

# The Morpeth Neighbourhood Plan



## Environmental Technical Report By Environment Topic Group June 2013

### Contents:

	page
Preamble	1
Vision	2
Green Infrastructure	2
Flooding	11
Access	20
Building in Sustainability	22
Appendix: Flood Case Histories	26

## Morpeth Neighbourhood Plan

Local Environment Technical Report

June 2013

### 1 Preamble

1.0.1 The Morpeth Neighbourhood Plan Area covers the town of Morpeth and the surrounding parishes of Pegswood, Hepscoth, Hebron and Mitford. The initial approach taken in preparing the Plan has been to consider the local environment in all its aspects together with history and heritage of the area as the 'place shaping' elements that generate the distinctive character of the area, whilst the demand for housing and the pressure for economic growth have been perceived largely as external forces to be managed.

1.0.2 The initial launch events in October 2012 were free format inviting general comment but were largely channelled into these four themes of Housing, Local Economy, Local Environment and Heritage, which subsequently became the initial four Topic Groups.

1.0.3 A total of 153 comments were assigned to 'Local Environment', and these along with further comments ongoing received through the website, by email and by post have been allocated into a number of themes:

- **Flooding:** Not surprisingly, the greatest number of comments concerned flooding. Many raised issues about the current EA town centre flood defences but a significant number highlighted instances of flooding and flood risk that will not be addressed by the current scheme.
- **Trees & Woodland, Green Spaces, Wildlife:** The second most frequent comments concerned woodlands, street trees, the importance of green spaces, the river and burns to the character of Morpeth, and the need to maintain an environment capable of supporting wildlife. These issues are addressed in the section headed 'Green Infrastructure'
- **Green Belt:** The importance and urgency of finalising Green Belt designation around Morpeth was highlighted in comments. This will be addressed through the NCC Northumberland Local Plan with which the Neighbourhood Plan process is engaging.
- **Access:** The poor state of footpaths and pavements was raised, as were various aspects of car parking. And the need for circular walks and bridle paths was mentioned.
- **Quality of Environment:** One or two comments highlighted how the 'quality of the environment' is one of Morpeth's and Northumberland's key strengths but others felt it was not sufficiently valued or safeguarded.
- **Energy, Sustainability, Built Environment:** Comments for and against various forms of renewable energy were received, but this was against a background of views arguing that any development should be sustainable.
- **Litter, Education, Community Facilities:** A number of other comments raised more immediate issues than a Neighbourhood Plan can address

and these were referred to the relevant town or parish councils or other appropriate organisations.

1.0.4 The work of the Local Environment Topic Group has therefore followed four strands: Flooding beyond the town centre; Green Infrastructure; Active Travel for Leisure (with other aspects of active transport referred to the Transport Group); and Sustainability.

## **2 Vision**

2.0.1 Feedback from the launch events, from the Environment Topic Group and from the 'visioning' workshop facilitated by Colin Haylock for CABI all concludes that Morpeth and the surrounding area is a very attractive, pleasant place to live with a high intrinsic 'quality of life'. There is a strong feeling that high quality of the local environment is a strong factor in making Morpeth such a 'special' place.

2.0.2 It is generally agreed that Morpeth has a 'special character' which makes it a 'nice place' in which to live or work, or visit. And that 'special character' is what drives the housing market and the visitor economy, but is in turn vulnerable to those forces and needs to be protected like 'the goose that lays the golden eggs'. It is harder to define individual aspects of the natural environment on which this 'special character' turns, and their relative importance is likely to vary from person to person.

2.0.3 Aspects that have been highlighted include:

- the essentially rural setting of the market town and villages
- the green, open aspects of all approaches to the town
- the character of the river upstream, through the town and downstream of Morpeth
- Carlisle Park, especially the way it combines well-tended and wooded areas
- the woodland embedded in the town
- the well-established street trees
- the open green spaces
- the wildlife corridors
- the panoramic views – landscapes, townscapes and treescapes

2.0.4 However, to address these piecemeal may well lead to the loss of the whole, so the overall vision for the Neighbourhood Plan must recognise the overall value of the local environment to the town.

## **3 Green Infrastructure**

### **3.1 Definition:**

3.1.1 Green Infrastructure is a catch-all planning term for non-built features. It derives originally from urban planning where space for the natural environment has to be 'planned in' to avoid it being ignored. It can cover anything from children's play areas, playing fields and allotments to

conservation areas; SSSI's and woods to river corridors, hedgerows and street trees. Morpeth and the wider Plan area has all of these and more, and hopefully they are not in danger of being 'planned out' but they are in need of recognition and protection, so the term has been adopted.

### **3.2 Planning Context:**

3.2.1 The emerging Northumberland Core Strategy<sup>1</sup> sets out a strategic green infrastructure framework:

#### *Policy 54 Green Infrastructure*

*The contribution of strategic and local green infrastructure to the health and well-being of Northumberland's communities and to its economy should be recognised in all relevant plans and planning decisions. Development proposals should seek to protect, improve and extend Northumberland's green infrastructure network, where appropriate. Consideration will be given to how development proposals:*

- a. Protect and enhance strategic and/or local green infrastructure assets, provide high quality links between existing assets including links with green infrastructure networks in adjacent authority areas and/or provide additional uses for multi-functionality;*
- b. Secure improved access to green infrastructure, including rights of way, cycle routes and bridleways and high quality provision for the widest possible range of ages, abilities and interests;*
- c. Improve the potential of green infrastructure to support economic growth and sustainable tourism without detriment to the protection of vulnerable environmental and heritage assets;*
- d. Create a sense of place by fully integrating high quality, green infrastructure into the plan or proposal design to reflect locally distinctive character having regard to rural and urban character, open space, connective corridors and links with the wider countryside;*
- e. Consider the management and maintenance of new and existing green infrastructure throughout and beyond the plan period; and*
- f. Provide opportunities for communities to protect local environments that are important to them, for example through Local Green Space or Local Nature Reserve designations.*

Local Green infrastructure policy and designations should flesh out this framework, while other local policies and development proposals need to be steered towards the win-win integrated solutions implicit in the Core Strategy framework.

### **3.3 Landscape Character:**

3.3.1 Castle Morpeth Borough and Alnwick District Councils commissioned Axis to carry out a landscape character area study in 2005 as part of their respective Local Plan evidence base. The Neighbourhood Plan area is mostly within the (23) 'Font & Wansbeck Valleys' but includes the edges of (5) 'Coastal Coalfields' to the north east, (24) 'Blyth & Pont Rivers and Estates' to the south and (26) 'Stannington Vale' to the south west.

---

<sup>1</sup> NCC Core Strategy Preferred Options Feb 2013

The 'Font & Wansbeck Valleys' were characterised as being 'medium to small-scale landscapes with large arable fields enclosed by hedgerows and some stone walls; gentle V-shaped valleys set into rolling farmland; riparian woodlands alongside meandering river valleys'. Under the former Castle Morpeth Local Plan (2003), "sections of the Wansbeck valley and its tributaries within and to the east and west of Morpeth" were considered sufficiently important to be designated as Areas of High Landscape Value.

3.3.2 The 'Coastal Coalfields' were characterised as being a 'low lying coastal plain, generally open with expansive views; mining ... villages merging into rural landscape; restored former mining sites leaving an over simple landscape; large open arable fields, gappy hedges, wire fences; prominent woodland blocks; frequent areas of open water'

3.3.3 'Blyth & Pont Rivers and Estates' were described as a 'large scale landscape with large arable fields and relatively weak enclosure elements; frequent streams and small rivers; sparse woodland cover'

3.3.4 'Stannington Vale' was characterised as having a 'medium to large scale landscape displaying strong urban fringe influences; frequent pylons; generally very open with few mature trees; small often coniferous woodlands'. Again, under the former Castle Morpeth Local Plan (2001), the river valleys were designated as Areas of High Landscape Value.

