

Darlington Borough Council Local Flood Risk Management Strategy



Revision Schedule

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1. Executive Summary

Vision - To work with our partners in the Borough of Darlington to reduce the risk of flooding to residents and businesses and ensure that flood risk is managed in the most effective and sustainable way.

In England, 5.2 million properties are at risk of flooding. Of these, 1.4 million are risk from rivers or the sea, 2.8 million are at risk from surface water flooding and 1 million are at risk from both.

The Flood and Water Management Act 2010, requires that flood risk will be managed within a framework of national strategies for England and Wales and local strategies for each Lead Local Flood Authority area, of which Darlington Borough Council is one. The national strategy for England, developed by the Environment Agency, sets out principles for how flood risk should be managed, provides strategic information about different types of flood risk, and identifies organisations responsible for their management.

Darlington Borough Council, as a Lead Local Flood Authority, has responsibility for developing a Local Flood Risk Management Strategy (LFRMS) with respect to local sources of flooding – surface water, ground water and ordinary watercourses. Flood risk from main rivers is addressed by the Environment Agency. The LFRMS sets out the local organisations with responsibility for flood risk in Darlington, partnership arrangements to ensure co-ordination between these, an assessment of the flood risk and plans and actions for managing the risk.

Darlington has been subject to flooding in the last few years but has escaped the most severe episodes suffered in some other areas and by comparison with other local authority areas has a low flood risk. However, numerous residents and businesses suffered damage and disruption from flooding events in September 2012, May 2013, September 2013 and December 2013. In all cases these were from surface water run-off and sewer – flooding rather than from rivers. The risk management authority for sewer flooding is Northumbrian Water and the Council has regular liaison meetings with Northumbrian Water to address flooding issues.

Following these events a great deal of work has been done to reduce flood risk. Work has been done with Northumbrian Water to improve the drainage system where the need has been identified. In a few cases where Northumbrian Water have been unable to make improvements on a cost-benefit case property level defences have been offered to individual residents at risk of flooding. Work has also been done, and is ongoing to understand water run-off characteristics and causes where flooding has arisen from water run-off from farm land. Culverted water courses have been examined and improved, and Local Levy grant funding has been offered to some residents for property level defences. In one case a local business has benefited from the Government's Repair And Renew grant fund. Sustainable drainage is now a pre-requisite for major planning proposals, which prevents any additional risk of flooding from existing drainage systems.

Whilst this document does not concern itself with flood risk from main rivers it should be noted that the Environment Agency has completed a major flood defence where Kent Beck flows into the River Tees at Neasham, risk from the River Skerne has been somewhat reduced by the raising of the highway in St Cuthbert's Way, and further works to protect the Rivers Skerne and Tees are being considered.

When the Flood and Water Management Act was introduced making Darlington Borough Council a Lead Local Flood Authority a number of options were considered to deliver the new duties associated with the role. Consequently a contractual relationship was entered into with Stockton Borough Council whereby Stockton delivers many of Darlington's duties on its behalf. That relationship continues to operate effectively providing a cost-effective solution.

Sustainable drainage is critical to achieving effective surface water management and the Authority is developing its policy in this area. The five Tees Valley Authorities (Middlesbrough, Stockton, Darlington, Hartlepool and Redcar and Cleveland Councils) have worked together to produce technical guidance for sustainable drainage systems, which supports the National Standards produced by the Department for Environment, Food and Rural Affairs (DEFRA). All major planning applications now must include proposals on drainage and flood risk reduction. Surface water drainage strategies are a key consideration for major development, where the proposals must not increase the risk of surface water run-off or the risk of flooding to neighbouring sites or downstream of the development.

In the future, maintenance and improvements to flood risk assets and drainage systems will be a critical area in managing flood risk, therefore the Authority is capturing data and considering future asset management. A programme of inspection of ordinary watercourses is underway which will provide additional information for the Flood Risk Asset Register, a requirement of the Flood and Water Management Act 2010.

In order to manage drainage systems cost effectively, it is necessary to have a strategic robust approach to drainage asset management. The approach must be able to support and inform decision making that address the need to deliver highway maintenance in a way that balances growing service demands with reducing resources.

Since the introduction of the Flood and Water Management Act in 2010, all reported flooding to the Authority is logged and has been risk assessed, each incident has then been screened to see if it was a one-off and resolved, such as a blocked gully or whether repetition is likely. Areas at risk have then been prioritised according to whether incidents are causing internal property flooding, this will form the basis for development of schemes and future bids to Government, where essential criteria are met. Successful bids are allocated funding in a given year and will go forward into the flood risk programme of work.

The vision the strategic approach works towards – to work with our partners in the Borough of Darlington to reduce the risk of flooding to residents and businesses and ensure that flood risk is managed in the most effective and sustainable way – is underpinned by five objectives:

1. To reduce flood risk to communities severely affected by recent flooding
2. To reduce the incidence of surface water flooding
3. To ensure that flood risk is managed in new development
4. To keep our highways safe and passable
5. To deliver wider benefits

2. Introduction

2.1 Legislation

2.2 Flood and Water Management Act 2010

Following the 2007 floods Sir Michael Pitt, commissioned by Government, produced the report 'Lessons learned from the 2007 summer floods'. The Government accepted the 92 recommendations made in the report, and in 2010 the recommendations were transposed into UK Law in the form of the Flood and Water Management Act 2010.

Under the Flood and Water management Act county councils and unitary authorities were given new roles and responsibilities for local flood risk management.

A summary of the new duties and responsibilities;

Information Sharing	All flood risk management authorities must co-operate with each other. The act also provides lead local flood authorities and the Environment Agency with a power to request information required in connection with their flood risk management functions
Managing Flood Risk	<p>A Lead Local Flood Authority is responsible for the management of local flood risk in its area.</p> <p><i>The definition of Lead local flood authority in relation to an area in England means</i></p> <p><i>(a) the unitary authority for the area, or</i></p> <p><i>(b) if there is no unitary authority, the county council for the area.</i></p> <p>Local flood risk is from an ordinary watercourse, surface water or groundwater source.</p>
Investigation of	On becoming aware of a flood in its area, a lead local

Flooding Incidents	flood authority must, to the extent that it considers it necessary or appropriate, investigate. Section 5.3.1 provides further information on the duty to investigate.
Asset Register	Section 21 of the Flood and Water Management Act, to maintain a register of structures and features which are likely to have a significant effect on flood risk in their area.
Designation of features	<p>A designating authority may designate a structure, or a natural or man-made feature of the environment, if the designating authority thinks the existence or location of the structure or feature affects flood risk, or coastal erosion risk.</p> <p>A person may not alter, remove or replace a designated structure or feature without the consent of the responsible authority. A designation is a local land charge.</p>
Land Drainage Consent	The Flood and Water Management Act amends Section 23 of the Land Drainage Act 1991. The powers for provision of consent on an ordinary watercourse transfer from the Environment Agency to the Lead Local Flood Authority. Consenting powers for main rivers remain with the Environment Agency.
Local Strategy	A lead local flood authority must develop, maintain, apply and monitor a strategy for local flood risk management in its area (a "local flood risk management strategy").
Statutory Consultee to the Planning Process	<p>In exercising a flood or coastal erosion risk management function, an authority listed in subsection (3) must aim to make a contribution towards the achievement of sustainable development.</p> <p>From April 2015, the Lead Local Flood Authority became a statutory consultee of the planning process.</p>

2.3 Flood Risk Regulations 2009

The EU Floods Directive defines flood risk:

“the temporary covering by water of land not normally covered by water”

Under the Flood Risk Regulations 2009, each Local Authority is required to produce a Preliminary Flood Risk Assessment (PFRA) for their area. The PFRA for Darlington was produced in 2011 and can be found at

<http://www.darlington.gov.uk/media/98750/2009s0156-dbc-sfra-vol-i-v2-1-0.pdf>

and

<http://www.darlington.gov.uk/media/98751/2009s0156-dbc-sfra-vol-ii-v2.pdf>

2.4 Land Drainage Act 1991

The Land Drainage Act 1991 sets out the powers and responsibilities to different bodies including riparian land owners. Various drainage authorities, such as the Local Authority, Environment Agency and Internal Drainage Boards are granted powers under the Land Drainage Act 1991. There are no Internal Drainage Boards operating in the Borough of Darlington.

The powers under the Land Drainage Act 1991 are permissive and the decision on whether to exercise those powers rests with the relevant authority. The most relevant sections of the Land Drainage Act 1991 to the Local Authority are as follows:

Section 14: The power for a local authority to perform works for the prevention or mitigation of flooding risk other than in connection with a main river.

Section 25: The power to serve notice on persons requiring them to carry out necessary works to maintain the flow of any water course and the power to carry out works in default and recover its reasonable expenses should the riparian owner fail to carry out their responsibility.

2.5 Other Legislation

Flood and coastal risk management is affected by a range of other legislation, policies and non-statutory plans, the most significant of which are listed below:

- The Climate Change Act (2008)
- The Conservation of Habitats and Species Regulations (2001)
- The Civil Contingencies Act (2004)
- The Strategic Environmental Assessment (SEA) Directive (2001)
- The Water Framework Directive (WFD)

2.6 Local Plans

There are a number of other plans relating to flood risk management which have been produced locally either by Darlington Borough Council or the Environment Agency.

- Preliminary Flood Risk Assessment for Darlington (2011)
- Strategic Flood Risk Assessment level 1 and 2 for Darlington (2009 & 2010)
- Catchment Flood Management Plan (Environment Agency)
- Tees Valley Water Cycle Study (2013)
- Tees Valley Investment Plan (Flood Risk Management) (2015)

3. Background

Darlington Watercourses

The major watercourses in the Borough are the River Tees, River Skerne, Cocker Beck, Baydale Beck and West Beck which are all classified as Main Rivers. The main risk of flooding in the borough is fluvial from the river Tees and Skerne and surface water flooding. There are also numerous ordinary watercourses in the Borough, including streams and ditches, both open and culverted.

3.1 Flood Risk in Darlington

There are a number of areas in the Borough, which are at risk of flooding from various sources, but mainly from fluvial, or surface water sources. The plans in Appendix A and B are the Environment Agency's Flood maps; they show the Boroughs risk of fluvial and surface water risk areas respectively. The areas shown on the risk plans may not have a previous history of flooding incidents but are deemed to be at risk due to the topography and their location in relation to water sources.

