

## LOCAL MEMBER COMMENTS

COMMITTEE DATE: 20/04/2016

APPLICATION No. **15/02501/MJR** APPLICATION DATE: 09/10/2015

ED: **PENYLAN**

APP: TYPE: Full Planning Permission

APPLICANT: Natural Resources Wales

LOCATION: ROATH BROOK, WATERLOO ROAD, ROATH

PROPOSAL: CONSTRUCTION OF A STRATEGIC FLOOD RISK MANAGEMENT SCHEME BETWEEN PEN-Y-LAN ROAD AND IPSWICH ROAD/NEWPORT ROAD JUNCTION INCLUDING RAISED FLOOD DEFENCE WALLS AND EMBANKMENTS, REPLACEMENT HIGHWAY BRIDGES AND FOOTBRIDGES, IN CHANNEL WORKS TO IMPROVE FLOW CONVEYANCE, WATER LEVEL MONITORING STATION INCLUDING A CCTV MONITORING POINT, REPLACEMENT BOUNDARY WALLS, TREE CLEARANCE WORKS AND LANDSCAPING / REINSTATEMENT WORKS

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**RECOMMENDATION 1** : That planning permission be **GRANTED** subject to the following conditions :

1. C01 Statutory Time Limit
2. The development shall be carried out in accordance with the following approved plans and documents:  
GENERAL  
ROA-RHD-XX-XX-DR-Z-1000 PLANNING DRAWING LIST  
ROA-RHD-XX-XX-DR-C-1000 SITE PLAN - SHEET 1  
ROA-RHD-XX-XX-DR-C-1001 SITE PLAN - SHEET 2  
ROA-RHD-XX-XX-DR-L-1000 TYPICAL FLOOD WALL ELEVATIONS  
MORRISONS  
ROA-RHD-01-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN ROATH BROOK EMBANKMENT  
ROA-RHD-03-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN  
ROA-RHD-03-XX-DR-C-1001 SECTIONS  
SAINSBURYS  
ROA-RHD-05-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN RAILWAY GARDENS  
ROA-RHD-06-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN -SHEET 1  
ROA-RHD-06-XX-DR-L-1001 GENERAL ARRANGEMENT PLAN - SHEET 2  
ROA-RHD-06-XX-DR-C-1002 FLOOD WALL SECTIONS

ROA-RHD-06-XX-DR-L-1002 FLOOD WALL SECTIONS - SHEET 1  
 ROA-RHD-06-XX-DR-L-1003 FLOOD WALL SECTIONS - SHEET 2  
 ROA-RHD-06-XX-DR-L-1004 GENERAL ARRANGEMENT - RAILWAY  
 GARDENS FOOTBRIDGE  
WATERLOO GARDENS  
 ROA-RHD-07-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN  
 ROA-RHD-07-XX-DR-L-1001 FLOOD WALL SECTIONS  
 ROA-RHD-07-XX-DR-L-1002 GENERAL ARRANGEMENT -  
 WATERLOO GARDENS FOOTBRIDGE  
WATERLOO ROAD BRIDGE  
 ROA-RHD-08-XX-DR-L-1000 GENERAL ARRANGEMENT -  
 WATERLOO ROAD BRIDGE  
ROATH MILL GARDENS  
 ROA-RHD-09-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN -  
 SHEET 1  
 ROA-RHD-09-XX-DR-L-1001 GENERAL ARRANGEMENT PLAN -  
 SHEET 2  
 ROA-RHD-09-XX-DR-L-1002 FLOOD WALL SECTIONS - SHEET 1  
 ROA-RHD-09-XX-DR-L-1003 FLOOD WALL SECTIONS - SHEET 2  
ROATH BROOK GARDENS  
 ROA-RHD-11-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN -  
 SHEET 1  
 ROA-RHD-11-XX-DR-L-1001 GENERAL ARRANGEMENT PLAN -  
 SHEET 2  
 ROA-RHD-11-XX-DR-L-1002 FLOOD WALL SECTIONS  
WALLED GARDENS  
 ROA-RHD-12-XX-DR-L-1000 GENERAL ARRANGEMENT PLAN  
 ROATH BROOK FLOOD RISK MANAGEMENT SCHEME -  
 ENVIRONMENTAL REPORT 7<sup>TH</sup> October 2015  
 Reason: For the avoidance of doubt

3. No development shall take place until a plan detailing the phasing of the development, including the timing of construction of each phase, has been submitted to and approved in writing by the Local Planning Authority. The development shall be implemented in accordance with the approved plan.  
 Reason: To ensure that there is a clear and phased framework for the development so that the development is carried out in a comprehensive, sustainable and coherent manner.
  
4. Prior to the commencement of any site clearance, construction works or development on any phase a Construction Environmental and Management Plan (CEMP) for that phase shall be submitted to and approved in writing by the Local Planning Authority in order to manage the impacts of construction on that phase. The CEMP shall include:
  - (i) details of Construction Traffic Management, which shall include: identification of the routes that construction vehicles would take and measures to regulate the routing of construction traffic; times within which traffic can enter and leave the site; times of deliveries, site access, loading and unloading of plant and

materials; access within the site including measures to ensure safe and convenient pedestrian, cycle and vehicular access through those areas not under construction or where construction is complete; wheel washing facilities; and details of parking for contractor's vehicles, site operatives and visitors;

- (ii) details of the storage of plant and materials, construction compounds, any temporary facilities for construction / sales staff;
- (iii) details of site hoardings (including the erection, maintenance, security and any decorative displays);
- (iv) measures to control the emission of dust and dirt during construction;
- (v) details of site waste management for the recycling and/or disposal of all waste resulting from demolition and construction works;
- (vi) a Construction Drainage Scheme indicating how surface water and land drainage flows will be controlled to prevent contamination, nuisance, subsidence or flooding to land, buildings, watercourses or highways or adjacent land, buildings, watercourses and highways during the construction period;
- (vii) a pollution prevention method statement to cover all channel/bank works;
- (viii) List of on-site contacts and their responsibilities.

The details so approved and any subsequent amendments as shall be agreed in writing by the Local Planning Authority shall be complied with in full throughout the construction period.

Reason: In the interests of highway safety, and protection of the environment and public amenity.

5. Prior to the commencement of each phase of the development an assessment of the nature and extent of contamination for that phase shall be submitted to and approved in writing by the Local Planning Authority. This assessment must be carried out by or under the direction of a suitably qualified competent person \* in accordance with BS10175 (2011) Code of Practice for the Investigation of Potentially Contaminated Sites and shall assess any contamination on that phase, whether or not it originates on that phase. The report of the findings shall include:

- (ix) A desk top study to identify all previous uses at the site and potential contaminants associated with those uses and the impacts from those contaminants on land and controlled waters. The desk study shall establish a 'conceptual site model' (CSM) which identifies and assesses all identified potential source, pathway, and receptor linkages;
- (ii) An intrusive investigation to assess the extent, scale and nature of contamination which may be present, if identified as required by the desk top study;
- (iii) An assessment of the potential risks to:
  - human health,
  - groundwaters and surface waters
  - adjoining land,

- property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes,
  - ecological systems,
  - archaeological sites and ancient monuments; and
  - any other receptors identified at (i)
- (iv) An appraisal of remedial options, and justification for the preferred remedial option(s).

All work and submissions carried out for the purposes of this condition must be conducted in accordance with DEFRA and the Environment Agency's 'Model procedures for the Management of Land Contamination, CLR 11' (September 2004) and the WLGA / WAG / EA guidance document 'Land Contamination: A Guide for Developers' (2012).

\* A 'suitably qualified competent person' would normally be expected to be a chartered member of an appropriate professional body (such as the Institution of Civil Engineers, Geological Society of London, Royal Institution of Chartered Surveyors, Institution of Environmental Management) and also have relevant experience of investigating contaminated sites.

Reason: To ensure that information provided for the assessment of the risks from land contamination to the future users of the land, neighbouring land, controlled waters, property and ecological systems is sufficient to enable a proper assessment in accordance with Policy EN13 of the Local Development Plan.

6. Prior to the commencement of each phase of the development a detailed remediation scheme and verification plan to bring that phase to a condition suitable for the intended use by removing any unacceptable risks to human health, controlled waters, buildings, other property and the natural and historical environment shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall include all works to be undertaken, proposed remediation objectives and remediation criteria, a timetable of works and site management procedures. The scheme must ensure that the phase will not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to the intended use of the land after remediation.

All work and submissions carried out for the purposes of this condition must be conducted in accordance with DEFRA and the Environment Agency's 'Model procedures for the Management of Land Contamination, CLR 11' (September 2004) and the WLGA / WAG / EA guidance document 'Land Contamination: A guide for Developers' (July 2006), unless the Local Planning Authority agrees to any variation.

Reason: To ensure that any unacceptable risks from land contamination to the future users of the land, neighbouring land, controlled waters, property and ecological systems are minimised, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors in accordance with Policy EN13 of the Local Development Plan.



7. Each remediation scheme approved by condition 6 must be fully undertaken in accordance with its terms prior to the completion of any part of the development unless otherwise agreed in writing by the Local Planning Authority. The Local Planning Authority must be given two weeks written notification of commencement of the remediation scheme works. Within 6 months of the completion of the measures identified in the approved remediation scheme, a verification report that demonstrates the effectiveness of the remediation carried out must be submitted to and approved in writing by the Local Planning Authority. All work and submissions carried out for the purposes of this condition must be conducted in accordance with DEFRA and the Environment Agency's 'Model procedures for the Management of Land Contamination, CLR 11' (September 2004) and the WLGA / WAG / EA guidance document ' Land Contamination: A guide for Developers' (July 2006), unless the Local Planning Authority agrees to any variation.  
Reason: To ensure that any unacceptable risks from land contamination to the future users of the land , neighbouring land, controlled waters, property and ecological systems are minimised, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors in accordance with Policy EN13 of the Local Development Plan.
8. In the event that contamination is found at any time when carrying out the approved development that was not previously identified it must be reported in writing within 2 days to the Local Planning Authority, all associated works must stop, and no further development shall take place unless otherwise agreed in writing until a scheme to deal with the contamination found has been approved. An investigation and risk assessment must be undertaken and where remediation is necessary a remediation scheme and verification plan must be prepared and submitted to and approved in writing by the Local Planning Authority. Following completion of measures identified in the approved remediation scheme a verification report must be submitted to and approved in writing by the Local Planning Authority. The timescale for the above actions shall be agreed with the Local Planning Authority within 2 weeks of the discovery of any unsuspected contamination.  
Reason: To ensure that any unacceptable risks from land contamination to the future users of the land , neighbouring land, controlled waters, property and ecological systems are minimised, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors in accordance with Policy EN13 of the Local Development Plan.
9. Any topsoil [natural or manufactured], or subsoil, to be imported on each phase shall be assessed for chemical or other potential contaminants in accordance with a scheme of investigation which shall be submitted to and approved in writing by the Local Planning Authority in advance of its importation. Only material approved by the Local Planning Authority shall be imported. All measures specified in the approved scheme shall be undertaken in accordance with the relevant

Code of Practice and Guidance Notes. Subject to approval of the above, sampling of the material received at the development site to verify that the imported soil is free from contamination shall be undertaken in accordance with a scheme and timescale to be agreed in writing by the Local Planning Authority.

Reason: To ensure that the safety of future occupiers is not prejudiced in accordance with Policy EN13 of the Cardiff Local Development Plan.

10. Any aggregate (other than virgin quarry stone) or recycled aggregate material to be imported on each phase shall be assessed for chemical or other potential contaminants in accordance with a scheme of investigation which shall be submitted to and approved in writing by the Local Planning Authority in advance of its importation. Only material approved by the Local Planning Authority shall be imported. All measures specified in the approved scheme shall be undertaken in accordance with the Welsh Local Government Association Guidance "Requirements for the Chemical Testing of Imported Materials for Various End Uses." Subject to approval of the above, sampling of the material received at the development site to verify that the imported material is free from contamination shall be undertaken in accordance with a scheme and timescale to be agreed in writing by the Local Planning Authority.

Reason: To ensure that the safety of future occupiers is not prejudiced in accordance with Policy EN13 of the Cardiff Local Development Plan.

11. Any site won material including soils, aggregates, recycled materials shall be assessed for chemical or other potential contaminants in accordance with a sampling scheme which shall be submitted to and approved in writing by the Local Planning Authority in advance of the reuse of site won materials. Only material which meets site specific target values approved by the Local Planning Authority shall be reused.

Reason: To ensure that the safety of future occupiers is not prejudiced in accordance with Policy EN13 of the Local Development Plan.

12. No development of any phase shall take place until a comprehensive scheme for the disposal of surface water and the protection of foul and surface water sewers during construction of that phase has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details.

Reason: To ensure that no adverse impact occurs to the existing public sewerage system.

13. Prior to the commencement of each phase of the development details for the protection of trees shown to be retained for that phase shall be submitted to and approved in writing by the Local Planning Authority. The approved details shall accord with the 'Landscape Planting Strategy' hereby approved (drawing numbers NPA10727501, NPA10727502, NPA10727503 & NPA10727504) and BS5837:2012 *'Trees in Relation to Design, Demolition and Construction –*

*Recommendations'* and shall include:

- (i) An Arboricultural Method Statement (AMS), setting out the methodology that will be used to prevent loss of or damage to retained trees. It shall include details of on-site monitoring of tree protection and tree condition that shall be carried out throughout the development and for at least two years after its completion.
- (ii) A Tree Protection Plan (TPP) in the form of a scale drawing showing the finalised layout and the tree and landscaping protection methods detailed in the AMS that can be shown graphically.

The development shall be carried out in full conformity with the approved AMS and TPP unless modifications are agreed in writing by the Local Planning Authority.

Reason: To maintain and improve the appearance of the area in the interests of visual amenity.

14. No equipment, plant or materials shall be brought onto the site for the purpose of development until full details of both hard and soft landscape works for that phase have been submitted to and approved in writing by the Local Planning Authority. These details shall include proposed finished levels, earthworks, hard surfacing materials, proposed and existing services above and below ground level, planting plans (including schedules of plant species, sizes, numbers or densities), topsoil and subsoil specification, planting methodology, tree pit section, after care specification and an implementation programme. The details shall be consistent with other plans submitted in support of the application including the Soil Resource Survey and Plan required as part of Condition 16 and the landscaping shall be carried out in accordance with the approved design and implementation programme.

Reason: To enable the Local Planning Authority to determine that the proposals will maintain and improve the amenity of the area, and to monitor compliance.

15. Any trees, plants, or hedgerows which within a period of five years from the completion of the development die, are removed, become seriously damaged or diseased, or become (in the opinion of the Local Planning Authority) otherwise defective, shall be replaced in the current planting season or the first two months of the next planting season, whichever is the sooner, unless the Local Planning Authority gives written consent to any variation.

Reason: To maintain and improve the amenity of the area.

16. No development nor any site clearance on any phase shall take place until there has been submitted to and approved in writing by the Local Planning Authority a Soil Resource Survey (SRS) and Soil Resource Plan (SRP) for that phase. The information submitted shall accord with the '*Construction Code of Practice for the Sustainable Use of Soils on Construction Sites*' (DEFRA 2009) and shall make provision for site monitoring of soil handling, remediation and emplacement by a qualified soil scientist. The development shall be carried out in full conformity with

the approved SRP unless modifications to the SRP are agreed in writing by the Local Planning Authority.

Reason: To ensure that the functionality of the existing soil resource is maintained and that re-usable soil resources are identified and their handling, storage, remediation and emplacement is appropriately specified.

17. Prior to the commencement of each phase of the approved development an Ecological Management Strategy (EMS) shall be submitted to and approved in writing by the Local Planning Authority in relation to that phase. The EMS shall include avoidance, mitigation and enhancement measures to be delivered for the benefit of non-statutory designated sites and retained habitats which shall include:
- (i) Information, including habitat composition and layout and the implementation of these (timing and phasing).
  - (ii) Details of the landscape planting scheme to be delivered and the phasing of that provision.
  - (iii) Details of the ecological management plan to be implemented for that phase.
  - (iv) Measures to be delivered for the benefit of protected species, as appropriate to the phase, including dormice, bats, reptiles, birds, otters, water voles, and freshwater crayfish.
  - (v) Measures to encourage biodiversity including the provision of bat roosts.
  - (vi) Information on appropriate plans setting out habitats to be lost, enhanced, created and retained by the development.
  - (vii) Measures for preventing/controlling light spillage to key wildlife areas/corridors.
  - (viii) Identify remediation/intervention/management review measures in the event that post-construction monitoring indicates that avoidance, mitigation and compensation measures are not succeeding.

The approved EMS shall be implemented and carried out strictly in accordance with the approved programme for implementation of the works on that particular phase unless otherwise agreed in writing with the Local Planning Authority.

Reason: To ensure for the protection of European Protected Species and other wildlife.

18. No site clearance/demolition shall take place between 1st March and 31st August unless otherwise approved in writing by the Local Planning Authority.
- Reason: To avoid disturbance to nesting birds which are protected under the Wildlife and Countryside Act 1981: Part 1 1(1)(b), it is an offence to intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built.

19. No materials, waste, arisings or plant shall be stored within the Roath Brook Site of Importance for Nature Conservation (SINC) or allowed to

fall, be washed or blown into it.

Reason: To protect the features of interest for nature conservation for which the SINC has been designated.

20. Prior to the development of each phase a detailed scheme for the treatment and disposal of soils affected by Japanese Knotweed and Himalayan Balsam shall be submitted to and approved in writing by the Local Planning Authority. Such a scheme shall accord with the advice in the Environment Agency publication '*The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites*' (Version 3 amended in 2013). Thereafter the development shall be carried out in accordance with the approved scheme.

Reason: To ensure that the safety of future users of the site are not prejudiced.
21. No development or site clearance of a phase shall take place until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the Local Planning Authority.

Reason: To identify and record any features of archaeological interest discovered during the works, in order to mitigate the impact of the works on the archaeological resource.
22. No development shall take place until a public art strategy has been submitted to and approved in writing by the Local Planning Authority. The strategy shall include details of procurement, a timetable for implementation and a maintenance schedule. The approved public art shall be provided prior to the completion of the relevant phase and maintained in accordance with the approved details.

Reason: In the interests of visual amenity and the creation of a quality and legible built environment.
23. Prior to their installation on site samples of the external finishing materials shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.
24. Prior to their installation on site details of the flood defence walls, railings, and park gates shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.
25. Prior to their installation on site, details of all furniture including seating, litter bins and signage together with their frequency and positioning shall be submitted to and approved in writing by the Local Planning Authority.

The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.

26. Prior to its construction on site details of the paved area on the '*Roath Mill Gardens General Arrangement Plan Sheet 1*' (drawing number ROA-RHD-09-XX-DR-L-1000 Revision P0), including a Roath Mill Interpretation, shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.