3.3.5 The Wansbeck valley running through Morpeth and the Plan Area can, in this context, be seen as high quality natural environment set amidst relatively degraded landscapes to the north and south. This may help explain its perceived 'special' character.

3.3.6 Natural England is currently revising its series of National Character Areas with full national coverage being published by April 2014. The revision of NCA12 MidNorthumberland has not yet been published.

### 3.4 Designated Protected Sites:

3.4.1 Castle Morpeth Local Plan (2003) lists recognised nature conservation sites. Within the Plan Area, these are:

Parish	Site Name	SNCI	LNR	ASW	ARW	OS
Hebron	Blackdean Woods				X	
	Blubbery Wood			X	X	
	Hagg Wood				X	
	Heighley Wood			X	X	
	Tank Plantation/ Pond					X
Hepscott	Blue House Woods	X		X		
	Northsteads	X		X		

## Local Environment

	Banks					
Mitford	Borough Woods		X	X		
	Cockhill Plantation	X				
	Font Woods	X		X	X	
	Gubeon Woods	X				
	Mitford Dene	X		X		
	Mothers Wood					
	Scotch Gill Woods (part)	X				
	Tranwell Reservoirs					X
	Wansbeck & Hartburn Woods (part)	X		X	X	
	Well Hill Plantation	X				
Morpeth	Abbey Banks Woods					X
	Bluebell Woods	X		X		
	Castle Wood	X	X	X	LNR 2000	
	Chapel Wood	X		X	X	
	Cotting Wood	X		X		
	Davies Wood	X	X	X		
	Howburn Wood	X		X		
	Quarry Bank Wood	X		X		
	Scotch Gill Woods (part)	X	X	X		
Pegswood	Chapel Woods	X		X	X	
	Howburn Woods	X		X		

### Legend

SNCI Sites of Nature Conservation Importance

LNR Local Nature Reserve

ASW Ancient Semi-Natural Woodland

ARW Ancient Replanted Woodland

OS Other sites, otherwise designated, which are known to have specific or general value for nature conservation

3.4.2 The status of these designations is permanent, but under current planning guidelines, it may be advisable to refresh the evidence base justifying some of them. For example, there is a suggestion that the quality of flora in Davies Wood might not merit Ancient Semi-natural Woodland status.

3.4.3 Through the Neighbourhood Plan, further sites can be designated as either Local Nature Reserves (LNR) or Local Green Spaces (LGS). Local

Nature Reserves can only be designated if a public sector body 'has a legal interest in the site'. Castle Morpeth BC had a programme of LNR designations planned which remains incomplete. Following up on this, there is a strong recommendation that the possibility of designating the following locations as LNRs through the Neighbourhood Plan be investigated:

- The Howburn Wood, especially the western edge nearest possible development at St George's. The Howburn Wood was designated as an Area of High Landscape Value in the Castle Morpeth Local Plan (2003).
- An extension of Scotch Ghyll woods, depending on the goodwill of Mitford Estates
- The wooded Wansbeck valley downstream to Bothal, part of the Castle Woods & Water environmental improvement programme, depending on the goodwill of Bothal Estates
- The old race course area of Cottingwood Common

3.4.4 Local Green Spaces are a new designation intended to be used to protect small scale open space cherished by the local community. NPPF states that the designation should only be used where:

- It is in reasonably close proximity to the community it serves;
- It is demonstrably special to a local community and holds a particular local significance, for example because of its beauty, historic significance, recreational value (including as a playing field), tranquillity or richness of its wildlife; and
- It is local in character and is not an extensive tract of land.

3.4.5 A third possible designation is Village or [Town Green](#) status although Government has taken steps to make these more difficult to create, seeing them as a 'loophole' in the new planning regime.

3.4.6 Tommy's Field allotments shape the 'north east gateway' to the town. With Parish Haugh, it sets the context for the eastern Wansbeck river valley towards Bothal, which is one of the key landscape assets of Morpeth. Even though it has been gardened since the 2<sup>nd</sup> World War, It has only recently gained statutory allotment status on being taken over by Morpeth Town Council in 2010. During its long temporary status, there was a ban on sheds or other permanent structures, this ban has been continued as an allotment rule agreed between the Town Council and Tommy's Field Allotments Association. There is a strong argument to further protect Tommy's Field by designating it a Local Green Space.

3.4.7 Morpeth Common was established by an Act of Parliament and any changes to its status would require a private Act of Parliament. Castle Morpeth BC considered this sufficient protection, though permanent structures such as the Golf Course (and Club House), the Craik Park football stadium and the BMX Track have been permitted. Designation as a Local Green Space or some such may be appropriate under the Neighbourhood Plan.

3.4.8 There are numerous areas of open land scattered across the housing estates on the hills above Morpeth town centre, and in Pegswood. These are

variously in the ownership of the original developer, the Council or in some cases have been taken into private ownership.

3.4.9 The situation on Kirkhill in relation to public open spaces is perhaps typical. The original developer tended to sell houses as leasehold, retaining the freehold of the plots and surrounding open spaces. The freeholds and ownership of the open spaces was subsequently sold to a property company which still owns them. A planning application for 'infill' development at the end of Abbey Meadows which was turned down on appeal after a massive community campaign, and considered as a test case re: threatening open spaces more generally with development. .

3.4.10 Responsibility for maintenance of these spaces is also frequently contentious. It would be useful to identify which of these open spaces which are valued by the local community and might be candidates for designation as Local Green Spaces. For example, the centre field at Lancaster Park might merit this.

3.4.11 The Castle Morpeth Local Plan (2003) set out a policy (C21) designed to protect these all open spaces:

*“Areas of formal and informal open space within or adjacent to settlements which contribute significantly to the amenity of the locality are defined on the proposals map insets as protected open space. Development in these areas will not be permitted.”*

This could usefully form the basis of a similar policy in the Neighbourhood Plan, though the NPPF might not allow a new policy to be quite so prescriptive.

### **3.5 Wildlife Corridors:**

3.5.1 Part of the essential character of Morpeth is the manner in which the urban area is pierced through with natural corridors connecting the wilder parts of Carlisle Park and the river with the surrounding countryside. Most of the wildlife corridors follow watercourses and are recognised in the Castle Morpeth Local Plan (2003) as meriting protection.

3.5.2 There are many listings of wildlife seen in and around the Plan Area. These include:

- observations and lists compiled by amateur observers, such as recorded in the excellent [‘Abbey Meadows’](#) blog or more formally using the [EYE project](#)
- listings collated by local recognised naturalists and ornithologists such as John Caffrey and Eric Bird for various organisations,
- environmental surveys carried out as part of major planning applications, and of course
- the [Environmental Records Information Centre](#) (ERIC) North East

Morpeth U3A has recently carried out bird surveys in Carlisle Park, and Northumberland and Tyneside Bird Club has some Morpeth records. Recent assessments of wildlife were carried out for the planning applications for both the Northern Bypass and the town centre flood defences.



3.5.3 Ecologically speaking, to retain viable populations of wildlife, it is essential that the 'pockets' of both breeding, feeding and hibernating habitats remain interconnected, linked to the open countryside and unfragmented. If our watercourses are to remain viable wildlife corridors, then they must remain open and uncrowded. The Castle Morpeth Local Plan (2003) recognised this (para 4.30.4):

*“Development in identified wildlife corridors should normally be resisted but there will be occasions when some operations or developments are unavoidable or necessary and in these cases it will be important to ensure that the physical continuity of the corridor is maintained, as a general rule the council considers a minimum of 5 metres should be provided wherever possible”*

3.5.4 The Cotting Burn as it runs between Newgate St and Cottingwood Lane is in danger of being converted into an artificial canyon between three storey and taller buildings. Similarly culverting needs to be kept to a minimum. Management of watercourses to reduce flooding risk can go hand in hand with enhancing wildlife habitats, but it needs careful thought.