Some of the key risk areas are shown below;

Location	Risk	Source	Maps
Darlington town centre	Fluvial Surface water	River Skerne	Appendix C
Haughton Road	Fluvial Surface water	River Skerne and surface run-off	Appendix D
John Street	Fluvial	River Skerne	Appendix E
Cockerton	Fluvial Surface water	Cocker Beck, West Beck and surface run-off	Appendix F
Hurworth Place	Fluvial	River Tees	Appendix G
Neasham	Fluvial	River Tees	Appendix H

Hurworth	Surface water	Surface run-off	Appendix I

3.2 Types of Flooding

3.2.1 Main River flooding

River flooding also known as fluvial flooding occurs when levels from the river become so high that they over top or breach their banks or flood defences, if any are installed. Main rivers are usually the larger streams and rivers, but some are small watercourses of local significance, and are shown on the Environment Agencies Main River Map. The Environment Agency are the risk management authority for main rivers and have duties and powers relating to them. In Darlington, The Tees, The Skerne, Cockerton Beck, Baydale Beck, West Beck, Carcut Beck, Kent Beck, Newbiggn Beck, Bishopton Beck and Goosepool Beck are all classified as main rivers.



The River Tees at Broken Scar, Darlington

3.2.2. Ordinary Watercourse flooding

Ordinary watercourses are every river, stream, ditch, sluice or drain, where water flows but are not main rivers (as described in the previous paragraph). The local authority is the risk management authority for ordinary watercourses and has similar powers to the Environment Agency. Flooding can occur when the flows in the watercourse become too great for its capacity, if the watercourse becomes obstructed or it cannot discharge into a main river because the levels in the main river are too high.

3.2.3. Sewerage flooding

Flooding from sewers can originate from several sources including surface water, foul and combined sewers and rivers flooding into the sewerage network. The main causes of sewerage flooding are blockages, defects such as collapsed sewers, mechanical failure such as pumping failures or overloaded sewers (flows are too great for the size of the sewer).

Some combined sewers are designed to discharge an element of flow into watercourses during heavy rainfall events, these discharges are screened and consented by the Environment Agency. Some surface water sewers also discharge into watercourses, sometimes during long periods of wet weather or very heavy rainfall, these outfalls cannot discharge due to the raised level of the receiving watercourse.

3.2.4. Highway drainage

Highway drainage comprises of a network of gullies, pipes and culverts that drain water from roads and footpaths. This system may connect to the sewerage system operated by Northumbrian Water or it may discharge into watercourses or retention facilities such as balancing ponds. Highway drainage can flood from blockages, defects such as collapsed drains, lack of capacity in the system or due to the inability to discharge into a watercourse or balancing pond due to the levels in that body of water being too high.

3.2.5. Culvert issues

A culvert is a covered channel or pipe, and allows the watercourse to flow along its natural path without obstruction by construction of any infrastructure for example a highway. Some culverts have trash screens or 'grids' at either end to prevent obstructions entering the culvert and unauthorised access. These trash screens collect debris and require regular maintenance or in themselves can become a cause of flooding.

3.2.6. Run off

Run off from land or over land flows of water can be a cause of flooding, particularly in situations of prolonged rainfall where ground becomes saturated, or the natural water table is high and also in extreme events where the rainfall is so intense the ground is unable to drain, the water follows the natural topography of the land and will collect at a low point.



Surface water run off near Killerby

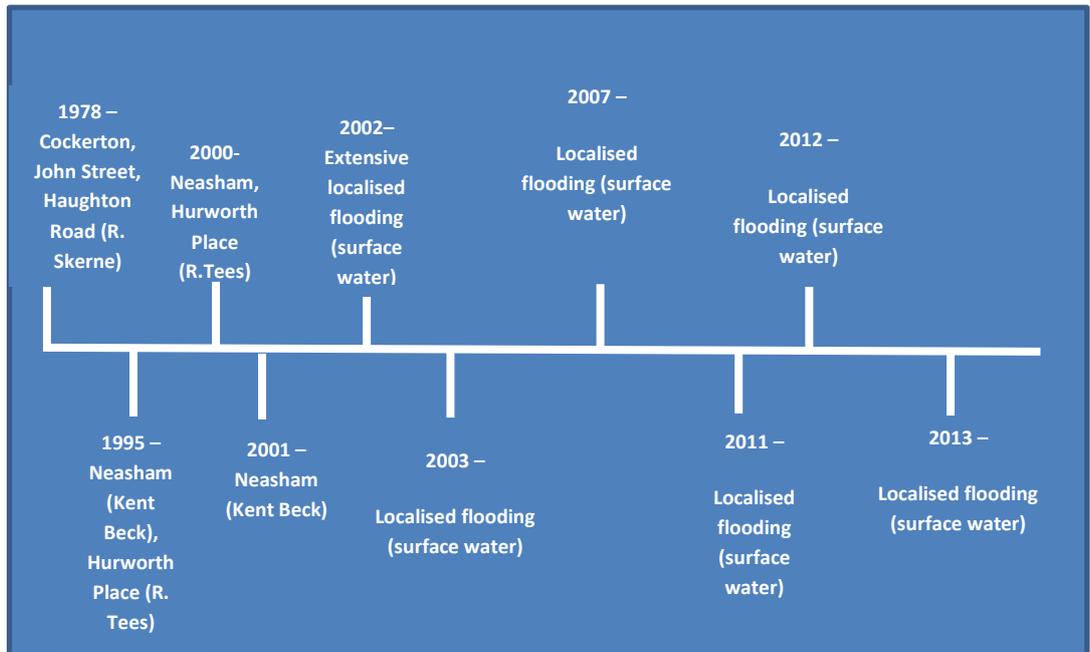
3.2.7. Ground water

Groundwater flooding is the emergence of groundwater at the ground surface away from main rivers or ordinary watercourses, or it can also be the rising of

groundwater into man-made ground, under conditions where the 'normal' ranges of groundwater level and groundwater flow are exceeded.

3.3 History of Flooding

Darlington Flooding Timeline



3.3.1 Kent Beck

Kent Beck, a tributary of the River Tees, has flooded on several occasions affecting a number of properties in Neasham. In 2011 a major new defence was built to reduce the flood risk from this beck.



Flooding in Neasham from Kent Beck – June 2000

3.3.2 River Tees

The River Tees is the largest river flowing through Darlington and has flooded on a number of occasions. Defences have been constructed around Hurworth Place and Neasham.



Hurworth Place – Flooding from the River Tees – June 2000

3.3.3 River Skerne

The River Skerne is a major tributary of the River Tees and flows through Darlington town centre and alongside residential and commercial developments before joining the River Tees at Hurworth. There are defences along the River Skerne and it floods rarely but the impact of it bursting its banks, particularly in the town centre, could be severe.



River Skerne flooding at John Street bridge – December 1978

3.3.4 Localised Surface Water Flooding

Very heavy rain can cause localised surface water flooding to occur almost anywhere in the Borough. When rivers are high this flooding can be more severe as a consequence of the failure of surface water or combined sewers to discharge in to water courses.



Localised surface water flooding at Blackwell, Darlington – August 2011

4. Local Flood Risk Management Strategy

4.1 Purpose

Local Flood Risk Management Strategies: England

A Lead Local Flood Authority for an area in England must develop, maintain, apply and monitor a strategy for local flood risk management in its area.

Local Flood Risk means flood risk from surface water, groundwater and ordinary watercourses

Darlington Borough Council's Flood Risk Management Strategy assesses local flood risk within the Borough and sets objectives for managing this risk. The strategy will detail mechanisms for achieving the objectives and seeks to reduce the risk of flooding to residential properties, businesses and the highway infrastructure.

4.2 National Flood Risk Management Strategy

The National Flood and Coastal Erosion Risk Management Strategy for England; Understanding the Risks, Empowering Communities, Building Resilience is designed to build on existing approaches to flood and coastal risk management and promote the use of a wide range of measures to manage risk. It states that risk should be managed in a co-ordinated way within catchments and along the coast and balances the needs of communities, the economy and the environment.

It is a framework within which communities have a greater role in local risk management decisions and sets out the Environment Agency's strategic overview role in flood and coastal erosion risk management (FCERM). This approach is aligned with the recommendations made by Sir Michael Pitt in his review of the summer 2007 floods. The strategy encourages more effective risk management by enabling people, communities, business, infrastructure operators and the public sector to work together to:

- ensure a clear understanding of the risks of flooding and coastal erosion, nationally and locally, so that investment in risk management can be prioritised more effectively;
- set out clear and consistent plans for risk management so that communities and businesses can make informed decisions about the management of the remaining risk;
- manage flood and coastal erosion risks in an appropriate way, taking account of the needs of communities and the environment;
- ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond effectively to flood forecasts, warnings and advice;
- Help communities to recover more quickly and effectively after incidents.

The strategy shows how communities can be more involved in local flood and coastal erosion risk management. It also emphasises the need to balance national and local activities and funding. In setting out future approaches to FCERM, this strategy considers the level of risk and how it might change in the future, the risk management measures that may be used, roles and responsibilities, future funding and the need for supporting information.

4.3 Other Policies and Strategies relating to flood risk

The River Basin Management Plan, (Northumbria River Basin District, December 2009) is the plan for delivery of the Water Framework Directive in the region. Its focus is to improve the ecological qualities of water bodies (sea, rivers, streams, ponds, etc).

Catchment Flood Management Plans are high-level strategic plans through which the Environment Agency, working with key decision-makers within a river catchment, identify and agree policies for sustainable flood risk management.

Shoreline Management Plans are strategic plans for the long-term management of the coast. There are no plans covering Darlington as there is no coastline to consider.

Strategic Flood Risk Assessment (SFRA); level 1 was produced in 2009 as part of the strategic planning process and informs the Local Development Frameworks/ Local Plan. A Level 2 SFRA was completed in 2010.

Water Cycle Study

The Tees Valley Water Cycle Study objective is to identify any constraints on housing and employment growth, planned for the area up to 2026, which may be imposed by the water cycle and consider how these can be resolved. The main purpose of water cycle management is to make better use of the water that we have, which aligns well with many fundamental FRM concepts (i.e. delaying run off and holding water where it can be tolerated and used).

Preliminary Flood Risk Assessment

The purpose of the PFRA report is aimed at providing a strategic assessment of flood risk from local sources including surface water, groundwater, ordinary watercourses and canals. The report is a high level screening exercise using readily available data held by Darlington Borough Council and partner organisations. The report looks at historical past flood events and considers the potential future flood events that may have a significant consequence on human health, economic activity and the environment including cultural heritage.