27. No development within Waterloo Gardens shall take place until details of an access for maintenance vehicles from Waterloo Gardens has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To facilitate the maintenance of Waterloo Gardens north of Roath Brook.

28. Prior to its installation on site a sample of the external finishing materials to the Waterloo Road bridge wall and parapet shall be constructed for inspection by the Local Planning Authority in the vicinity of the site. Following the Local Planning Authority's written approval, the development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.

29. Prior to its construction on site details of the paved area on the '*Waterloo Gardens General Arrangement Plan*' (drawing number ROA-RHD-07-XX-DR-L-1000 Revision P0) shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.

30. No development within Waterloo Gardens shall take place until details of the widened channel, including its stone lined revetments, has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.

31. Prior to their installation on site details of the design of the footbridges within Waterloo Gardens and Railway Gardens shall be submitted to

and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.

32. Prior to its installation on site details of the Water Level Monitoring Station and its roadside kiosk shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter.

Reason: To ensure that the finished appearance of the development is in keeping with the area.

**RECOMMENDATION 2** : The contamination assessments and the effects of unstable land are considered on the basis of the best information available to the Planning Authority and are not necessarily exhaustive. The Authority takes due diligence when assessing these impacts, however you are minded that the responsibility for

- (i) determining the extent and effects of such constraints and;
- (ii) ensuring that any imported materials (including, topsoils, subsoils, aggregates and recycled or manufactured aggregates / soils) are chemically suitable for the proposed end use. Under no circumstances should controlled waste be imported. It is an offence under section 33 of the environmental Protection Act 1990 to deposit controlled waste on a site which does not benefit from an appropriate waste management license. The following must not be imported to a development site:
  - Unprocessed / unsorted demolition wastes.
  - Any materials originating from a site confirmed as being contaminated or potentially contaminated by chemical or radioactive substances.
  - Japanese Knotweed stems, leaves and rhizome infested soils. In addition to section 33 above, it is also an offence under the Wildlife and Countryside Act 1981 to spread this invasive weed; and
- (iii) the safe development and secure occupancy of the site rests with the developer.

Proposals for areas of possible land instability should take due account of the physical and chemical constraints and may include action on land reclamation or other remedial action to enable beneficial use of unstable land.

The Local Planning Authority has determined the application on the basis of the information available to it, but this does not mean that the land can be considered free from contamination.

**RECOMMENDATION 3** : To protect the amenities of occupiers of other premises in the vicinity attention is drawn to the provisions of Section 60 of the

Control of Pollution Act 1974 in relation to the control of noise from demolition and construction activities. Further to this the applicant is advised that no noise audible outside the site boundary adjacent to the curtilage of residential property shall be created by construction activities in respect of the implementation of this consent outside the hours of 0800-1800 hours Mondays to Fridays and 0800 - 1300 hours on Saturdays or at any time on Sunday or public holidays. The applicant is also advised to seek approval for any proposed piling operations.

**RECOMMENDATION 4:** That the applicant be advised that any highway works which relate to the existing or proposed adopted highway will need to be subject to an agreement with Local Highway Authority under Section 38 and/or Section 278 of the Highways Act 1980 before any works take place.

**RECOMMENDATION 5:** That the applicant be advised of Dwr Cymru Welsh Water's advice regarding connections to the public sewerage system and water supply set out in their letter dated 13<sup>th</sup> November 2015, forwarded to the Agents acting on behalf of the Applicant.

## 1. **DESCRIPTION OF PROPOSED DEVELOPMENT**

- 1.1 Full planning permission is sought for the construction of a strategic flood risk management scheme between Penylan Road and Ipswich Road/Newport Road junction including raised flood defence walls and embankments, replacement highway bridges and footbridges, in channel works to improve flow conveyance, construction of a water level monitoring station including a CCTV monitoring point, replacement boundary walls, tree clearance works and landscaping/reinstatement works.
- 1.2 The application is sought to address flooding problems in the area. Records show that properties have been flooded from Roath Brook in 1886, 1875, 1927, 1931, 1979, 1995, 1998, and 2009. Localised flooding has been recorded during recent 'near misses' in May 2007, July 2007, March 2010, December 2012 and January 2014. Due to climate change, the applicant advises that flood risk will increase over time, resulting in higher fluvial flows and an increase in the potential frequency of overtopping of the existing defences. The application would provide tidal and fluvial flood protection to a standard of 1:75 years for fluvial flooding and 1:150 years for tidal flooding. A summary of the proposed works, which cover approximately 2km of Roath Brook, are listed below:



### Scheme Overview (taken from Table 4.1 of the Environmental Report)

Location	Description of Scheme
Walled Gardens	<ul style="list-style-type: none"> <li>• The provision of individual property protection to No 2 Westville Walk along with localised wall repairs to ensure the stability of the boundary wall at No 1 and 3 Sandringham Road.</li> </ul>
Roath Brook Gardens	<ul style="list-style-type: none"> <li>• Re-profiling 230m of the southern bank of Roath Brook across the full length of Brook Gardens. Incorporation of an in-channel berm to narrow and create a two-stage channel along this reach.</li> <li>• Construction of landscaped earth embankments at 1 in 3 slopes across approximately 80% (180m) of the length of Brook Gardens.</li> </ul>
Blenheim Road Bridge	<ul style="list-style-type: none"> <li>• Re-profiling 150m of the northern bank of Roath Brook. Incorporation of an in-channel berm to narrow and create a two-stage channel along this reach.</li> </ul>
Roath Mill Gardens	<ul style="list-style-type: none"> <li>• Installing 120m of sheet piled floodwalls with brick and stone finish to a maximum wall height 0.75m.</li> <li>• Re-alignment and raising of 120m of footpath along southern bank.</li> <li>• Re-alignment and raising of 50m of footpath along northern bank.</li> </ul>
Waterloo Gardens	<ul style="list-style-type: none"> <li>• Widening of 140m of the southern channel of the Roath Brook.</li> <li>• Infilling approximately 110m of the obsolete northern channel.</li> <li>• Installing 475m of sheet piled floodwalls with brick and stone finish (approximately 275m on southern bank and 200m on northern bank) to a maximum wall height of 1.1m.</li> <li>• Demolition of boundary wall between Waterloo Gardens and St Telio's Court and replacement with a new flood wall (measured above).</li> <li>• The construction of 5 No maintenance flood gates within the flood defence to permit construction access.</li> <li>• Removal of three footbridges and the installation of two new footbridges and ramps.</li> </ul>
Railway Gardens	<ul style="list-style-type: none"> <li>• Construction of 80m of earth embankments at 1 in 3 slopes across eastern and southern faces of the park.</li> <li>• Construction of 405m of reinforced concrete floodwalls clad with bricks along northern and southern banks (130m along southern bank and 285m along northern bank) with a maximum wall height of 1.1m.</li> <li>• Installation of a new footbridge.</li> <li>• Localised river alignment and the construction of river training walls.</li> <li>• Installation of two 3.4m wide floodgates.</li> </ul>
Industrial Areas and	<ul style="list-style-type: none"> <li>• Construction of 20m of precast concrete interlocking block floodwall at a maximum height of 1m above ground level at the</li> </ul>

Roath Embankment	<p>Sainsbury's site within the service road and associated local ground raising.</p> <ul style="list-style-type: none"> <li>• Construction of 230m of sheet pile floodwall with concrete infill along Roath Brook Embankment.</li> <li>• 190m of embankment ground raising around electric pylon up to the tie-in with proposed sheet piles (above).</li> <li>• Construction of approximately 20m of reinforced concrete floodwalls to a height of approximately 0.4m above existing ground level at Morrison's site, with the existing wall to be raised by approximately 250mm.</li> </ul>
Road Bridges	<ul style="list-style-type: none"> <li>• Waterloo Road Bridge re-built at a raised level. Existing pier removed.</li> <li>• New stone clad abutments and deck with road surface and footpaths constructed.</li> </ul>

1.3 Vegetation removal including the removal of 141 trees will be required to facilitate the construction. 18 no. (13%) 'U' Category trees unsuitable for retention, 69 no. (49%) 'C' Category trees of low quality, 18 no. (13%) 'B/C' Category trees, 30 no. (21%) 'B' Category trees of moderate quality, 1 no. (1%) 'A/B' Category trees and 5 no. (4%) 'A' Category high quality trees will be replaced with compensatory planting.

1.4 The application was subject to a screening under The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended). Screening was required as the proposals are classified as an 'Infrastructure Projects' comprising flood-relief works under Part 10(h) of Schedule 2 to the Regulations as the area of works exceeds 1 hectare. However, the Council's screening opinion, issued on 26<sup>th</sup> March 2013 concluded that the proposals did not constitute EIA development as the effects on the environment were unlikely to be significant.

1.5 Notwithstanding the Council's opinion, the applicant, in line with its good practice procedures as the responsible authority for managing the risk of flooding to main rivers in Wales, including Roath Brook, a non-statutory Environmental Impact Assessment has been undertaken.

1.6 This non-statutory EIA concludes that the development will result in improved flood defences and a greater level of protection to Roath in which 360 residential and 50 commercial properties will be protected from flooding in the future. Once mitigation measures have been implemented, the scheme will result in negligible to minor construction and operation impacts of significance, whilst simultaneously providing a wide range of environmental enhancements to benefit the local community and surrounding environment. A summary of the potential impacts and mitigation measures is appended to this report.

## 2. **DESCRIPTION OF SITE**

2.1 The application site comprises an area of approximately 8.17 hectares

extending from Penylan Road in the west to East Moors Viaduct (A4161) in the east, including Roath Brook Gardens, Roath Mill Gardens, Waterloo Gardens, Railway Gardens and the Roath Brook Embankments from Sainsbury's on Colchester Avenue to Morrison's on Ipswich Road.

- 2.2 The Walled Gardens, Roath Brook Gardens, Roath Mill Gardens and Waterloo Gardens are within the Roath Park and Roath Mill Gardens Conservation Areas. Waterloo Gardens and Roath Mill Gardens are also registered as Grade II Historic Parks dating from the Edwardian era.
- 2.3 The remains of the former Roath Corn Mill dating from the 18<sup>th</sup> Century are located in Roath Mill Gardens.
- 2.4 Trees are the dominant feature of the Roath Brook Gardens, Roath Mill Gardens and Waterloo Gardens, including many rare and important specimens.
- 2.5 Roath Brook Gardens, Roath Mill Gardens, Waterloo Gardens, Railway Gardens and Sainsbury's lie within Zone C2 as defined by the Development Advice Map (DAM) referred to in Technical Advice Note 15: Development and Flood Risk (TAN15) (July 2004). From Colchester Avenue to the east site boundary the site lies within Zone C1.
- 2.6 Roath Brook is designated as a Site of Importance for Nature Conservation (SINC) as an unimproved tributary with diverse bankside vegetation.
- 2.7 The Church of St. Margaret, a Grade I Listed Building, adjoins the southern boundary of Waterloo Gardens.
- 2.8 Further east, from Sainsbury's to the eastern extent of the site, the Roath Brook flows along a channel between existing commercial and industrial uses.
- 2.9 The Howardian Local Nature Reserve is located approximately 68 metres north of the eastern end of the application site.
- 2.10 The River Rhymney and the Rhymney River Valley Complex to the east are designated SINCS.
- 2.11 There are 3 no. Sites of Special Scientific Interest in locality, Penylan Quarry (approximately 700 metres north), River Rhymney Section (approximately 333 metres northeast) and Rumney Quarry (approximately 626 metres east).
- 2.12 The Severn Estuary (Wales) designations (RAMSAR, Special Area of Conservation, and Special Protection Area) are located approximately 1.6km southeast of the application site.

### 3. **SITE HISTORY**

- 3.1 12/01999/DCO: Prior approval granted in January 2013 to demolish the existing pedestrian footbridge over the Roath Brook.
- 3.2 08/02641/E: Permission granted in January 2009 for the removal of existing conifers and length of wire mesh fencing, erection of steel vertical bar fencing 2m high on boundary of public open space.
- 3.3 07/00513/E: Permission granted in April 2007 for two new kiosks required for monitoring flows at MHST1977899 Kiosk 1 is at junction box. Kiosk 2 will house telemetry. Existing fence to be recessed behind proposed kiosks.

### 4. **POLICY FRAMEWORK**

- 4.1 Planning Policy Wales, Edition 8 (January 2016).

*4.2.2 The planning system provides for a presumption in favour of sustainable development to ensure that social, economic and environmental issues are balanced and integrated, at the same time, by the decision-taker when...taking decisions on individual planning applications.*

*4.2.4 Legislation secures a presumption in favour of development in accordance with the development plan for the area unless material considerations indicate otherwise.*

*4.3.1 All those involved in the planning system are expected to adhere to (inter alia):*

- *putting people, and their quality of life now and in the future, at the centre of decision-making;*
- *engagement and involvement, ensuring that everyone has the chance to obtain information, see how decisions are made, and take part in decision-making;*
- *taking a long term perspective to safeguard the interests of future generations, whilst at the same time meeting needs of people today;*
- *respect for environmental limits, so that resources are not irrecoverably depleted or the environment irreversibly damaged. This means, for example, mitigating climate change, protecting and enhancing biodiversity, minimising harmful emissions, and promoting sustainable use of natural resources;*
- *tackling climate change by reducing the greenhouse gas emissions that cause climate change and ensuring that places are resilient to the consequences of climate change;*
- *taking account of the full range of costs and benefits over the lifetime of a development, including those which cannot be easily valued in money terms when making plans and decisions and taking account of timing, risks and uncertainties. This also includes recognition of the climate a development is likely to experience over its intended lifetime; and*

- *working in collaboration with others to ensure that information and knowledge is shared to deliver outcomes with wider benefits.*

*4.4.1 The following sustainability objectives for the planning system reflect our vision for sustainable development and the outcomes we seek to deliver across Wales. These objectives should be taken into account...in taking decisions on individual planning applications in Wales. These reflect the sustainable development outcomes that we see the planning system facilitating across Wales.*

*4.4.3 Planning policies, decisions, and proposals should (inter alia):*

- *Contribute to the protection and improvement of the environment so as to improve the quality of life and protect local and global ecosystems, avoiding irreversible harmful effects and the natural environment and support measures that allow the natural heritage to adapt to the effects of climate change;*
- *Minimise the risks posed by, or to, development on or adjacent to unstable or contaminated land and land liable to flooding. This includes managing and seeking to mitigate the consequences of climate change by building resilience into the natural and built environment;*
- *Contribute to the protection and, where possible, the improvement of people's health and wellbeing as a core component of achieving the well-being goals and responding to climate change.*
- *Promote access to employment, shopping, education, health, community facilities and open and green space.*
- *Foster social inclusion by ensuring that full advantage is taken of the opportunities to secure a more accessible environment for everyone*
- *Help to ensure the conservation of the historic environment and cultural heritage.*

4.5 Technical Advice Notes (TANs):

5	Nature Conservation and Planning
10	Tree Preservation Orders
11	Noise
12	Design
15	Development and Flood Risk

4.6 Local Development Plan (January 2016):

KP14	Healthy Living
KP15	Climate Change
KP16	Green Infrastructure
KP17	Built Heritage
KP18	Natural Resources
EN4	River Corridors
EN5	Designated Sites
EN6	Ecological Networks and Features of Importance for Biodiversity
EN7	Priority Habitats and Species

EN8	Trees, Woodlands and Hedgerows
EN9	Conservation of the Historic Environment
EN10	Water Sensitive Design
EN11	Protection of Water Resources
EN13	Air, Noise, Light Pollution and Land Contamination
EN14	Flood Risk
T5	Managing Transport Impacts
T6	Impact on Transport Networks and Services
T8	Strategic Recreational Routes
C3	Community Safety/Creating Safe Environments
C4	Protection of Open Space
C6	Health
C7	Planning for Schools
W2	Provision for Waste Management Facilities in Development

4.7 Other relevant guidance:

*Biodiversity (2011)*

*Archaeologically Sensitive Areas (2006)*

*Trees and Development (2007)*

*Roath Park Conservation Area Appraisal (2008)*

*Roath Mill Gardens Conservation Area Appraisal (2008)*

5. **INTERNAL CONSULTEES RESPONSES**

5.1 The **Operational Manager, Transportation**, advises that Highways Officers have been directly involved in the proposals and the Technical Approval process for the structural works that are associated with the scheme. As such she has no additional comments to make in this regard. She recommends that a 'Construction Management Plan' condition be included in order to ensure that any impact on the operation of the existing Highway Network during the construction phase is controlled efficiently.

5.2 The **Operational Manager, Parks and Sport**, makes the following comments:

- (i) Issues around the establishment, maintenance and ongoing management of soft landscaped elements of the scheme are being discussed between Parks and NRW. There will need to be agreement on which party is responsible for which elements of the infrastructure;
- (ii) A detailed schedule setting out closure details (dates/areas) for each of the affected parks for the duration of the construction works will be required. The current application provides outline information only;
- (iii) Precise details of construction traffic access routes and circulation into and within the park, as well as location specific details of ground protection measures, will be required. Again, the current application provides outline information, but full details will need to be agreed prior to commencement of works on-site. He will also re-involve Strategic Estates at some point to formalise any land entry licence agreements that may be required onto council owned land;

- (iv) He notes the details submitted under cover of the Arboricultural Impact Assessment regarding protection of trees. He would anticipate further details and drawings being required specifying exactly the form of the fencing and its location in relation to the protected trees on a site by site basis;
- (v) Landscape/planting details – colleagues are currently reviewing the submitted details. He would recommend that a number of the planting areas proposed on the drawings, particularly in respect of the “Proposed native and exotic shrub mix”, are omitted on operational grounds. He will discuss this with NRW.
- (vi) Various references are made to “Additional community benefits”, “community led initiatives” and public art projects. It is difficult to get a sense of what these projects are and at what stage of development they have reached from the application details, and he would request a position statement from the applicant bringing together all these elements and explaining exactly what the current position is with respect to them;
- (vii) He would request that where new cut slopes and embankments are proposed within the parks and gardens that the tops and bottoms of these slopes are ‘rolled over’ to create a softer, more natural profile than the engineered profile shown on the submitted drawings.
- (viii) He has indicated throughout the process the potential risk to the public of steep slopes into the watercourse adjacent to footpaths and potential falls from height linked to the public, especially children, scaling and walking along the top of the flood wall. In this regard, he notes that the applicant has included protective fencing in places alongside steep drops and, of course, the pitched coping on the walls will act as a deterrent. He needs to satisfy himself that sufficient safeguards are being put in place and in this respect he would request details of the risk assessments carried out by the applicants and their conclusions as to what mitigation measures are required.
- (ix) The arrangement of railings directly abutting the floodwall is shown at a number of locations, either in the form of handrails adjacent to paths or perimeter fencing. Unfortunately this will create a trap for litter and detritus in the gap between the railing and wall which will be problematic to clean out and will create an untidy appearance over time. This may be unavoidable in places, but he would request that consideration given to an alternative to this detail in order to overcome the litter trap problem and create a more harmonious appearance. He suggests that the railings be attached to the top of the wall or a simple handrail is attached to the vertical face of the wall.
- (x) Stone filled drains are proposed at several locations adjacent to the floodwall to assist with drainage of surface water into the brook. It would be useful to understand where the outfalls will be into the brook and to have details of the design/specification of the drains and outfalls;
- (xi) The brook appears to be narrowed in places and the “reclaimed” strips alongside the brook are shown ‘white’ on the drawings as opposed to indicating a type of landscape treatment. This needs to be addressed in order to be able to appreciate the treatment of these areas and agree the future management/maintenance arrangements;

- (xii) Concerning Roath Brook Gardens he considers that the 1:5 and 1:3 gradients connected with the regraded slopes on the Sandringham Road side of the footpath and the 'no-dig' footpath respectively may create issues with grass maintenance. Also, He is unsure how the 'no-dig' sections of footpath will merge/combine with the remaining, traditional construction sections of path without creating localised and irregular changes of level.
- (xiii) He requests that metal railings in Roath Mill Gardens be substituted for the timber post and rail fencing proposed alongside the path (to protect against the steep drop into the brook) at the western end of the park as black painted railings would be more in keeping with the heritage of the park than timber;
- (xiv) The proposed new access from Roath Mill Gardens onto Waterloo Road needs to be gated as consideration is being given to introducing a locking regime for the park which will see it secured at night;
- (xv) An access for maintenance vehicles needs to be provided into the area north of the brook off Waterloo Gardens;
- (xvi) He has received verbal confirmation from the applicant that the Railway Gardens footbridge and approach footpaths will comply with the requirements of the Disability Discrimination Act (2005);
- (xvii) It has been suggested that the flood wall running parallel with Newminster Road could be realigned directly adjacent to the footway so as to exclude the narrow verge /hedgerow (? the green shading is not clear as to which soft landscape treatment is proposed) shown on the drawing. As the wall is clad, and fronts onto residential road, it begs the question why it needs to be so comprehensively screened. If planted, the verge will create maintenance issues as the planting will grow over into the footway and require frequent cutting back. NRW to re-consider this layout in the light of Parks comments.

