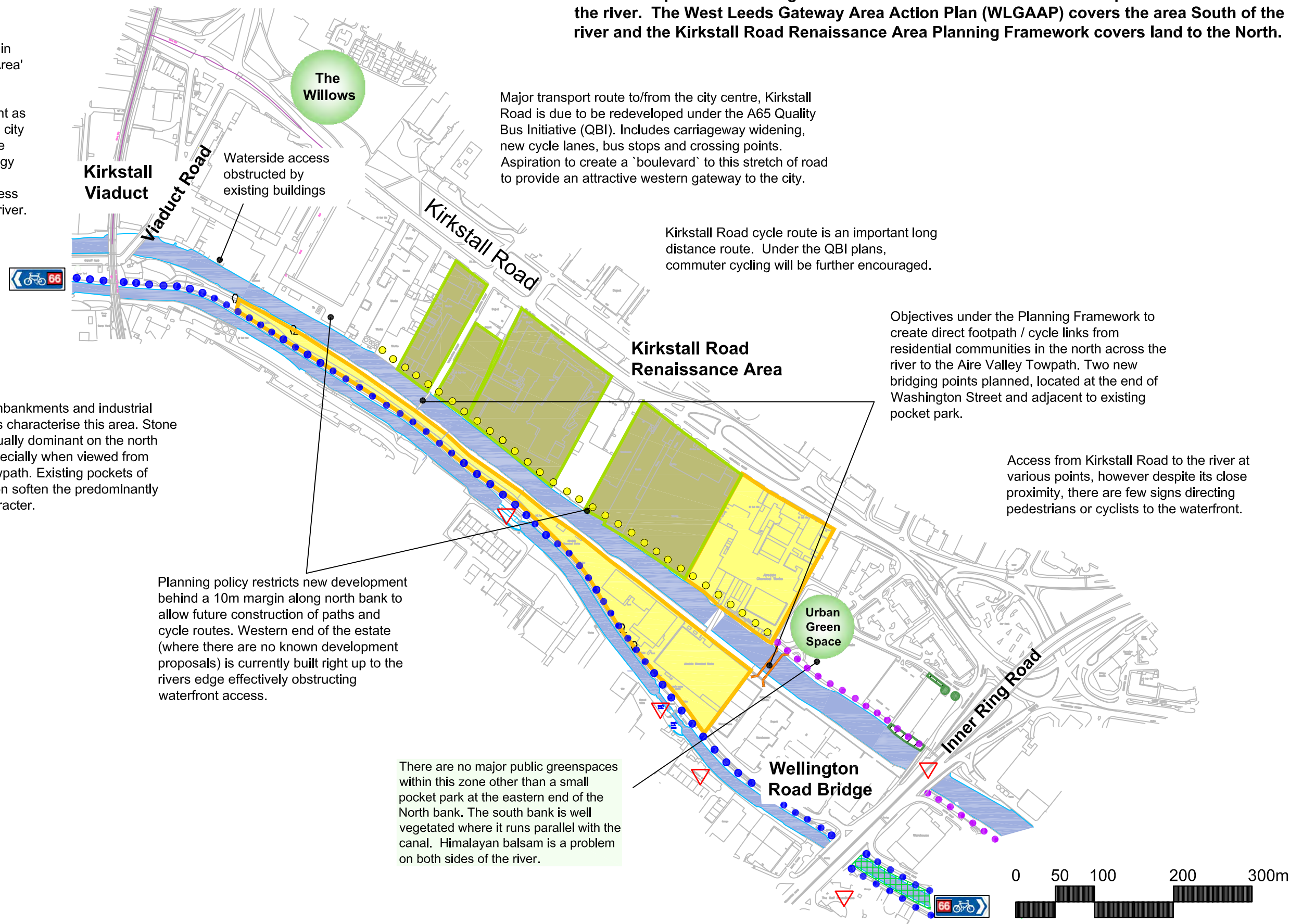


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Kirkstall Industrial Estate falls within the 'Kirkstall Road Renaissance Area' and includes several sites to be re-developed. Leeds Planning Framework identifies the waterfront as a 'Key Design Corridor' linking the city centre to the countryside along the Aire Valley. The Waterfront Strategy proposes to enhance this green corridor with increased public access for walking and cycling along the river.

Zone 3 comprises of existing industrial estates and industrial redevelopment land either side of the river. The West Leeds Gateway Area Action Plan (WLGAAP) covers the area South of the river and the Kirkstall Road Renaissance Area Planning Framework covers land to the North.



Major transport route to/from the city centre, Kirkstall Road is due to be redeveloped under the A65 Quality Bus Initiative (QBI). Includes carriageway widening, new cycle lanes, bus stops and crossing points. Aspiration to create a 'boulevard' to this stretch of road to provide an attractive western gateway to the city.

Kirkstall Road cycle route is an important long distance route. Under the QBI plans, commuter cycling will be further encouraged.

Objectives under the Planning Framework to create direct footpath / cycle links from residential communities in the north across the river to the Aire Valley Towpath. Two new bridging points planned, located at the end of Washington Street and adjacent to existing pocket park.

Access from Kirkstall Road to the river at various points, however despite its close proximity, there are few signs directing pedestrians or cyclists to the waterfront.

Steep embankments and industrial land uses characterise this area. Stone walls visually dominant on the north bank especially when viewed from canal towpath. Existing pockets of vegetation soften the predominantly hard character.

Planning policy restricts new development behind a 10m margin along north bank to allow future construction of paths and cycle routes. Western end of the estate (where there are no known development proposals) is currently built right up to the rivers edge effectively obstructing waterfront access.

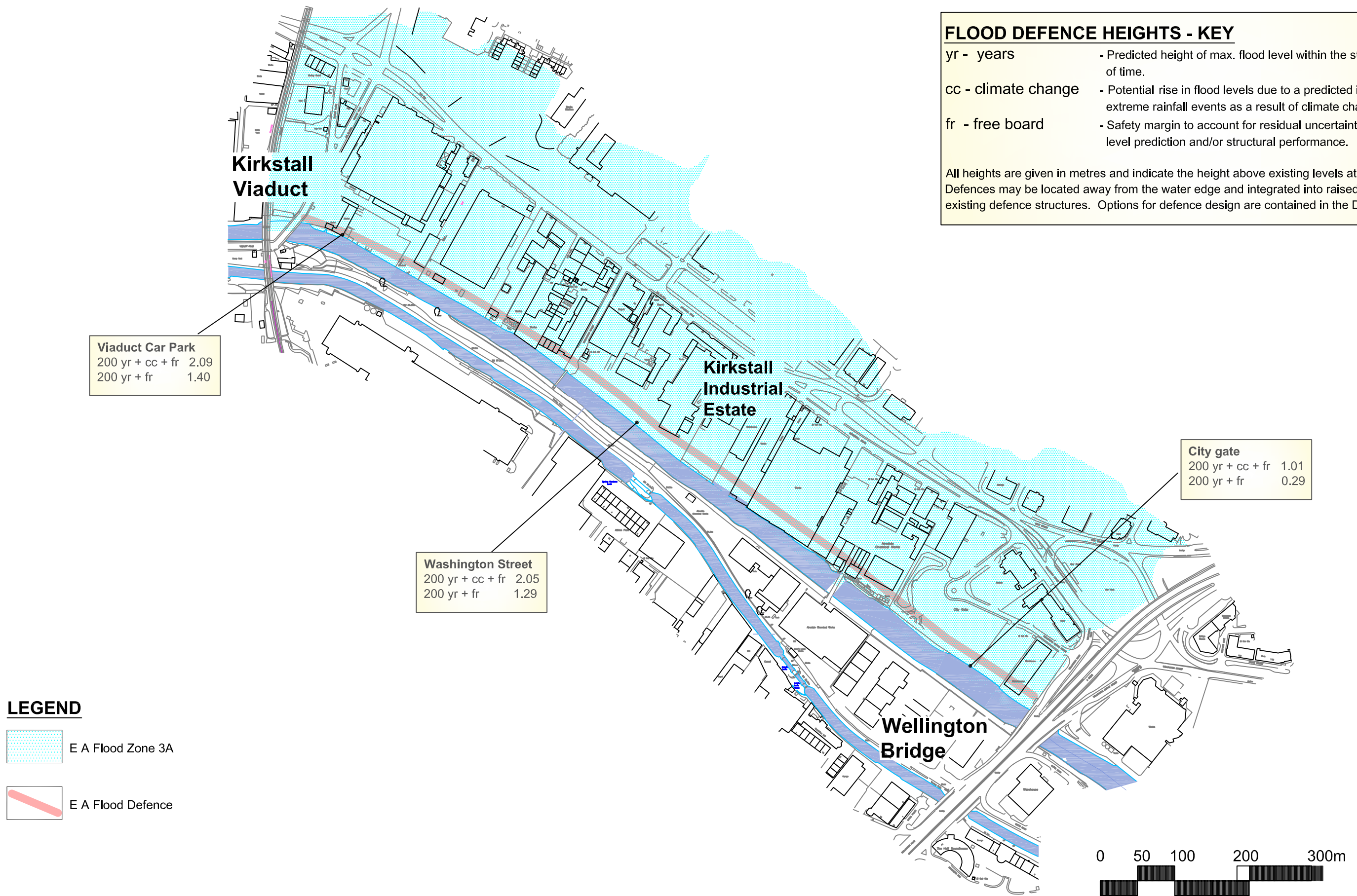
There are no major public greenspaces within this zone other than a small pocket park at the eastern end of the North bank. The south bank is well vegetated where it runs parallel with the canal. Himalayan balsam is a problem on both sides of the river.