Tees Valley Investment Plan

The Tees Valley investment Plan was commissioned in 2014 to develop a Flood Mitigation Investment Strategy for the Tees Valley. The purpose of the plan is to assist the Tees Valley Local Authority's to identify and prioritise locations where efforts should be concentrated when considering surface water flood risk.

The project has involved development, and implementation, of a standardised approach that was applied to each of the five council areas in order to provide each authority with a prioritised list of locations where surface water flood risk is a potential issue.

5. Working together

5.1 Partnership working

Pitt Review – Recommendation 15:

“Local authorities should positively tackle local problems of flooding by working with all relevant parties, establishing ownership and legal responsibility.”

Darlington Borough Council participates in a number of forums along with partners and other Tees Valley Authorities. These forums include;

Tees Valley Strategic Flood Risk Management Partnership

Darlington Borough Council is a member of the Flood Risk Partnership for the Tees Valley. The group is attended by a representative from each Tees Valley Authority, an Elected Member from each Authority, Environment Agency, Northumbrian Water, and the Tees Valley Emergency Planning Unit. The group's terms of reference are to address flood risk at a Tees Valley regional level, emerging legislation, local priorities, cross boundary working and local standards.

NW Liaison Meetings

Darlington Borough Council attends quarterly liaison meetings with Northumbrian Water. The purpose of the liaison meetings is to address any major works programmed by NW or the Council, any potential major developments within the borough and local sewerage and surface water issues.

Local Resilience Forum, (LRF)

The Durham and Darlington Local Resilience forum (LRF) is responsible for emergency planning and civil contingencies across the Durham and Darlington area. The LRF undertakes risk assessments and production of the community risk register, one of which is flood risk. The LRF has produced numerous plans that support co-ordinated action to respond to flooding events, including the Multi-Agency Flood Plan.

Northumbria Regional Flood and Coastal Committee, (NRFCC)

An elected member attends the NRFCC to represent Darlington Borough Council. The Group determines funding applications for flood alleviation schemes and oversees those funded schemes.

Inland Liaison Meeting

The group is hosted by the Environment Agency and is attended by Lead Officers from all the North East Local Authorities and Northumbrian Water, the group's remit is emerging legislation, joint training initiatives, regional issues and best practice.

Northumbria Integrated Drainage Partnership (NIDP)

Northumbrian Water, in partnership with the 13 Lead Local Flood Authorities in the North East of England and the Environment Agency, have developed a strategic level risk based prioritisation methodology and produced a prioritised programme for the delivery of jointly funded integrated drainage studies up to 2020. Each study follows a three stage process (data collection, collation and analysis; options, costs and benefits; and delivery projects and must demonstrate shared benefits before progressing to the next stage. Stages 1 and 2 are jointly funded by Northumbrian Water (50%) and the Regional Flood and Coastal Committee (RFCC) / Local Authorities (50%) with the outputs from the studies providing a robust evidence base in support future business planning. Individual partner contributions to stage 3 (project delivery) are proportionate to the level of benefits received.

Darlington/ Stockton Partnership

Darlington Borough Council have a contract with Stockton Borough Council, where Stockton carries out the Lead Local Flood Authority duties on behalf of Darlington in their Borough. The duties include investigation of flooding incidents, technical advice on planning applications and drainage issues, provision of land drainage consents on ordinary watercourses and development of an asset register. The two Councils are also sharing a resource for ecological advice by using Darlington's Ecologist for advice on sustainable drainage systems.

5.2 Roles and responsibilities

5.2.1 Lead Local Flood Authority

The Lead Local Flood Authority (LLFA) is the unitary authority or if there is no unitary authority then the County Council for the area. Darlington Borough Council is the Lead Local Flood Authority in its area. The LLFA has powers and responsibilities for flood risk management. The role, which includes investigation of flooding incidents under Section 19 of the Flood and Water Management Act 2010 and powers over ordinary watercourses is partly carried out by Stockton Borough Council under contract.

5.2.2 Darlington Borough Council

Darlington Borough Council is the Highway Authority and as such has a duty to maintain the highway under Section 41 of the Highways Act 1980 and has responsibilities for highway drainage.

5.2.3 Environment Agency

The Environment Agency has powers and responsibilities for flood risk management on the main river network (main rivers are defined in paragraph 4.1) and also the sea. This includes providing a flood warning service. The Environment Agency can carry out flood risk management work, such as installation and operation of flood alleviation measures on main rivers, an example of this are defences constructed at Kent Beck, Neasham. The EA maintains flood risk assets such as flood banks to manage water levels and ensure flood water can flow freely. The EA can also carry out work to prevent environmental damage to watercourses or to restore conditions. If a main river becomes blocked by an obstruction then, once notified the EA will remove it.

5.2.4 Northumbrian Water

Northumbrian Water is the water distribution and sewerage company in Darlington. Northumbrian Water is responsible for all public combined, foul and surface water sewers. Following sewerage flooding from these assets Northumbrian water will arrange for the area to be inspected and carry out investigations into the cause of the flooding..

5.2.5 Highways England

Highways England is responsible for the Trunk Road network and associated drainage which includes culverts under Trunk Roads and balancing ponds.

5.2.6 Riparian Landowners

Riparian landowners are those who own land adjoining a watercourse. As detailed in the EA document 'Living On The Edge', riparian landowners have certain rights and responsibilities, including the following:

- They must maintain the bed and banks of the watercourse, and also the trees and shrubs growing on the banks;
- They must clear any debris, even if it did not originate from their land. This debris may be natural or man-made;
- They must keep any structures that they own clear of debris. These structures include culverts, trash screens, weirs and mill gates;

5.3 Duties and Powers

5.3.1 Investigation of Flooding Incidents

Darlington Borough Council as LLFA has the duty to investigate a flood event when considered necessary or appropriate under Section 19 of the FWMA. In practice these investigations are carried out by Stockton Borough Council on behalf of Darlington Borough Council.

Section 19 Local authorities: investigations

- (1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate –
 - a) Which risk management authorities have relevant flood risk management functions, and
 - b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.
- (2) Where an authority carries out investigation under subsection (1) it must –
 - a) publish the results of its investigation, and
 - b) notify any relevant risk management authorities.

Flood and Water Management Act (2010), S.19, c.29, London: HMSO

The Tees Valley authorities through the Tees Valley Strategic Flood Risk Partnership agreed that an investigation for a flood event, is deemed locally significant and considered appropriate, if one or more of the following is affected by flooding:

- 5 or more residential properties;
- 2 or more businesses;
- 1 or more critical services;
- 1 or more transport links (Impassable for 10 Hours or more).

6. Funding

6.1 Flood Defence Grant in Aid

In 2012/13 a new approach to funding of flood alleviation schemes was introduced, based on the outcomes of proposed schemes. Flood and Coastal Resilience Partnership funding, was designed to allow more schemes to proceed and receive some level funding.

A cost-benefit analysis is carried out on the schemes and outcome measures calculated to ascertain the amount of funding a scheme can receive. Where 100% funding is not the outcome additional funding required must be secured through other sources to enable a scheme to proceed.

Local Authorities have the opportunity to bid for Flood Defence Grant in Aid funding and propose schemes for future years. All proposals are assessed and if successful they are allocated to the Medium Term Plan for funding in a given year.

6.2 Local Levy

An annual levy is charged to each Local Authority based on the numbers of properties in its area, within a Council Tax banding. The total sum raised from

all North East Local Authorities is open to bids from the Councils or the Environment Agency and is usually used to match fund Flood Defence Grant in Aid or to fund smaller schemes that would not be eligible for Flood Defence Grant in Aid.

The amount of levy allocated to projects is determined by the Programme and Investment sub group of the RFCC (Regional Flood and Coastal Committee) and endorsed by the full Committee. The Regional Flood and Coastal Committee consists of Elected Members from each Local Authority and attended by Officers from a range of interested organisations.

6.3 Private Funding

Recent changes to Flood Defence Grant in Aid (FDGiA), allows private contributions; private funding enables schemes that are unable to achieve a high cost benefit score, required for full funding from FDGiA, to be delivered. Local businesses, commercial organisations, private individuals, anyone who may benefit from a flood defence scheme may be asked to contribute to make up the shortfall for these schemes.

6.4 S106 Funding – Developer Contributions.

The Town and Country Planning Act 1990, Section 106 allows a local planning authority to enter into an agreement with a landowner/ developer when granting planning permission.

The funding secured through the agreement is used to address issues and support the development through service or infrastructure improvement.

6.5 Community Infrastructure Levy (CIL)

The Community Infrastructure Levy came into force in April 2010. It allows local authorities in England and Wales to raise funds from developers undertaking new building projects in their area. The money can be used to fund a wide range of infrastructure that is needed as a result of development. This includes new or safer road schemes, flood defences, schools, hospitals and other health and social care facilities, park improvements, green spaces and leisure centres.

6.6 Repair and Renew Grant

Following an announcement by the Prime Minister on 12 February 2014, the Repair and Renew Grant (RRG) scheme was established to provide grants of up to £5,000 to homeowners and businesses that have been flooded between 1 April 2013 and 31 March 2014, to implement flood resistance and/ or resilience measures to minimise the impact of any future floods.

One business in the area was eligible and was assisted with the scheme by the Council. The scheme has now closed with all work being completed and funding claimed by October 2015.

6.7 Other Funding

The Council actively seeks grant funding for schemes. All opportunities are considered and where appropriate the Council will submit a bid. Sometimes grants are available purely for flood risk but often we look to fund flood risk improvements along-side other proposals such as highways improvements.

7. What do we want to Achieve?

7.1 Objective 1

To reduce flood risk to communities severely affected by recent flooding

How will we do it?

- Support the Environment Agency and our partners on the NRFCC
- Support residents and businesses with advice, and with grant support where available and appropriate
- Investigate flooding incidents.
- Promote and support community resilience and particularly flood warden schemes
- Develop and maintain good working relationships with risk management authorities

7.2 Objective 2

To reduce the incidence of surface water flooding

How will we do it?

- Inspect and maintain trash screens.
- Continue to populate the asset register of flood risk features
- Inspect on a risk basis ordinary watercourses
- Investigate flooding incidents
- Carry out Incident mapping
- Regulate work on ordinary watercourses
- Designate flood risk features

7.3 Objective 3

To ensure flood risk is managed in new development

How will we do it?