3.5.5 The river is a central feature of the town and where it is well managed (e.g. Carlisle Park, Lady's Walk, Borough Woods) it is attractive to residents and visitors alike while providing wildlife habitats. On the other hand, elsewhere it is neglected and blighted by insensitive planning of nearby developments. The south side between the Chantry Bridge and the Telford Bridge is at the medieval heart of the town yet it is scruffy and is blighted by a few half-dead trees. There could and should be inviting places to walk along the length of the river through the town but recent development been allowed to abut onto the footpath. Major developments provide a powerful force but they can lead to a piecemeal loss of public amenity.

### **3.6 Landscape Corridors and Setting:**

3.6.1 Morpeth sits in the deep, narrow valley of the river Wansbeck; in all directions the land rises 50-65m above the town. The combination of levels and river alignment means that the town is almost invisible from the surrounding countryside. Local contours within the settlement boundaries and extensive natural and planted woodland and tree corridors further help to screen all approaches to the town. Green corridors within the town and significant contour changes provide separation between developed areas. Not only does this 'hide' Morpeth, it also ensures that the town does not sprawl into of the surrounding countryside, including many areas of historic woodland, and disrupt the landscape. This 'hidden' nature was highlighted in the 'visioning' workshops facilitated by Colin Haylock of CABI and was widely recognised as one of key characteristics of Morpeth.

3.6.2 Approaches to the town: From the north, the difference in levels between the A192 and Fulbeck to the east and Lancaster Park to the west means that the urban area is not apparent until reaching Pottery Bank. From the north-east, Whorral Bank is heavily wooded effectively screening the

remaining buildings of St Georges Hospital. From the west, the B6343 from Mitford is a heavily wooded twisting road alongside. The approach from Whalton along the B6524 is flanked on both sides by Morpeth Common so that very few buildings can be seen until Churchburn Drive appears to the south across the Golf Course. From the south, the land rises between Clifton and Catchburn limiting long-distance views of Loansdean from the A197. Heavily planted verges screen development at Southgate Wood, so that the urban character is not apparent until reaching Fairway. From Fairway to Mafeking Roundabout, tree planting on both sides of the road, coupled with wide landscaped verges in most places, contribute to the sense of countryside well into the town. From the south-east, development between the A192 and the main railway line is effectively screened by a densely planted margin of trees and shrubs as far as the junction with A196. Along the A196, urban development becomes visible on arriving at Coopies Way, with widely spaced trees affording less screening than on other approaches to the town.

3.6.3 The A1 by-pass west of the town provides no significant views of the town. Kirkhill is very well screened from the road linking the B6524 and B6343 by substantial changes in level and extensive planting.

3.6.4 Developments outside the historic centre:

- Kirkhill sits high above the river between Newminster Abbey to the North and Morpeth Common to the South. Its extent only becomes apparent on arrival at the estate.
- Lancaster Park is concealed from the East by contours and bounded by the Scotch Ghyll LNR along the river to the south. The embankment of the by-pass screens it from the west.
- Loansdean occupies the land between the main railway line to the East and Morpeth Common to the West.
- Stobhill and Stobhillgate form one contiguous area of housing development bounded to the south by the Catch Burn and the A196 with open agricultural land beyond. To the east, a mineral railway line separates it from Coopies' Lane industrial estate which is in turn bounded by a further railway line. To the west, Stobhillgate is bounded by the East Coast Main Line.

All these boundaries, defined by natural and man-made features, result in a series of clearly defined localities each having its own character and sense of place.

3.6.5 Hepscott, Mitford and Hebron are each effectively concealed within the landscape and only become apparent on entering them. Since the construction of the Pegswood by-pass, good progress has been made to create a green corridor and further development of green space is in hand at Pegswood Moor. These changes will enhance and extend the green context of Morpeth and potentially screen Pegswood.

3.6.6 So to date, development in the Plan Area has, by design or good luck, preserved the hidden nature of the market town and the separate character and identity of outlying villages and estates, with perhaps only Stobhill Grange really beginning to break the pattern.

3.6.7 If we recognise that the setting of Morpeth and the surrounding villages hidden in the landscape are place-defining characteristic which is worth protecting, then very careful consideration needs to be given to the placing and design of any new developments. For example, construction of the Northern Bypass may lead to development between it and the existing northern settlement boundary. A green corridor needs to be left, both to screen any development on St George's and provide connectivity for the wildlife corridors along the Cotting Burn and the How Burn.

3.6.8 The Castle Morpeth Local Plan (2003) set out a policy (C4) recognising the value and importance of these 'landscape corridors':

*"Landscape corridors have been identified adjacent to certain main approach roads to settlements throughout the borough. Development proposals within those corridors will be encouraged to include a landscaped zone, with an average width of not less than 15 metres from the edge of the highway, for the whole frontage of the development site. No built development will be permitted within the landscaped zone."*

3.6.9 We need to resist poorly designed development which creates a sprawl of suburbia separating our market town from the countryside which it came into being to serve. That has been the fate of too many towns, and we should respect our good fortune that Morpeth has not succumbed yet.

3.6.10 Local Green Space designation could be used to retain and improve broad landscaped or wooded verges along the road approaches to Morpeth. David Feige of Northumberland CC has carried out a survey of flora found in roadside verges across the county.

### **3.7 Woodland**

3.7.1 The Plan Area, and particularly Morpeth town, is characterised by significant areas of ancient woodland, several with further conservation designations. Most of these woodlands are associated with the Wansbeck valley and the valleys of the various tributary burns. In fact, they have survived because the valleys are too steep-sided to be worth clearing for cultivation. There is much less woodland surviving south of the river, as the land towards Hepscoth and into the Blyth valley is less incised by the watercourses. The near-natural oak woodland around Postern Burn preserved by inclusion in Carlisle Park exemplifies the town motto "inter sylvas et flumina habitans".

3.7.2 Elsewhere, although the native oak has largely been replaced by beech, sycamore and conifers, the continuing tree cover has sheltered about twenty of the original, ancient herbaceous species such as bluebell, wood anemone, wild garlic, herb Paris and wood sorrel which have been present for over 6,000 years. Our local woodlands merit very high conservation status and should be managed accordingly.

3.7.3 Ancient woodland immediately adjacent to development will deteriorate and species will be lost because of over-use, introduction of other plants and

fragmentation of green wildlife corridors. These woodlands eg Bluebell Wood and the Howburn valley need buffer zones.

3.7.4 Morpeth is virtually unique in Northumberland in having well-established street trees in its town centre. These reinforce the impression that the areas of ancient woodland and more recently wooded areas preserved in Carlisle Park, and along the burns and the river valley give of a leafy attractive market town.

3.7.5 In particular, the horsechestnut trees on Bridge St, in the Market Place and along Dacre St make a huge contribution to the character of the townscape. Unfortunately, these horsechestnuts which were all planted at roughly the same time, possibly to mark Queen Victoria's Diamond Jubilee are coming to the end of their lives. They are relatively short-lived for large trees and have a very soft wood, with a fairly high risk of bough damage or falls.

3.7.6 Both Morpeth Town Council and Northumberland County Council have tree strategies requiring piecemeal replacement to be provided when trees are felled or removed. However, replacement of the town centre street trees needs to be planned rather more strategically. In many US cities, trees for street planting are being selected with a view to 50 years ahead, and a diversity of trees are being planted to increase resilience in the face of climate change. It is therefore proposed that the Neighbourhood Plan includes a replacement programme for these street trees, possibly spread over the period of the Plan, extending planting beyond the town centre and making tree planting a characteristic of new developments. Judicious street tree planting could also contribute to traffic management schemes.

3.7.7 While horsechestnut trees may not be the preferred choice, larger longlived trees with high crowns as opposed to smaller, lower, shortlived trees will help retain and enhance the character of the Morpeth townscape best.

## **4 Flooding**

### **4.1 Introduction**

This section aims to provide a brief overview of causes, incidence and management of flooding in Morpeth, to provide a framework for future planning. The Neighbourhood Plan is being written during a period of implementation of major changes in regulatory framework and significant planning and investment in flood protection and upgrades to the sewage system in Morpeth, so some aspects of the situation in the future are as yet uncertain, but the general principles for planning new developments remain valid.