- 5.3 The **Operational Manager, Environment (Contaminated Land)** has reviewed available records and the application documents. The site has been identified as formerly commercial/industrial with uses including landfill, brickworks and power station. Activities associated with this use may have caused the land to become contaminated and therefore may give rise to potential risks to human health and the environment for the proposed end use.
- 5.4 The applicant has included environmental reporting (incorporating land quality assessment) with the submission. Although contamination assessments have been undertaken as part of the above, the conclusions of the report include the recommendation for further assessment.
- 5.5 Should there be any importation of soils to develop the landscaped/ amenity areas of the development, or any site won recycled material, or materials imported as part of the construction of the development, then it must be demonstrated that they are suitable for the end use. This is to prevent the introduction or recycling of materials containing chemical or other potential contaminants which may give rise to potential risks to human health and the environment for the proposed end use.



- 5.6 He therefore requests the inclusion of relevant conditions and informative statements in accordance with CIEH best practice and to ensure that the safety of future occupiers is not prejudiced.
- 5.7 The **Council's Tree Officer** advises that a finalised Arboricultural Method Statement cross referenced to Tree Protection Plans and agreed with the contractors will be need to be submitted and approved prior to any site preparation or construction.
- 5.8 He advises that the no-dig construction method annotated on the submitted Tree Protection Plans is not followed in the sections provided on the Roath Mill Gardens Flood Wall Sections Sheet 1 and Roath Brook Gardens Flood Wall Sections Plans. Both feature the infilling of Cellweb with 'type 1' which is not a 'no-fines' product and should therefore not be used for no-dig, permeable construction. Similarly, neither are clear in terms of their specifications for the wearing course, which must be fully water permeable and gas pervious.
- 5.9 Ideally, a detailed, upfront landscaping scheme should have been submitted with the application. Whilst he has no objections to the submitted planting plans, these should be backed up by a plant schedule, topsoil and subsoil specification, tree pit sections (for different site situations), planting methodology and aftercare methodology. Since no Soil Resource Survey (SRS) or Plan (SRP) has been prepared in accordance with the 2009 DEFRA Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, we have no information concerning the suitability of existing soils, particularly when they have been manipulated as part of construction, for their intended end landscaping use (tree planting, shrub planting, amenity grassland, wildflower grassland etc.). An SRS and SRP should therefore be prepared and used to inform a detailed landscaping scheme, and a Construction Management Plan.
- 5.10 The **Operational Manager, Environment (Noise & Air)**, has no comments in respect of air pollution. Regarding noise, he recommends the following condition be attached to any permission:

*Prior to commencement of development a Construction Environmental Management Scheme shall be submitted to and approved in writing by the Local Planning Authority to provide that all neighbouring noise sensitive developments are not exposed to greater than 70dB  $L_{Aeq, T}$  between the hours of 08:00 and 18:00 Monday to Friday and 70dB  $L_{Aeq, T}$  between the hours of 08:00 – 13:00 on Saturday. No works audible beyond the site boundary shall be conducted at the site outside of these hours or on Public Holidays. The applicant is also advised to seek approval for any proposed piling operations. Reason: To ensure that the amenities of occupiers of other premises in the vicinity are protected.*

- 5.11 The **Council's Access Officer** has been consulted and any comments received will be reported to Committee.
- 5.12 The **Council's Ecologist** makes the following comments on the updated

extended Phase 1 Habitat Survey (2014):

- (i) This survey, together with the results of the 2011 survey, provides an initial assessment of the ecological value, constraints and mitigation. As this suggests, at some point there needs to be a full and detailed ecological impact assessment of this scheme, and measures to mitigate this impact secured. PPW section 5.5.12 and TAN5 section 6.2.2 provide planning policy guidance on how Cardiff Council should consider nature conservation interests in the planning system;
- (ii) He would have expected the species themselves, or signs of their presence, to have been surveyed, rather than just a survey of suitable habitat. In general terms, surveys of the species listed should be carried out in order to inform an impact assessment. However, in certain circumstances it may be valid to make assumptions about the likely presence of a species and to base an impact assessment upon those assumptions. Therefore he sets out below where surveys are needed or where presence can be assumed;
- (iii) Where surveys have already been carried out, descriptions of survey methodology rarely make reference to any sources of good practice guidance, so it is not clear whether the surveys were carried out to an appropriate standard. Furthermore, no details of the competency of the ecological surveyors have been provided;
- (iv) The results of an ecological impact assessment should be used to inform a comprehensive Ecological Mitigation Strategy (EMS), which sets out measures of avoidance of impact, mitigation and compensation such that there is no net loss of biodiversity and ecosystem function at this site, together with enhancement measures in order to secure net biodiversity gain. The EMS should be required as a condition of any planning consent granted.
- (v) Where impacts upon European Protected Species are likely to occur, the necessary licences must be sought from NRW.

5.13 Regarding **bats**, the report states '*The daytime inspection undertaken in May 2014 assessed that the majority of the trees along the brook had limited or low bat roost potential*'. However, no details are given of:

- (i) How many trees were surveyed;
- (ii) Which trees were surveyed, in order to demonstrate that all trees likely to be affected were surveyed;
- (iii) What categorisation methodology was used (1\*, 1, 2, 3 etc), in accordance with published guidance;
- (iv) How many trees fell into each of the above categories – the suggestion is that an unspecified number of trees had a greater than low potential to support roosting bats;
- (v) The bat roost potential of the individual trees to be removed.

5.14 He agrees with the statement in section 4.2.2 of the report that surveys should be carried out of those trees that are to be removed. He recommends that surveys should be carried out in accordance with Collins, J. (ed.) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3<sup>rd</sup> edn.). The Bat

Conservation Trust, London. If any bat species are detected on site, suitable mitigation measures should be proposed to ensure no detriment to their conservation status locally.

- 5.15 Regarding **birds**, the report states that '*No notable bird species*' were recorded, but the report elsewhere mentions observations of Starling and Song Thrush which are listed on the NERC Act Section 42 list of Species of Principal Importance for Conservation of Biological Diversity in Wales. In the absence of a formal survey, he is prepared to accept the assumption that a range of nesting birds occur at this site, and considers that the mitigation measures proposed in section 4.2.2 of the report, are appropriate i.e. removal of trees and vegetation to be undertaken outside of the bird breeding season (March – August).
- 5.16 It is not clear whether the **reptile** survey was carried out according to any accepted methodology, and from the details that are provided it seems to consist of a single walkover survey. Normally, there should be at least 7 survey visits using both visual encounter and refugia surveys during appropriate weather conditions. Having considered the habitats present on the site, he is prepared to accept the assumption that there are areas of the site which support Slow-worms and Grass Snakes. The proposed mitigation measures in Section 4.2.2 set out enough detail to assure him that reptiles will not be harmed as a result of this proposed project. Therefore a mitigation scheme should be provided which includes:-
- (i) An assessment of the habitats on site and the likely reptile species that they support;
  - (ii) Clearance methodology such that harm to reptiles is reasonably avoided;
  - (iii) Destination of animals which are 'persuaded' to leave the working area;
  - (iv) Identification of suitable receptor sites where persuasion technique is not considered appropriate;
  - (v) Habitat enhancement measures to ensure that receptor sites, whether on-site or off-site, can support additional animals.
- 5.17 Regarding **otters**, the report states that '*...no signs of resting sites or holts were recorded...*' Normally, otter surveys are carried out using searches for spraint, but it is not clear that such a survey took place. Noting also that areas of the site were not available for survey, he is not satisfied that a proper assessment of the usage of this site by otters has taken place. However, given that searches for holts and couches have already taken place, he is prepared to accept the assumption that this species uses the stream habitat for foraging and commuting. He therefore supports the proposed mitigation measures set out in section 4.2.2, but would add that appropriate planting should be in place in order to ensure sufficient lying-up areas for this species.
- 5.18 The report states that no evidence of **Water Vole** has been recorded on site, but presents no evidence that a formal survey of this species has been carried out. If it is the view of the applicant that this species is not likely to occur on this site, then more detailed evidence of the unsuitability of the habitat should be provided.

- 5.19 The report states that no evidence of **Freshwater Crayfish** has been recorded on site, but presents no evidence that a formal survey of this species has been carried out. However, the report does acknowledge that some sections of the brook could provide suitable habitat for this species. Therefore, a survey for this species should be carried out, and if it is found, appropriate mitigation measures introduced.
- 5.20 The report states that no evidence of **Dormice** has been recorded on site, but evidently no survey of this species has yet been carried out. Therefore he supports the proposal in section 4.2.2 to survey for this species. Surveys should accord with the methodology set out in the Dormouse Conservation Handbook 2006, though he would add that some nest boxes, in addition to nest tubes, should be used to survey for this species. If this species is detected on site, suitable mitigation measures should be proposed to ensure no detriment to its conservation status locally.
- 5.21 He accepts the conclusions of the report which states that there are no records of **Badgers** or **Great Crested Newts** within the site or within a 2km radius of the site and it is unlikely that these species are likely to be present. He has no further comment to make.
- 5.22 These comments contribute to this Authority's discharge of its duties under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, wherein: (1) Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. (3) Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.
- 5.23 The **Operational Manager, Drainage Division**, welcomes the project as he recognises the flood risk to numerous properties in the area. He makes the following comments:
- (i) Requests that the applicant forwards a record of all known surface water outlets to Roath brook, along the length being considered for works. These will either fall under the jurisdiction of Dwr Cymru Welsh Water (DCWW) or the Council, yet he has very incomplete records of such outlets. The proposed works could affect these drains/culverts and he needs to ensure there is no detrimental effect to their hydraulic capabilities;
  - (ii) In terms of Roath Park Lake, he is interested to know how much consideration was given not to the raising of the level, but the reducing of it. In theory, the outlet capacity of the sluices could be increased (with appropriate additional erosion protection created downstream), they could be computer controlled and opened on the advice of NRW and the Council, based on the latest forecasting technology. The lake would then effectively act as an attenuation pond, very much as Cardiff Bay does with the Rivers Taff and Ely, when large rainfall events are predicted with

their respect river catchments. He notes concerns about loss of amenity if the level was lower, but this would only be short (the boats) and from his experience desilting the lake, the level can be dropped quite significantly without any detrimental effect on the fauna and flora. Of course, the issue may be that this would only have a partial effect due to the tidal influence downstream, but he would nonetheless like reassurance that this has been considered.

## 6. **EXTERNAL CONSULTEES RESPONSES**

- 6.1 **Dwr Cymru Welsh Water** recommends a condition be attached to any planning permission requiring the applicant to show how foul sewers, surface water sewers and any other Welsh Water assets will be protected during construction while ensuring future access is afforded. They also advise that the application site is crossed by 4", 6" and 22" trunk/distribution water mains and they enclose their Conditions for Development near Watermain(s). It may be possible for this watermain to be diverted under Section 185 of the Water Industry Act 1991, the cost of which will be re-charged to the developer. The developer must consult Dwr Cymru Welsh Water before any development commences on site.
- 6.2 **Glamorgan Gwent Archaeological Trust** considers that the application will have an impact on the archaeological resource and will require archaeological mitigation.
- 6.3 They consider that the proposed development will have an impact on the site of Roath Corn Mill and its associated mill pond. On the basis of the current design plan, the two heritage assets and Roath Mill Garden would be affected by the installation of sheet piled floodwalls, topsoil stripping for new footpaths and view point platform, and landscaping. Given that the buried features identified during previous archaeological investigations were buried at a depth of 1.2m below ground level it is likely that these remains will be affected by the proposed walls which are to be excavated to a depth of 1.5m. There is also the potential to impact on above ground remains and structures associated with these assets, as well as other archaeological remains buried closer to the ground surface. In order to mitigate these impacts the applicant has proposed to ensure that all groundworks will be archaeologically monitored in order to provide an opportunity to record any buried heritage assets, or associated remains, to appropriate standards. In their opinion this is an appropriate response and therefore, whilst they have no objection to the positive determination of the current application, they do recommend that a condition should be attached to any planning consent that is granted to ensure the necessary mitigation works are carried out. This condition will ensure that the impact of the development on the archaeological resource of the site is correctly addressed and the suitably mitigated, which will reduce the level of adverse impact on the archaeology and cultural heritage of the area.
- 6.4 The condition will require the applicant to submit a written scheme of investigation for the implementation of a programme of archaeological work. They envisage that this would take the form of an intensive watching brief

during ground disturbance works, these include preparatory works, landscaping and any other identified works, with suitable contingency arrangements to ensure sufficient time and resources in the event that archaeological features or finds of significance are discovered. They recommend that the condition should be worded in a manner similar to the model given in Welsh Office Circular 60/96, Section 23. The applicant will therefore need to employ a suitably qualified archaeologist to undertake the work and in order to meet the requirements of the condition. The work must be undertaken to the standards and guidance of the Chartered Institute for Archaeologists (CIfA) and it is their policy to recommend that the work is undertaken by a Registered Organization of the IfA or by a member with MIFA level membership.

- 6.5 **CADW** advises that their role in the planning process is to provide the Local Planning Authority with an assessment concerned with the likely impact that the proposal will have on scheduled monuments or registered historic parks and gardens. It is a matter for the Local Planning Authority to then weigh their assessment against all the other material considerations in determining whether to approve planning permission, including issues concerned with listed buildings and conservation areas.
- 6.6 Applications for planning permission are considered in light of the Welsh Government's land use planning policy and guidance contained in Planning Policy Wales (PPW), technical advice notes and circular guidance. PPW explains that the desirability of preserving an ancient monument and its setting is a material consideration in determining a planning application whether that monument is scheduled or not. Furthermore, it explains that where nationally important archaeological remains, whether scheduled or not, and their settings are likely to be affected by proposed development, there should be a presumption in favour of their physical preservation in situ. Paragraph 17 of Circular 60/96, *Planning and the Historic Environment: Archaeology*, elaborates by explaining that this means a presumption against proposals which would involve significant alteration or cause damage, or which would have a significant impact on the setting of visible remains. PPW also explains that local authorities should protect parks and gardens and their settings included in the first part of the Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales.
- 6.7 The grade II registered historic park and gardens at PGW (Gm) 29(CDF) – Waterloo Gardens and Roath Mill Gardens are directly affected by the proposals. The impact of the proposals on the registered historic parks has been assessed in the supporting documents to the application and CADW have welcomed the opportunity to comment on the design proposals at key stages of the scheme.
- 6.8 They acknowledge that the need for a flood management scheme has been identified and they have had the opportunity to comment on the likely impacts the proposed scheme will have on the registered historic parks concerned. During the consultation process, CADW raised particular concerns over the loss of trees and the introduction of walling through the registered parks. The

loss of trees, particularly mature and/or rare specimens, is highly undesirable but the supporting documents show that considerable discussion has taken place between the applicant, the design team and the Local Authority tree and parks officers to minimise the impact on high value and rare trees and where impact is unavoidable replanting of both native and exotic species has been given detailed consideration to enhance landscape and wildlife value. Propagation of existing specimens is also being considered, which is welcome. Although the proposed flood wall will have adverse impacts on the historic park, the final design appears to have kept the height of walling to a minimum for the flood risk requirements and use finishes which complement the conservation area. The proposal to create adjacent planted borders to soften and partly screen the new walling is very welcome, as is the selection of plants to reflect the Edwardian period.

- 6.9 Earth embankments have been used where possible, which on completion will result in a softer landscaping scheme. CADW also raised concerns about the potential amount of new signage to be installed in the parks and it is therefore welcome that signage can be accommodated in a park notice board of similar style to other examples in Cardiff parks. In their view, the signs should be carefully located so as not to dominate or interrupt views across or when entering the park whilst still conveying the necessary information to the public. The proposal to introduce interpretation panels into the parks to inform park users about the history of the parks and Roath Mill is also welcome but again the size and number of interpretation panels should be limited to ensure panels do not dominate or clutter the park.
- 6.10 The proposed Edwardian style dais seems an attractive solution to access requirements across the flood defences in Waterloo Gardens and will provide a pleasant seating and viewing area and potential community space. The proposed planted borders on and around the dais including climbers to grow up and over the stone and timber pergola will soften the hard landscaping in this area and therefore these planted elements should be retained in the long term. From the photo visualisations, the appearance of the dais steps seems quite functional and the design could perhaps be improved by rounding the steps and by creating a splayed rather than a straight flight.
- 6.11 As noted in the DAS the final design of the railings and dais will involve additional consultation and CADW welcomes the opportunity to comment further on these and other aspects of the design and interpretation. The design plans also refer to 'balustrading' (delineated by a broken purple line on the plans) but they could not see a design for the 'balustrading'. This should be clarified.
- 6.12 The report also covers mitigation measures in relation to known and unknown archaeology within the registered parks, they would advise that the Local Planning Authority consults the Historic Environment Record held by the Glamorgan-Gwent Archaeological Trust.
- 6.13 **Natural Resources Wales**, in responding as a statutory consultee and not the applicant, does not object to the application, provided appropriately worded

conditions are included on any permission that the Local Planning Authority is minded to grant.