- The Lead Local Flood Authority will be a statutory consultee on major planning applications
- Ensure discharge is appropriately restricted and surface water attenuated on site
- Incorporate sustainable drainage systems into major new development
- Encourage pre-planning discussions with developers
- Promote design standards for sustainable drainage systems.
- Maintain a strong planning policy on avoiding and managing flood risk, based on the role of local authorities in preparing local plans within the National Planning Policy Framework (NPPF)
- Carry out flood risk assessment
- Plan for flood exceedance

7.4 Objective 4

To keep our highways safe and passable

How will we do it?

- Maintain the highway drainage system with a risk based approach.
- Manage the highway verges.
- Highway maintenance
- Flood plan – incident plan for effective deployment of resources
- Plan diversionary routes
- Manage flow paths
- Carry out drainage improvements works
- Upgrade trash screens

7.5 Objective 5

To deliver wider benefits

How will we do it?

- Promote water sensitive urban design
- Promote water quality
- Incorporate amenity benefits into sustainable drainage design
- Contribute to strategic prioritisation of improvements
- Promote partnership working
- Develop community engagement
- Identify, deliver and share innovative projects
- Share best practice

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8. Making it Happen

8.1 Current Schemes

Town Centre Fringe

Modelling work is underway to ensure that as and when development work can be done to Darlington's town centre fringe flood risk reduction is incorporated into the design.

8.2 Maintenance

Maintenance: Highway Gullies

Highway gullies need to be maintained to keep the highway drainage system working correctly. There is currently a two tier maintenance regime in place, whereby each of the gullies are cleaned at least once every 15 months to keep them free from blockage by silt and weed growth. In some areas where gullies are prone to problems they are programmed for routine cleansing twice yearly.

Darlington Borough Council are using data capture to develop strategies to manage and control future flood risk, two main areas being developed are:-

- Maintenance of Highway drainage assets
- Developing the authorities Flood Risk Asset register

In order to manage drainage systems cost effectively, it is necessary to have a robust drainage asset management strategy. The strategy must be able to support and inform decision making that address the need to deliver highway maintenance in a way that balances growing service demands with reducing resources.

Improvements to the drainage asset management systems will allow Darlington Borough Council to quantify the condition of its drainage assets, prioritise maintenance and assess the suitability of those assets to deal with present and future flood and contamination risks. Decisions based on asset management planning principles take wider organisational goals and practises into account and have a greater chance of a successful delivery

The efficiency of a gully cleaning operation can be measured by the number of gullies it takes a team to clean in one day. The effectiveness of the work can be measured by how many of those gullies needed cleaning.

The location of all highway gullies currently maintained by the Authority has been recorded; this information will enable us to target our gully cleansing operations to those areas where we will be most effective in reduce flood risk. The challenge to effective gully cleansing operations is increasing as the numbers of gullies to be cleaned grow due to the number of new developments. DBC are looking to develop a highway maintenance strategy based on need as opposed to cleaning every highway gully once a year irrespective of need or flood risk

The raw data has been captured and analysed, the second phase of the works is to collect and record more detailed information in known areas of flood risk, and this more detailed investigation will record the following information, type of gully, condition of the gully, and silt levels.

The flood risk team will be undertaking surveys of known flood risk areas and will be identifying critical highway drainage assets key to managing the flood risk. All the information gathered by the gully cleansing teams and the flood risk team will determine the future gully cleansing strategy, it will also identify existing highway assets that require upgrading, any replacement programme would be subject to funding.

Trash Screens

Trash screens (also known as grids) are frequently used on the inlets and outlets of culverts, for the purpose of catching debris to prevent it from travelling into the culvert and causing blockage, and also to prevent unauthorised access into a culvert which can become a dangerous place where children might decide to play.

The trash screens classified as 'red' are high risk in terms of flooding will be assessed to see if a scheme can be developed to reduce the risk of flooding on that particular culvert, subject to funding becoming available. If this is not

possible then additional inspections may be considered to ensure that the screens are clear of debris.

Other screens may be assessed to see if they are required for safety reasons, following a risk assessment the screen may be removed to reduce flood risk. On occasions screens on new developments, may also be subject to the same risk assessment.

8.3 Asset Register

Darlington Borough Council is in the process of producing a flood risk asset register that accurately records its flood risk assets, (these are mainly culvert inlet and outlet trash screens), the register records the exact location and condition of the asset. All of the assets have been assessed for flood risk, based on the probability of the culvert blocking and the extent of the damage caused if the culvert was to block all of the grids will be classified Red, Amber or Green based on the risk. This information will form the maintenance / inspection regime for all of our flood risk assets, all trash screens classified Red will be inspected on receipt of a weather warning, during an adverse weather event and after the extreme event has subsided. The Asset Register is an on-going project with watercourse inspections being carried out when conditions are appropriate.

8.4 Development Management

The National Planning Policy Framework (NPPF) sets out the Government's policy that planning should proactively help mitigation of, and adaptation to climate change including the management of water and flood risk. The NPPF states that when determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and gives priority to the use of sustainable drainage systems.

On the 15th April 2015, Lead Local Flood Authorities became statutory consultees of the planning process, with the commencement of the final part of the Flood and Water Management Act 2010. This means the LLFA is now

consulted on all major planning applications (10 or more properties). The Act changes the previous right of a developer to connect surface water discharge to the public sewerage system and makes it conditional on meeting new standards, as follows;

Surface water not collected for use must be discharged to one or more of the following, listed in order of priority:

- 1. Discharge into the ground (infiltration); or where not reasonably practicable,*
- 2. Discharge to a surface water body; or where not reasonably practicable,*
- 3. Discharge to a surface water sewer, highway drain or another drainage system; or where not reasonably practicable,*
- 4. Discharge to a combined sewer.*

Discharge into a water body will also need to be attenuated to prevent a risk of flooding. The attenuation can take many different forms from ponds, swales and basins to oversized pipes and attenuation tanks.

The Department of the Environment Flood and Rural Affairs (DEFRA) has developed national standards in order to manage surface water run-off in accordance with the Act. The National Standards are a very high level guide to design, construction and maintenance of sustainable drainage systems.

To assist developers in the local area the five Tees Valley Authorities have produced a design guide of local standards for the design, construction and maintenance of SUD's, although occasional slight variations between authorities may occur, where local policy dictates.

Pre-Application Advice

Engagement with a developer at an early stage is preferred, as this can address a lot of the potential problems and the developer will be able to design the site with reference to the blue/green corridors. This is especially important where a natural SUDs design is proposed.

Information for Assessment

When assessing major planning applications, the information detailed below is considered. The more information submitted at an earlier stage, the more efficient the approval process. It is possible to condition some information but key information such as discharge points and rates must always be agreed, prior to approval;

- a. Flood risk assessment and drainage strategy
- b. Detailed site layout at an appropriate scale, with North point
- c. Topographical survey of the site, including water course cross-sections and proposed discharge points and rate. It is helpful to highlight the blue corridors.
- d. Plan of drainage system and catchment areas, including impermeable areas and phasing.
- e. Full design calculations and design parameters. The design must demonstrate conformance with the local standards.
- f. Provision of Micro Drainage/ WinDes (mdx) files to assess the proposed drainage design.
- g. Long-sections and cross sections for the proposed drainage systems, at an appropriate scale
- h. Construction details.
- i. Details of connections (including flow control devices) to watercourses, sewers, highway drains and SUD's
- j. Details of off-site works and any necessary consents.
- k. Operational characteristics of any mechanical or electrical components, including maintenance and energy requirements.
- l. Plan demonstrating flooded areas for the 1 in 100 year event plus climate change (30%), if system is at capacity and flow paths for exceedance.
- m. Access arrangements for maintenance.
- n. Landscape planting scheme.
- o. Proposals for pollution control
- p. Plan for management of construction and programme
- q. Health and Safety Plan
- r. Maintenance plan and costs.
- s. Agreement for the long-term maintenance of the system

8.5 Strategic prioritisation

Strategic Prioritisation is a partnership project between Northumbrian Water and local authorities. The purpose of this project is to establish a proactive cross party process and procedure in order to:

- Create a template of how we can work together in our communities to understand current and future sewerage issues.
- Establish and implement data share and communication protocols.
- Produce and apply a methodology that can be used to risk rank locations for more detailed studies.
- Promote integrated sustainable drainage solutions.
- Promote 'best possible' service to both customer and the environment.
- Provide risk based evidence to inform future business planning requirements.

NW Drainage Areas (DA) are ranked at a strategic level, where necessary and appropriate the partners engage in studies of those high ranking drainage areas, which will form a basis for future investment.

8.6 Flood Risk Programme

Since the Flood and Water Management Act commenced in 2010, Darlington Borough Council has kept records of all reported flooding within the Borough. The flooding incidents have been assessed and any unresolved incidents have been prioritised. High priority incidents will be investigated in more detail for potential schemes. When a scheme is identified this will be flagged up to the Environment Agency with a funding bid and entered onto the medium term plan.

Incidents are prioritised according to where the flooding occurs, the frequency and disruption caused; high risk areas are also assessed. High priority is always given to frequent internal property flooding, where bids for funding stand a greater chance of success. It is not possible to bid for funding for external flooding, though the incidents are recorded for monitoring purposes and advice can be given to residents who are affected.

Incidents are also compared against Northumbrian Water's drainage areas to check if there are any opportunities for a joint study.

8.7 Flood Plan

A Multi- Agency Flood Plan outlines the combined response on the part of relevant agencies to flooding incidents within County Durham and Darlington. The plan provides a mechanism for co-ordinating the multi-agency response. It is regularly reviewed and exercised to ensure that it remains relevant.

8.8 Innovation

The Council is committed to looking at alternative means of reducing flood risk. Natural flood risk management is the alteration, restoration or use of landscape features to reduce the risk of flooding.

The aim is to reduce the amount of water travelling downstream at the peak of the event and allowing it to be released more slowly by restricting the progress of water through a catchment. They rely on either one, or a combination, of the following techniques:

- **Storing water** - using ponds, ditches, channels, reservoirs or flooding land.
- **Slowing the progress of water through the catchment** – this can be done by planting in the channel or on flood plain land.
- **Infiltration** – free draining soils will allow infiltration and potentially reduce surface water run-off.
- **Interrupting the flow of water** – through natural dams, ponds, introducing meanders or planting.

The Environment Agency has used this natural flood risk management strategy for a scheme in Belford, Northumberland where the rural village was hit by severe flooding.

Many flooding incidents are caused when the amount of rainfall exceeds the capacity of a drainage system, this is more apparent in extreme events, where a

drainage system is working properly however cannot take the amount of rainfall, causing flooding. It isn't possible to design a drainage system that can meet demand for all extreme events; therefore it is important to look at other ways of reducing the amount of water going into a system. One method of this is to engage the community in water usage, for example a large number of properties installing water butts and the residents using the water on their gardens. For this method to be successful it needs the participation of a number of residents in a particular area.