#### **4.1.1 General causes of flooding:**

The main recent comprehensive description of flooding in the UK covering causes and responses was the Pitt Review: Learning Lessons from the 2007 Floods (2008). This had a very wide range of findings and recommendations, one of the key observations being a first prominent recognition of the high

proportion of impacts from surface water flooding in comparison to river (fluvial) flooding. It was noted that surface water flooding is complex, being influenced by factors including “the capacity of the sewerage/drainage system, saturated ground and high river levels that prevent the system from discharging”.

#### 4.1.2 Geographic context – Morpeth town

The geomorphological setting for Morpeth is within the Wansbeck valley, an incised feature which is eroded down to bedrock level through a large thickness of clay-dominated glacial deposits. Leading into the town area are several small burns, which flow down fairly steep valleys into the River Wansbeck. Some understanding of this context is necessary for understanding and managing flooding, as the arrangement of ground topography is the basis for locations of housing areas, the road network, and drainage patterns in the existing urban area, and the relatively impermeable nature of the soils on the higher ground plays a significant role in generating rapid flooding from the burns directly into the town centre.

In common with many towns and cities, the reason for the development of Morpeth town was as a convenient crossing point over the River Wansbeck. The further development of the town was initially generally within the flood plain, with later expansion of the town onto the higher ground through building of the housing estates mostly on the south side of the town. The key current development is the northern bypass with the associated planned developments.

#### 4.1.3 History of flooding in Morpeth

Due to its geographical position, Morpeth has naturally had a long history of flooding, with recorded incidents dating back to the early 1800's. The development of new urban areas within and around the town centre within the 20th century has significantly increased the overall flood risk, and it is likely that increased cultivation and agricultural drainage ‘improvements’ in the upstream catchment are likely to have exacerbated flood peaks, although it is difficult to confirm this with any certainty.

#### 4.1.4 Geographic context – the Wansbeck catchment

As the main source of historic flooding in Morpeth, the catchment of the River Wansbeck is approximately 330 km<sup>2</sup>, and is dominated by mixed pasture and woodland, with poorly permeable soils. This results in a relatively rapid response time for a catchment of this size.

Although there are some measures being taken within the catchment to manage runoff at source using ‘runoff attenuation features’ (see examples at <http://research.ncl.ac.uk/proactive/>), these are generally not within the Neighbourhood Plan area, and are unlikely to have any significant measurable impact on flood flows into Morpeth.

#### 4.1.5 Geographic context – issues in surrounding areas

The Neighbourhood Plan area does include some areas outside of the Wansbeck catchment, and any developments with the plan area needs to consider how these affect downstream areas both within the Wansbeck catchment and the local burns, but also the other rivers and catchment areas.

In particular, the housing areas on the south and east side of Morpeth including Loansdean and areas adjacent to Stobhill Manor include some land that is within the Catchburn catchment, that may affect vulnerable downstream areas such as Hepscott which already have flooding problems.

## **4.2 Regulations, roles, and responsibilities**

### **4.2.1 Regulatory context**

The government department responsible for flooding is DEFRA, and the key recent legislation that affects how floods are managed is the Floods and Water Management Act 2010. This arose in part from the recognition in the Pitt Review that there was a lack of clarity in responsibility for managing flooding from different sources. The act covers, amongst other things, who is responsible for managing flood risk from all sources, and encouragement of more sustainable forms of drainage in new developments. As the act has only recently been put into place, the organisations involved (particularly the local authority) have had to put into place new staff with appropriate skills to carry out their duties and adjust their working practices especially in relation to liaison with other organisations.

The Government's long-term vision for water management is set out in the 'Future Water' strategy. This aims to encourage policy and practice related to more sustainable flood management, including: development of surface water management plans (SWMPs); promotion of sustainable drainage systems (SuDS); more holistic management approaches and public understanding of flooding issues. Further information is available at <http://www.defra.gov.uk/>.

A useful source of information on the regulatory context is: [http://www.local.gov.uk/web/guest/local-flood-risk-management/-/journal\\_content/56/10180/3572110/ARTICLE](http://www.local.gov.uk/web/guest/local-flood-risk-management/-/journal_content/56/10180/3572110/ARTICLE)

### **4.2.2 Roles and responsibilities – Environment Agency**

The Environment Agency (EA) is responsible for managing flood risk from main rivers (fluvial flooding). Main rivers are designated or adopted by the EA, and in Morpeth includes parts of the burns in addition to the River Wansbeck.

### **4.2.3 Roles and responsibilities – Northumberland County Council**

Until recently, the role of the local council in relation to flooding and drainage was related to maintenance of road drainage assets. Now, a key requirement from the Flood and Water Management Act is the designation of local authorities as lead local flood authorities (LLFAs). In our region, the LLFA Northumberland County Council, whose responsibilities related to planning include (amongst others): preparation and maintenance of a strategy for local flood risk management; co-ordination with other local bodies and communities through public consultation and scrutiny; maintenance of a register of relevant assets; and investigation of significant local flooding incidents with publication of the findings.

The LLFA is also responsible for the establishment of a Sustainable Drainage Systems Approving Body (SAB). This body has the statutory role for approval of drainage systems in new developments and re-developments, including consents for altering, removing or replacing certain structures or features on ordinary watercourses, and is expected to be functional in 2014.

#### 4.2.4 Roles and responsibilities – Northumbrian Water

Northumbrian Water are responsible for the flooding from their assets, which include both separate storm and waste sewers, and combined sewer overflows (CSO's). Note that Northumbrian Water has a responsibility to respond to reports from the public on flooding incidents related to their drainage assets, and maintains a register of persistently flooded sites. As they have to act on these reports, then members of the public should ensure that any flooding incidents related to sewers or drains are reported to Northumbrian Water.

#### 4.2.5 Roles and responsibilities – Riparian landowners

An issue that some people can be unaware of is that riparian landowners are legally responsible for management of their water course. This means that, for example, river banks and walls along the side of rivers and streams should be kept in good condition, to prevent downstream flood issues. While this is clear for main rivers, it does also formally include culverted lengths of 'hidden rivers', which may not be immediately obvious.

### 4.3 Recent evidence of flooding

This sub-section summarises some of the main sources of evidence for flooding from different sources within Morpeth. It is not comprehensive, but is intended to highlight some of the key areas of the town that have suffered from recent flooding, to help inform future planning developments.

#### 4.3.1 The 6 Sept. 2008 flood on floodplain areas

As everyone living in Morpeth is aware, flooding from the River Wansbeck is the main source of flood risk to Morpeth. Although there is a substantial amount of historical evidence of how river flooding has affected the town (see, for example, the book "Land of Singing Waters – Rivers and Great Floods of Northumbria" by David Archer, published in 1992), the most useful evidence is based on recent events which are related to how flooding happened within the current town layout.

A project set up by Dr Geoff Parkin of Newcastle University after the 6 Sept. 2008 flood aimed to collect systematically as much evidence as possible from members of the public and relevant organisations. More than 1500 individual sources of evidence were collected, including photographs, videos, and written evidence, and used to interpret flooding mechanisms in different parts of the town. Hourly flood extents and selected evidence can be viewed on an interactive map at the project website <http://ceg-morpethflood.ncl.ac.uk>. The full project summary report is available as a pdf file under the results page of the website, which also includes interpretations of the flooding mechanisms in areas of the town based on the evidence provided, including simplified graphical maps. These interpretations show that although the river was the main overall cause of the flood, there is evidence for other sources of water at early stages of the event, as summarised briefly here:

- Mitford Road: Despite houses on one side of the road being along the river side, flood water initially entered these houses from the road, after the river burst its banks further upstream and flowed down the road.

The water was then unable to return to the river as there are only a few narrow gaps between houses along the length of the road (many of gaps between the original semi-detached houses have been built on with extension), resulting in backing up of water along the road and deeper flood depths than would otherwise have occurred.