Environment Agency Draft Proposals - Zone 3

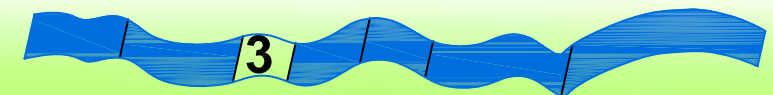
FLOOD DEFENCE HEIGHTS - KEY

yr - years	- Predicted height of max. flood level within the stated period of time.
cc - climate change	- Potential rise in flood levels due to a predicted increase in extreme rainfall events as a result of climate change.
fr - free board	- Safety margin to account for residual uncertainties in water level prediction and/or structural performance.

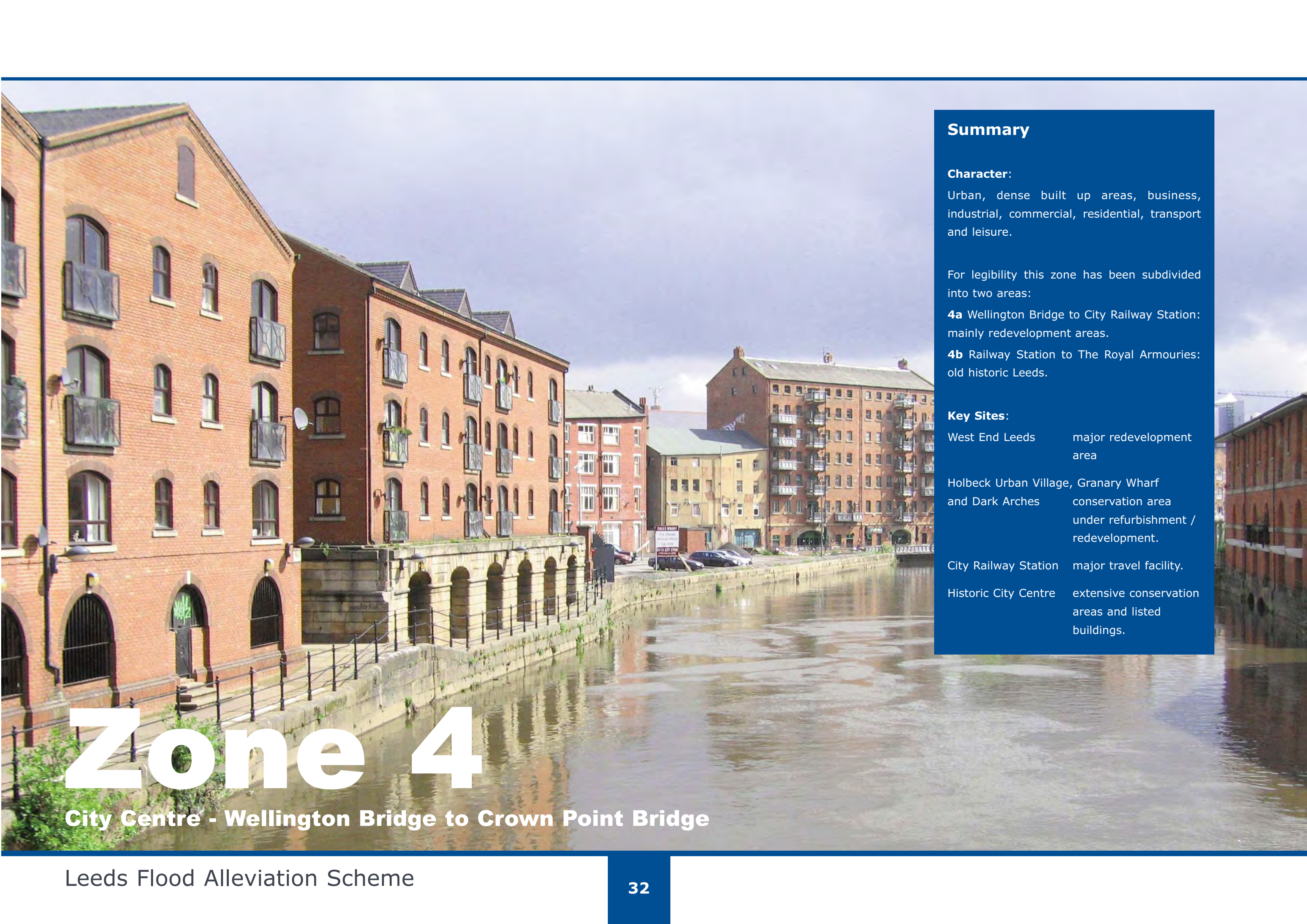
All heights are given in metres and indicate the height above existing levels at the waters edge. Defences may be located away from the water edge and integrated into raised ground levels or existing defence structures. Options for defence design are contained in the Design Guide.



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Zones



Summary

Character:
Urban, dense built up areas, business, industrial, commercial, residential, transport and leisure.

For legibility this zone has been subdivided into two areas:

4a Wellington Bridge to City Railway Station: mainly redevelopment areas.

4b Railway Station to The Royal Armouries: old historic Leeds.

Key Sites:

West End Leeds	major redevelopment area
Holbeck Urban Village, Granary Wharf and Dark Arches	conservation area under refurbishment / redevelopment.
City Railway Station	major travel facility.
Historic City Centre	extensive conservation areas and listed buildings.

Zone 4

City Centre - Wellington Bridge to Crown Point Bridge

Zone 4a Wellington Bridge to City Railway Station

Flood Defence Proposals

A short length of flood wall is proposed for the north bank of the river between the disused viaduct and Monk Bridge.

A flood wall is proposed along the south bank, running from Monk Bridge eastwards to the railway. This defence is to protect Holbeck Urban Village (HUV) area south of the river. Improvements to existing flood walls are also required for the area around Canal Wharf.

Flood defences are also identified as being required for Hol Beck, which runs alongside Water Lane through Holbeck Urban Village. The defences are to contain river water which periodically backs up into Hol Beck.

Context

The zone from Wellington Bridge to the railway station is a mix of new development and redevelopment. The area is of significant economic importance to Leeds as it is a key city centre expansion area and is promoted by the Council for high quality development.

There is continuous pedestrian access to the waterfront within the 'West End' development zone, however; pedestrian / cycle access becomes fragmented to the west of the disused viaduct.

Recent developments in this zone have revitalised the waterfront. Full pedestrian access has been incorporated to encourage greater use of the new riverside public realm areas and provide an attractive green link for pedestrians to the city centre. The waterfront in the city centre is considered a key asset which will help deliver a higher quality environment in which to live and work.

Key Sites

West End Leeds

This is an extensive area of redevelopment located along Whitehall Road and covers the north and south banks of the river and canal. The West End Partnership was formed in 2007 and brought together the combined forces of major developers and Leeds City Council for the delivery of a prestigious business quarter for the west side of Leeds. The partnership aims to deliver a mix of high quality and affordable business and residential accommodation with green spaces, retail and leisure facilities with its own distinctive sense of place. The river is an important asset to the West End development and each developer has included full pedestrian access to the waterfront as an integral part of the overall design.

Defences are proposed on the north bank of the river, east of the viaduct. These will affect the MEPC's 'Wellington Place' development, including a new waterfront public realm area named 'the Beach' designed by acclaimed landscape designer Martha Schwartz. The Beach has been designed to attract people to the waterside and consists of a tiered arena space, constructed in natural sandstone, together with waterside habitat planting. Flood defences should configure with the new ground modelling for the beach site and be designed to further enhance the waterside habitat. Wall and embankment finishes should be consistent with the hard materials used for the beach to help maintain visual coherence.

Defences throughout such brownfield sites can be similarly designed by creative remodelling of the land rather than intrusive walls and embankments. Flood defences can then be integrated into development areas without the loss of vegetated river margins. This is the preferred approach to flood defence for all large development sites which border the river, which by virtue of space, can accommodate large scale land modelling.

Canal between Monk Bridge and Granary Wharf

Land between the river and canal east of Monk Bridge is a designated Local Nature Area. From the canal towpath the land drops steeply down to the river and has naturally colonised to form a valuable and relatively undisturbed green area. Defence works should seek to minimise disturbance to this area particularly as it is a known protected species habitat. The proposed flood defence should be located adjacent to the towpath, following the line of the existing boundary wall. The wall should be finished in stone, - re-using stone from the existing wall would be preferable.

Holbeck Urban Village (HUV)

'An exemplar of sustainable regeneration in the city centre south' (a key deliverable in the Renaissance Leeds Delivery Plan 2007-2009).

Holbeck Urban Village is situated south of the River Aire in close proximity to Leeds City Railway Station and the City Centre. The Leeds industrial revolution first began in this area and a legacy of mill buildings, factories and workshops remain. Holbeck Urban Village is of significant historic importance containing numerous listed buildings, including the Grade I listed Temple Works, and two conservation areas.

HUV area has been identified for major regeneration and is currently in the process of redevelopment planning. It was designated an 'Urban Village' in 1999 and in order to preserve the special historic and architectural quality of the area the 'Holbeck Urban Village Planning Framework' was produced. The vision for Holbeck Urban Village is ambitious, and centres on the creation of a 'mixed use, sustainable community with a distinctive sense of place, which exemplifies best practice in urban regeneration and sustainable development'.

The planning framework details a number of strategic objectives and a series of policies for five separate character areas that together comprise Holbeck Urban Village. Of particular relevance to the Flood Alleviation Scheme are the specific proposals for the areas known as: Granary Wharf, Tower Works, Temple Works (area along Water Lane), and Viaduct West.