This approach has been trialed in the Gresham area of Middlesbrough and recently through Project Downpour in Darlington; to date there is not enough information to confirm the success of the projects however any number of residents taking part is seen as a positive contribution however small.

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9. Sustainability

9.1 Sustainable Drainage

Sustainable drainage systems are now the preferred approach to managing rainfall from hard surfaces and can be used on any site. There are many different SUDS features available to suit the constraints of a site. These features include green roofs, and more natural features such as ponds, wetlands and shallow ditches called swales. Hard engineered elements are often used in high density, commercial and industrial developments. These include permeable paving, canals, treatment channels, attenuation storage and soakaways. In well-designed SUDS a number of different features are provided in sequence, which is known as the management train.

The primary purpose of SUDS is to mimic the natural drainage of the site prior to development. This is achieved by capturing rainfall, allowing as much as possible to evaporate or soak into the ground close to where it fell, then conveying the rest to the nearest watercourse to be released at the same rate and volumes as prior to development. Along the way any pollutants, such as metals and hydrocarbons from roads and car parks, are reduced. Water entering a local watercourse is therefore cleaner and does not harm wildlife habitats. SUDS generally replace traditional underground, piped systems that use grates or storm water drains at street level. If the water is kept on the surface as much as possible the SUDS can provide valuable amenity asset for local residents and create new habitats for wildlife. This also means that any problems with the system are quicker and easier to identify than with a conventional system and are generally cheaper and more straightforward to rectify. SUDS will become increasingly important to control surface water as rainfall increases because of climate change. They can also provide other benefits in developments such as passive cooling, which will again help mitigate any increase in temperatures due to climate change.

When choosing which type of SUDs system to install the developer must consider the ground conditions and the maintenance liabilities. In Darlington the vast majority of the area is covered by dense clay soils which do not lend themselves to infiltration methods. Due to this and the potential difficulties in maintaining soakaways, leading to an increase in flood risk in future years the

Council does not generally support this as a suitable method of drainage within the Borough. It is recommended that the developer considers low maintenance SUDs. All major proposals in the Borough when submitted for planning approval are expected to be accompanied by a SUDs proposal including a maintenance plan or a condition will be imposed requiring this.

A number of options are available for maintaining SUDs schemes. These include the maintenance to be carried out by the local authority, water and sewerage company or the developer (including a management company on their behalf). Due to financial constraints and a lack of clarity regarding funding arrangements, the Authority generally do not accept maintenance responsibility for SUDs.

To provide more information and technical guidance on SUDs techniques, the five Tees Valley Authorities (Middlesbrough Council, Stockton Borough Council, Darlington Borough Council, Redcar and Cleveland Council and Hartlepool Borough Council) have jointly produced a Design Guide and Specification for use by developers.

9.2 Water Framework Directive (WFD)

The European Water Framework Directive came into force in December 2000 and became part of UK law in December 2003. WFD establishes a strategic framework for managing the water environment. It requires a management plan for each river basin to be developed every 6 years. WFD offers a unique opportunity to integrate flood risk management with other aspects of river/watercourse management. WFD however does include some derogation for flood risk management but stringent assessments must be carried out to ensure that there are no better environmental alternatives to the proposed scheme.

As part of WFD all water bodies need to reach either Good Ecological Status (GES) or Good Ecological Potential (GEP) in the case of artificial or heavily modified water bodies by 2027. Local authorities and other public bodies are required to provide information and “such assistance as the Environment Agency may reasonably seek in connection with its WFD functions”.

Additionally, Local Authorities, along with other public bodies, have a general responsibility not to compromise the achievement of UK compliance with EU Directives, including the WFD.

10. Review of the Local Strategy

It is anticipated that the local flood risk strategy will be reviewed every five years and the objectives will be reviewed on an annual basis.

If the Borough is subject to any severe flooding incidents, the incident will be investigated under section 19 of the Flood and Water Management Act. If the outcome of that investigation has any bearing on the contents of the local strategy, then the strategy will be reviewed based on recommendations from the investigation.

11. Glossary of terms

	Definition
Catchment	The catchment is the total area of land draining into a watercourse or other drainage system
Climate Change	This is a long term change to weather patterns, it is predicted that climate change will produce more frequent and severe weather events, such as heavy rainfall leading to flooding. This is why drainage calculations include a factor for climate change.
Critical Infrastructure	This is infrastructure which is vital to the communities it serves, critical infrastructure includes a range of buildings such as hospitals and schools, major transport links and utility services such as electricity substations and water treatment works.
Environment Agency (EA)	An executive non-departmental public body, sponsored by the Department for the Environment, Food and Rural Affairs (DEFRA). Working to create better places for people and wildlife, and support sustainable development. The EA has a strategic overview role in flood risk management.
Exceedance Flow Routes	Excess water that appears on the surface when all the capacity in the drainage systems have been exceeded. It is important to understand where this water will flow to in an extreme event.
Flood Defence Grant in Aid (FDGiA)	Central Government funding stream for flood alleviation schemes. Local Authorities and the Environment Agency can bid for FDGiA funding.
Flood Map for Surface Water (FMfSW)	Flood maps produced by the Environment Agency which give a broad indication of areas that may be at risk from surface water flooding. Based on topography the maps show where water would be likely to flow or pond.

Flood Risk Regulations	Legislation that transposed the European Floods Directive (2009)
Flood and Water Management Act 2010 (FWMA)	Following the 2007 floods Sir Michael Pitt, commissioned by Government, produced the 'Lessons learned from the 2007 summer floods'. The Government accepted the 92 recommendations made in the report, and in 2010 the recommendations were transposed into UK Law in the form of the Flood and Water Management Act 2010.
Fluvial	Referring to rivers, fluvial flooding is excess water leaving a river channel and flooding adjacent land.
Highways England	Highways England is responsible for the Trunk Road network and associated drainage which includes culverts under Trunk Roads and balancing ponds.
Lead local Flood Authority (LLFA)	LLFAs are county councils and unitary authorities, who have a number of duties and responsibilities for flood risk management, under the Flood and Water Management Act 2010.
Local Flood Risk	Flood risk from surface water, groundwater and ordinary watercourses.
Local Levy	A levy on local authorities which is collected regionally and pooled, it is used to fund flood alleviation measures.
Local Resilience Forum (LRF)	The Local Resilience forum (LRF) is responsible for emergency planning and civil contingencies across Durham and Darlington.
Main River	Watercourses that are designated as such on the main river map. Generally the larger watercourses, for which the Environment Agency has flood risk management responsibilities.
National Planning Policy Framework (NPPF)	National Planning Policy Framework (NPPF) maintains strong planning policy on avoiding and managing flood risk, based on the role of local authorities in preparing local plans
Ordinary Watercourse	Ordinary watercourses are every river, stream, ditch, sluice or drain, where water flows but are not main rivers

Pioneer Maintenance	Extensive maintenance over and above the normal requirements of routine maintenance
Pitt Review	An independent review of the summer flooding in 2007, which affected large parts of the UK.
Pluvial Flooding	Flooding caused by surface water run-off or overland flows.
Preliminary Flood Risk Assessment (PFRA)	A strategic assessment of flood risk from local sources including surface water, groundwater, ordinary watercourses and canals.
Property Level Protection (PLP)	Flood protection measures on a property, examples include; Flood doors, gates, one-way air brick covers, waterproofing etc.
Riparian Owner	Riparian landowners are those who own land adjoining a watercourse. As detailed with the EA document 'living on the Edge', riparian landowners have certain rights and responsibilities
Risk Management Authority (RMA)	An Authority with powers and responsibilities for managing flood risk, the Environment Agency, Lead Local Flood Authorities and Water and Sewerage Companies are all risk management authorities.
Strategic Flood Risk Assessment (SFRA)	Part of the strategic planning process and informs the Local Development Frameworks/ Local Plan.
Sustainable Drainage System (SUDs)	A drainage system designed to mimic natural drainage and reduce the potential impact from new or existing developments, with respect to surface water drainage discharges.
Trash Screen	The screen fixed to the inlets and outlets of culverts to prevent large objects or persons from entering them.
Water Cycle Study	Study objective of the WCS is to identify any constraints on housing and employment growth, planned for the area up to 2026, which may be imposed by the water cycle and how these can be resolved.
Water Framework Directive (WFD)	The European Water Framework Directive came into force in December 2000 and became part of UK law in December 2003. WFD establishes a strategic framework for managing the water

	environment
Water and Sewerage Company (WaSC)	The private companies responsible for water distribution and sewerage operations within a given area. In Darlington Borough this is Northumbrian Water.

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12. Useful Links

FloodLine 0845 988 1188

<https://fwd.environment-agency.gov.uk/app/olr/home>

River Levels <http://www.environmentagency.gov.uk/homeandleisure/floods>

Flood Warnings

<http://www.environment-agency.gov.uk/homeandleisure/floods/31618.aspx>

Warning Areas

<http://maps.environment->

[agency.gov.uk/wiyby/mapFromCMSCodes?topic=fwa&lang=e&codes=121WAF925&layer](http://maps.environment-agency.gov.uk/wiyby/mapFromCMSCodes?topic=fwa&lang=e&codes=121WAF925&layer)

[Group=2](#)

Darlington Borough Council

<http://www.darlington.gov.uk/environment-and-planning/rain-and-flooding.aspx>

Environment Agency

<https://www.gov.uk/government/organisations/environment-agency/services-information>

Northumbrian Water

<https://www.nwl.co.uk/>

The National Flood Forum

<http://www.nationalfloodforum.org.uk/>

Tees Valley Authorities Local Standards for Sustainable Drainage

<http://www.middlesbrough.gov.uk/index.aspx?articleid=1668>

CIRIA

<http://www.ciria.org/>

SusDrain

<http://www.susdrain.org/>

13. References

National Flood and Coastal Erosion Risk Management Strategy – *Environment Agency*

Preliminary Flood Risk Assessment - *Darlington Borough Council*

Strategic Flood Risk Assessment L1 & 2 - *Darlington Borough Council*

Living on the Edge – *Environment Agency*

Thank you to the Environment Agency for use of the flood maps

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14. Contacts

Darlington Borough Council

Economic Growth	01325 406306 (Office hours) (For more information on this strategy or other information on Flood Risk Management)
Customer Contact Centre	01325 405222 (Office Hours) (To report flooding in your area)
Out of Hours	07860 809115 (out of hours) (To request sandbags or other support in respect of flooding)