- High Stanners: The key issue here is that the road in front of the Social Club floods early during most events due to localised surface water collecting along a low area of the road, together with problems with drainage. This limits the ability of emergency vehicles to evacuate the housing estate through this single route of vehicular access. The flooding from the river happened gradually in this area, with some houses escaping entirely from the flood due to small variations in ground levels.
- Central Morpeth: The existing flood walls in the area around Oliver's Mill were effective in preventing severe flooding for much of the event, until the flood levels in the river overtopped the flood walls resulting in rapid cascades of fast-flowing water entering parts of the town centre towards the Telford Bridge end of Bridge Street.
- Low Stanners: Similar to the response in the central area of town, Low Stanners was generally protected from fluvial flooding until a later stage in the flood, when the flood wall at St George's Church was breached, and rapid catastrophic flooding into the area left residents with little time to respond.
- Middle Greens: This area had flooding from several sources. Surcharging of sewers along Bennett's Walk caused some early flooding, followed by a significant additional inflow from a surcharged manhole over the culverted section of Church Burn. Together with some inflow from around the downstream end of the flood wall, and some possible leakage through the flood wall, these sources of water generated extensive flooding in this area before overtopping of some lengths of the flood wall added to the existing flood levels.

Although this study focussed on the main town areas, a significant number of houses upstream at Abbey Mills and Mitford, and downstream at East Mill, also flooded from the river. These interpretations highlight some general points to note in general in relation to urban planning:

- The first and most obvious point is that building on floodplains increases the number and value of properties potentially at risk of fluvial flooding, increasing overall potential damage and loss.
- A related but maybe less obvious point is that building of flood protection schemes, particularly visible defence walls and embankments, which reduces the flood risk up to the level of protection afforded by the scheme, can allow or encourage permissions for new building development within the protected areas to be granted more easily. This can lead to higher potential damage and loss if a flood event does occur.
- If and when flood defences are overtopped, those living behind the defences can have a false sense of protection until the defences are overtopped, after which the area behind the defences can flood very rapidly with high water velocities and possibly insufficient time to



properly evacuate, leading to higher risk than would otherwise occur for larger flood events.

- Incremental building development can lead to unexpected local consequences that may not initially be evident.
- Routes for vehicular and pedestrian evacuation should be considered for new developments, with alternative routes provided if there is any significant flood risk.

A critical point for future planning is that any increases in flows of water from upstream areas of the town or surrounding countryside can impact areas on the floodplain, regardless of whether the floodplain areas have fluvial flood protection. Additional flows may come from enhanced surface runoff from new impermeable areas (often flowing directly onto adjacent areas), from surface runoff feeding into the burns, or additional storm flows into the existing combined sewer overflow system (both of which may impact downstream areas at a distance from the source).

#### 4.3.2 Flooding from the town's burns

Three burns flow into the town centre, Cotting Burn, Church Burn, and Postern Burn, each with very rapid response times due to their small size, steep topography, and poorly permeable soils in the upper catchment areas. The burn that has caused most direct flooding problems is Cotting Burn, which has caused flooding 3 times in 4 years (see the Morpeth Flood Action Group web page <http://www.morpethfloodaction.org.uk/cottingburn.html>). Cotting Burn runs through its upstream areas of pasture and woodland, flowing down through an increasingly steep-sided valley into the urban area where it runs through a sequence of culverted sections and open lengths between high walls. The culverted sections are not of sufficient size to carry peak flood flows, and so land areas near the entrances to culverted sections act to carry the excess water, causing local flooding. The layout of the built area has also affected the flood behaviour, for example in 2012 flood water was held behind a brick wall that prevented water movement between buildings, and which subsequently collapsed causing a surge of water that flooded properties immediately downstream.

#### 4.3.3 Surface runoff from direct rainfall (pluvial) and/or drainage and sewer system

Outside of main flood plain areas, there is increasing recognition that a large number of properties have non-trivial risk of flooding from localised runoff. Some specific examples in Morpeth are:

- East Mills: Despite having had fluvial defences put into places, this group of houses has had some incidents of flooding from surface runoff from the steep slope of road along Whorral Bank.
- Loansdean: There have been repeated incidents of localised flooding, particularly around the perimeter of the estate including along the edge of the golf course, and on the southern border near to the Heron's Field. The land to the south of this area has been subject to repeated planning applications for housing development, although flood impacts on receptors in Loansdean and in Morpeth have not been fully addressed in the risk assessments.

- High Moor: This area (Morpeth Common) has had a number of incidents in various places, leading into the Postern Burn catchment area, some of which have been affected by construction and clearance of ditches leading into subsurface drains, with possible beneficial or detrimental downstream impacts. Buildings along the line of culverted watercourses across the adjacent housing estates have had increased flood risk.
- Lancaster Park: Poorly designed drainage in the central grassed areas of the estate has led to periodically saturated ground and loss of amenity value.

Some general points which can be drawn from this evidence include:

- Almost any house or building can be vulnerable to flooding from high intensity rainfall events, due to local configurations and maintenance of land surface, roads, and drainage.
- Building along locations where flow converges (even if an existing stream or channel is not evident under normal conditions) is likely to increase flood risk at that location.
- Roads (and any other continuous areas of hard surface) can act as efficient conveyors of flood water, particularly when directed downslope. Judicious layout of roads on new developments could help to redirect runoff into suitable areas.
- Construction of ditches and low soil bunds can redirect and speed or slow down the rate of runoff from land, leading to possible beneficial or detrimental downstream impacts depending on the situation.

#### 4.3.4 Commercial and municipal developments

Although most of the discussion here has related to housing, location of commercial and particularly municipal buildings should be carefully considered, as their vulnerability and value to the community are different to domestic properties. The devastation of many buildings including the leisure centre, library, and doctor's surgery during the 2008 floods had a significant impact on the lives of people living in Morpeth. The original doctor's surgery building remains closed and unused, with a new replacement building in a low flood risk area. New commercial buildings such as the Morrison's supermarket have been given planning permission, but their impact on their surroundings and how they will function during flood events remain untested.

### 4.4 Addressing the existing problems

#### 4.4.1 Previous flood defences

Following the 1963 flood, defences were built in the lower part of the town that was most badly affected. As is well known and visible to any visitor to the town, these have had a significant effect on the character of parts of the town. These are planned to remain in place as part of the new flood alleviation scheme, although with some relatively minor improvements.

#### 4.4.2 Current flood alleviation scheme under construction

The flood alleviation scheme that is currently under construction at the time of writing this report has been designed with much greater level of consultation

with the public and awareness of environmental and amenity impacts compared with the earlier defences, although there is significant disruption during the construction works, and there will be some level of loss of amenity. The scheme as currently designed only addresses fluvial flooding, primarily from the River Wansbeck, but with some actions related to the burns although these are incomplete.

#### 4.4.3 Surface flooding

Although there have been discussions between the relevant organisations (Environment Agency, Northumberland County Council, and Northumbrian Water) concerning flooding from the burns and from surface storm runoff in some areas of the town, no proposals have yet been made publicly available. The proposals were not integrated into the original design of the fluvial flood alleviation scheme.

#### 4.4.4 Drains and sewer systems

Some of the newer housing areas of Morpeth have had separate clean and dirty water sewer systems installed according to current requirements, although these generally then flow into existing combined sewer overflow systems downstream. Some new infrastructure has recently been installed to deal with critical areas, notably the new Middle Greens pumping station. One of the key persistent issues related to drains is their maintenance, and problems with blockages during storm events.

### 4.5 Implications for future planning

This sub-section highlights some general points to be considered in future developments.

#### 4.5.1 Climate change

While there is general scientific consensus that we are in a period of rapid climate change, and that this is likely to result in increased frequency of extreme events, it is difficult to translate this general understanding into specific recommendations for particular locations. Design of engineered structures use additional factors of safety to account for possible future climate change, and these should be used by consultants in the design of individual schemes. The general principle, however, remains that following a risk-averse approach using good flood-sensitive design principles will go a long way towards addressing the possibly uncertainties due to future climate changes. Even following good principles, flood risk will never be eliminated, and evidence of flood responses to individual events should continue to be used to help adapt and improve flood management at all scales.