Granary Wharf is currently being re-developed and includes significant new public realm areas, new public footpaths and additional new buildings. There is a strong focus on excellent contemporary architecture designed in sympathy with existing waterside buildings. The area also includes a Local Nature Area (LNA) situated along the south bank of the river and this has been identified as otter habitat with confirmed sightings of otters. As part of the Granary Wharf improvements a specially designed otter habitat has been integrated under the walkway.

Any flood defences within this area must not compromise the value of the LNA or adversely affect the otter habitat. As the construction work is likely to affect the LNA environment the defences and working arrangements should be agreed with the Wildlife and Countryside Section of Leeds City Council, who currently manage the nature area.

Flood defences will also specifically affect the development at the Eastern side of Granary Wharf along the north bank of the river. As construction work is already on site there may not be the opportunity to integrate proposals into design plans. The preferred approach to this area would be to integrate flood defences into existing buildings wherever possible. However, where this is not practical the defences should be designed to blend into the new development, and maintain the open waterfront character.

Tower Works area is currently at planning stage with extensive proposals for new public footpaths, buildings, and refurbishment of the highway and footpaths along Water Lane and Hol Beck. Current proposals include narrowing of the highway to make Water Lane one way west-bound, widening of the footway on the north side of the road alongside Hol Beck channel and re-opening footbridges across the beck to improve pedestrian access. The beck is regarded as a feature of the area which should be enhanced.

There is potential conflict at this point as the beck has been identified as a major flood hazard and the defence plan proposes new walls set at a fairly high level, along either side of the beck. This would effectively 'wall in' the beck and significantly restrict views and permeability across Water Lane. The project therefore requires immediate joint working between the Environment Agency and the Holbeck Urban Village Project team to ensure that flood defences do not overwhelm the becksides improvements. There is the potential to combine flood defences with traffic barriers along the northern footway, which should be worked into the highway design proposals. However, there still remains the difficulty of combining defence walls on the north side of the beck into footbridges and building frontages.

An alternative approach is to remove the need for barriers along Hol Beck itself by developing a pumping station at the confluence of the beck and the river. This alternative is being considered by the Environment Agency and the Holbeck Urban Village project team.

Temple Works area borders the south side of Water Lane. It is characterised by its four listed mill buildings and two railway viaducts. Planning guidance for the area generally aims to maximise the historic and architectural character by adding new buildings of high quality, and generally improving the environment and settings for the listed buildings. Key views have been identified along Bath Road to Water Lane and improvements to pedestrian links through the site, across to Water Lane to the canal beyond.

HUV Connectivity

The Holbeck Urban Village Planning Framework outlines a number of proposals to improve connectivity with the city centre and the surrounding communities, promoting in particular pedestrian and cycle routes. Included in this are new links to the waterfront, crossing points over the river and new links into the developing areas in the north of the village.

The Planning Framework specifically identifies the following:

- Sweet Street bridge re-opened to some traffic. This might lead to a reduction of traffic using Globe Road and Water Lane.
- Bridges over both the canal and the River Aire to connect the north-western part of the village to the rapidly redeveloping Whitehall riverside (West End) area on the north bank of the river.
- An enhanced pedestrian environment along Neville Street and Dark Neville Street, as this is the main pedestrian route into the city centre. An alternative route for pedestrians through this area is also proposed through one of the river arches.
- A high-level walkway, using the redundant railway viaduct next to Bath Road, looking out over the urban village would be very dramatic. This would be physically linked to accommodation in the arches below and some adjacent developments. The walkway could be planted to create a linear park, providing pedestrian access to the south of the area.

- The Hol Beck is something of a wasted asset owing to the fact that it is either culverted or in a deep narrow channel and is therefore largely unseen. The intention is to create a public footpath along its north bank, with the potential to open up views and improve its biodiversity.
- The main pedestrian route running east to west through the area along Derwent and Union Place will be lit and generally enhanced. This will provide a good link to the community to the south via Bridge Road. Another pedestrian route across Jack Lane has also been identified as a link to the community to the south and this will also be enhanced as part of the Beeston Hill and Holbeck Neighbourhood Renewal Area proposals.

City Railway Station and the Dark Arches

The city railway station was built incrementally from 1864 onwards. The station is built at a high level upon a series of arches spanning the River Aire, Neville Street and Swinegate. At lower level, the construction led to the creation of an area known as the Dark Arches over Neville Street.

Neville Street is a key pedestrian vehicle gateway into and out of Leeds and is the main gateway from the M62 and M1. Dark Neville Street (the Dark Arches) is a key pedestrian route to Granary Wharf and Holbeck Urban Village. Unfortunately, both routes are unattractive and uncomfortable to use particularly for pedestrians. This creates a negative perception of the area and investors have flagged up the need for environmental improvements as a key to sustaining and promoting the rate of investment to the south of the city centre.

There is consequently a need for major improvements to this area, which reflect its importance as a major gateway into Leeds and also as a means of gaining investor confidence in the area.

This area acts not only as a key connector for Holbeck Urban Village (HUV) into the city centre, but also serves to strengthen links between the Beeston Hill and Holbeck renewal area. This in turn supports the regeneration initiatives of HUV, Beeston Hill and Holbeck.

Improvements are now underway for Neville Street which aim to upgrade the tunnel using innovative engineering and acoustic techniques, including sound absorbing wall panels and a new lighting scheme. Footpaths will be widened making it a safer environment for pedestrians. The work is due for completion at the end of 2008.

Environmental improvements for the dark arches are at planning stage with funding for implementation being sought from Yorkshire Forward. The project aims to improve both Dark Neville Street and Little Neville Street, and establish a strong, attractive link with the newly refurbished Granary Wharf and Holbeck Urban Village beyond. The character of the River Arches in particular is seen as a potential asset to the scheme - and one which could create an attraction in its own right. The river bridge is due to be refurbished with new surfacings, railings and lighting of the water. There are aspirations to create a new 'Juliet Balcony' over the river - although this is not prioritised within the scheme. Improvements to Little Neville Street will also encroach on the waterfront and should be designed in conjunction with the flood alleviation proposals.

Zone 4b Railway Station to the Royal Armouries

Flood Defence Proposals

Flood defences are proposed for the entire length of the river through the city centre. Initial analysis shows that existing walls will need to be raised by substantial amounts in certain areas and new walls built along the river side.

Context

(ref. Leeds Waterfront Strategy)

The City Centre has high density buildings giving strong enclosure to the river, particularly to its central and western end.

Hard surfaces to buildings, ground plan and waterway walls dominate, with soft landscaping a secondary element.

Buildings are a mix of converted old warehouses and new developments, with brick as the main material and some stone detailing. The general building aesthetic is of simple rectangular shapes with solid external walls punctured by small openings.

Bridges break the linear length of the river into smaller sections, and bends in the river limit views and provide constantly changing vistas.

Toward the Armouries, the extensive redevelopment of the area has provided a higher quality environment which has revitalised the waterfront and helped encourage further regeneration and the renaissance of the city centre.

Two main objectives of Leeds Waterfront Strategy: to 'enhance and promote access to the river' and 'improve the quality of the public realm and connectivity around the waterfront' have now been realised in the Brewery Wharf and Armouries area.

Leeds City Council considers the River Aire to be a 'key asset' which will help deliver a higher quality environment in which to live and work.

Key Sites

Brewery Wharf

This area is a key part of the continued regeneration of Leeds City Centre with over 3 acres of former industrial land transformed into a mixed-use scheme consisting of residential units integrated with office, leisure and hotel facilities.

This area now offers an attractive and high quality environment with a full range of services and leisure destinations which will appeal to tourists. The new vitality of the waterfront in this location is a direct result of recent investments based on the decision of Leeds City Council to turn and embrace the river as a key destination for living and leisure.

Royal Armouries

This national museum located in Clarence Dock was opened in 1996 and designed by Derek Walker and Burro Happold. A 'scenic river walk' from the city station via the Dark Arches and Centenary Bridge has been promoted to invite tourists from the railway station past a variety of leisure and retail waterfront destinations within the city centre to the museum. Clarence Dock itself is now a prestigious shopping and retail space with new restaurants, bars and a casino. It is the City's largest mixed use urban waterfront development and has created a modern, vibrant and innovative destination which hopes to receive 1.5 million visitors a year. This new waterfront destination now makes a significant contribution to the city's economic prosperity.

Historic Leeds

Many of the warehouses, wharfs and mills on the river were built in the late 18th and early 19th centuries when the river was part of a major transport network. During the mid 20th century the waterfront declined, but in the 1990s action by Leeds City Council and encouragement by Leeds Civic Trust, Eye on the Aire and British Waterways brought regeneration. The riverside renaissance invited people to live and work close to the waterfront and brought vitality to spaces previously neglected and ignored. Old warehouses and wharfs were retained and sensitively refurbished to protect and enhance the local waterfront character. The preservation and reinforcement of local distinctiveness has given the waterfront a strong identity and conservation of heritage is now an integral part of making new developments sustainable.

Strategies Relating to the Waterfront

Renaissance Leeds Partnership

The Renaissance Leeds Partnership was formed in 2005 to oversee the physical and spatial development of the city as part of wider work to deliver the Vision for Leeds. The latest Renaissance Leeds Delivery Plan (2007-2009) summarises the priorities for Leeds and gives assistance on broad design strategies for new development. Eight themed principles are currently being studied, - 'Connected, Cultural, Green, Skyline, Covered, Viaduct, Waterfront and Reconnected.'

Within the eight principles are strategies that affect the waterfront particularly those related to access, connectivity, re-connecting communities, promoting public realm, green spaces and green links. The river and waterfront is seen as a key feature which can be used to carry forward many of these aspirations.