- 6.14 The site lies within Zone C2 as defined by the Development Advice Map (DAM) referred to in Technical Advice Note 15: Development and Flood Risk (TAN15) (July 2004). Their Flood Map information, which is updated on a quarterly basis, confirms part of the site to be within the 1% (1 in 100 year) and 0.1% (1 in 1000 year) annual probability fluvial flood outlines of Roath Brook, and part of the site to be within the 0.5 % (1 in 200 year) and 0.1% (1 in 1000 year) annual probability tidal flood outlines. The strategic objective of the scheme is to reduce the existing fluvial and tidal flood risk within the area through the construction of new defences to an acceptable level. The new defences are to achieve a standard of protection of 1 in 75 year (1.33%) chance of fluvial flooding and a 1 in 150 year (0.67%) chance of tidal flooding. The Flood Consequences Assessment (FCA) prepared by Team Van Oord, reference PB1757, dated 06 October 2015, submitted in support of the application demonstrates the scheme will reduce flood risk to 360 residential and 52 commercial properties in the area.
- 6.15 The completed scheme will reduce the fluvial flood risk in the area. This will provide various properties with a 1 in 75 year standard of protection. During a predicted 1 in 100 year flood event, flood depths are increased locally on the highways around the edge of the scheme and around Westville Walk. Detriment during this event has been identified at 2 Westville Walk. However, 'Individual Property Protection' is to be provided for 2 Westville Walk as part of the scheme. During this event there is no hazard present outside of the river channel, however in the partially completed scheme the hazard is low to significant. During a predicted 1 in 100 year plus an allowance for climate change flood event, the flood defences become outflanked at the upstream end of the scheme at Pen-Y-Lan Library, which results in increased depth of flooding around the library car park in the order of 0.01m to 0.5m. No properties were found to be at a detriment during a 1 in 100 year plus an allowance for climate change flood event. In this event the hazard is low to moderate with pockets of significant flooding with an increased extent in extreme conditions (1 in 1000 year flood event).
- 6.16 The full construction of the flood defences results in a significant reduction in the tidal flood risk in the Newport Road Industrial Area and Waterloo Gardens Area. During extreme flood events (1 in 500 year and greater) the scheme would result in the increase of water levels when the flood defences become overwhelmed, however in lower order flood events a large number of properties benefit from the scheme:
- (i) During the predicted 1 in 200 year flood event, 135 properties benefit from increased flood protection during a tidal event with no detriment elsewhere. Along Roath Embankment, some minor flooding occurs around the Norwich Road area, with some localised pockets of low flooding as the defences just start to overtop.
  - (ii) During the 1 in 200 year plus an allowance for climate change (over 50



years) flood event, 200 properties benefit from flood protection and five properties have existing flood depths increased between 0.01m and 0.04m. The hazard would be low to moderate with some areas of significant hazard (with an increased extent) in extreme conditions (i.e. 1 in 1000 year). With the exception of the buildings adjacent to the flood defences, the majority of the significant hazard areas are located away from buildings.

(iii) During a 1 in 1000 year flood event, 217 properties benefit from flood protection and 35 properties have existing flood depths increased, the maximum increase would be 0.21m and the average increase in depth is 0.16m. It should be noted, the properties with increased flood depths are currently at considerable risk from flooding in the fluvial 1 in 1000 year event to depths greater than that for tidal flooding. Several options to mitigate this detriment have been explored but found unviable. However, if the scheme is constructed, landowners that are affected by the increased flood depths will be consulted and Natural Resources Wales will identify the means of recovering compensation.

- 6.17 In summary, the scheme provides flood alleviation to the Roath community. This does however result in some detriment elsewhere, which has been thoroughly investigated and possible mitigation assessed. Where detriment remains, this will be communicated to affected property owners.
- 6.18 The scheme will require a flood defence consent from NRW for works in, under or over the watercourse, or within 7 metres of the base of any floodbank or wall, or where there is no bank or wall, within 7 metres of the top of the riverbank.
- 6.19 They advise that the proposed development will be acceptable in respect of ground water and contaminated land if planning conditions are imposed on any planning permission granted for the site to address a contamination scheme, verification, monitoring and maintenance plan, unsuspected contamination, piling, and pollution prevention.
- 6.20 In respect of **biodiversity and protected species**, Section 8.5 of the Environmental Report deals with impacts of construction on flora and fauna. A range of wildlife, including European Protected Species bats and otters, inhabit and use Roath Brook and its corridor habitat. They are satisfied with the proposed mitigation measures: there will be no night time working; any required lighting will be directed away from foraging areas; and there will be no lighting of the watercourse during construction and operational phase.
- 6.21 An **Invasive Species** Management Plan for short term management during construction is included. They understand the soil piles will be monitored and sprayed for 5 years post construction. They advise a map showing the location of the soil piles is provided to enable the monitoring of these sites and to prevent spread of Japanese knotweed within the site.

## 7. REPRESENTATIONS

- 7.1 **Councillor J Boyle** notes that the proposed flood scheme is going to be a

major piece of infrastructure, costing many millions of public money. It will also run through a designated Conservation Area. Penylan ward members are broadly in support of the proposals and have submitted their views as part of the consultation process. Nonetheless, they believe a project of such magnitude demands both the consideration of the planning committee and a site visit and he hopes that both will be scheduled.

- 7.2 **Councillors B Kelloway and J Boyle** note the application has arisen as a result of investigations which have revealed that approximately 400 residential and commercial properties in the vicinity of Roath Brook are at an increased risk from flooding as a result of raised river levels. They consider that the applicant has worked cooperatively with residents who live near to Roath Brook together with their elected representatives and other interested parties, including officials of Cardiff Council, in generating a suite of proposals which effectively address the increasing risk of flooding in the locality whilst attempting to minimise the impact of the necessary engineering works upon the sensitive and unique urban landscape of the Roath Brook corridor and conservation areas.
- 7.3 They acknowledge that the proposals involve significant alterations to the landscape in parts of the river corridor and that this will be an unavoidable consequence of implementing this scheme. However, this has to be weighed against the likely adverse impact upon residential and commercial properties in the locality if no action is taken to alleviate flood risk. They consider that the applicant has demonstrated a willingness to engage with interested parties at all stages during the development of the submitted planning proposals. They have altered details relating to the design and aesthetics of the scheme in response to suggestions received. Regular updates have been posted on their website and numerous drop-in sessions, newsletters and site visits have taken place. The overwhelming bulk of the proposed scheme is situated in Penylan (with a small element in Plasnewydd) and, as Councillors for Penylan, they welcome the commitment shown by the applicant to address the increasing flood risk in the ward. The proposed scheme will provide an enhanced level of security and safety to many hundreds of residents. However, they are not insensitive to the substantial environmental changes that will be wrought in a much loved and treasured part of Cardiff's urban fabric. They are mindful that there is a fine balance to be struck and that the applicant has endeavoured to strike that balance consistent with maintaining the technical proficiency of the project.
- 7.4 They broadly welcome the proposals and acknowledge the lengths to which the applicant has gone in generating a scheme that is acceptable to a range of interests. They anticipate that a major civil engineering project such as this, implemented within a densely populated residential area, is likely to give rise to considerable disruption during the construction phase. They therefore urge the planning committee to attach such conditions to planning consent as it sees fit to protect the amenity of local residents. They would anticipate that such conditions would relate, inter-alia, to matters such as noise and dust suppression, hours and days of operation, wheel and road cleaning arrangements, parking of contractors' vehicles, notice of road closures,

reinstatement of local infrastructure damaged during the construction process etc. It would also be helpful if contractors were to publish contact details for local residents who may wish to raise issues directly with them when the necessary works are taking place.

- 7.5 While they do not raise any objections to the planning application at this time, they are mindful of the fact that this is a large, complex and detailed application and there are elements that may have escaped their notice. They therefore, reserve the right to offer further comments and observations at a later stage in the planning process should it become apparent that it is necessary for them to do so.
- 7.6 **Eluned Parrott AM** appreciates the necessity of these extensive engineering works and feels that Natural Resources Wales (NRW) has submitted a sensitive design to provide the necessary flood prevention measures. NRW have been very proactive and she is aware of the extensive consultations that have taken place in arriving at these plans and, in view of the local landscape, she trusts that residents will be fully consulted if any changes are necessary. She trusts NRW will also continue to liaise effectively with the residents regarding the potential implications of any disturbance that such works are likely to generate and will balance the safety and security of residents' homes whilst preserving the beauty of the natural environment.
- 7.7 The application was publicised in the press and by site notices on 29<sup>th</sup> October 2015 as a major development which may affect the character and/or appearance of a conservation area.
- 7.8 One letter of support received from the occupiers of 4 Trafalgar Road who consider the development is much needed to prevent any further flooding in the local area.
- 7.9 One neutral representation received (neither objecting nor supporting) from the occupiers of 25 Kimberley Road who make the following comments:
- (i) The need for the flood management scheme is understood;
  - (ii) Notes design aims to make minimum possible impact on the existing landscape and environment however park's character will be changed. A great deal depends on the design of the scheme.
  - (iii) An improved presentation of the scheme should be sought as there is insufficient information on the proposed changes, causing difficulty in gaining a clear understanding or enabling comment; The Design Commission for Wales (DCfW) made a similar point in its review on 30<sup>th</sup> October 2015: "*it is particularly important that members of the public and other stakeholders can easily understand the proposals, the impact they will have on the existing parks and the nature of the new spaces which will be created.*" Before the application is determined more detailed information should be presented in a clear form so that it can be properly understood by the public as well as formal consultees. It should be presented to the DCfW for review so that the detailed design can be properly considered. The information should show exactly what the

proposed physical changes will look like – walls, paths, bridges, ground levels and paths – as well as the changes to tree planting.

- (iv) The gardens along the Roath Brook were given by the Tredegar Estate over a hundred years ago to create a public garden which is today one of the jewels in Cardiff's great collection of public parks. It should go without saying that the removal of existing trees and their replacement, and any changes to the landscaping, must be carried out with the utmost care and consideration.

7.10 15 no. objections received from the occupiers of 35 Mafeking Road, 2 Agincourt Road, 6, 42 and 44B Sandringham Road, 4 Waterloo Road, 30 Waterloo Gardens, 20 and 31 Sturminster Road, 79 Westville Road, 24 Southminster Road, 3 Church Terrace, a resident of Sandringham Road and an unaddressed email. Their objections include one or more of the following reasons:

- (i) The proposals are completely unnecessary as flooding is an extremely rare occurrence – the last flood was approximately 6 years ago in Waterloo Gardens and occurred under exceptionally rare circumstances (heavy rainfall for a number of days, a very high tide at the mouth of the stream, and poor stream management by those who allowed the quantities of water to leave Roath Lake and enter the stream). Therefore the large and disruptive nature of the works are completely unnecessary. Natural Resources Wales only give the river a 1% chance of flooding;
- (ii) Major disruption. The works will take a significant number of years to complete and will mean that these beautiful parks will be ruined and unsightly throughout this time. Their young children will be unable to fully enjoy the beautiful parks as they will be building sites;
- (iii) Unnecessary loss of a number of beautiful mature trees which give the area its character, help reduce flooding and provide wildlife habitat;
- (iv) New tree planting will be vandalised;
- (v) Dredging of Roath Park Lake and widening the brook will solve the problem;
- (vi) Major costs involved at a time when cuts are being made by Cardiff Council. Money should only be spent on projects which are completely necessary e.g. improving sporting facilities in Cardiff's parks
- (vii) Significant detrimental effect on beautiful and peaceful parks; they will be ruined. They would be unrecognisable and large amounts of land would be lost to the flood defences. This is especially noticeable in Waterloo flower gardens where a considerable amount of the stunning park will be gone. The area of usable park becomes dramatically smaller. There are also many pathways added which are unnecessary.
- (viii) Work has already been carried out to reduce any flood risk. Over the last few years there have already been a number of efforts to reduce the small risk of the stream ever flooding. These have included making holes in the ground around the stream and clearing drains etc. This we believe this work is perfectly sufficient and anything further is completely unnecessary;
- (ix) The proposed pergola will not alleviate flooding;
- (x) Loss of enjoyment of parks water; loss of views of the water;
- (xi) Walls and concrete will be unattractive;

- (xii) Unnecessary disruption to residents including parking which will be virtually impossible during construction;
- (xiii) Noise disruption, especially for residents who work shifts;
- (xiv) Irreversible damage to wildlife including kingfishers, herons, trout, ducks, squirrels and herons. An Environmental Impact Assessment should be carried out and clarification should be provided how these species will be supported during and after construction;
- (xv) Recommends alternative proposals including (1) widening the tunnel through the old Taff Vale railway embankment to remove bottleneck, which would allow for a path through the newer housing estates off Colchester Avenue and (2) Turn the wasteland close to the embankment and Railway Gardens into the marshland proposed for Waterloo Gardens and widen brook. (1) and (2) combined would surely increase the flow of water required, whilst having less of an impact on the character of the area;
- (xvi) The applicant does not have the authority to comment on the resulting impact on home insurance;
- (xvii) Increase in anti-social behaviour at Railway Gardens at night. This area needs to be secured with alley gates at either end of Waterloo Gardens;
- (xviii) Strict planning controls in this conservation area, which limit alterations to dwellings, should prevent these damaging proposals;
- (xix) Concerned that the archaeological remains of the Roath Mill (both on the surface and the stream bank) may be damaged. There is no sign at the site of this historic building;
- (xx) The amendments to move the proposed flood defences away from the northern boundary with Waterloo Gardens has resulted in an unsatisfactory trade off whereby the visual impact on a small section of the Conservation Area has wrongly taken precedent over the need to preserve the more valuable heritage asset (the listed park) and furthermore, will result in an unnecessary loss of useable recreation space, and the loss of more trees than necessary.
- (xxi) The northern most channel will be infilled and as a result, the southern most channel will need to be widened, resulting in significant loss of Category A and B trees. This substantial tree loss could be avoided by instead widening the northern most channel and relocating the flood wall close to the railings to Waterloo Gardens. Whilst trees would inevitably also be lost through this arrangement, there would be fewer losses and, the impact upon the greater heritage asset would be more acceptable.
- (xxii) Waterloo Gardens are a Grade II Listed Park in the Register of Landscapes Parks and Gardens of Historic interest in Wales. They are set within the Roath Mill Gardens Conservation Area. They are a fantastic asset to the local community and the wider area, and one of the jewels in the urban landscape. This asset will be unnecessarily compromised and real harm caused to it through the current plan. The applicant should be asked to review the options.
- (xxiii) The Environmental Statement makes reference to the use of Church Terrace for construction and plant access (page 34), yet makes no assessment of the impact within Section 7 (Traffic and Transport). Reference is made to closing off a lane width within Church Terrace. Church Terrace is a cul de sac providing access to St Teilo's

Flats and 4 houses. Whilst it is a quiet road with little traffic, access to it is via a narrow and heavily parked St Margaret's Crescent, with 2 x 90 degree bends. Refuse lorries find this difficult to negotiate and so will cause construction traffic, causing unnecessary disruption to residents. Far better to take construction access direct from Waterloo Road, close to the existing pedestrian access next to St Margaret's Church. This will cause minimal disruption to residents given that far fewer properties would be affected. There is ample room to create compounds and a safe access on Waterloo Road. The construction access set out at 4.6.37 onwards of the ES needs revisiting. This issue can be resolved through ensuring that a CEMP condition is attached to any permission, along with a requirement for contractors to consult with affected residents before finalising. The condition should make reference to it being notwithstanding the information set out within the ES and for the avoidance of doubt the permission does not give consent to utilise Church Terrace for construction access.

- (xxiv) No details of boundary treatment to Church Terrace.
- (xxv) Not convinced it is necessary to build such extensive walls when earth banks have been used to hold back water in many places already e.g. south side of Roath Mill Gardens. Recommends walls be reduced and banks extended;
- (xxvi) Atmosphere and use of Waterloo Gardens will be at risk where proposed walls will cut people off from water almost entirely;
- (xxvii) Design of Waterloo Road Bridge should be as fine and simple as possible. Recommends re-use of iron railings on the existing bridge;
- (xxviii) Questions the proposed use of railings in Roath Mill Gardens, heavy copings to walls in Waterloo Gardens.
- (xxix) Requests clarification on the 'dog entrance' shown on the plans for Roath Mill Gardens;
- (xxx) Requests confirmation that Roath Mill Gardens will be locked to address anti-social behaviour;
- (xxxi) Concerned that platform in Roath Mill Gardens will be a focal point for anti-social behaviour;
- (xxxii) Seeks clarification on the diversion routes proposed when Waterloo Road bridge is replaced. Blenheim Road is very congested and has a primary school close by. Concerned about highway safety for children.

## 8. **ANALYSIS**

- 8.1 The key issues for consideration of this application include the need for the development, heritage matters including the impact upon the character and appearance of the conservation areas and the impact upon the setting of the historic parks, the design and appearance of the proposals, transportation considerations, ecology considerations, tree impact, and third party representations.

### **Need for the Development**

- 8.2 Paragraph 1.2 of this report confirms that properties in the Roath area have been flooded on numerous occasions throughout the 20<sup>th</sup> Century. There have

been 3 no. occurrences of flooding to properties in the last 20 years and a further 5 no. 'near misses' in the last 10 years.

- 8.3 Planning Policy Wales, Edition 8 (January 2016) (PPW8) recognises that the planning process has an important role in ensuring that development accords with sustainable development principles, including putting people, and their quality of life now and in the future, at the centre of decision-making, safeguarding the interests of future generations whilst meeting today's needs and respecting environmental limits, so that resources are not irrecoverably depleted or the environment irreversibly damaged (Section 4.3). Development objectives include the protection and improvement of the environment, minimising the risks of flooding, including managing and seeking to mitigate the consequences of climate change by building resilience into the natural and built environment, and ensuring the conservation of the historic environment (Section 4.4).
- 8.4 Due to climate change, the applicant forecasts that flood risk will increase over time, resulting in higher fluvial flows and an increase in the potential frequency of overtopping of the existing defences. It is noted that 17 no. alternative options were appraised to mitigate the risk of flooding before the submitted scheme was selected.