#### 4.5.2 New developments

The National Planning Policy Framework (NPPF) requires that flood risk is taken into account, following a 'source-pathway-receptor' approach. The approaches described in the NPPF focus on firstly encouraging developments to take place in areas of low flood risk if possible, but if they are built in higher flood risk areas then to ensure that they do not increase flood risk downstream ("Inappropriate development in areas at risk of flooding should be

avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere”. This approach directs focus primarily towards consideration of flood risk on new development sites, and does not give clear emphasis that any developments in areas of land that are, in themselves, of low flood risk should not increase flood risk for any other areas off the site (unless of significant size, or with critical drainage problems). This aspect does not appear to be highlighted adequately in the planning process, but is critical for managing the impact of new developments on downstream flooding from surface runoff (whether directly onto adjacent land, or into burns) and from storm drainage.

The main method of managing runoff from new development sites is through construction of Sustainable Urban Drainage Systems (SUDS). Best practice guidelines on planning, design, construction, operation and maintenance is available in The SUDS Manual (Construction Industry, CIRIA Report C697, 2007, and the companion Site Handbook for the Construction of SUDS, Report C698, available from [ciria.org.uk](http://ciria.org.uk)). An online resource is also available at <http://www.susdrain.org/>.

There are two main types of SUDS, infiltration and storage/attenuation. Due to the relatively impermeable nature of most soils in Northumberland, most SUDS proposed will be designed to store water above ground, to attenuate downstream peak flows.

#### 4.5.3 Outline Water Cycle Study

Northumberland County Council have recently completed an Outline Water Cycle Study (2012, [www.northumberland.gov.uk](http://www.northumberland.gov.uk)), which addresses issues of sewage network and treatment capacity, water supply and water resources, environment

This report follows the NPPF ‘source-pathway-receptor’ approach, and also appears to place an assumption towards assessment of flood risk for new development sites, discussing downstream impacts only for sites already with inherent flood risk: “In the case of Northumberland, the general consensus is the receptor (i.e. new development) is steered from the exposure pathway to a flood source, where feasible”. It is proposed here that design of ALL developments should not increase flood risk to ANY downstream receptor, and should if possible reduce downstream flood risk. It is reiterated that downstream receptors may include local areas adjacent to the development site, or remote areas which are connected hydraulically to the site through pathways such as: roads or other impermeable surfaces; channels such as natural or culverted burns; or subsurface drains, particularly separate or combined storm sewers, but also possibly other drains including agricultural drainage systems. It is recommended that mechanisms be found to allow consultation on significant new developments with all potentially affected downstream residents.

#### 4.5.4 Water sensitive urban design (WSUD)

A recent study by CIRIA has looked at the wider issues of how urban design can and should take account of the whole water cycle. The report (Creating Water Sensitive Places – Scoping the Potential for Water Sensitive Urban Design in the UK, CIRIA Report C724, 2013) and the accompanying “ideas

book” Water Sensitive Urban Design in the UK – ideas for built environment practitioners, CIRIA Report C723) addresses issues of water demand and supply, wastewater and pollution, rainfall and runoff, water courses and water resources, and flooding and water pathways, considering aspirations of communities including local character, cost-benefit, and future resilience.

Some ideas covered in the study (in addition to the installation of conventional SUDS) include:

- Household actions including green roofs which attenuate runoff, and redirecting storm water from roofs and hard standing onto rain gardens which act to provide some short term water storage
- Permeable paving and road surfaces to store and attenuate runoff
- Use of tree pits as rain garden areas to absorb runoff
- Rainwater harvesting and re-use for appropriate applications (e.g. toilets, carwashes)
- Blue-green corridors on new developments, acting as multi-functional areas that redirect and partially treat or attenuate runoff
- Exceedance routes, areas similar to blue-green corridors that are designed to redirect flood flows into areas where they can be managed.

## **5 Access**

### **5.1 Introduction:**

5.1.1 The Transport Technical Report includes consideration of cycling and walking as means of travel for shorter journeys to specific destinations eg work, education, shopping and the development of networks to promote this. This Environment Technical Report will address cycling, walking and horse riding for pleasure, for health and to ‘access the natural environment’.

### **5.2 Walking:**

5.2.1 There is a large network of footpaths, bridleways, and byways within the Neighbourhood Plan area. Beyond settlement boundaries, this network is complemented by permitted paths and byways, and open access land. Ordnance Survey maps are generally the main source for public knowledge of the network but Northumberland County Council rights of way officers can provide definitive maps on request. Other sources of information on the footpath network include:

- The Greater Morpeth Development Trust ([GMDT](#)) has produced booklets of walks associated with the Morpeth Walking Festival, available at the Chantry Tourist Information Centre or by phone order.
- The [Morpeth Footpath Society](#) (MFS) has also published a range of books of walks, which they may be adding to and updating in 2013.
- [Shepherds Walks](#) ()

5.2.2 For leisure walking, circular routes are more popular than ‘there and back’ walks. However, given the current state of the overall network, the vast majority of circular routes necessitate walking on sections of rural roads.

5.2.3 Northumberland CC has six officers who look after the footpaths etc in the whole of Northumberland. The officers are generally very supportive of organisations and individuals who have raised issues regarding footpaths. However the officers may be pressed to clear up issues and solve problems from time to time as they each have an average of 1400 km of footpaths to oversee. Nationally the average figure for an officer dealing with rights of way is 300 to 400 km. Routine maintenance, new signage and ensuring that paths are kept open may be difficult to ensure given the present staffing levels. Broken signage, stiles, locked and barred gates, and blocked footpaths appear to be on the increase.

#### 5.2.4 Opportunities

- Heritage Trails: Marked trails in built-up areas, signposted or marked on pavements (as in Newcastle) enable tourists to follow to see the interesting and heritage features of the area. Morpeth has Town Trails originally developed by Alec Tweddle, but they are not marked out in the town.
- The 'visitor economy': With good publicity, promotion of footpaths, heritage, diversity of countryside, and culture, within Morpeth, and beyond, could lead to a significant increase in tourism and the economy of the area. The Morpeth Walking Festival run by GMDT has just scratched the surface of what could be possible.
- The Wannie Line: Sustrans extensively converts the lines of disused railway tracks into cycle paths. Elsewhere eg Castle Eden walkway in Co Durham, rail routes have been converted into popular and well-used walks. The route of the 'Wannie Line' from Morpeth Station to West Woodburn has been identified as a potential long distance walk. The route crosses Morpeth Common and hits its first obstacle in crossing the A1, after which, although footpaths exist within the Plan Area, they are poorly maintained or even blocked. This is potentially a significant visitor attraction for Morpeth and could be opened up properly
- The 'Northumberland Chain': A proposal from Colin Harvey of MFS suggests a series of circular walks stretching from Berwick-on-Tweed to Morpeth then perhaps going westwards to Hadrian's Wall. Each circular walk should be manageable to an average walker and could take in a section of a recognised walk, e.g. St Cuthbert's Way, or part of the coastal path. This will enable locals and visitors to enjoy the area. For visitors, it will also allow them to have a base rather than changing accommodation nightly. It will also relieve visitors of the task of arranging luggage to be ferried to their next place of accommodation.

5.2.5 Links between 'active travel' and health are well-established especially as prevention of and recovery from cardiovascular and obesogenic diseases. Health Action Zone (HAZ) walks have been set up in Carlisle Park, and form part of 'exercise on prescription' programmes but funding for this is liable to be

erratic. Well marked routes with clear signage and also interpretation boards may encourage more people to partake in exercise.

### **5.3 Cycling:**

5.3.1 The [North Sea Cycle Route](#) is a 6.000 km route around the North Sea coastline passing through eight countries: Belgium, the Netherlands, Germany, Denmark, Sweden, Norway, Scotland and England. It is a major long distance route for international leisure cyclists. Its nearest point of approach to Morpeth is the A189 between Ashington and Newbiggin and passing through North Seaton.