The partnership has also commissioned a number of studies and guidance to assist with understanding and developing the renaissance approach. New strands of study have recently been added which explore movement and accessibility and the development of sustainable forms of transport. It particularly identifies the need for local connections to be reconciled with unimpeded city-wide and regional movements.

The partnership is currently analysing public realm and green space in Leeds City Centre and the outer rim. There are aspirations to create a new city park which may encroach upon the south bank of the river, although a viable location has not been finalised. There is a strong focus on improving the waterfront and establishing it as a focal point for the city. In parallel to this, a new programme of improvements to public realm areas is also being explored and how green space can be connected throughout the city.

Further references:

- Leeds City Centre Urban Design Strategy
- Leeds Waterfront Strategy
- Legible Leeds
- Renaissance Leeds

Leeds Waterfront Strategy

The vision of the Leeds Waterfront Strategy is to 'add vitality to the waterways and waterfront of Leeds through good planning and design'.

A number of key aspirations include the following:

- Create a successful 18/24 hour mixed use waterfront that is safe, attractive, active, sustainable and integrated with the city centre.
- Protect and promote the amenity value of the corridor by careful design of the public realm.
- Spaces around buildings should allow visual and physical access to the waterside.
- Views over and along the river should be given due consideration when designing external spaces and frontages.

Leeds City Centre Urban Design Strategy

The City Centre Urban Design Strategy (CCUDS) is a combined study prepared by the Department of Planning and Environment, Leeds Civic Trust, Urban Design Alliance, The Victorian Society, Leeds Architecture and Design Initiative and the Leeds Inter-Departmental Working Party which explores the character of streets, spaces and buildings in Leeds City Centre.

A number of 'aspirations and issues' relate specifically to the waterfront and are highlighted below:

- Preserve and enhance views across the waterfront.
- Increase vitality along the waterfront through improvements to connectivity and enhancement of distinctive character areas.
- Intensify the grain or permeability of waterfront spaces.
- Improve connections / integration by encouraging pedestrian movement.
- Encourage varied riverside spaces for a wide range of activities such as walking, events, lunch breaks, meeting etc.
- Improve gateways and emphasize the symbolic potential of bridges.

An essential role of this strategy is to provide a framework for managing change. The document is considered to be the beginning of a continuous process to identify, protect and enhance the distinctive attributes of the city centre area.

Aspirations for Flood Defence Designs

The city centre waterfront is perhaps the most intensively used area of river corridor. The flood defences within this zone will impact significantly on the urban landscape and will require a great deal of work with property owners along the length of the waterfront to explore options for the siting and design of the defences. It presents the most challenges which in turn merit the most creative and innovative design solutions.

There are a number of approaches to the design – the defences can be visually absorbed into the urban fabric, they can be artfully disguised and blended into existing structures, or they can, in some areas create a new defining feature and alter the waterfront space. There are many areas in which the scheme can help improve the waterfront landscape and which can contribute to the development of a unique waterfront and a more connected city (see also Renaissance Leeds).

Aspirations for the city centre waterfront are analysed and detailed in the Leeds Waterfront Strategy and the City Centre Urban Design Strategy. Local circumstances will largely dictate the design of the flood defences but the following guidelines should be used as design parameters:

- A fully accessible waterfront promenade should be maintained along the north bank of the river. An assessment of the existing promenade should be made with a view to improving accessibility and connections to the city.
- An assessment of the south bank of the river should be made and the potential for constructing missing pedestrian / cycle links along the waterfront.
- Flood defences must not isolate the river from the city. High defences (over 600mm high) should be set back from the front, or be integrated into buildings.

- Flood defences should not obscure views along the waterfront. The waterside walkway should be well finished, clutter free with good visibility.

- Walls set along the water edge should be restricted to 600mm high to maintain an open waterfront aspect. Alternative treatments are recommended under Section 'Design Guide.'

- Walls and embankments should be constructed of materials prevalent to the area to maintain consistency and give local identity. This is particularly important in areas of historical value.

- Newly developed areas – flood walls and embankments should complement new buildings and add to the quality of the public realm.

- A consistent high quality of design and materials finish is to be provided throughout. It is important that the waterfront has a recognisable character and this can be achieved by using a limited palette of good quality, locally sourced materials.

- As flood defence construction is likely to affect existing surfacings along the waterfront walkway there is an opportunity to re-surface in one unified material. A clean, hard wearing, high quality finish would be required, one that is visually acceptable to all character areas and which is easy to maintain. It is likely that the waterfront footpath will be occasionally flooded and will require aggressive cleaning to remove detritus.

- Existing and proposed new crossing points can be emphasised by creating landmark features integrated with defences. New open spaces or public realm areas ('nodes') should be designed at either side of crossing points.

- The possibility of improving wildlife habitat along the wall banks should be explored. Soft landscaping should be incorporated into new public realm areas and specific green points would provide a contrast to the hard urban bank edge.

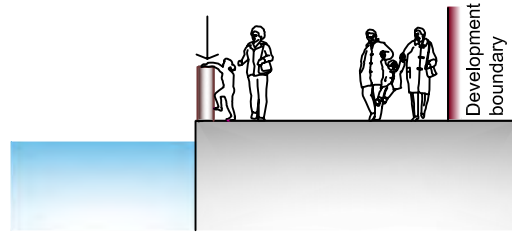
- Street furniture is to be selected according to the character of the area. In most areas there are already elements of street furniture such as litter bins, tree grilles etc. However, if street furniture is lost through defence work construction there is no requirement to replace like for like. Large scale alterations to areas may warrant a complete redesign of the public realm space as a whole, and the provision of street furniture should be re-assessed as part of that design process.

- Many waterfront routes are only accessible via steps or along very narrow routes. This deters many potential users including people using wheelchairs, bikes and pushchairs. The Disability Discrimination Acts 1995 and 2005 (DDA), prescribe requirements upon designers to ensure full inclusion for all regardless of their able or disabled status. The use of tactile surfaces, colour in materials and interfaces between water edge, promenade and roads etc. will accord with good practice for inclusive design. This approach will be helped by the simplicity of character and materials for the walkway and flood defences themselves.

- Signage: the legibility of Leeds has recently been subject to a review document - 'Legible Leeds Wayfinding Strategy' (revised draft March 2008). There are clear recommendations for signage generally with a more detailed section on the waterfront. There is an opportunity to rationalise the way marks around the riverfront and this should be designed in conjunction with the flood defence work.

The River Aire is a key asset helping to deliver a higher quality environment in which to live and work.

Walls obscures views across river for children and adults. Natural surveillance reduced which raises feelings of insecurity

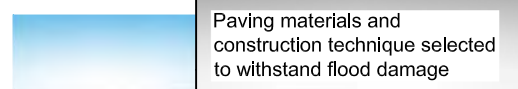


CITY CENTRE - LOCATION OF DEFENCES
Typical Sections - Illustrating preference for walls to be set back

Trees planted to create green corridor.

Handrails should be located at danger points only.

Open aspect retained.



Flood defence located against building or buildings strengthened.

Design Guidance:

A fully accessible waterfront promenade should be maintained along the left bank of the river. New links should be established to create a continuous footpath/cycleway along the right bank.

Flood defences must not isolate the river from the city. Defences should be set back from the waterfront or be integrated into buildings.

Walls and embankments should be constructed of materials prevalent to the areas character, to maintain consistency and local identity. This is particularly important in areas of historical value.

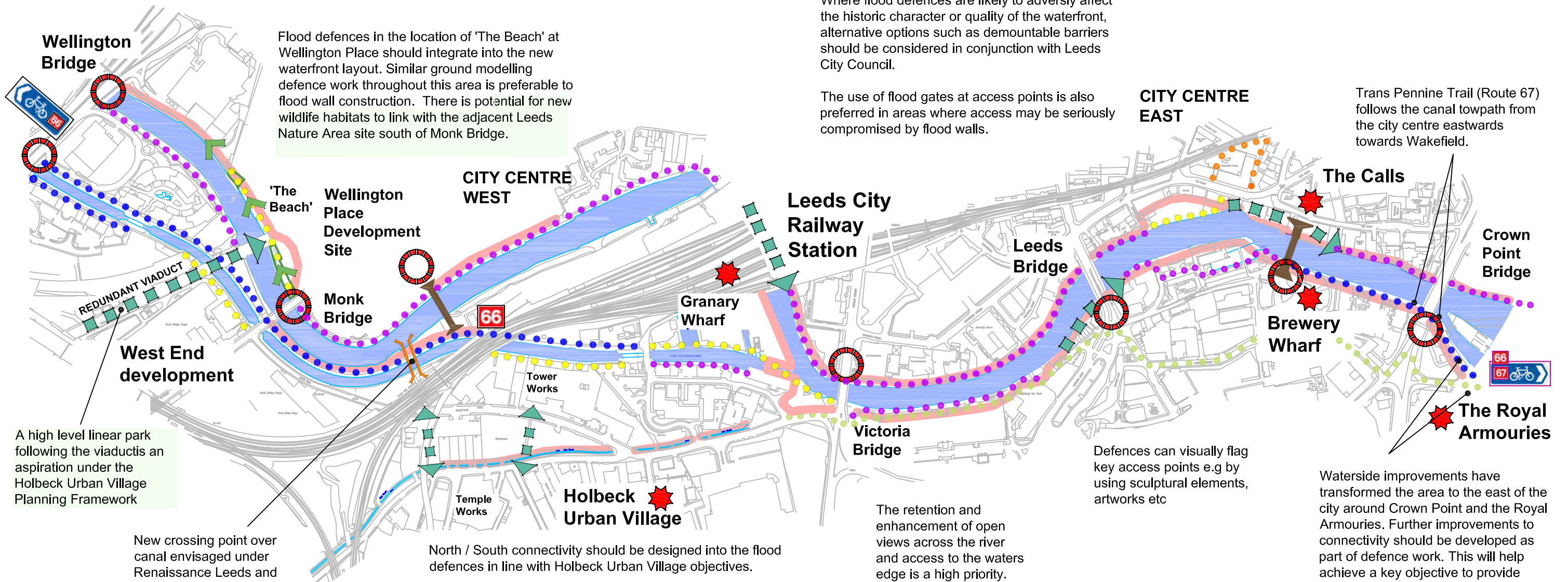
Where flood defences are likely to adversely affect the historic character or quality of the waterfront, alternative options such as demountable barriers should be considered in conjunction with Leeds City Council.