### **Heritage Considerations**

- 8.5 The area surrounding Roath Brook Gardens, Roath Mill Gardens and Waterloo Gardens was designated as the Roath Mill Gardens Conservation Area in 1988. This designation was reviewed most recently in 2008 when an appraisal was adopted to review the boundary and describe the area's character. Proposals must be considered against the requirement to consider the desirability of preserving or enhancing the character or appearance of the conservation area in line with Section 72 of the Planning (Listed Building and Conservation Areas) Act 1990.
- 8.6 The three public gardens are the main focal point for the whole area, surrounded by rows of tightly knit, primarily residential, terraces and villas that provide definition and a strong sense of enclosure. The conservation area is defined by the arrangement of public and private spaces. The public gardens are defined by simple iron railings, trees and vegetation. Private spaces consist of modest front gardens, divided from streets by low boundary walls comprised of pressed red brick, some with iron railings. The inter-visibility between parkland, streets and the terraces is a key part of the area's character.
- 8.7 Waterloo Gardens and Roath Mill Gardens are included as Grade II within the Cadw/ICOMOS Register of Parks and Gardens of Special Historic Interest in Wales. The Historic Park registration became a statutory requirement in March 2016 through the provisions of the Historic Environment (Wales) Bill.
- 8.8 It is, unfortunately, inevitable that a scheme of this scale will result in some harm to the character and appearance of the conservation areas and registered historic parkland. However, such harm must be weighed against the value of

the flood defence and the enhancement measures proposed. The judgement will be a matter for Planning Committee to determine, however the challenge for officers is to negotiate a scheme that reduces this harm to an absolute minimum through sympathetic design whilst maximising the opportunities for enhancements to the accessibility, facilities and interpretation of the park.

- 8.9 The application provides a good account of the development of the scheme since initial discussions began with Council Officers in 2012. The key change in terms of the character of the parks and conservation area was the reduction to a 1:75 year flood risk management scheme. This crucially meant that the perimeters of each park would remain substantially unaffected, negating the requirement for some 600m of new walls to replace railings and trees, a measure that was felt to be hugely damaging to the character of the park. Instead, the defence is now proposed to be achieved through channel re-profiling and isolated walling within the parks and at Waterloo Road Bridge and at the perimeter of the less sensitive Railway Gardens area. While some trees would unfortunately be lost due to their close proximity to the widened brook, the numbers and replanting opportunities are considered to result in a positive long-term result when compared with losses that would be required to install a perimeter defence. It should be noted that protection of the most important trees has formed a fundamental part of the scheme design.

#### Walled Gardens

- 8.10 This area is not prominent within the Roath Park Conservation Area, but has a distinctive character that is important to the properties fronting it. The defence proposed here is little more than repair and localised alteration to vulnerable features of properties. As such it is considered that the character would be preserved.

#### Roath Brook Gardens

- 8.11 The flood defence in this area will be achieved through bank re-profiling, requiring a realignment to the pathway and the loss of trees. This part of the park is not within the Registered Historic Park designation, although Cadw have indicated that it would be included were the register to be updated. The shallower banks would enable greater visual and physical access to the brook, which would arguably represent an enhancement on the current appearance and accessibility. Overall, considering the mitigating tree planting that is proposed, it is considered that the character and appearance of this section of the conservation would be preserved.

#### Roath Mill Gardens

- 8.12 Roath Mill Gardens consists of a relatively large enclosed area of parkland to the north of the brook, with a smaller linear grassed area to the south abutting Sandringham Road. The proposal would leave this layout fundamentally unchanged, with the flood defence formed by bank re-profiling and isolated stretches of walling in the Waterloo Road Bridge area.



- 8.13 The wall within the open area to the Westville Road side of the park will diminish in height and is to be located within a relatively discrete corner of the parkland. However, views of this new walling will be possible from Waterloo Road Bridge and it has the potential to be a somewhat alien feature within the parkland. For this reason, sympathetic and high quality finishing materials and shrub planting to soften the appearance have been proposed. This is considered acceptable, subject to relevant conditions.
- 8.14 The new pedestrian access point opposite Deri Road is being proposed following the request of officers, in order to improve accessibility into the park from desire lines around the Waterloo Road shopping area (currently the nearest access is from Westville Road). This is therefore considered to be an enhancement to the area.
- 8.15 The raised viewing area and walling/railings at Sandringham Road are proposed in order to provide a space for interpretation of the former Roath Mill which was located in this vicinity. This is considered a positive move in principle however detailed designs are limited at this stage. Further information and detailed plans to agree the appearance of the walls and site furniture will be secure by condition. A further condition for interpretation of the Mill is also attached.
- 8.16 The presence of Roath Corn Mill in Roath Mill Gardens is acknowledged and a condition requiring a written scheme of investigation is recommended to be attached, as requested by Glamorgan Gwent Archaeological Trust (GGAT). This scheme will including a watching brief during ground disturbance works and is considered to be a satisfactory approach to ensuring the safeguarding of the archaeological resource.

#### Waterloo Road Bridge and Waterloo Gardens

- 8.17 Waterloo Road Bridge and Waterloo Gardens would be most affected by the scheme, with prominent new physical structures required to contain flooding within the brook. Officers have commended this approach from the outset, as the alternative would be to 'containerise' the entire park, which would have an unacceptable impact upon the character and appearance of the conservation area by blocking views in and out (and would also require flood gates). Another alternative of a defence wall within embankments has been dismissed, as it was demonstrated to occupy an unacceptably large area of the formal parkland, with loss of many trees and planting beds.
- 8.18 While the decorative iron railings at the bridge would be unavoidably lost from this position and replaced with walling, they are intended to be reused in the vicinity. The facing to the proposed walls is considered to be appropriate, however some uncertainty remaining over the appearance of the concrete copings, which would be uncharacteristically wide. As such, further detail and a temporary sample stretch of walling (to be constructed within the vicinity) is sought via condition.
- 8.19 The raised platform area was developed as a means of both accommodating

pedestrian movement from four directions (including ramped access from three directions), and as a feature in its own right. The pergola would give the space some character and provide a focal point, with options for seated views over brook, flowerbeds and lawns. While not directly comparable to the natural quality of the existing dual channels, the feature is considered to make the most of a difficult confluence of routes, particularly if it does get used as an informal meeting or small event space. The formality of the spaces created is considered to be in character with the Edwardian origins of the park and will enhance accessibility over the brook for all. As noted within the Design and Access Statement, this feature is to be developed further at detailed design stage, therefore a relevant condition is attached.

- 8.20 The southern channel of the brook (to be retained and widened by approximately 2 metres) is lined with stone revetments throughout most of Waterloo Gardens. This feature is noted with the historic park registration description and a section of this is to be reinstated within the widened brook. Approval of these details would be secured via condition..
- 8.21 It is not considered that the works would result in unacceptable harm to the setting of the Church of St. Margaret, a Grade I Listed Building whose grounds adjoin the southern boundary of Waterloo Gardens.

#### Railway Gardens

- 8.22 This area is not part of the conservation area or historic parkland, being more utilitarian in character. It also appears to be underused due to the lack of clear routes through it or access across the brook.
- 8.23 The proposals seek to introduce a circular route through the space with a new bridge crossing, which will facilitate easy access to the watercourse and allow continued use of the open area for informal ball games etc. This is considered to be an enhancement over the existing arrangement in this area.

#### Roath Brook Embankment (parallel with Newport Road)

- 8.24 This stretch is largely screened from public view and is considered to have a neutral impact upon the appearance and use of the area.

#### **Transportation Considerations**

- 8.25 It is noted that the Operational Manager, Transportation, has no objection and confirms that Council highways officers have been involved in discussions regarding the technical approval process for structural works relating associated with the scheme. In accordance with her request, a condition is recommended to secure the submission of a Construction Management Plan prior to the commencement of development to ensure that any impact upon the operation of the existing Highway Network during the construction phase is controlled efficiently.

## Ecology

- 8.26 Policy 5.5.12 of PPW8 relates to European Protected Species, and reminds Local Planning Authorities of their duty to have regard to the requirements of the Habitats Directive in exercising their functions. To avoid developments with planning permission subsequently not being granted derogations in relation to European protected species, planning authorities should take the three requirements for derogation into account when considering development proposals where a European protected species is present i.e. (i) that there is not satisfactory alternative (ii) the proposals will not be detrimental to the maintenance of the population of the species at a favourable conservation status in its natural range and (iii) the works are for preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.
- 8.27 Section 6.2.2 of TAN 5 advises that *“it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. It is considered best practice that such a survey is carried out before planning application is submitted. Planning permission should not be granted subject to a condition that protected species surveys are carried out and, in the event that protected species are found to be present, mitigation measures are submitted for approval. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of them being present. However, the level of likelihood that should trigger a requirement for developers to undertake surveys should be low where there is a possibility that European protected species might be present.”*
- 8.28 The agent has confirmed that a ‘Test of Likely Significant Effect’ has been carried out in line with Regulation 61(1) of the Conservation of Habitats and Species Regulations 2010 (as amended) which concluded that the scheme will not lead to a likely significant effect upon the European designated sites. The application site is 2km upstream of the Severn Estuary European Sites and within a heavily-urbanised area, therefore, following consultation with the then Countryside Council for Wales, it was agreed that there was no requirement for carrying out an Appropriate Assessment on the impact to European Protected Species in these designations. The Council’s Ecologist agrees with the conclusions.
- 8.29 In respect of European Protected Species, it is noted that pre-construction surveys will take place to complement the findings of the Environmental Report. This survey will establish whether otters have moved into the area prior to works. It is noted that the use of Roath Brook for commuting will be maintained and no impacts on habitats likely to support otters will occur during operation.
- 8.30 Records confirm that bats are known to use Roath Brook and the extended

Phase 1 Habitat Survey found that the majority of the trees had limited or low bat roost potential due to the absence/lack of suitable roosting features. Whilst the Council's Ecologist queries on the adequacy of this survey are noted, the applicant proposes further surveys by a suitably qualified Ecologist prior to any tree removal to confirm whether bat roosts are present, in addition to a detailed pre-construction protected species survey. In the event that roosts are found, soft felling techniques will be employed and appropriate mitigation provided to ensure that, in the longer term, there is likely to be a minor beneficial impact on this species.

- 8.31 Dormice are known to occur in the Howardian Local Nature Reserve (LNR), approximately 70 metres north of Roath Brook at the eastern end of the application site. However, there is limited suitable dormice habitat along Roath Brook, therefore the applicant concludes that there is low potential for this species to occur. The applicant also confirms that no vegetation will be disturbed or removed along the bank of Roath Brook Embankment closest to the Howardian LNR. A survey of scrub and wood habitat will occur prior to any removal by a suitably qualified ecologist and a licence will be applied for from the Welsh Government if they are found. Again, a pre-construction protected species survey will occur with appropriate mitigation should species be found. The Council's Ecologist recommends that the survey uses nest tubes and nest boxes in accordance with good practice.
- 8.32 It is noted that Natural Resources Wales' (NRW) biodiversity and protected species team have no objection to the application, being satisfied with the proposed mitigation measures. Alternative options for the need to mitigate flood risk along Roath Brook have been considered and discounted. The development is considered to be necessary as it will preserve public safety and have long term benefits for the environment. It is therefore considered likely that a derogation for European Protected Species will be granted, if required. Relevant conditions to safeguard ecology interests, including an Ecological Management and Mitigation Strategy, are recommended.

### **Trees & Landscaping**

- 8.33 PPW8 recognises that trees and hedgerows are an important resource, both as a wildlife habitat and in terms of their contribution to landscape character and beauty and should be protected where they have natural heritage value or where they contribute to the character or amenity of a particular locality (paragraph 5.2.9).
- 8.34 The LDP makes it clear that development that causes unacceptable harm to trees, woodlands and hedgerows of significant public amenity, natural or cultural heritage, or that contributes significantly to mitigating the effects of climate change, will not be permitted (Policy EN8).
- 8.35 It is considered inevitable that, for a development of the scale proposed, a significant number of trees will be removed. A total of 141 no. trees will be lost, of which 36 no. (25%) are 'A' or 'B' category trees. The greatest impact will occur in the Roath Brook Gardens, Roath Mill Gardens and Waterloo Gardens

areas. Whilst the loss of a large number of trees is regrettable, it is acknowledged that the scheme has been designed so as to minimise the disruption to trees, the majority of trees to be removed are of low or poor quality, and a significant amount of replacement planting is proposed to mitigate against the loss. In addition the submitted plans have been produced following a pre-application process with Council Officers which commenced in 2012. The impact of the development upon trees must be balanced against the need for the development and the proposed mitigation measures.

- 8.36 The comments of the Council's Tree Officer in paragraphs 5.7 – 5.8 are noted, in which he requests that a finalised Arboricultural Method Statement cross referenced to Tree Protection Plans would need to be submitted. This would be secured via condition.
- 8.37 It is noted that the Environmental Report accompanying the application concluded that the residual impact on landscape and visual is minor adverse. Whilst a degree of visual impact is inevitable, it is noted that the gardens and lawns will be reinstated following construction and replacement tree planting will occur. Officers agree with the conclusions of the Environmental Report and recommend relevant conditions to secure satisfactory landscaping.

### **Residential Amenity**

- 8.38 It is considered that the greatest impact upon the amenities of neighbouring properties will arise from the construction phase of the development. The application confirms that the construction will occur within permitted hours areas i.e. 08:00 – 18:00 Monday to Friday and 08:00 – 13:00 Saturdays with no work on Sundays, although some longer working hours may be used on the Roath Embankment Section, subject to Local Authority approval. The permitted hours of construction are enforced under separate legislation.
- 8.39 Although the Operational Manager, Environment (Noise & Air) has requested a condition to limit the noise of construction at neighbouring residential properties (paragraph 5.10), the agent has advised that the 70dB limit during permitted hours of construction is unlikely to be achievable as vibration driven piles will be used to construct the flood walls. Alternative construction methods such as pressing piles would require additional cranes and result in a greater loss of trees and landscape impact beyond that currently proposed.
- 8.40 Furthermore the construction will have to comply with health and safety legislation on noise action levels. It is considered that the need to minimise harm to the character and appearance of the conservation areas and historic parks has greater weight than temporary noise disturbance. As this is controlled effectively under separate legislation a condition is not considered to be necessary.

### **Third Party Representations**

- 8.41 In respect of issues raised during the public consultation process which have not already been addressed in this analysis, the following comments are made:

- (i) The plans and information accompanying the application are considered to be of a satisfactory standard to enable the application details to be understood;
- (ii) There is no evidence to suggest that new tree planting will be vandalised; details of its provision, including protection, can be conditioned;
- (iii) 17 no. options to reduce flood risk were considered by the applicant before the preferred option was selected. The appraisal of options can be found in Section 3 of the Environmental Report;
- (iv) The project is not being funded by Cardiff Council;
- (v) Any previous works undertaken to reduce flood have not been sufficient, in themselves, to address the risk of flooding;
- (vi) The precise design of the pergola would be agreed via condition;
- (vii) The effect on the development upon home insurance premiums is not a planning consideration;
- (viii) All existing and proposed gates to the gardens will continue to be managed and secured by Cardiff Council Parks Officers;
- (ix) Gates cannot be constructed across an adopted highway, including adopted alleyways;
- (x) A condition is recommended requiring the applicant to submit an Construction and Environmental Management Plan (CEMP) including details of construction access which will be agreed with the Local Planning Authority before works commence;
- (xi) Details of the design to Waterloo Road Bridge are subject to condition;
- (xii) A 'dog entrance point' is a shallow stabilised bank to allow for dog access to the watercourse. Such an entry point will assist in reducing siltation encouraging dogs into the watercourse at designated stable entry points;
- (xiii) The precise details of the viewing platform in Roath Mill Gardens will be secured via condition;
- (xiv) Traffic is intended to be diverted along Albany Road and Blenheim Road whilst the Waterloo Road Bridge is replaced.

### **Other Considerations**

8.42 Section 17(1) of the Crime and Disorder Act 1998 imposes a duty on the Local Authority to exercise its various functions with due regard to the likely effect of the exercise of those functions on, and the need to do all that it reasonably can to prevent, crime and disorder in its area. This duty has been considered in the evaluation of this application. It is considered that there would be no significant or unacceptable increase in crime and disorder as a result of the proposed decision.

8.43 The Equality Act 2010 identifies a number of 'protected characteristics', namely age; disability; gender reassignment; pregnancy and maternity; race; religion or belief; sex; sexual orientation; marriage and civil partnership. The Council's duty under the above Act has been given due consideration in the determination of this application. It is considered that the proposed development does not have any significant implications for, or effect on,

persons who share a protected characteristic.

## **Conclusions**

- 8.44 It is recognised that there is a need to mitigate the flood risks along this section of Roath Brook and the submitted proposals will provide a greater level of protection to approximately 360 residential properties and 50 commercial properties. It is noted that the Environmental Report concludes that the impacts of the scheme will be negligible to minor levels of significance once mitigation measures have been implemented.
- 8.45 There will inevitably be some impact upon the character and appearance of the conservation areas and the listed gardens, however this must be balance against the need for the flood protection works and the mitigation measures proposed. It is noted that a comprehensive appraisal process took place, including input from statutory consultees, followed by a pre-application process with Council officers. The impact upon the heritage designations must be weighed against the need for the development and it is the view of officers that the weight should, ultimately, fall in favour of the development.
- 8.46 The application before Committee has undergone a number of amendments during the pre-application process and is considered to present most appropriate design solution which, subject to detailed design via conditions, is considered to limit harm and preserve the conservation areas and gardens.
- 8.47 The applicant will agree a post-construction management and maintenance scheme with the Council's Parks Services which will be agreed separately to the determination of this application.
- 8.48 It is recommended that planning permission be granted, subject to relevant conditions.