<http://www.darlington.gov.uk>

Environment Agency

Flood Line	0845 988 1188 (To sign up to receive flood alerts and warnings in your area)
Incident Hotline	0800 80 70 60 (24 hours)

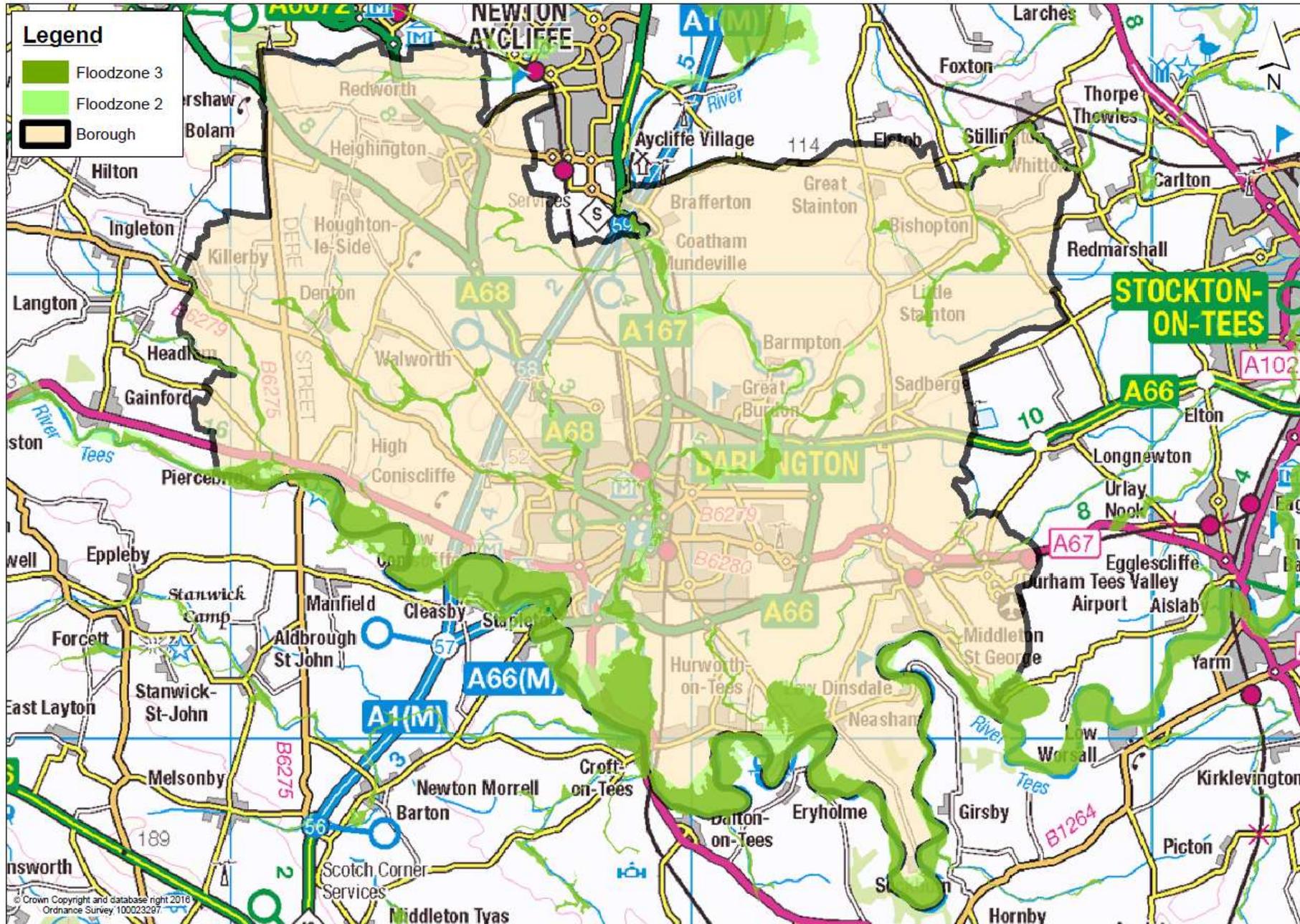
<http://www.environment-agency.gov.uk>

Northumbrian Water

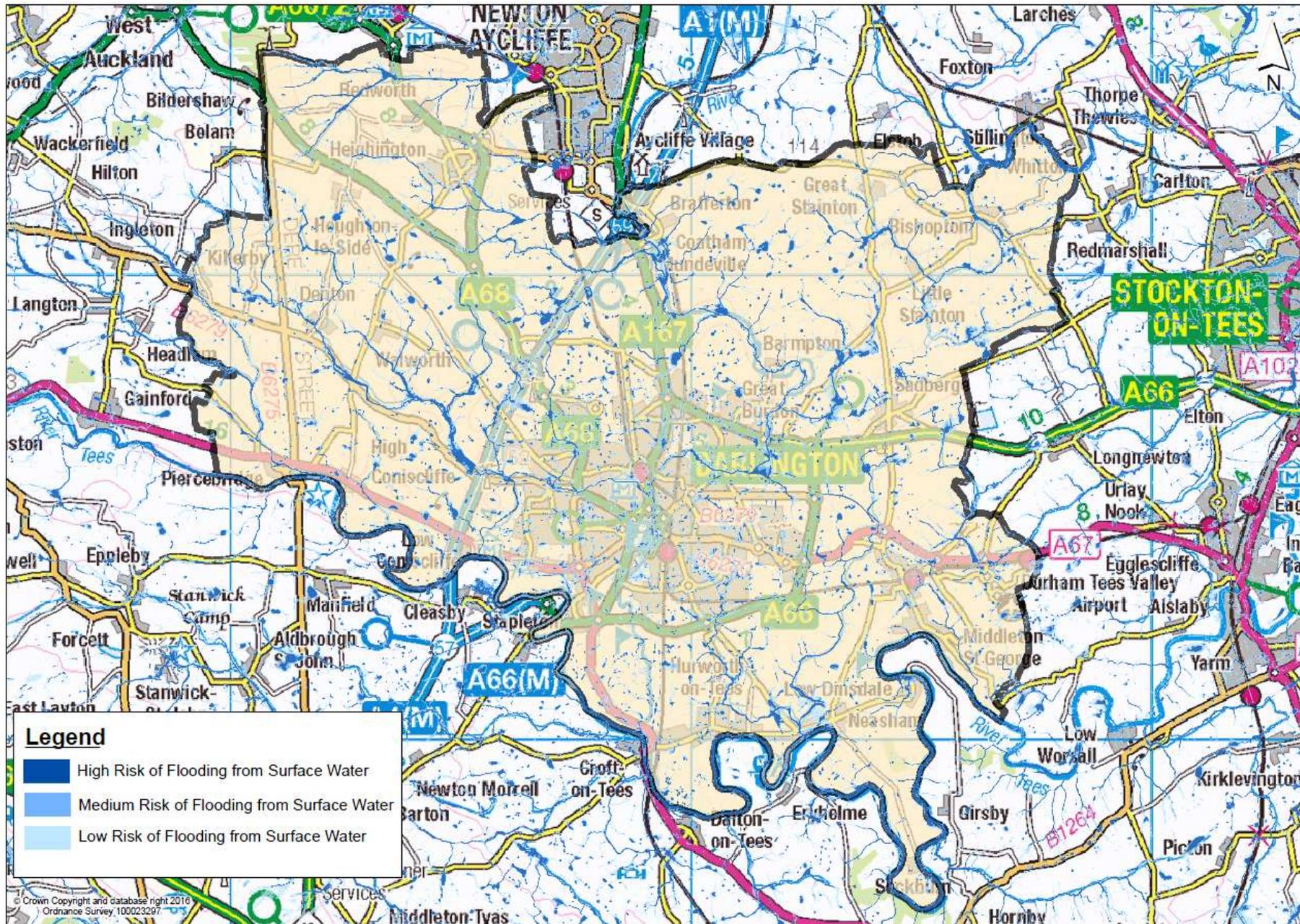
Customer Contact Centre 0800 328 7648 (24 hours)

<http://nwl.co.uk/your-home/your-services/sewer-flooding.aspx>

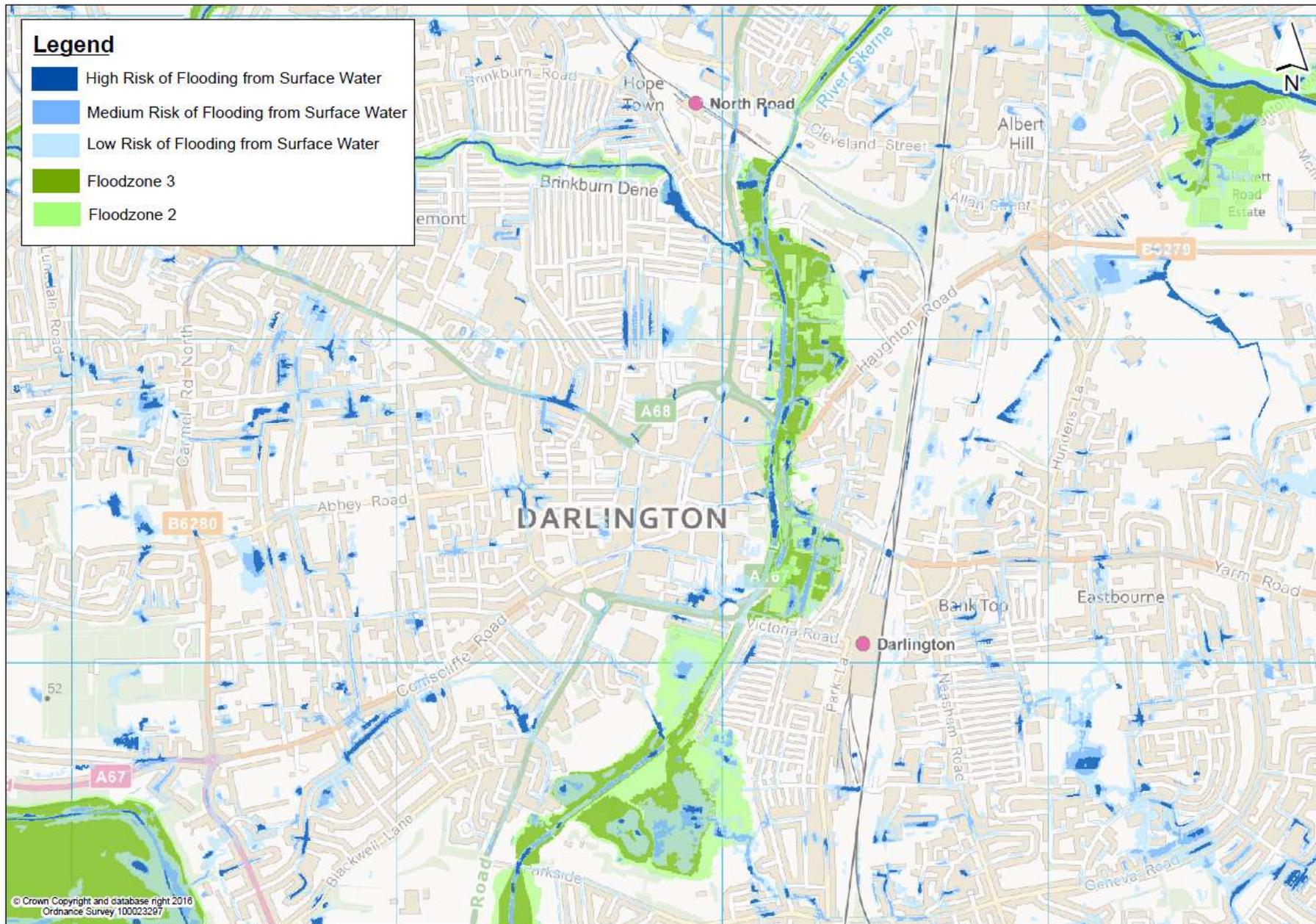
Appendix A - Darlington Borough Flood Zones