The use of flood gates at access points is also preferred in areas where access may be seriously compromised by flood walls.

As flood defence construction is likely to affect existing surfacings along the waterfront, there is an opportunity to resurface in one unified material. A clean, hard wearing, high quality finish is required that is visually acceptable to all character areas and robust enough to withstand powerwashing.

There are potential Improvements to biodiversity throughout this zone. Wildlife habitats and soft landscaping should be incorporated. Simple additions to hard banks such as Otter ledges and pipes will provide much needed refuge points. New landscaped public realm areas and embankment planting will help soften the sterility of urban riverbank walls.

Flood defences in the location of 'The Beach' at Wellington Place should integrate into the new waterfront layout. Similar ground modelling defence work throughout this area is preferable to flood wall construction. There is potential for new wildlife habitats to link with the adjacent Leeds Nature Area site south of Monk Bridge.



A high level linear park following the viaducts an aspiration under the Holbeck Urban Village Planning Framework

New crossing point over canal envisaged under Renaissance Leeds and Holbeck Urban Village Framework

North / South connectivity should be designed into the flood defences in line with Holbeck Urban Village objectives.

Flood walls could be integrated into traffic barriers along Water Lane, designed in conjunction with new footpath and highway works currently planned for the area.

Walls should reflect the distinctive architectural character of this area and be finished in high quality materials.

CITY CENTRE EAST

Trans Pennine Trail (Route 67) follows the canal towpath from the city centre eastwards towards Wakefield.

Defences can visually flag key access points e.g by using sculptural elements, artworks etc

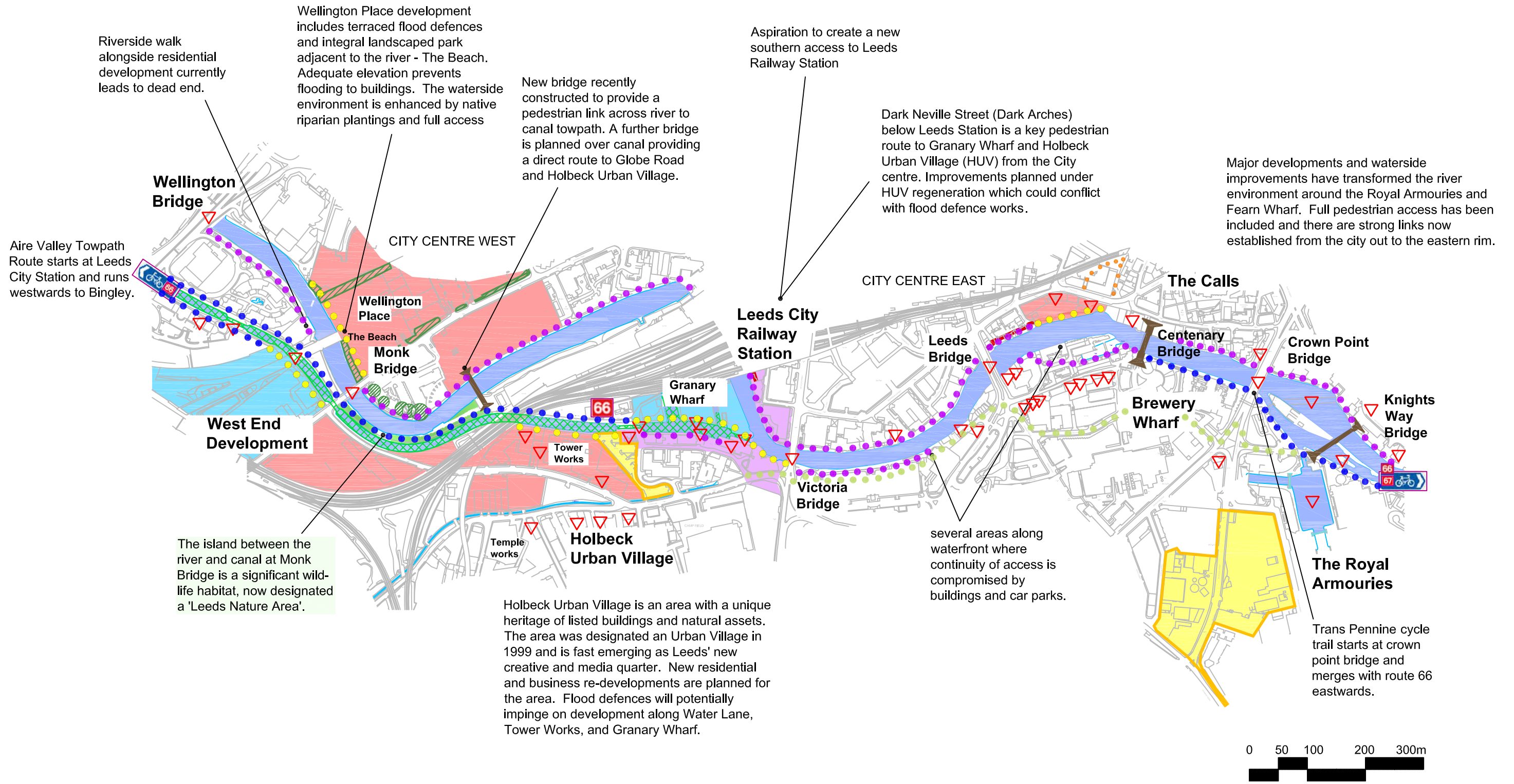
The retention and enhancement of open views across the river and access to the waters edge is a high priority.

Waterside improvements have transformed the area to the east of the city around Crown Point and the Royal Armouries. Further improvements to connectivity should be developed as part of defence work. This will help achieve a key objective to provide continuous access along the waterfront and promote walkability and safe cycle routes.

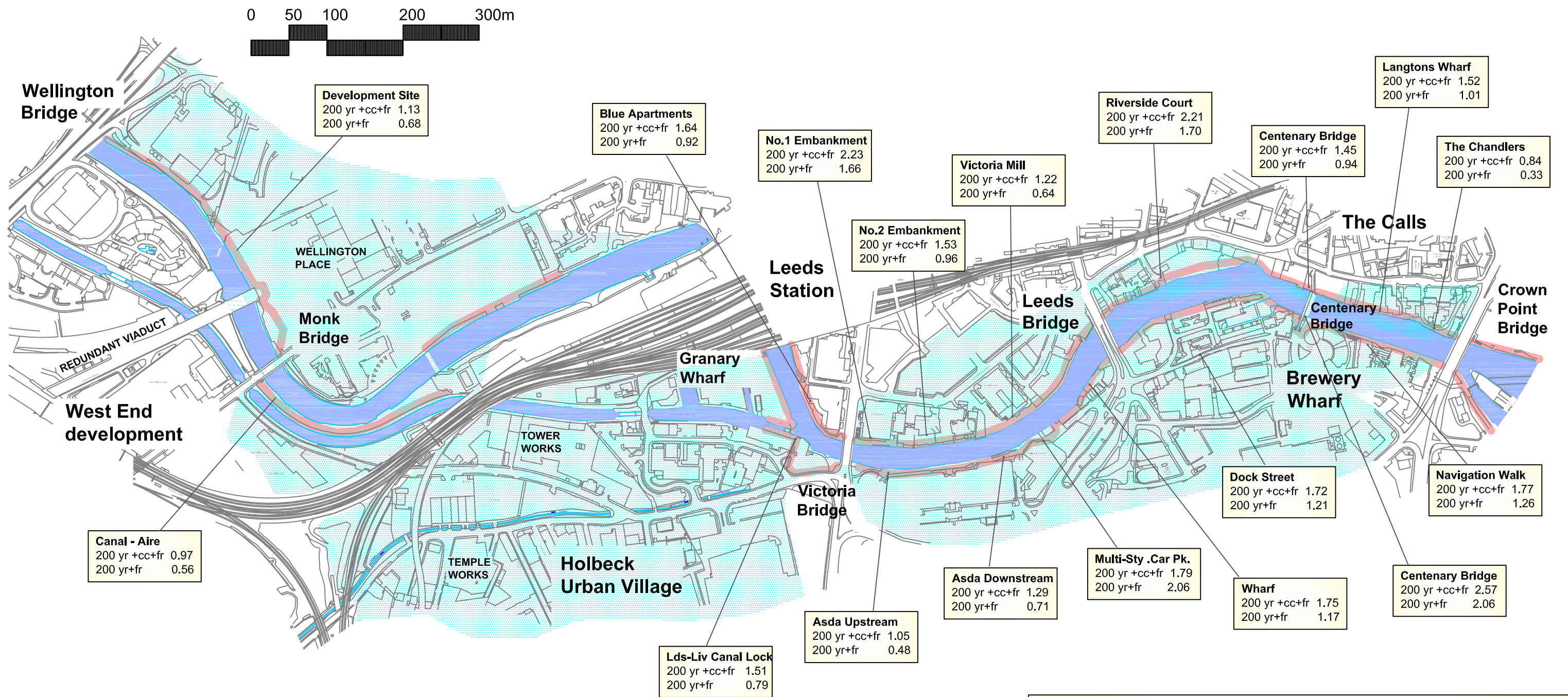


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Zone 4 covers the main built up area of Leeds City Centre. The area can be subdivided into two sections; a) new redevelopment predominating to the west and b) old historic Leeds to the east. There are a number of design guides and development initiatives which affect land either side of the river, however the key document which sets out the vision for the waterfront is the Leeds Waterfront Strategy.