# APPENDIX 1

**Table 16.1: Summary of Potential Impacts and Mitigation Measures**

Phase	Impact	Significance	Mitigation	Residual Impact
Construction	<b>Human Beings</b>			
	Disruption to Residents and Landowners	Moderate Adverse	<p>All local residents will be informed, in writing, well in advance of the proposed works.</p> <p>Notices will be erected around the site prior to works commencing.</p> <p>Closures and diversions of any informal pathways will be applied in a phased to coincide with the phased construction programme which will ensure a large proportion of the recreational gardens within the residential areas of Roath remain open at all times during the works.</p> <p>The construction phase will be kept to the shortest period possible, and on-going work with the contractor will be undertaken to reduce the period of disruption.</p> <p>Longer working hours may be used on the Roath Embankment to minimise any impacts on the operations of stores.</p>	Minor Adverse (Temporary)
	<b>Traffic and Transport</b>			
	Severance and Pedestrian Delay	Moderate Adverse	<p>Alternative pedestrian routes will be retained at all times (i.e. via a diverted route, most likely to be via the public highway).</p> <p>Furthermore, the phasing of the construction phase and the construction methodology has been planned such that only specific sections will be closed at any one time.</p>	Minor Adverse (Temporary)
	Driver Delay	Moderate Adverse	<p>Appropriate traffic management measures (i.e. well signed diversion route), following the most direct route.</p> <p>Advance advertising of the route closure, to enable drivers to find alternative routes, or avoid the area completely.</p> <p>Temporary reconfiguration of signal timings at junction of Blenheim Road and Marlborough Road to minimise delay for diverted traffic and/or temporary signal control at the junction of Albany Road / Blenheim Road.</p>	Minor Adverse (Temporary)



Phase	Impact	Significance	Mitigation	Residual Impact
	Road Safety	Potential Risk	A package of embedded mitigation measures has been developed to reduce the risk to the travelling public and construction employees. A number of construction management processes will be adopted and will be contained within a Construction Traffic Management Plan.	Negligible
	<b>Flora and Fauna</b>			
	Impacts to Roath Brook SINC	Minor Adverse	Aquatic planting in the form of coir rolls, plugs and seeding. Construction Method Statement.	Negligible
	Habitat Loss and Damage	Moderate Adverse	Any tree work (e.g. removal, lopping) will be carried out with respect to BS 3998:2010 – ‘Recommendations for Tree Work’. Protective fencing will be installed to all areas. Replacement tree planting will be undertaken upon completion of works.	Upon establishment of planting and sufficient growth of the trees, a Negligible impact is anticipated upon habitats and flora.
	Spread of Invasive Species	Minor Adverse	Implementation of an Invasive Species Management Plan. Further adopt ‘biosecurity’ and hygiene measures in daily work routines to minimise accidental spread of pests and disease. For example, clean and, where practical, disinfect items such as tools, equipment and boots before leaving any identified infected areas.	Minor Beneficial
Disturbance to Bat Species	Moderate Adverse	Check surveys prior to construction (to confirm that no bat roosts). Appropriate siting of works machinery. Tree and scrub planting. Toolbox talk on bats will be given to all site personnel prior to construction. Bat boxes.	Minor Adverse	



Phase	Impact	Significance	Mitigation	Residual Impact	
	Disturbance to Bird Species and Loss of Nesting Habitat	Moderate Adverse	Vegetation clearance will be undertaken outside the nesting season (March to August inclusive). Bird boxes.	Negligible	
	Disturbance to Dormice and Loss of Habitat	Minor Adverse	Check survey for dormice prior to scrub removal.	Negligible	
	Disturbance to Reptiles and Loss of Habitat	Minor Adverse	Toolbox talk on reptiles. Proposed works should be undertaken during the reptile active season (which is typically between March to September). Reptiles to be discouraged from small works areas.	Negligible	
	Disturbance to Commuting and Foraging Otters	Minor Adverse	Any trenches or pits are covered, or have a means of escape for any animal that might fall in (e.g. a ramp). Construction materials are safely stored away at the end of the day.	Negligible	
	Disturbance to Fish Species	Moderate Adverse	Temporary silt control measures. Sequencing the construction. Inspection and monitoring of the watercourses regularly for erosion and deposition. Hydro-seeding to protect top-soiled brook banks.	Negligible	
	Disturbance to Invertebrate Species	Moderate Adverse	Prior to the commencement of works, a dedicated survey will be undertaken by a suitably licenced ecologist to confirm if white-clawed crayfish are present in the Brook. Should they be found, a licence will be obtained from NRW.	Negligible	
	<b>Landscape and Visual Amenity</b>				
	Landscape Effects	Minor Adverse	Construction process will be phased so that parts of the green space will remain accessible to the public. Alternative pedestrian routes outside of the park will be identified and will remain accessible during the construction phase. The gardens and lawns	Minor Adverse (Temporary)	
	Visual Effects	Moderate Adverse		Minor Adverse	



Phase	Impact	Significance	Mitigation	Residual Impact
			will be reinstated following construction and new tree planting will take place.	
	<b>Archaeology and Cultural Heritage</b>			
	Disturbance to Known Heritage Assets	Moderate Adverse	Archaeological monitoring of ground intrusive works and provision made for archaeological excavation and recording, following consultation with the GGAT Planning Officer.  Obtain Conservation Area Consent in advance of construction works.  Clear demarcation, fencing and signage of sensitive heritage receptors and toolbox talks defining steps to avoid or further reduce impact to known heritage assets.	Negligible
	Disturbance to Unknown Heritage Assets	Major Adverse	Archaeological monitoring of ground intrusive works and provision made for archaeological excavation and recording, following consultation with the GGAT Planning Officer.  Obtain Conservation Area Consent in advance of construction works.	Minor Adverse
	Alteration to the Setting of Built Heritage Assets	Minor Adverse	Traffic Management Plan (TMP) to include measures to reduce number of construction traffic movements and introduce time restrictions.  Retain (or reinstate) as many historic features as possible, including line of site and access routes.  Use materials in-keeping with the fabric of the historic or ornamental structures/ furniture retained elsewhere in the Conservation Area, RPGs and gardens of local value.  Obtain Conservation Area Consent.	Negligible
	Alteration to the Historic Landscape Character Area	Negligible	Traffic Management Plan (TMP) to include measures to reduce number of construction traffic movements and introduce time restrictions.	Negligible



Phase	Impact	Significance	Mitigation	Residual Impact
	<b>Noise and Vibration</b>			
	On-site Construction Noise on Residential Receptors	Negligible to Moderate Adverse	To mitigate in general the noise levels generated by the proposed works impacting on the receptors nearby and in the wider area, the construction operations should employ Best Practical Means (BPM).	Negligible to Minor Adverse (Temporary)
	Construction Vibration (on-site works and construction traffic)	Negligible	No mitigation required.	Negligible
	<b>Land Quality</b>			
	Land Quality (Mobilisation of Existing Contamination – Impacts on Human Health)	Moderate to Negligible Adverse	<p>Delineation and quantification of asbestos impacted materials</p> <p>Removal or risk assessment of asbestos impacted materials</p> <p>If any visual or olfactory evidence of previously unidentified contamination is identified during the construction phase, work to stop immediately, the contaminated materials to be stockpiled separately and a qualified Environmental Consultant contacted.</p> <p>Limit dust generation through construction best practice.</p> <p>Testing and risk assessment of materials prior to reuse on site</p> <p>Removal of unsuitable materials in accordance with waste Duty of Care and replacement by certified, clean imported fill.</p> <p>Site inductions for all staff including contractors and sub-contractors including the above procedures and the locations of spill kits.</p> <p>Characterisation of the area of apparently tipped material discussed in paragraph 12.3.34 and removal if unsuitable for reuse.</p>	Minor to Negligible
Land Quality (Mobilisation of Existing Contamination – Impacts on Controlled Waters)	Minor Adverse	<p>Groundwater monitoring and assessment.</p> <p>Minimisation of earthworks footprint.</p> <p>Adherence to construction best practice.</p>	Minor Adverse	



Phase	Impact	Significance	Mitigation	Residual Impact
	Land Quality (Direct Contamination)	Minor Adverse to Negligible	Adherence to construction best practice and waste Duty of Care. Testing of imported till to confirm that it is suitable for use. Preparation of a SWMP.	Negligible
	Soils (Compaction and Degradation of Soil Structure)	Negligible	Method statements for protection of soil structure. Best practice in accordance with the Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.	Negligible
	Mobilisation of Sediment Laden Run-off – Impacts on Surface Water Quality	Minor Adverse	Storing the stockpiled material well away from any watercourses. Inspections of stockpiles. Removal or covering of stockpiles if eroding. Minimisation of the length of time ground is left open following earthworks and the length of time materials are stockpiled. Use of silt traps.	Negligible
	<b>Water Quality (Geomorphology)</b>			
	Accidental Release of Sediment	Unlikely to Cause Deterioration in Water Body Status	Minimise and prevent sediment run-off from the development site during construction by intercepting surface drainage and, if necessary, employing silt traps within and/or adjacent to watercourses, in particular during the widening of the drainage ditch. Sediment monitoring and reevaluation of mitigation measures.	Negligible
	Accidental Release of Fuels, Oils and Lubricants from Construction Machinery	Unlikely to Cause Deterioration in Water Body Status	Ensure that the working methodology adheres to the Environment Agency's Pollution Prevention Guidance notes (including PPG01, PPG05, PPG08, and PPG21).	Negligible
	Specific Biological Elements – Fish and Invertebrates	Unlikely to Cause Deterioration in Water Body Status	Works to comply with the in-river working embargo period 15 <sup>th</sup> October – May 15 <sup>th</sup> to minimise risks to migrating fish, although depending on the nature of works, some in-river work if necessary could be undertaken. A fish recuse will be implemented within Waterloo Gardens for the	Negligible



Phase	Impact	Significance	Mitigation	Residual Impact
			channel alignment works. A crayfish survey to be undertaken prior to works.	
Operation	<b>Human Beings</b>			
	Implementation of the Flood Risk Management Scheme	Major Beneficial	No mitigation required.	Major Beneficial
	Implications of Climate Change	Major Beneficial	No mitigation required.	Major Beneficial
	Change in Open Space	Major Beneficial	No mitigation required.	Major Beneficial
	<b>Traffic and Transport</b>			
	Driver Delay, Road Safety, Severance and Pedestrian Delay	The proposed scheme is not expected to result in any on-going impacts during operation regarding traffic and transport.		
	<b>Flora and Fauna</b>			
	Disturbance to Bats	Minor Beneficial	No mitigation required.	Minor Beneficial
	Loss of Breeding Bird Habitat	Minor Beneficial	No mitigation required.	Minor Beneficial
	Disturbance to Dormice, Reptiles, Otters	No Impact	No mitigation required.	No Impact
Disturbance to Fish Species and Invertebrate Species	Minor Beneficial	No mitigation required.	Minor Beneficial	
<b>Landscape and Visual Amenity</b>				
Landscape Effects	Negligible to Moderate Adverse, although Minor Beneficial (within Railway Gardens)	The selection of materials and replacement features will be in keeping with the existing properties and walls within the walled garden. Landscaped embankments and re-profiling of the brook have been	Negligible to Moderate Adverse, although Minor Beneficial (within	



Phase	Impact	Significance	Mitigation	Residual Impact	
			specifically incorporated to avoid the introduction of a new flood wall. The footpath located on top of the (low) embankment allow clear views to the brook and limits the extent of earthworks in relation to the existing boundary trees.	Railway Gardens)	
			New tree and shrub planting within the park to conceal and soften the new floodwall. Sloping paths and grading of earth to meet the paths and the raised platform, help to accommodate the new structures into the existing character of the park.		
			Wall repairs and replacement fitting will use materials to match the existing.		
	Visual Effects	Negligible to Moderate Adverse, although Minor Beneficial (within Railway Gardens)	Replacement tree planting, shrub and marginal planting within the park, careful selection of wall cladding and paving materials, railing type and seating. Replacement tree planting, within the park, careful selection of wall and bridge parapet cladding and paving materials. Careful positioning of the flood defence measure so as to have minimum possible impact on trees, prioritising the retention of key boundary and feature trees where possible.	Negligible to Moderate Adverse, although Minor Beneficial (within Railway Gardens)	
	<b>Archaeology and Cultural Heritage</b>				
	Reduced flooding to known and unknown heritage assets	Moderate Beneficial	No mitigation required.		Moderate Beneficial
	Alteration to the setting of built heritage assets	Moderate Beneficial	No mitigation required.		Moderate Beneficial
	Alteration to the Historic Landscape Character Area	Minor Beneficial	No mitigation required.		Minor Beneficial
	<b>Land Quality</b>				
	Land Quality (Existing Contamination – Impacts	Minor Adverse to Negligible	Testing of all excavated materials e prior to re-use within the site. Visual and olfactory inspection maintained throughout the		Negligible





Phase	Impact	Significance	Mitigation	Residual Impact
	on Human Health)		<p>earthworks and any material with evidence of contamination not reused within 1m of the ground surface.</p> <p>Replacement of unsuitable material with certified, clean imported fill.</p>	
	<b>Water Quality (Geomorphology)</b>			
	Hydrological Regime, River Continuity and Morphological Conditions	Unlikely to Cause Deterioration in Water Body Status	<p>Visual assessment for signs of net changes in morphological condition (e.g. changes in channel width and depth) along the Roath Brook.</p> <p>Installation of flow deflectors to increase flow diversity, displacing silt build-up and encouraging development of new habitat.</p> <p>Improve profile of river bank, and incorporating two stage channel where possible.</p> <p>Selective marginal vegetation planting.</p> <p>Other WFD enhancements as per <b>Appendix 8F</b>.</p>	Negligible





**Legend**

Roath Brook FRMS

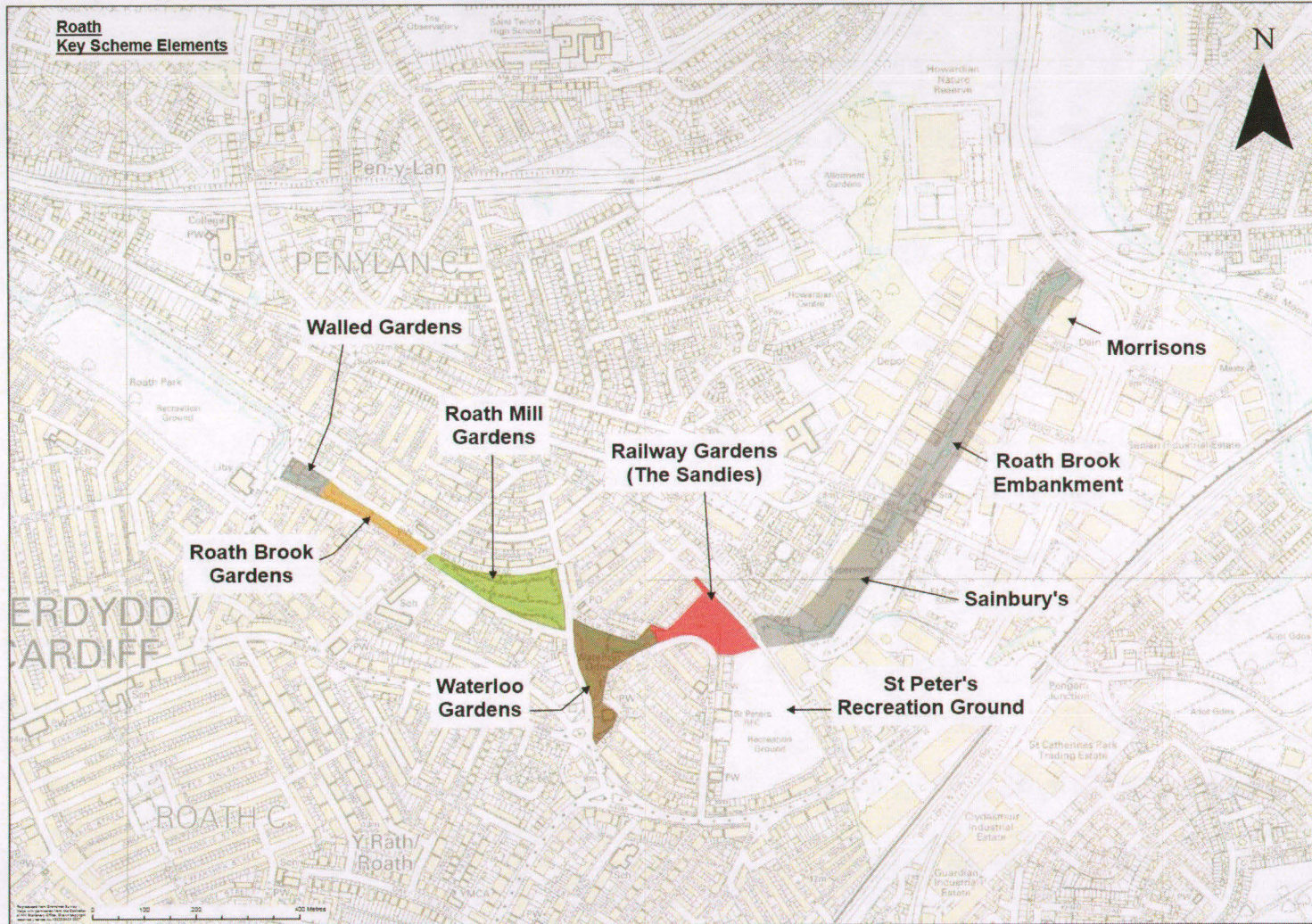
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CLIENT					
					
PROJECT					
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TITLE					
<b>Site Location Plan</b>					
			Rightwell House, Bretton Peterborough, PE3 8DW Tel +44 (0)1733 334455 Email info.peterborough@rhdhv.com Website www.royalhaskoningdhv.com		
DRAWN	MCP	CHECKED	PB	APPROVED	PB
DATE	22/05/15	SCALE @A3	1:20,000	PROJECT No.	PB1757
DRAWING NUMBER					REVISION
ROA-RHD-XX-XXX-DR-L-XX-0014 Fig 1.1					

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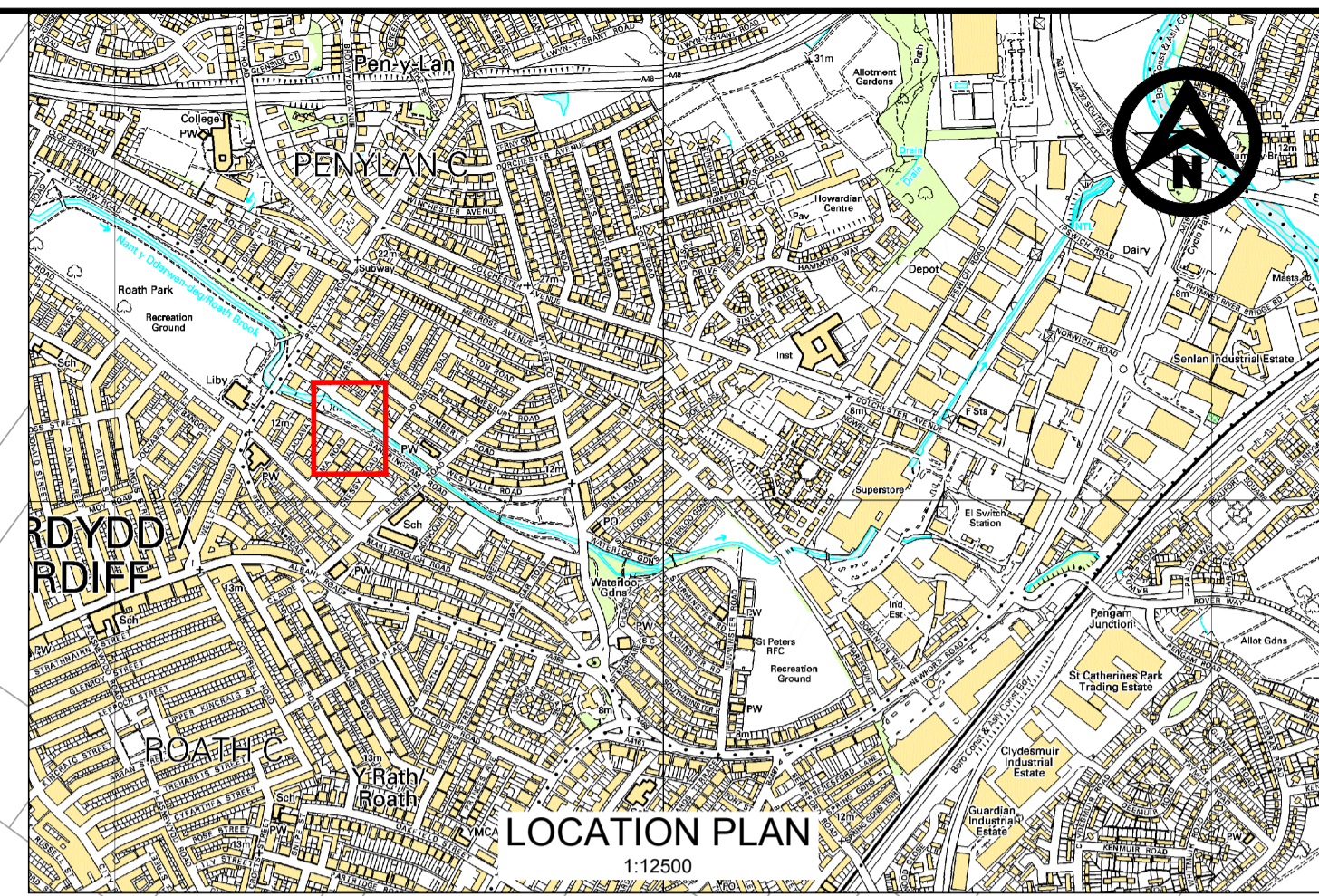
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## Roath Brook FRM Scheme Key Elements