5.3.2 The UK section of the North Sea Cycle Route (Dover to John O' Groats) is designated by Sustrans as [UK National Cycle Route 1](#). There are two other nearby National Cycle Routes: Route 10 runs from North Shields to Cockermouth while Route 68 follows the Pennines from Berwick via Wooler, Bellingham and Haltwhistle and southwards. Named leisure long distance cycle routes in the region include the Coast-to-Coast, the Coast & Castles Route (which runs from Belford to Morpeth), the Reivers' Way and Hadrian's Cycleway.

5.3.3 However, as can be seen from the Northumberland CC-produced cycle network [maps](#), Morpeth is poorly linked into the leisure cycle network generally, unlike Alnwick or Hexham.

### **5.4 Recommendations:**

- Join up as many as possible footpaths into a comprehensive network to increase their use by people of all ages.
- Link the local network to long distance footpaths, e.g. St Cuthbert's, St Oswald's, Hadrian's Wall, etc.
- Footpaths should be seen in a positive asset to the area as they add much to the quality of life as well as the local economy.
- When developments take place, the footpath network should – if at all possible – be extended and enhanced. If this is not possible, it should at least be preserved and only re-routed as a last resort. In all cases, the paths should remain within a green corridor' and not be 'shoehorned' into the smallest possible space. Net loss of footpaths should not be acceptable.
- Public footpaths and cycleways should be segregated to avoid accidents.

## **6 Building In Sustainability**

### **6.1 Introduction:**

6.1.1 Although the Neighbourhood Plan covers a 15-20 year period, the developments being planned should last at least a further fifty or a hundred years. It is therefore proposed that buildings, infrastructure and siting of development should all build in resilience against climate change and

instability in the national energy networks and global energy markets as well as moving towards zero carbon systems. A number of concepts being put forward by the Transition Towns movement and others need to be assessed for mainstreaming into the Plan.

## **6.2 Land Use:**

6.2.1 Even in a sparsely populated county like Northumberland, it is good practice to use land carefully and efficiently. Good quality agricultural land is relatively rare in the county and should be conserved. Compact development allows reduced travel distances and a critical mass to make provision of facilities viable from local shops to bus services. And, best use of resources suggests that existing buildings should be adapted and retrofitted in preference to new build.

## **6.3 Water Management:**

6.3.1 Grey Water Systems: It is well established that flood risk in the Plan Area extends well beyond Morpeth town centre and will generally be exacerbated by the increased run off from new development. 'Grey Water' systems collect rainwater and re-use water for lower grade domestic use where drinking-standard water is not required all at a single dwelling or building level. They effectively hold water and so reduce run off rates potentially more effectively than green field sites. It is proposed that integrated grey water systems are made a requirement for new development in the Plan period and that retrofitting grey water systems to existing properties is promoted and encouraged. This could reduce the scale of new infrastructure needed to manage surface water, incidentally protecting the character of our 'urban' water courses requiring less culverting.

6.3.2 Sustainable urban drainage systems (SUDS) in developments "mimic natural processes by catching and slowing the flow of rain water to streams and rivers, and filtering it to remove pollution along the way. Examples of SUDS include interconnected ponds, reedbeds and living green walls and roofs." Sadly, poor design and neglected maintenance of schemes built into developments over the past few years (eg Newcastle Great Park) has given SUDS a poor reputation. The Wildfowl and Wetlands Trust ([www.wwt.org.uk](http://www.wwt.org.uk)), amongst others, provides a consultancy service on SUDS which includes designing and resourcing a maintenance programme and building in spaces for wildlife as the estates develop as well as reducing peak run off and flooding risk.

6.3.3 Reed beds clean urban 'wash-off' and can be used to treat sewage. They have already been included into the design of the Northern Bypass, but given the stress on the existing sewage network and treatment works, they could be part of a masterplanned solution for some developments. Again, it needs to be recognised that reed bed systems need regular maintenance, periodic cleansing and have a limited capacity.

## **6.4 Energy Conservation & Efficiency:**



6.4.1 Over the Plan period and through the lifetime of the buildings built in the Plan period, not only are carbon emissions going to become unacceptable but energy prices are going to increase sharply, regardless of technology. New build and refurbishment needs to maximise energy conservation and efficiency.

6.4.2 Apart from normal building standards used in Scandinavia, Super Homes ([www.superhomes.org.uk](http://www.superhomes.org.uk)) is a national network of demonstrator homes which showcase the potential energy and carbon savings that can be made in residential properties. These techniques need to be mainstreamed and made standard, and through the Neighbourhood Plan, Morpeth could become a showcase community.

6.4.3 Embedded renewable energy technologies including biomass, PV, hydroelectric need proving and are very vulnerable to national energy policy, but recent experience suggests that there is a strong appetite for these options in Morpeth and the surrounding area. We could at least use the Neighbourhood Plan to eliminate any local barriers to such initiatives.

## **6.5 Designing Sustainable Developments:**

6.5.1 The layout of developments can encourage or discourage:

- walking and/or cycling
- reliance on cars
- practical bus routes
- crime
- the effectiveness of solar technology systems (pv and passive solar)
- higher value recycling with 'separation at source'
- grey water systems
- ground source heating systems
- outdoor play

It is proposed that developments are masterplanned with these provisions in mind.

## **6.6 Allotments & Community Orchards:**

6.6.1 The microclimate and soil quality along the Font and Wansbeck river valleys lent themselves to significant commercial-scale market gardening from 1850's to 1950's with growers in Hebron and on Parish Haugh still maintaining the industry. In the 1930's Morpeth had an international reputation for gooseberries. Land that has survived the building explosion since the 1960's remains highly suitable for community growing.

6.6.2 The National Society of Allotment and Leisure Gardeners (NSALG) recommends a national standard of 20 allotments per 1,000 households or 1 allotment per 200 people. This is equivalent to 0.125ha per 1,000 population based on an average plot size of 250 m<sup>2</sup>.

6.6.3 There are allotments in Morpeth<sup>2</sup> and Pegswood, and a couple in Mitford. However they are in demand with waiting lists and it is likely that demand will grow over the Plan period. Locations need to be identified to provide more allotments to meet demand from existing residents, while housing development needs to include provision of allotment land at the proportion recommended by NSALG.

6.6.4 A small community orchard has been set up in Hepscoth, and there is a strong suggestion that land for community orchards could be identified at other locations in the Plan area.

6.6.5 Under current economic conditions, there is often a significant hiatus between planning permission being granted and building work starting. A suggestion has been made that if such periods are likely to last more than eighteen months, then an arrangement could be made with the developer or landowner to turn the land over for community growing on a temporary basis. Appropriate policies in the Neighbourhood Plan could facilitate this and in due course it could become standard practice.

### **6.7 Carbon management plans:**

6.7.1 Carbon management and carbon off-setting can be more effective on a community- rather than an individual scale. The Carbon Trust and Energy Saving Trust can advise on town-wide or Plan Area-scale carbon management plans and carbon off-setting.