Environment Agency Proposals - Zone 4



LEGEND

-  E A Flood Zone 3D
-  E A Flood Defence

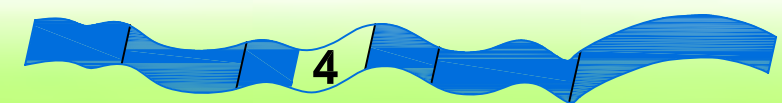
FLOOD DEFENCE HEIGHTS - KEY

- yr - years - Predicted height of max. flood level within the stated period of time.
- cc - climate change - Potential rise in flood levels due to a predicted increase in extreme rainfall events as a result of climate change.
- fr - free board - Safety margin to account for residual uncertainties in water level prediction and/or structural performance.

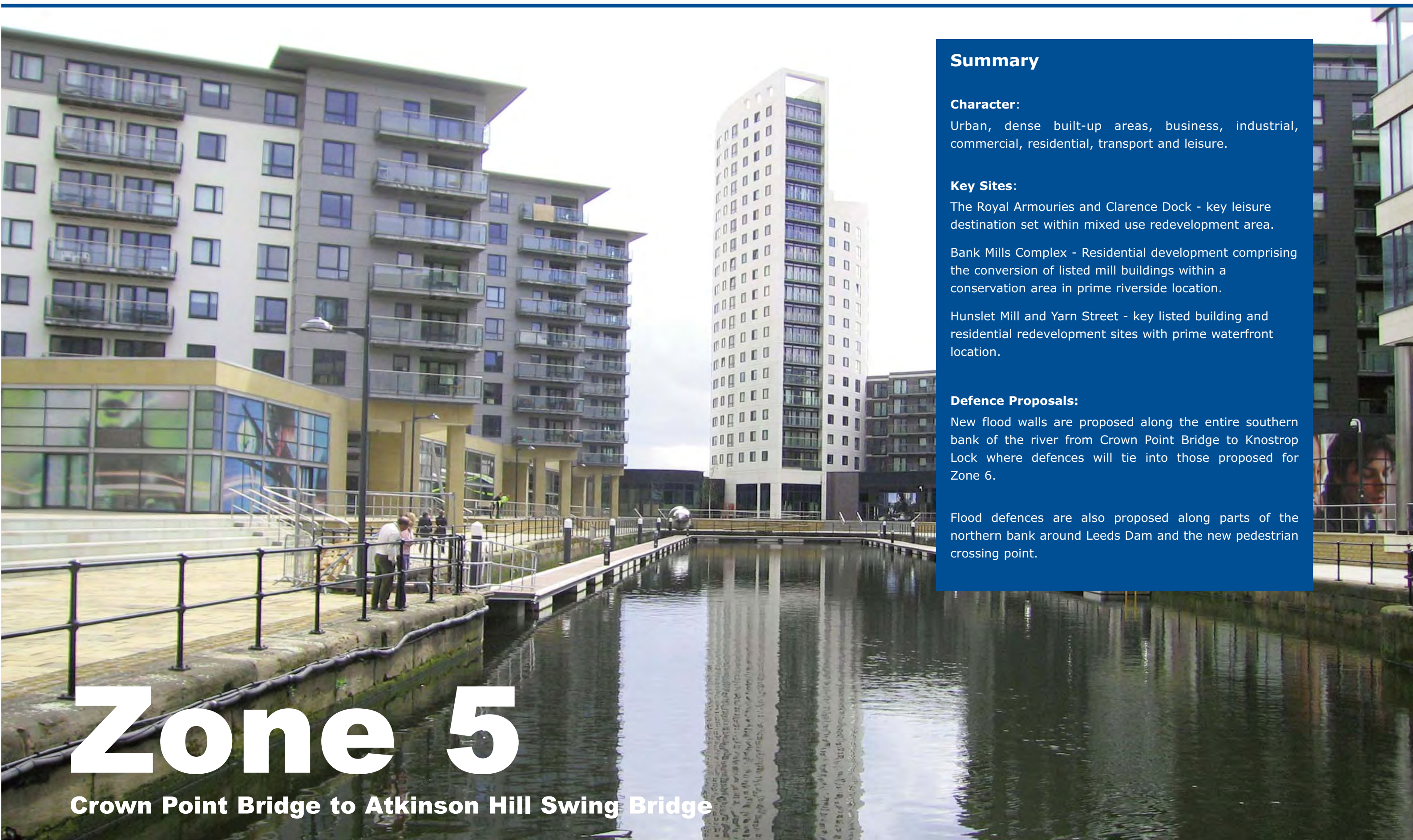
All heights are given in metres and indicate the height above existing levels at the waters edge. Defences may be located away from the water edge and integrated into raised ground levels or existing defence structures. Options for defence design are contained in the Design Guide.



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Zones



Zone 5

Crown Point Bridge to Atkinson Hill Swing Bridge

Summary

Character:

Urban, dense built-up areas, business, industrial, commercial, residential, transport and leisure.

Key Sites:

The Royal Armouries and Clarence Dock - key leisure destination set within mixed use redevelopment area.

Bank Mills Complex - Residential development comprising the conversion of listed mill buildings within a conservation area in prime riverside location.

Hunslet Mill and Yarn Street - key listed building and residential redevelopment sites with prime waterfront location.

Defence Proposals:

New flood walls are proposed along the entire southern bank of the river from Crown Point Bridge to Knostrop Lock where defences will tie into those proposed for Zone 6.

Flood defences are also proposed along parts of the northern bank around Leeds Dam and the new pedestrian crossing point.

Context

Zone 5 comprises the eastern city centre including regenerated old industrial buildings and some new development. The eastern riverside conservation area covers land around Rose Wharf on the north bank.

Further east the zone becomes greener and is partly within the Aire Valley Leeds Area Action Plan (see Zone 6 for details), with proposed, commercial, residential and mixed redevelopment sites, regenerated green areas within the river corridor.

Key Sites

The Royal Armouries and Clarence Dock

The Royal Armouries is one of Leeds' key leisure destinations and a popular visitor attraction which houses part of the national collection of weaponry and armour. The Armouries was a key driver for the redevelopment of the adjacent Clarence Dock which is one of Leeds largest mixed-use development areas providing residential apartments, leisure facilities, a hotel and waterside offices, and now houses a vibrant community within walking distance of the city centre.

The Trans Pennine Trail (National Cycle Route 67) runs alongside the river past the Armouries and a new pedestrian bridge provides a link with the developments and pedestrian network on the northern river bank.

New flood walls are proposed along the river bank at the Royal Armouries but the potential height of the defences and the close proximity of adjacent buildings in places could easily cut off the river and create an enclosed corridor for the pedestrian route reducing personal safety. Locating floodwalls to the rear of the towpath or incorporating them into existing building fabric would be more acceptable allowing un-interrupted views across the river, and maintaining access to moorings, water-taxi stops and fishing. There is the opportunity to make improvements to the riverside route as part of the flood defences by providing a hard wearing surface resistant to flood damage.

Flood defence proposals need to also raise the lock gates to the marina of Clarence Dock.

Fearn's Island

The new crossing point from the Royal Armouries connects to the riverside walkway at Fearn's Island and provides an essential link in the pedestrian connectivity between north and south riverside walking routes and to the city centre.

New flood walls are proposed along the river at Fearn's Island and around the bridge abutments and continuing along the river to Rose Wharf. The proposed height of the defences will potentially dominate the riverbank at points and would disconnect users from the river as well as disrupting access to moorings. Special consideration will be required to ensure that views of the river are kept open from the riverside walkway. The defences should be located away from the river's edge if possible or the riverside walkway raised to retain views of the river and to the Royal Armouries and Clarence Dock. Innovative solutions are required to ensure that neither the river becomes hidden nor the adjacent buildings, and their users, become walled in.

The land along Neptune Street behind the waterfront buildings is vulnerable to flooding from the sewer system backing up in times of river flooding. The confluence of Meanwood Beck with the River Aire occurs just below Leeds Dam and sewers connected to Meanwood Beck can back up, overflow and produce local flooding away from the river. Flood defence proposals at this point need to provide mitigating measures to address such flooding, by using valves, pumping stations or other methods.

Bank Mills and Rose Wharf Complex

The restoration of the disused flax mills of Bank Mills and Rose Wharf has added to the regeneration of this area by sympathetically converting the listed building to provide water front residential and office accommodation of great character.

There is currently a missing link in the riverside route at Rose Wharf with a diversion onto East Street. There is the opportunity to provide that missing link as part of the defence proposals and so helping to create a continuous route along the northern river bank.

Less dramatic flood defences are proposed around Bank Mills and Rose Wharf than at Fearn's Island, however; defences need to be designed in sympathy with the historic location and provide continuity with the more prominent defences further up stream.