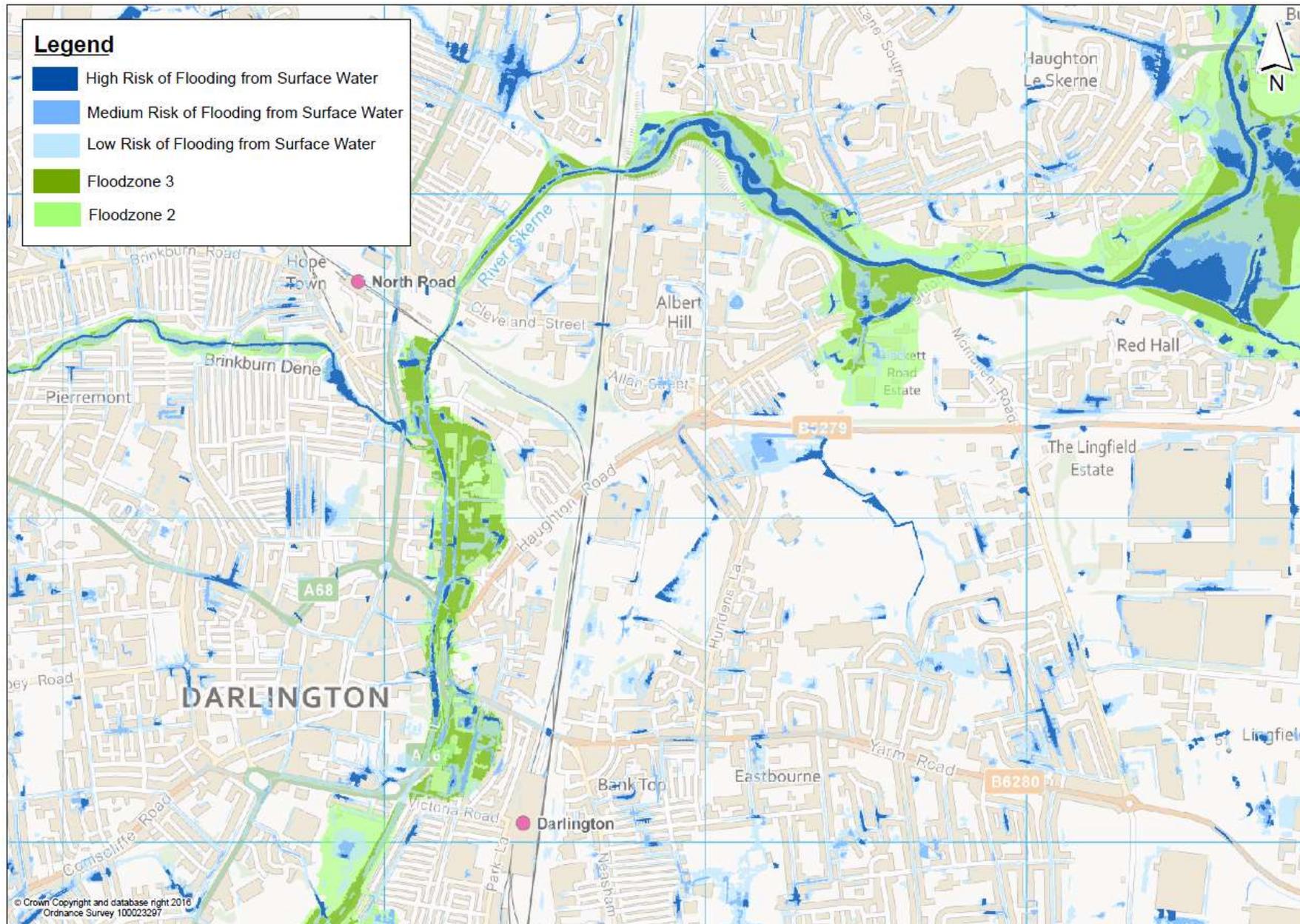
Appendix B – Darlington Borough Surface Water Flood Risk