- NOTES**
- Retained existing trees
  - Removed trees - trunk locations
  - Proposed trees
  - Proposed flood wall - stone and brick cladding (sheet pile core)
  - Proposed flood wall - brick cladding (reinforced concrete core)
  - Proposed flood wall - buried (concrete)
  - Proposed flood wall gate - normally closed
  - Proposed parapet modifications
  - Proposed retaining wall
  - Existing path
  - Proposed macadam path
  - Proposed paved area - to be designed
  - Proposed steps
  - Proposed bridge
  - Proposed handrail
  - Proposed balustrade
  - Proposed railing - timber post and rail
  - Proposed knee rail - timber
  - Proposed temporary fence - whitst shrubs establish
  - Existing railing retained
  - Proposed garden edge kerb
  - Existing flower beds
  - Proposed ornamental borders
  - Proposed native and exotic shrub mix
  - Proposed native shrub planting - in groups on river banks
  - Proposed hedgerow
  - Proposed lawn areas
  - Proposed species rich grass, managed for habitat benefit
  - Proposed wetland planting
  - Proposed extent of modified river channel banks with marginal vegetation planting in selected locations
  - Proposed watercourse channel
  - Proposed seating with litter bins as required
  - Proposed flood embankment slopes
  - ★ Champion trees country / county
  - ▲ Grade A Trees
  - Sign Signage
  - Proposed hoggin/consolidated crushed stone path

**PLANNING**

PD	OCT15	FOR PLANNING SUBMISSION	SP	EVM	CF
REV	DATE	DESCRIPTION	BY	CHK	APP

REVISIONS

CLIENT



PROJECT  
**ROATH FLOOD RISK MANAGEMENT SCHEME**

TITLE  
**ROATH BROOK GARDENS GENERAL ARRANGEMENT PLAN SHEET 1**



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NICHOLAS PEARSON ASSOCIATES

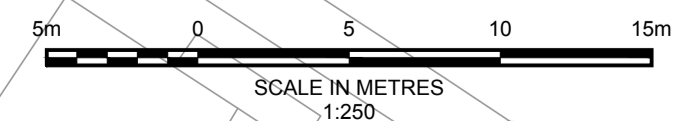
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DATE	JULY 2015	SCALE AT A1	1:250	RHD REF.	PB1757

DRAWING No. ROA-RHD-11-XX-DR-L-1000 REVISION P0

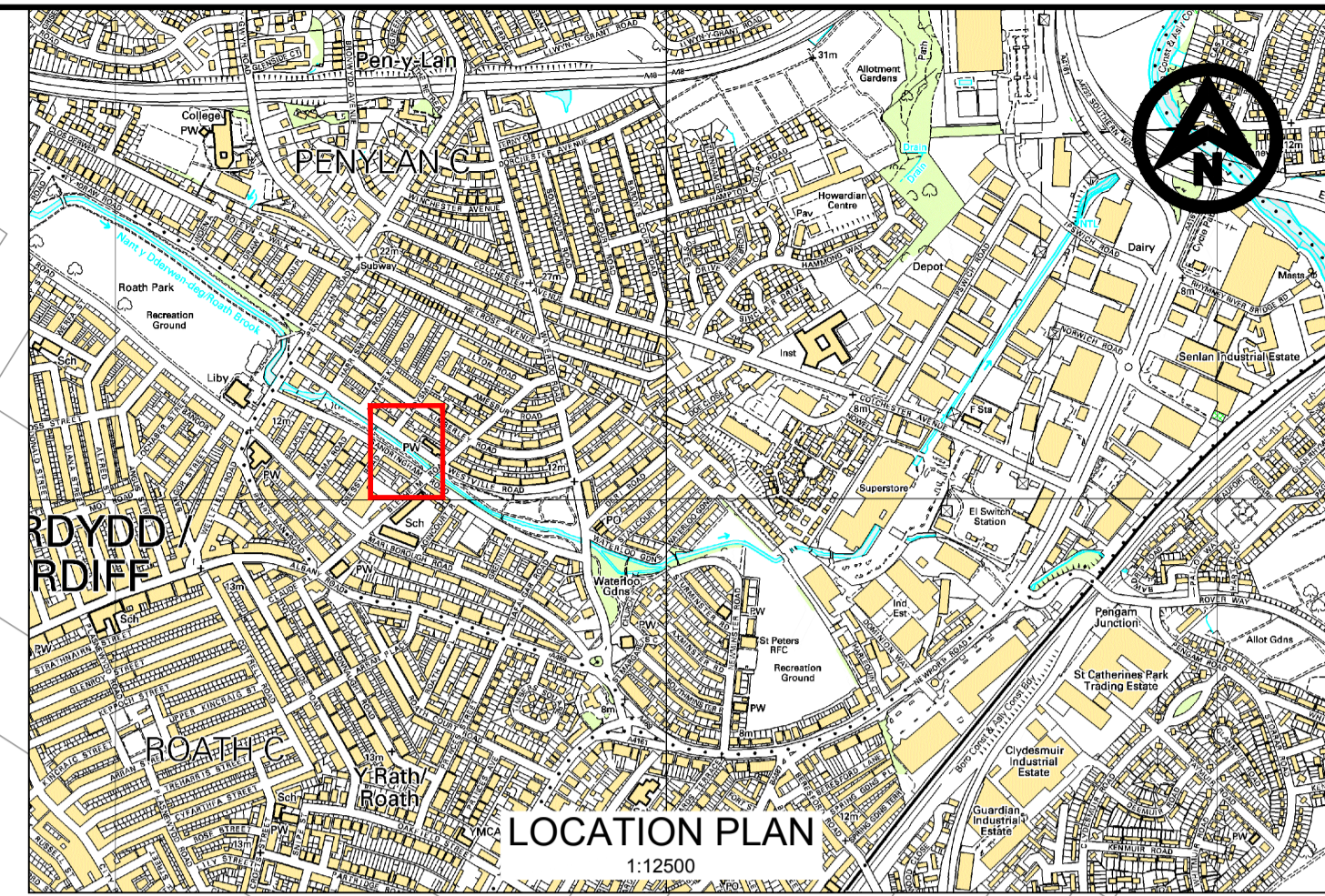
**SUMMARY OF WFD ENHANCEMENTS WITHIN DRAWING AREA**

**Reach 2A and Reach 2B: Roath Brook Gardens**

- A. Lowering of the embankment to provide greater channel-floodplain connectivity and marginal vegetation planting (pre-planted coir rolls).
- B. In-channel enhancements such as deflectors to increase flow diversity and improve sediment through flow.
- C. Marginal vegetation planting.
- D1. Dog entry point. A shallow stabilised bank to allow for dog access to the watercourse.
- D2. Removal of concrete or artificial substrates (if not part of a historic designation).







- NOTES**
- Retained existing trees
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  - Proposed bridge
  - Proposed handrail
  - Proposed balustrade
  - Proposed railing - timber post and rail
  - Proposed knee rail - timber
  - Proposed temporary fence - whilst shrubs establish
  - Existing railing retained
  - Proposed garden edge kerb
  - Existing flower beds
  - Proposed ornamental borders
  - Proposed native and exotic shrub mix
  - Proposed native shrub planting - in groups on river banks
  - Proposed hedgerow
  - Proposed lawn areas
  - Proposed species rich grass, managed for habitat benefit
  - Proposed wetland planting
  - Proposed extent of modified river channel banks with marginal vegetation planting in selected locations
  - Proposed watercourse channel
  - Proposed seating with litter bins as required
  - Proposed flood embankment slopes
  - Water Framework Directive (WFD) Enhancements - see summary
  - Champion trees country / county
  - Grade A Trees
  - Sign Signage
  - Proposed hogg/consolidated crushed stone path

**PLANNING**

PD	OCT15	FOR PLANNING SUBMISSION	SP	EVM	CF
REV	DATE	DESCRIPTION	BY	CHK	APP

REVISIONS

CLIENT

PROJECT  
**ROATH FLOOD RISK MANAGEMENT SCHEME**

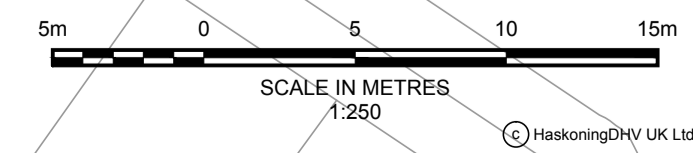
TITLE  
**ROATH BROOK GARDENS GENERAL ARRANGEMENT PLAN SHEET 2**

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DRAWN	GG/EH	CHECKED	AJ	APPROVED	CF
DATE	JULY 2015	SCALE AT A1	1:250	RHD REF.	PB1757
DRAWING No.	ROA-RHD-11-XX-DR-L-1001				REVISION
					P0

- SUMMARY OF WFD ENHANCEMENTS WITHIN DRAWING AREA**
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- A. Lowering of the embankment to provide greater channel-floodplain connectivity and marginal vegetation planting (pre-planted coir rolls).
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  - C. Marginal vegetation planting.
  - D1. Dog entry point. A shallow stabilised bank to allow for dog access to the watercourse.
  - D2. Removal of concrete or artificial substrates (if not part of a historic designation).







- KEY**
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  - A Grade A Trees
  - S Sign
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  - Proposed seating with litter bins as required
  - Proposed flood embankment slopes
  - A Water Framework Directive (WFD) Enhancements - see summary
  - Proposed raised ornamental border

PLANNING

PD	OCT15 FOR PLANNING SUBMISSION	SP	EVM	CF	
REV	DATE	DESCRIPTION	BY	CHK	APP

REVISIONS

CLIENT	LB
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**PROJECT**  
ROATH FLOOD RISK MANAGEMENT SCHEME

**TITLE**  
ROATH MILL GARDENS  
GENERAL ARRANGEMENT PLAN  
SHEET 1



DRAWN	GG/EH	CHECKED	AJ	APPROVED	CF
DATE	JULY 2015	SCALE AT A1	1:250	RHD REF.	PB1757

DRAWING No. ROA-RHD-09-XX-DR-L-1000      REVISION P0

**SUMMARY OF WFD ENHANCEMENTS WITHIN DRAWING AREA**

- Reach 3A and Reach 3B: Roath Mill Gardens**
- B2. Marginal vegetation planting along banks or along the in-channel benches formed from dredged silts
  - C1. Dog entry point.
  - C2. In-channel enhancements such as deflectors to increase flow diversity and improve sediment through flow.





- NOTES**
- Retained existing trees
  - ★ Champion trees country / county
  - Removed trees - trunk locations
  - △ Grade A Trees
  - Proposed trees
  - Sign Signage
  - Proposed flood wall - stone and brick cladding (sheet pile core)
  - Proposed flood wall - brick cladding (reinforced concrete core)
  - Proposed flood wall - buried (concrete)
  - Proposed flood wall gate - normally closed
  - Proposed parapet modifications
  - Proposed retaining wall
  - Existing path
  - Proposed macadam path
  - Proposed paved area - to be designed
  - Proposed steps
  - Proposed bridge
  - Proposed handrail
  - Proposed balustrade
  - Proposed railing - timber post and rail
  - Proposed knee rail - timber
  - Proposed temporary fence - whilst shrubs establish
  - Existing railing retained
  - Proposed garden edge kerb
  - Existing flower beds
  - Proposed ornamental borders
  - Proposed native and exotic shrub mix
  - Proposed native shrub planting - in groups on river banks
  - Proposed hedgerow
  - Proposed lawn areas
  - Proposed species rich grass, managed for habitat benefit
  - Proposed wetland planting
  - Proposed extent of modified river channel banks with marginal vegetation planting in selected locations
  - Proposed watercourse channel
  - Proposed seating with litter bins as required
  - Proposed flood embankment slopes
  - A Water Framework Directive (WFD) Enhancements - see summary
  - Proposed raised ornamental border
  - Proposed hogg/consolidated crushed stone path

**PLANNING**

PD	OCT15	FOR PLANNING SUBMISSION	SP	EVM	CF
REV	DATE	DESCRIPTION	BY	CHK	APP

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PROJECT  
**ROATH FLOOD RISK MANAGEMENT SCHEME**

TITLE  
**ROATH MILL GARDENS GENERAL ARRANGEMENT PLAN SHEET 2**

Rightwell House, Bilton Peterborough, PE3 8DW  
Tel: +44(0)1733 334455  
Email: info.peterborough@tfov.com  
Website: www.royalthekingdomtfov.com

NICHOLAS PEARSON ASSOCIATES

DRAWN	GG/EH	CHECKED	AJ	APPROVED	CF
DATE	JULY 2015	SCALE	A1 1:250	RHD REF.	PB1757

DRAWING No. ROA-RHD-09-XX-DR-L-1001 REVISION P0

**SUMMARY OF WFD ENHANCEMENTS WITHIN DRAWING AREA**

**Reach 3A and Reach 3B: Roath Mill Gardens**

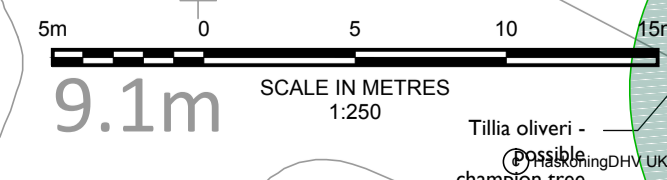
B1. Lowering of the embankment to provide greater channel-floodplain connectivity and marginal vegetation planting (pre-planted coir rolls).

B2. Marginal vegetation planting along banks or along the in-channel benches formed from dredged silts.

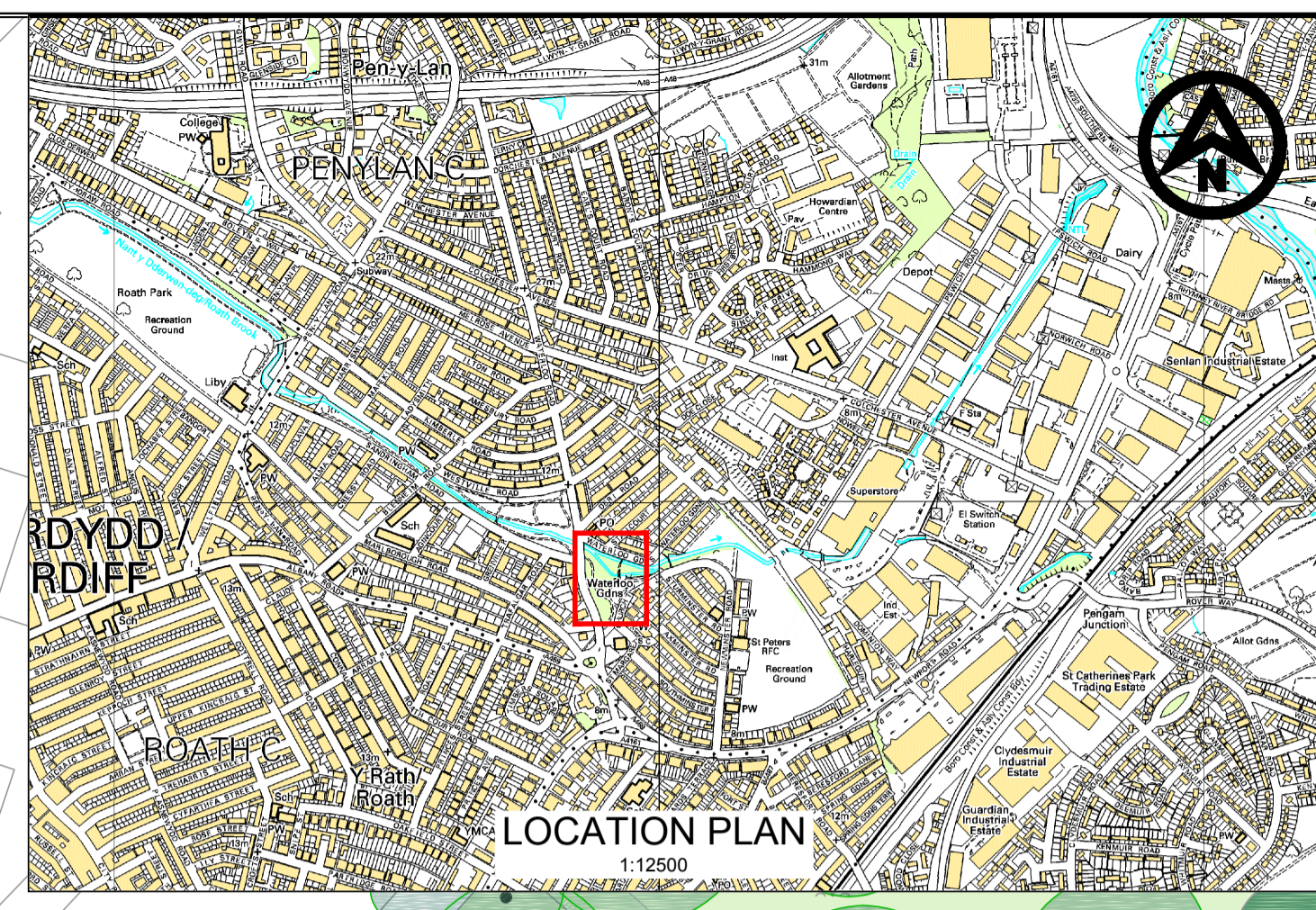
C1. Dog entry point.

C2. In-channel enhancements such as deflectors to increase flow diversity and improve sediment through flow.