Hunslet Mill and Yarn Street

The Grade II* listed Hunslet Mill dominates this section of the river and its restoration offers great potential to form the focus for the regeneration of the waterfront south of Richmond Bridge. Hunslet Mill and the adjacent Yarn Street site have current planning approval for residential development with proposals to open up the waterfront corridor.

Flood defences are proposed along the entire river bank from Richmond Bridge to Atkinson Hill where they tie in with defences in Zone 6. The defences should be designed to provide a transition from the hard urban landscape of the city centre to the softer more natural landscape of the lower Aire valley. The defences around Hunslet Mill should be designed in sympathy with its historic character. Due to the limited space, incorporating the flood wall against or within the building fabric is to be preferred to ensure continued visual and physical connection with the river and to prevent the towpath becoming a corridor enclosed by walls. There is the opportunity to change the character of the defences at the end of Goodman Street to provide a more natural solution, possibly an earth embankment, and to incorporate the defences, along with the Trans Pennine Trail, into the potential riverside open space frontage to the Yarn Street development. There is the added opportunity to provide a 'Gateway' space and access to the Trans Pennine Trail and the waterfront at Hunslet Mill as part of the flood defences.

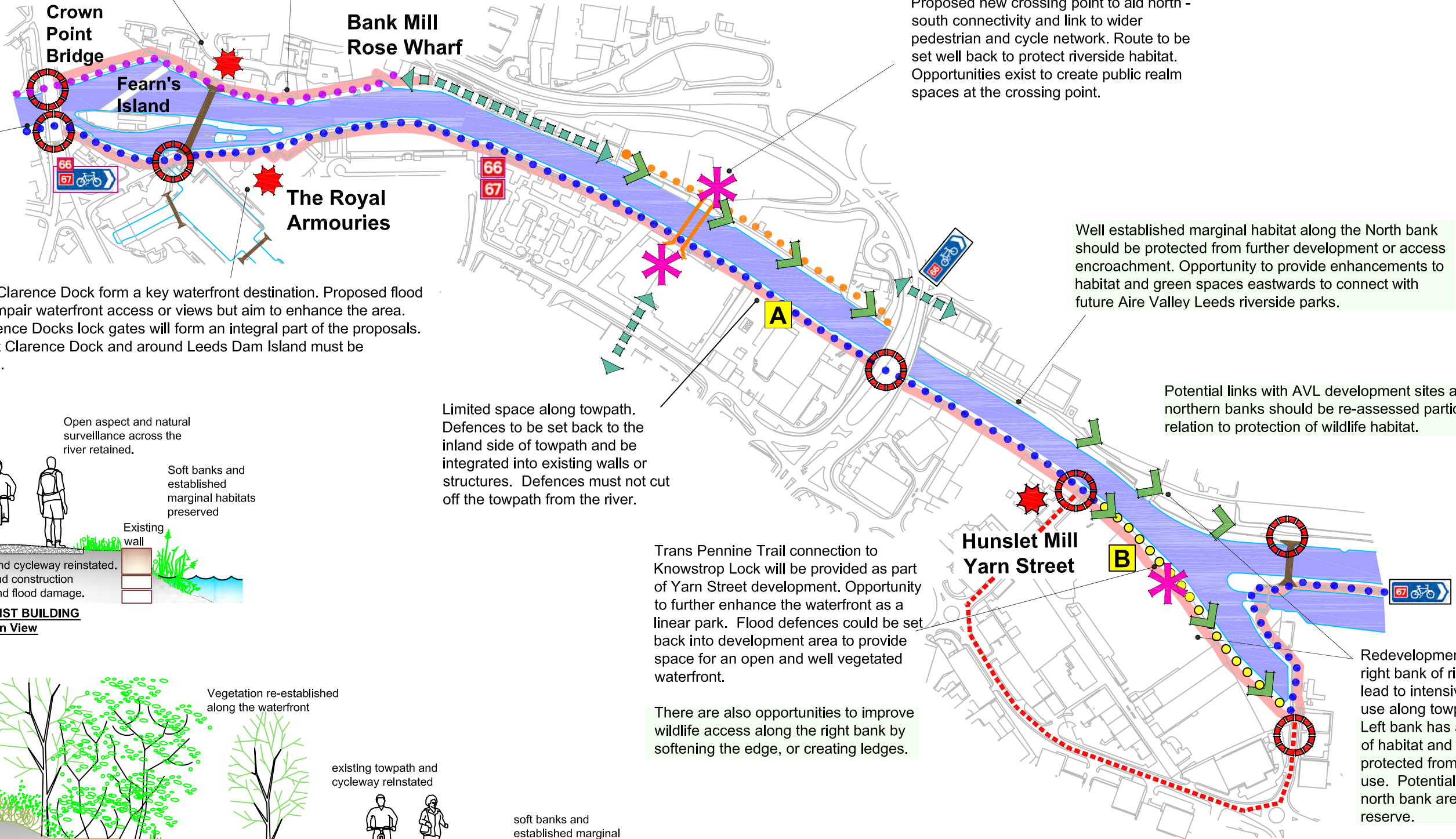
As the flood defences move away from the city centre, softer solutions should be considered as more visually and environmentally appropriate along with the opportunity to provide biodiversity enhancements as part of the scheme.

Flooding issues around Neptune Street from surface water sewers backing up during river flooding events. Defence scheme should incorporate measures to mitigate sewer flooding problems.

High defences at Fearn's Island could potentially dominate left bank. Special consideration required to ensure access and views to the river are not blocked and defences visually recede into the building fabric using materials which complement the local vernacular. Potential for routes to be located on raised defences.

Aire Valley Leeds Area Action Plan: Proposed new crossing point to aid north-south connectivity and link to wider pedestrian and cycle network. Route to be set well back to protect riverside habitat. Opportunities exist to create public realm spaces at the crossing point.

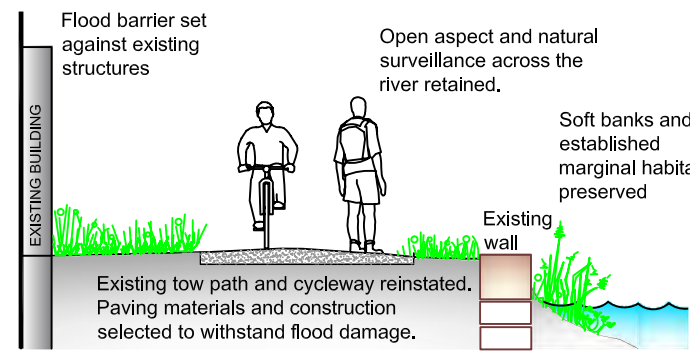
Trans Pennine trail should be promoted with improvements to quality of surface materials.



Royal Armouries and Clarence Dock form a key waterfront destination. Proposed flood defences should not impair waterfront access or views but aim to enhance the area. Improvements to Clarence Docks lock gates will form an integral part of the proposals. Access to moorings at Clarence Dock and around Leeds Dam Island must be maintained at all times.

Well established marginal habitat along the North bank should be protected from further development or access encroachment. Opportunity to provide enhancements to habitat and green spaces eastwards to connect with future Aire Valley Leeds riverside parks.

Potential links with AVL development sites along the northern banks should be re-assessed particularly in relation to protection of wildlife habitat.



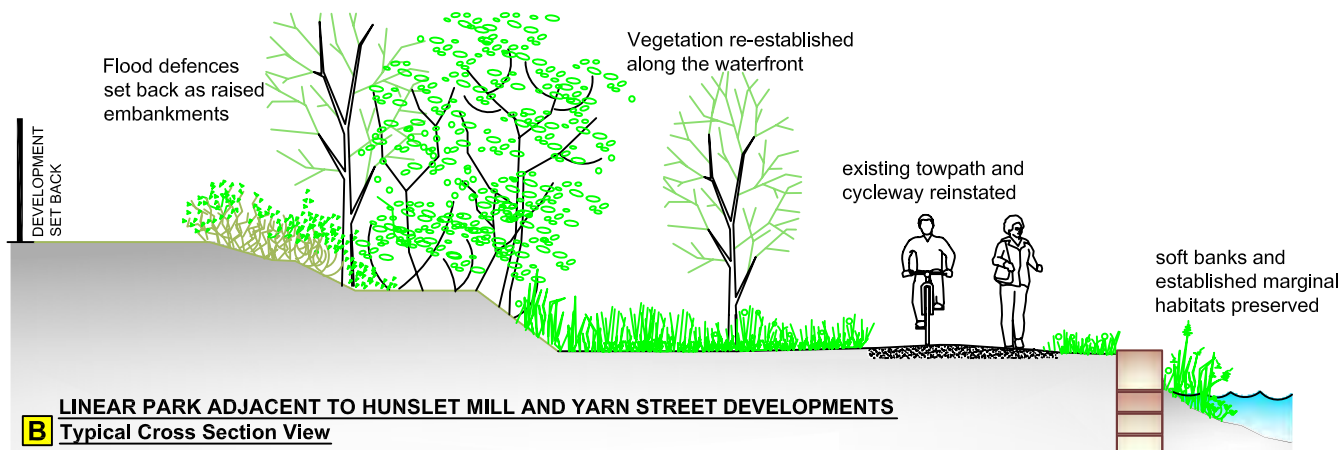
A FLOOD WALL AGAINST BUILDING
Typical Cross Section View

Limited space along towpath. Defences to be set back to the inland side of towpath and be integrated into existing walls or structures. Defences must not cut off the towpath from the river.