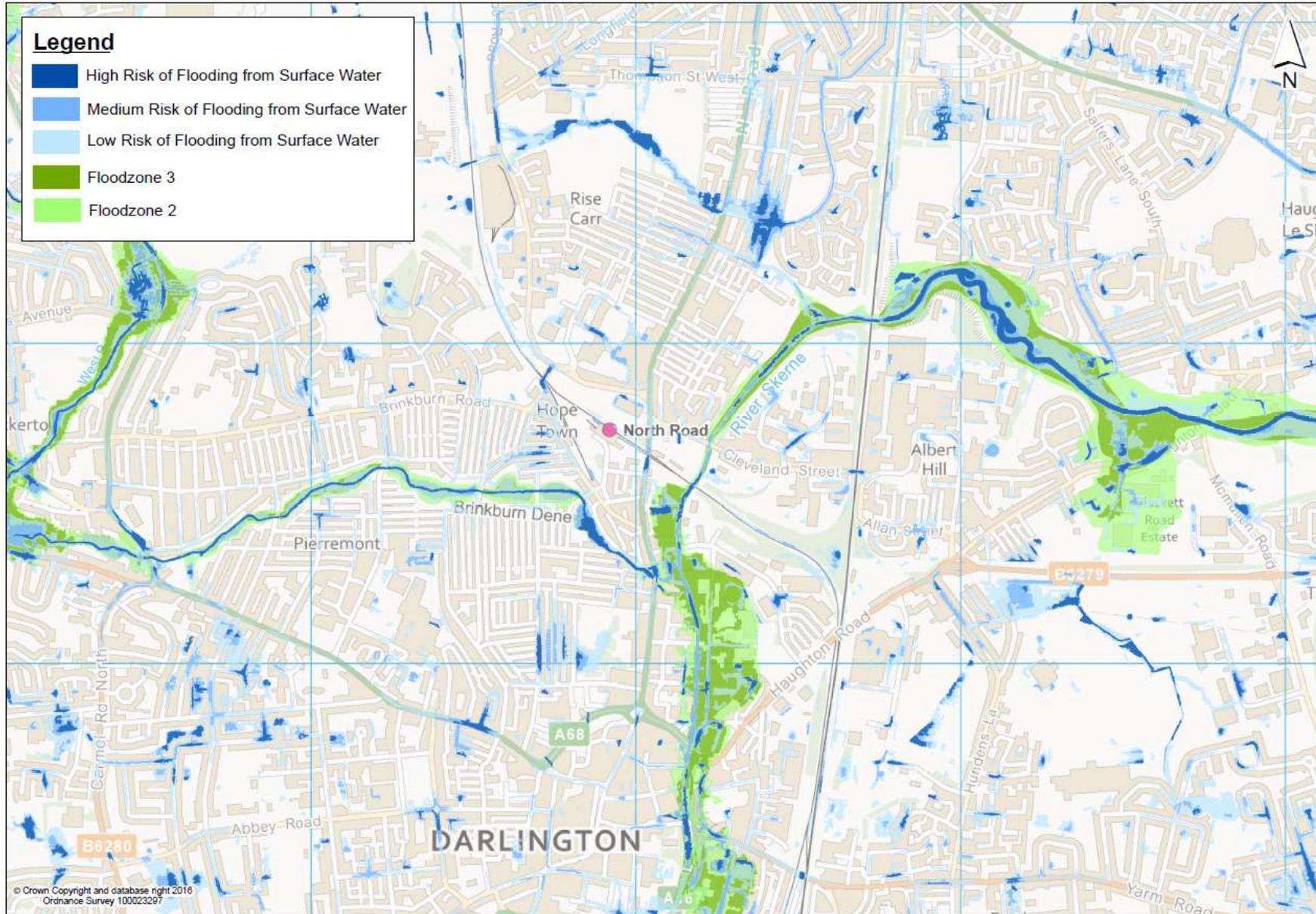
Appendix C – Darlington Town Centre



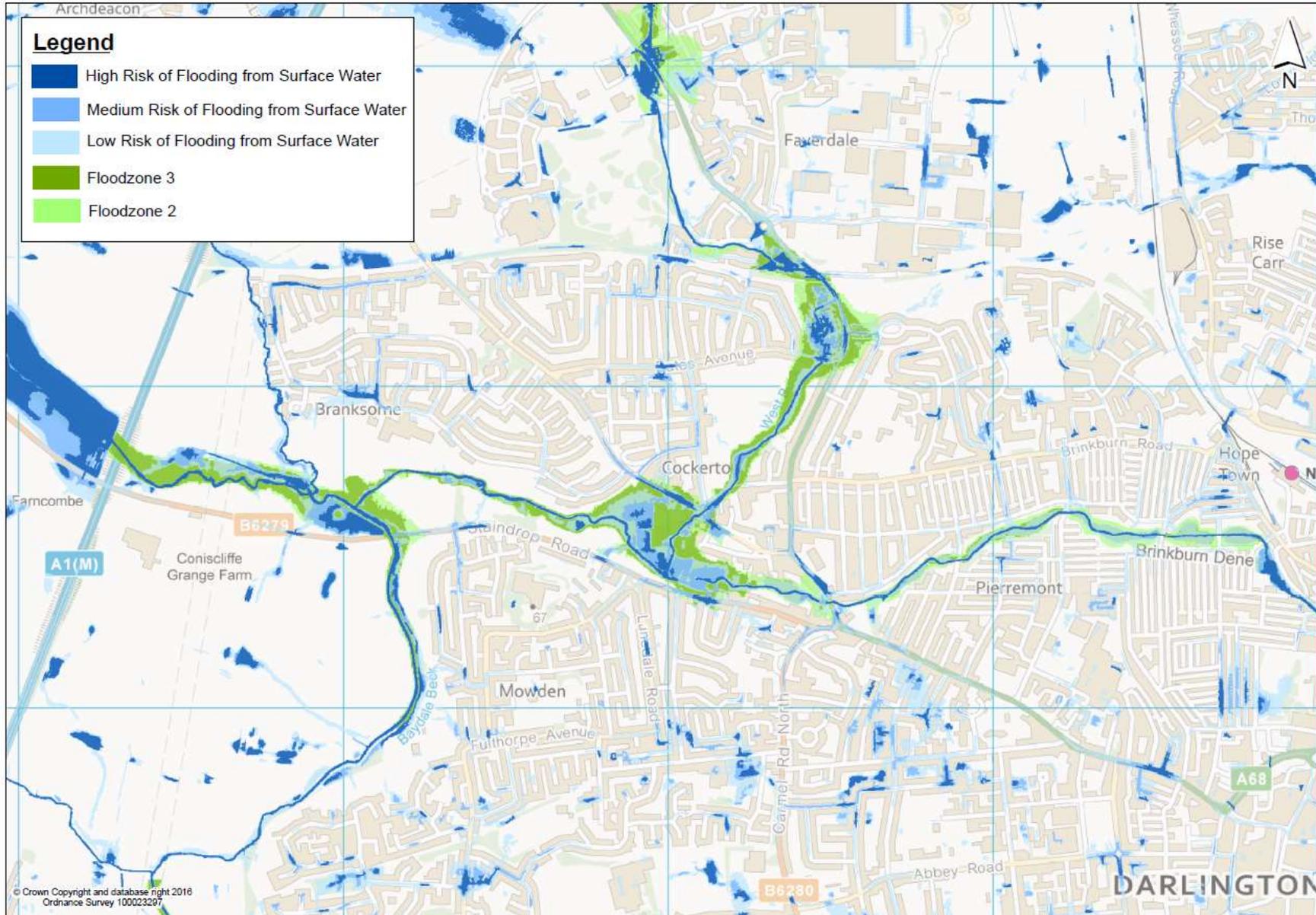
Appendix D – Haughton Road



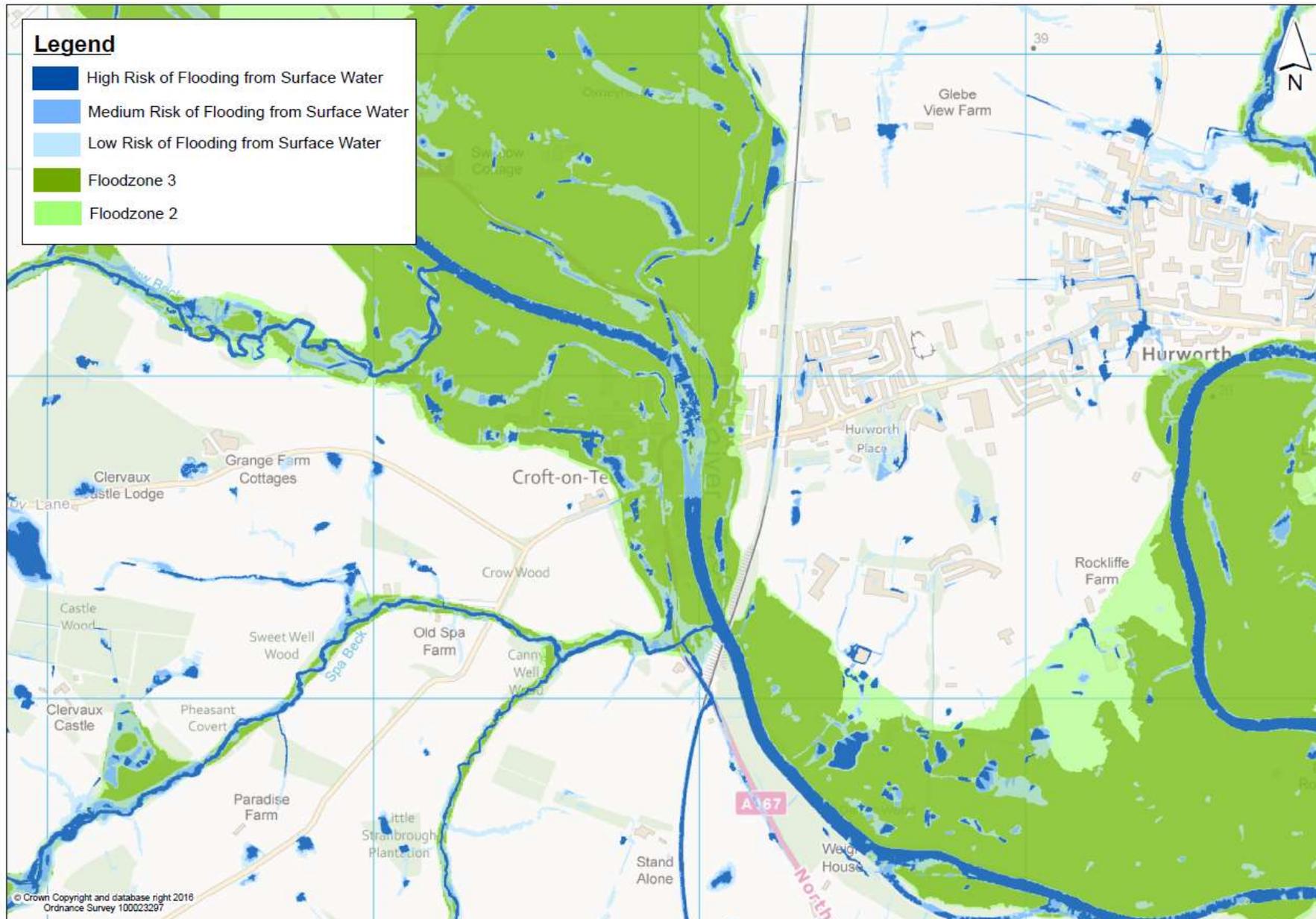
Appendix E – John Street



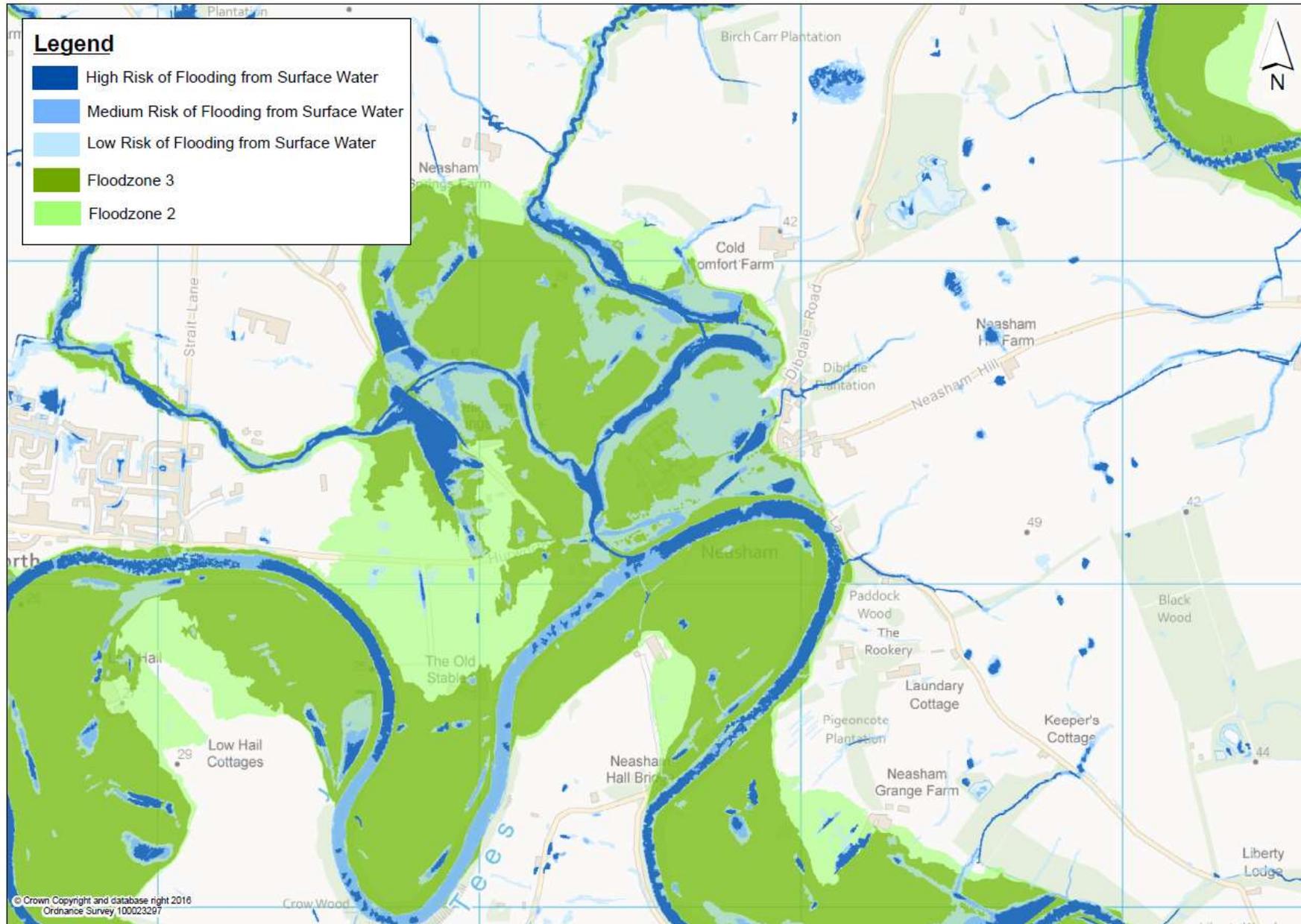
Appendix F – Cockerton



Appendix G – Hurworth Place



Appendix H – Neasham



Appendix I – Hurworth