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- KEY**
- Retained existing trees
  - Removed trees - trunk locations
  - Proposed trees
  - Proposed flood wall - stone and brick cladding (sheet pile core)
  - Proposed flood wall - brick cladding (reinforced concrete core)
  - Proposed flood wall - buried (concrete)
  - Proposed flood wall gate - normally closed
  - Proposed parapet modifications
  - Proposed retaining wall
  - Existing path
  - Proposed macadam path
  - Proposed paved area - to be designed
  - Proposed steps
  - Proposed bridge
  - Proposed handrail
  - Proposed balustrade
  - Proposed railing - timber post and rail
  - Proposed knee rail - timber
  - Proposed temporary fence - whilst shrubs establish
  - Existing railing retained
  - Proposed garden edge kerb
  - Existing flower beds
  - Proposed ornamental borders
  - Proposed native and exotic shrub mix
  - Proposed native shrub planting - in groups on river banks
  - Proposed hedgerow
  - Proposed lawn areas
  - Proposed species rich grass, managed for habitat benefit
  - Proposed wetland planting
  - Proposed extent of modified river channel banks with marginal vegetation planting in selected locations
  - Proposed watercourse channel
  - Proposed seating with litter bins as required
  - Proposed flood embankment slopes
  - A Water Framework Directive (WFD) Enhancements - see summary
  - ★ Champion trees country / county
  - Grade A Trees
  - S Sign Signage
  - Proposed hoggin/ consolidated crushed stone path



- Reach 4: Waterloo Gardens**
- A. In-channel enhancements such as deflectors to increase flow diversity and improve sediment through flow.
  - B. Marginal vegetation planting.
  - C. Introducing riffles to provide greater flow and channel habitat diversity.

**SUMMARY OF WFD ENHANCEMENTS WITHIN DRAWING AREA**

**PLANNING**

PD	OCT15	FOR PLANNING SUBMISSION	SP	EVM	CF
REV	DATE	DESCRIPTION	BY	CHK	APP

REVISIONS

CLIENT



PROJECT  
**ROATH FLOOD RISK MANAGEMENT SCHEME**

TITLE  
**WATERLOO GARDENS GENERAL ARRANGEMENT PLAN**

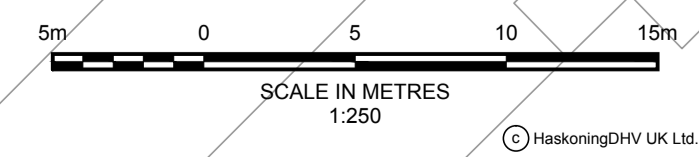


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Website: www.royalthekoninggroup.com

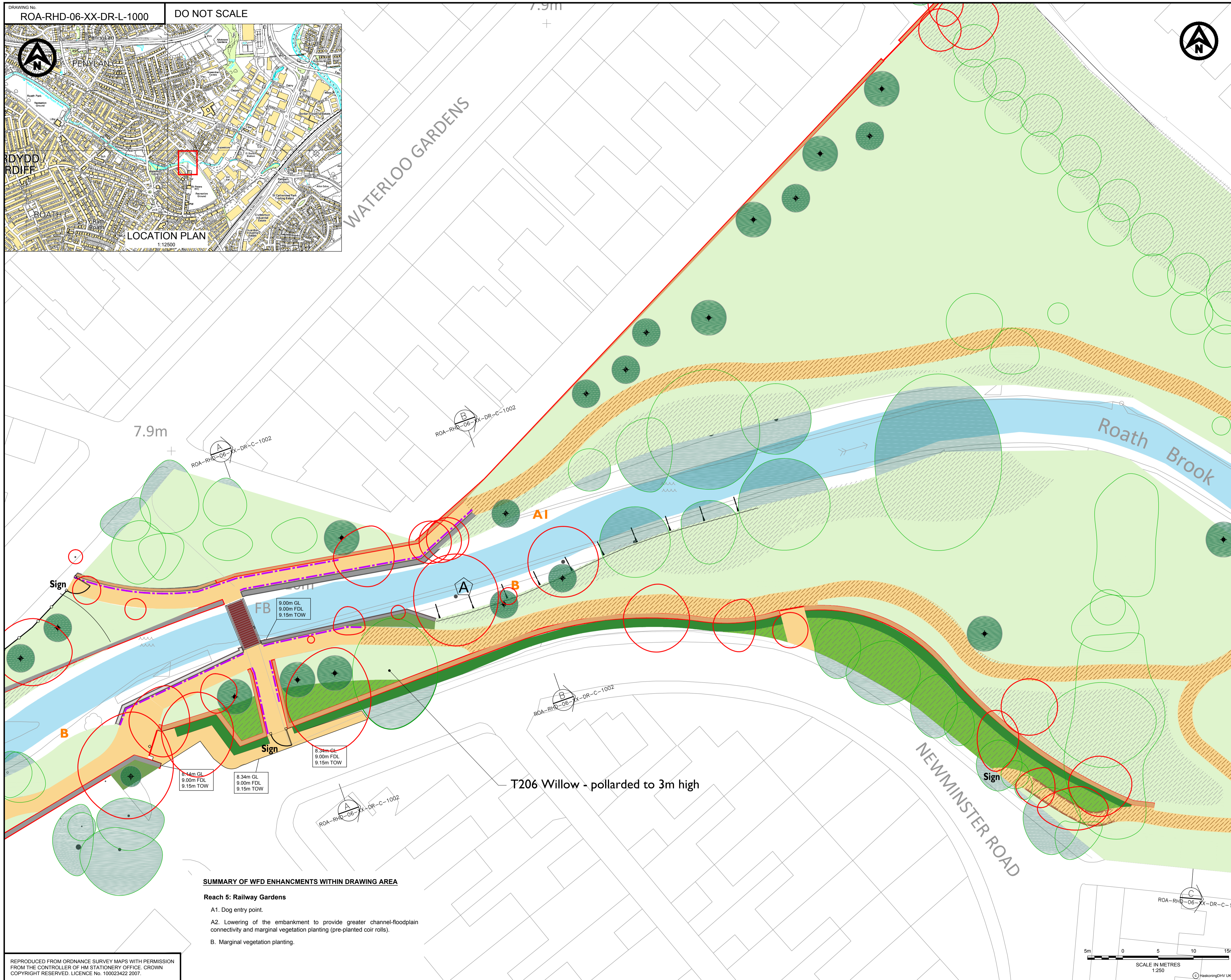
NICHOLAS PEARSON ASSOCIATES

DRAWN	GG/EH	CHECKED	AJ	APPROVED	CF
DATE	JULY 2015	SCALE AT A1	1:250	RHD REF.	PB1757

DRAWING No. ROA-RHD-07-XX-DR-L-1000 REVISION PO







- KEY**
- Retained existing trees
  - Removed trees - trunk locations
  - Proposed trees
  - Proposed flood wall - stone and brick cladding (sheet pile core)
  - Proposed flood wall - brick cladding (reinforced concrete core)
  - Proposed flood wall - buried (concrete)
  - Proposed flood wall gate - normally closed
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  - Proposed watercourse channel
  - Proposed seating with litter bins as required
  - Proposed flood embankment slopes
  - A Water Framework Directive (WFD) Enhancements - see summary
  - PLANNING

PD	OCT15	FOR PLANNING SUBMISSION	SP	EVM	CF
REV	DATE	DESCRIPTION	BY	CHK	APP

CLIENT

PROJECT  
**ROATH FLOOD RISK MANAGEMENT SCHEME**

TITLE  
**RAILWAY GARDENS GENERAL ARRANGEMENT PLAN SHEET 1**

Rightwell House, Bletton Peterborough, PE3 8DW  
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DRAWN	GG/EH	CHECKED	AJ	APPROVED	CF
DATE	JULY 2015	SCALE AT A1	1:250	RHD REF.	PB1757
DRAWING No.	ROA-RHD-06-XX-DR-L-1000				REVISION
					P0

**SUMMARY OF WFD ENHANCEMENTS WITHIN DRAWING AREA**

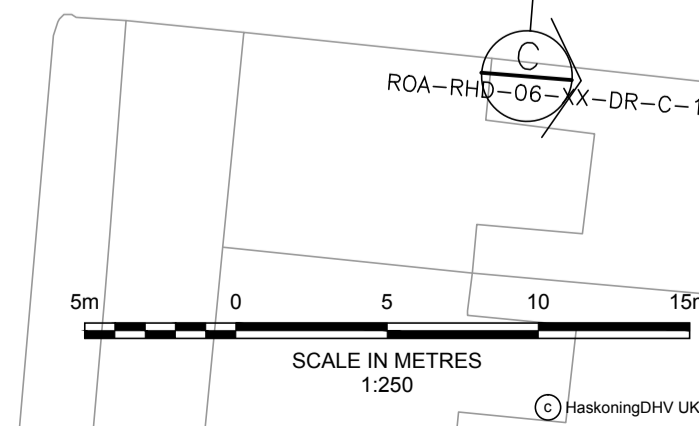
**Reach 5: Railway Gardens**

A1. Dog entry point.

A2. Lowering of the embankment to provide greater channel-floodplain connectivity and marginal vegetation planting (pre-planted coir rolls).

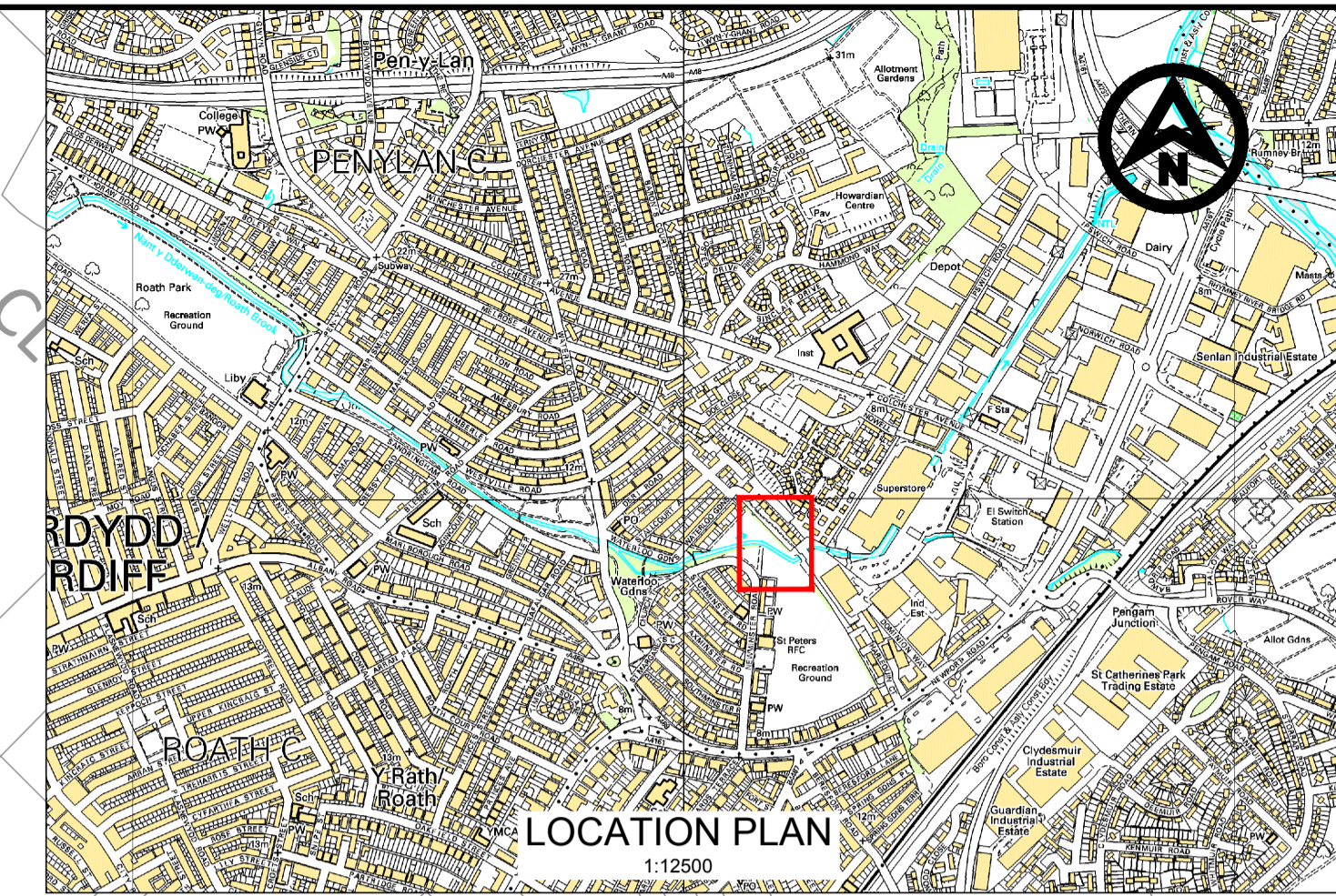
B. Marginal vegetation planting.

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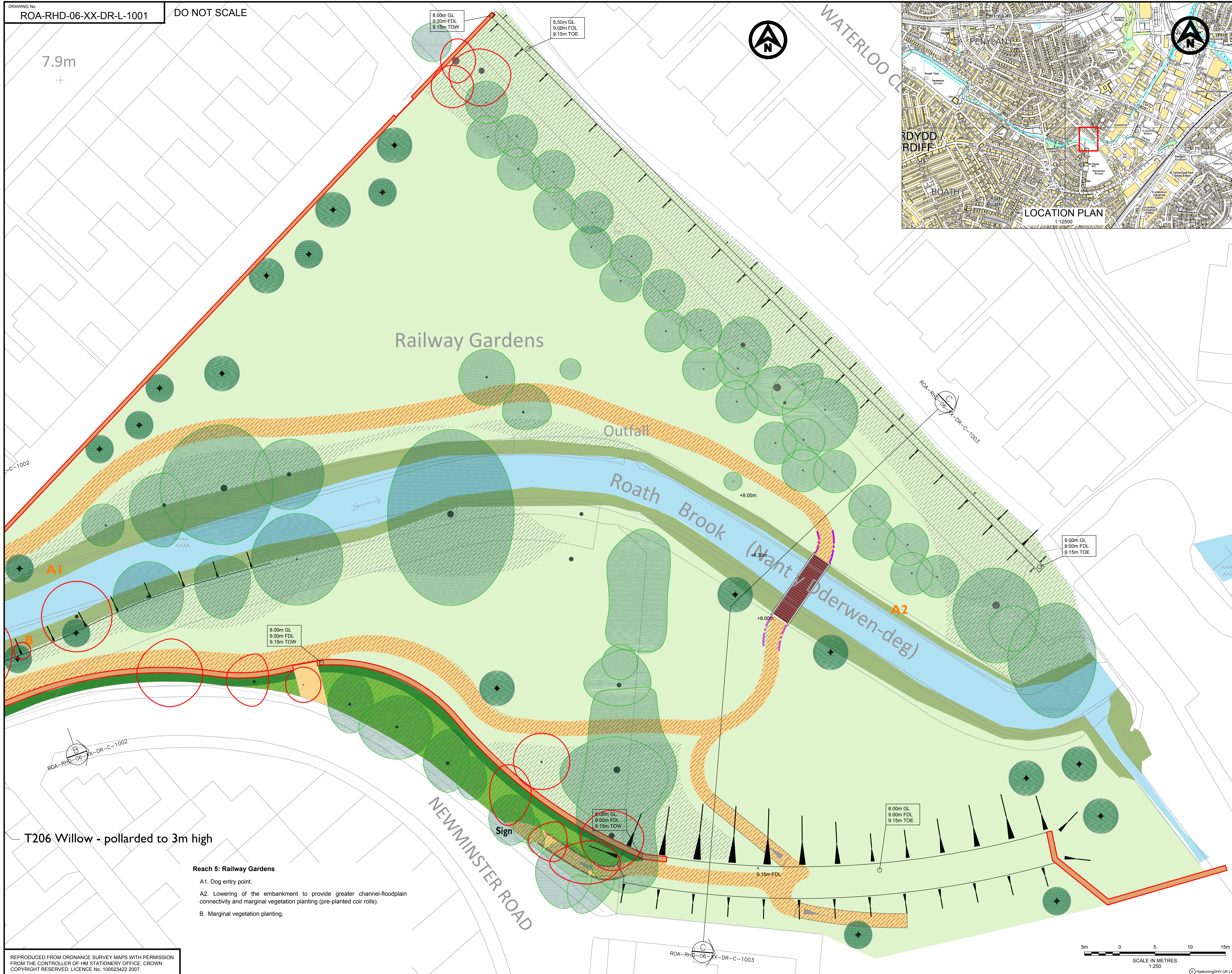




7.9m



- KEY**
- Retained existing trees
  - Removed trees - trunk locations
  - Proposed trees
  - Proposed flood wall - stone and brick cladding (sheet pile core)
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  - Proposed watercourse channel
  - Proposed seating with litter bins as required
  - Proposed flood embankment slopes
  - Water Framework Directive (WFD) Enhancements - see summary
  - ★ Champion trees country / county
  - ★ Grade A Trees
  - ★ Sign Signage
  - Proposed hoggins consolidated crushed stone path
  - Proposed raised ornamental bord



PLANNING

PD	OCT15 FOR PLANNING SUBMISSION	SP	EVM	CF
REV	DATE DESCRIPTION	BY	CHK	APP

REVISIONS

CLIENT

**Cyfoeth  
Naturiol  
Cymru  
Natural  
Resources  
Wales**

PROJECT

**ROATH FLOOD RISK  
MANAGEMENT SCHEME**

TITLE

**RAILWAY GARDENS  
GENERAL ARRANGEMENT PLAN  
SHEET 2**

**TEAM  
Van Oord**

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Website: www.royalthaskoningdhv.com

NICHOLAS PEARSON ASSOCIATES  
Specialist Planning & Environmental Services

DRAWN	GG/EH	CHECKED	AJ	APPROVED	CF	
DATE	JULY 2015	SCALE AT A1	1:250	RHD REF.	PB1757	
DRAWING No.	ROA-RHD-06-XX-DR-L-1001				REVISION	P0

**Reach 5: Railway Gardens**

A1. Dog entry point.

A2. Lowering of the embankment to provide greater channel-floodplain connectivity and marginal vegetation planting (pre-planted coir rolls).

B. Marginal vegetation planting.

T206 Willow - pollarded to 3m high

NEWMINSTER ROAD

WATERLOO CL

Roath Brook (Nant y Dderwen-deg)

Railway Gardens

Outfall

Sign

ROA-RHD-06-XX-DR-C-1003

ROA-RHD-06-XX-DR-C-1005

9.00m GL  
9.00m FDL  
9.15m TOE

8.00m GL  
9.00m FDL  
9.15m TOE

8.00m GL  
8.00m FDL  
9.15m TOE

8.50m GL  
9.00m FDL  
9.15m TOE

8.00m GL  
9.00m FDL  
9.15m TOE

8.00m GL  
9.00m FDL  
9.15m TOE

9.15m FDL