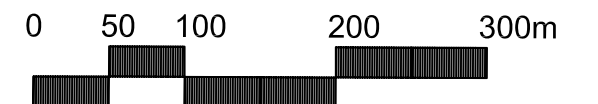
Trans Pennine Trail connection to Knowstrop Lock will be provided as part of Yarn Street development. Opportunity to further enhance the waterfront as a linear park. Flood defences could be set back into development area to provide space for an open and well vegetated waterfront.

There are also opportunities to improve wildlife access along the right bank by softening the edge, or creating ledges.

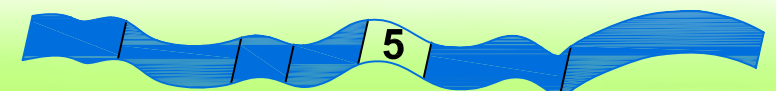
Redevelopment sites along right bank of river are likely to lead to intensive recreational use along towpath and basin. Left bank has a good diversity of habitat and should be protected from further human use. Potential to designate north bank area as nature reserve.



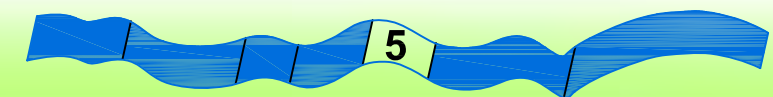
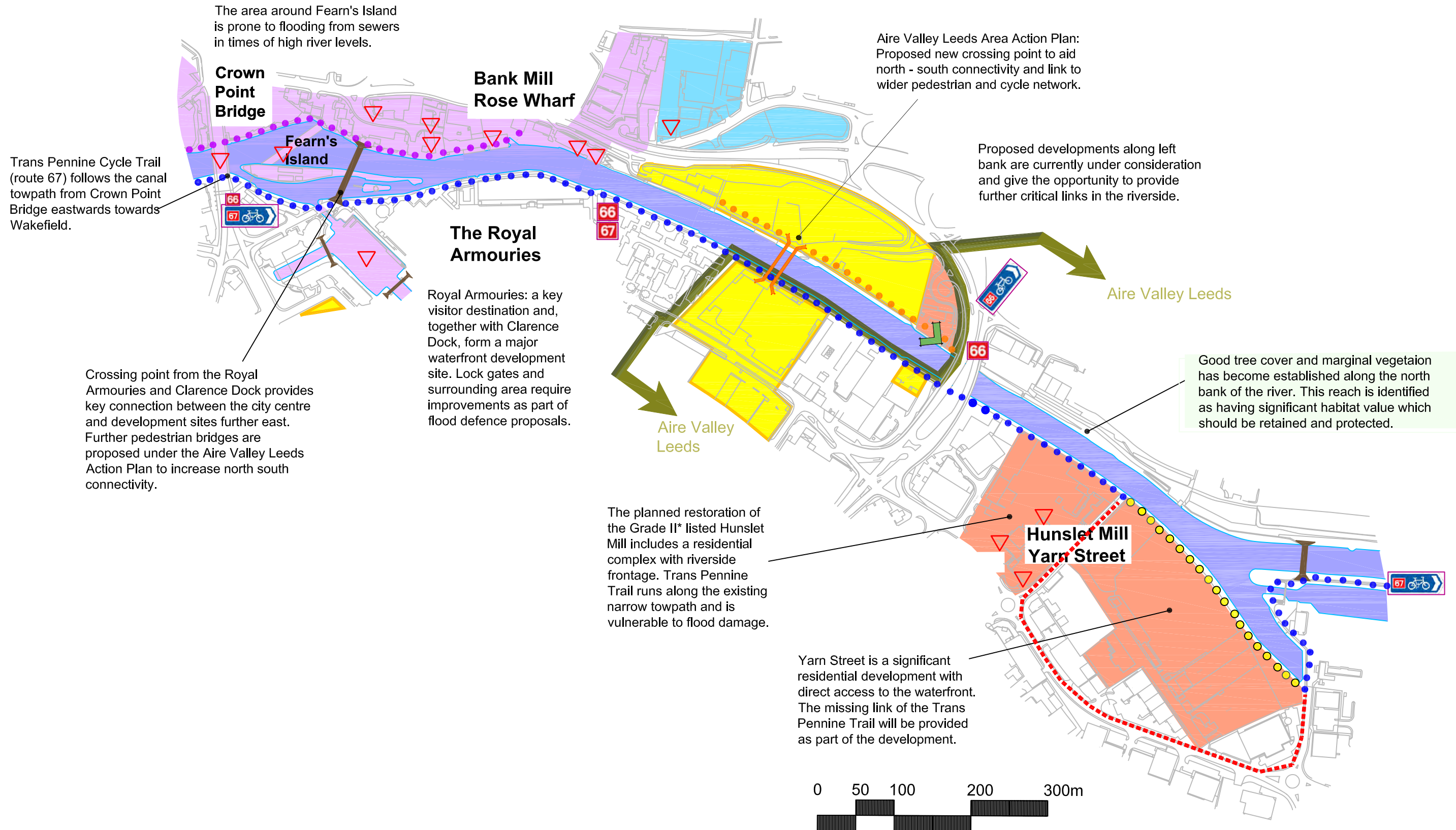
B LINEAR PARK ADJACENT TO HUNSLET MILL AND YARN STREET DEVELOPMENTS
Typical Cross Section View



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Zone 5 covers the area immediately east of Leeds City Centre. The Royal Armouries and adjacent waterfront developments have transformed the river environment into a vibrant leisure and entertainment area. Further east the river corridor character becomes greener although large tracts of land on both the north and south banks are designated development sites. The Aire Valley Leeds (AVL) Area Action Plan covers approximately 1000 hectares of development land stretching from the Royal Armouries Museum to the M1 Motorway (zone 6).

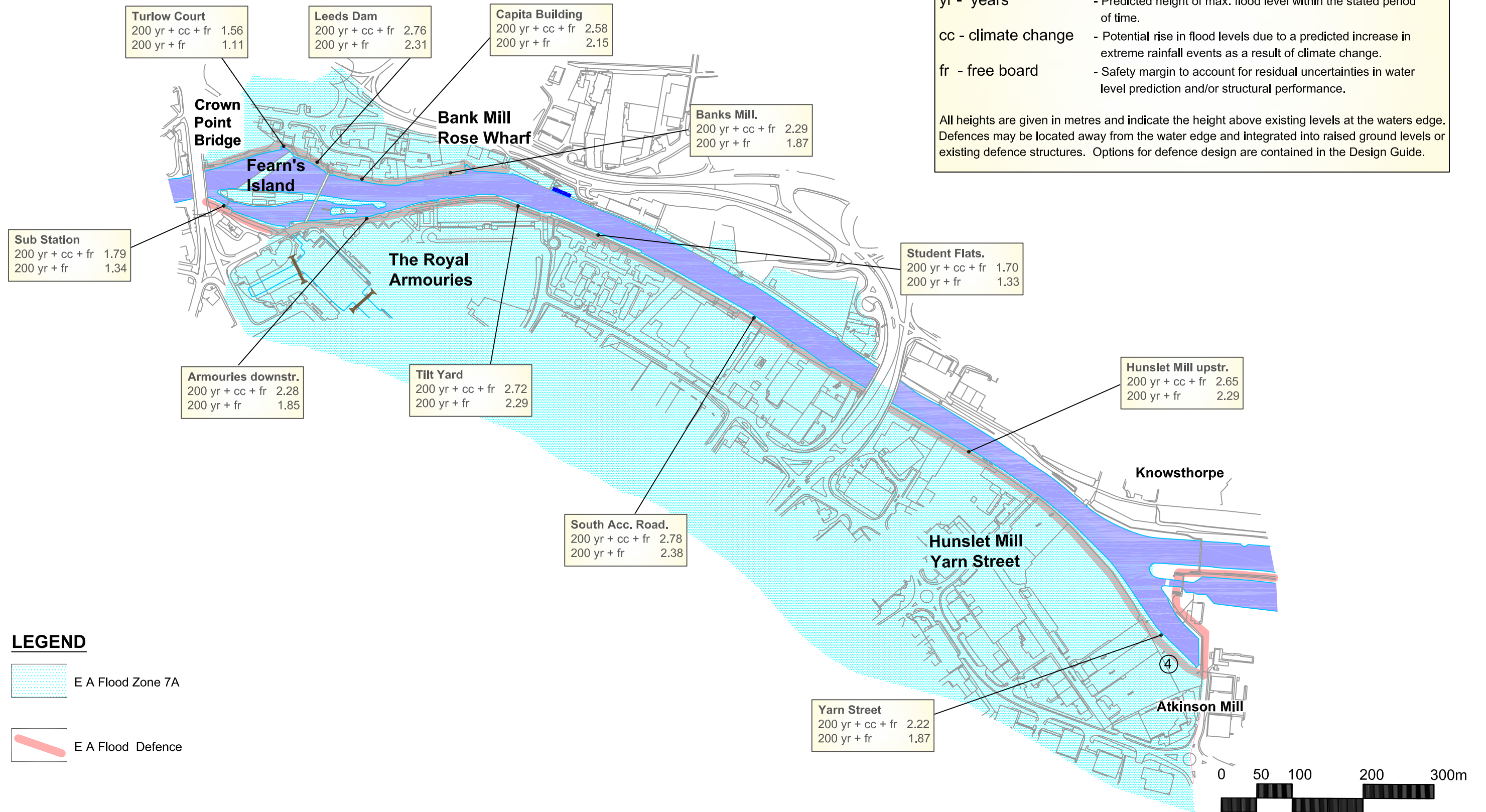


Environment Agency Draft Proposals - Zone 5

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LEGEND

- E A Flood Zone 7A
- E A Flood Defence



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