### **6.8 Resources:**

6.8.1 Background information is widely available on the internet, including:

Ethos	<a href="http://transitionnetwork.org">transitionnetwork.org</a>
Definitions & Information	<a href="http://naturalengland.org.uk">naturalengland.org.uk</a>
News	<a href="http://transitionnetwork.org/news">transitionnetwork.org/news</a>
Work in Progress	<a href="http://cat.org.uk">cat.org.uk</a>
Health & Planning	<a href="http://spahg.org.uk">spahg.org.uk</a>
Community Land, Food Growing	<a href="http://growingopportunities.org.uk">growingopportunities.org.uk</a>
Resources	<a href="http://seedsforchange.org.uk">seedsforchange.org.uk</a>
Carbon Trust	<a href="http://carbontrust.com">carbontrust.com</a>
Energy Saving Trust	<a href="http://energysavingtrust.org.uk">energysavingtrust.org.uk</a>
energy conservation	<a href="http://energysavingtrust.org.uk">energysavingtrust.org.uk</a>

<sup>2</sup> Tommy's Field (4 acres), Middle & East Greens (78 gardens), Abbey Meadows, High Church, Duncan Gardens, Wellwood Gardens (total 29 gardens), Pegswood (c 120 gardens)

## **Appendix A**

### **Case Histories & Anecdotal Reports of Non-Town Centre Flooding**

#### **A1: Abbey Mills**

A1.1 Abbey Mills farm is the cluster of houses on the south bank of the Wansbeck opposite Scotch Ghyll Woods, immediately downstream of Highford Bridge. Although subject to flooding from the Wansbeck, the only element of the new town centre flood scheme that covers it are the 'holding ponds' upstream at Molesden.

A1.2 In the flood of September 2088, seven of the nine houses in Abbey Mills were flooded. The water came first from the mill stream which overflowed into the back gardens, then quickly merged with water from the river which overflowed from the fields on each side of the road at Highford Bridge. Eventually, the whole length of the road to Lowford bridge and adjacent fields was under water. Houses were flooded to a depth of about 15 inches. The weir at Highford was demolished by the flood and the mill stream has consequently dried up.

#### **A2: Cotting Burn, Dawson Place, South Terrace, Copper Chare**

A2.1 In the heavy rain in Sept 2008, the Cotting Burn overflowed resulting in flooding in Dawson Place, South Terrace and Copper Chare. Then, in 2012 the Cotting Burn culvert at Dawson Place was again blocked and damaged by a large tree with further severe flooding at Copper Chare. Subsequently poorly maintained gullies along Copper Chare have resulted in repeated road flooding.

*A2.2 Precis of part of Tony Fowler's column in the Morpeth Herald 20th May 2013*

The culvert into which the Cottingwood Burn flows is too big. It lets too much water into the town drainage system and at weak points further downstream, flooding results. Water retention in a drainage system has been neglected in favour of efficient removal of water. The culvert below Beggar Lane can take a huge amount of water. But, when that water gets slowed down by lower capacity or a blockage further downstream, there is a back up. Water under pressure pours from the culvert at weak points, the first of which is at Dawson Place, often resulting in significant damage. Merely improving the culvert would just send the water downstream more quickly, with stress on at Wellwood and any other exposed points. Reducing water flow into the existing 2m culvert entrance would generate flooding effect immediately upstream, around Beggar Lane, which would need to be modelled. The lower gardens would be inundated but the ground rises steeply and the houses would be unlikely to be in any danger. Deliberately designed 'pinch points' further upstream could cause a couple of fields towards Fulbeck and beyond to become effective water meadows slowing down the water flow.

#### **A3: Hepscott**

A3.1 Parts of Hepscoth village were badly affected by flooding in the September 2008 heavy rainfall. Areas affected were along the Hepscoth Burn, and on the western edge of the village where flooding occurred from run off from higher ground. Factors contributing to the flooding included: an inadequate sewer system (the main sewer for the whole village is only 30cm), very little river clearance under the bridge and poorly maintained ditches.

A3.2 Hepscoth village lies only 2 miles from the centre of Morpeth but a key point is that it is not in the River Wansbeck catchment area. Hepscoth Burn is part of the River Blyth system, flowing through Hepscoth village and then east into the Sleek Burn and thence into the Blyth at Sleekburn. Furthermore the Catch Burn is a tributary of the Hepscoth Burn and so also part of the Blyth catchment, running east from Catchburn Farm (on the A197 southern access to Morpeth from the A1). Another tributary of the Hepscoth Burn is the Coal Burn, flowing from Clifton near the A1 and joining the Catch Burn at Barmoor bridge on the A192. This junction is another area that frequently experiences flooding. So, virtually all of Hepscoth Parish is in the River Blyth catchment area, apart from the small area on the northern tip around Shadfen Park.

A3.3 So, natural surface drainage is separate from the Morpeth (Wansbeck) system. Upstream rainwater and runoff diverted into the Catch Burn, the Coal Burn or the Hepscoth Burn increases flood risk in Hepscoth. Development increasing runoff or affecting drainage in several areas of Morpeth has a direct impact on Hepscoth:

- developments on the southern boundary of Morpeth, south of Loansdean, increasing surface drainage into the Catch Burn and Hepscoth Burn
- surface run-off from the A1 Morpeth by-pass runs into the Catch Burn.
- run-off from Stobhill Manor runs into the Catch Burn.
- any development south of the road to the east of the Stobhill roundabout would increase surface run-off flows into Hepscoth watercourses.

A3.4 The road bridge in Hepscoth village was massively strengthened many years ago to allow the transport of large transformers for Blyth power station. As a result, the bridge now only has 3 ft (1m) clearance in normal conditions. The burn only has to rise 3ft before the bridge obstructs the flow, acting as a dam.

A3.5 Surface water in Hepscoth runs into the main combined sewer, which is only 30cm diameter, far too small for a village the current size of Hepscoth. Heavy rainfall frequently causes back up and the manholes overflow. Hepscoth PC has a letter from Northumbrian Water Ltd (Jan 2010) *“our investigations have established the cause of the flooding to be hydraulic incapacity within the sewerage system. This is when the existing public sewer is unable to deal with the flows entering the system during more intense rainfall.”*

A3.6 In 2010, the Environment Agency constructed five ‘holding ponds’ on the Catchburn to even out water flow, but the Coalburn remains unmodified.

Nearly 1 km of pipework was laid to the west of the village to take run off from higher ground and the Red House Burn, but it discharges into the Hepscott Burn upstream of the village.

A3.7 The main remaining risks to flooding in Hepscott village appear to be:

- incapacity of the main sewer
- inadequate upstream storage eg no leaky ponds on the Coal Burn
- irregular maintenance of ditches, water courses and culverts
- upstream housing developments and other upstream discharges
- poor design of the village bridge
- additional housing development in the village increasing runoff and putting pressure on the sewerage system.

#### **A4: High Moor (Morpeth Common)**

A4.1 A number of incidents of flooding have been noted over the past few years apart from the September 2008 heavy rainfall and two close incidents in the last few months of 2012. In September 2008, properties and gardens in the northernmost part of the Morpeth Common were affected, and also areas round the lower north east corner near St Mary's church and the Sun Inn. In late summer 2012, a heavy downpour resulted in surface water runoff from the grassed area near Monksridge to run into Highmoor, bypassing blocked badly maintained road drainage, and causing flooding to the road, at the bottom of a nearby cul-de-sac.

A4.2 Morpeth Common is an area of open pasture land designated for general leisure but protected from all residential and industrial development, which lies to the west of Morpeth north of the B6524 road to Walton and west of the main A197 road into Morpeth.

A4.3 The land was previously areas of Market Garden and grazing land with various tree copses to its western edge. It also extends to the north side of the old Wannie Railway Line between the St Mary's Church, the Golf Club and the unclassified lane between the B6524 and B6343 Mitford road. The land tends to fall towards the East and the A197 for the most part and quite sharply to the North on its Northern edges. The previous Market Garden landscape which consists of strips of ridges and furrows is still evident in the majority of areas, and these run in the same direction as the fall of the land. The area to the west has been allocated to rugby and football pitches and previously to an athletics training area, which has been levelled and drained.

A number of drainage ditches have recently been incorporated into this area and previously they cleared surface water runoff away from residential properties and into drainage ditches along the disused railway.

A4.4 A change has occurred in the surface water flow patterns within the last 5 years so that surface water now flows away from the Railway ditches. Following recent flooding, the surface water was seen to be flowing along the following route:

- much more surface water issuing from the Sports areas and running into sports field peripheral ditches which drain nowhere and when full overflow into the east-west agricultural strips on the 'star plantation'
- a furrow has formed along a line of manholes, recently worked on by Northumbria Water's contractors. This now falls towards the north whereas before it fell towards the south. The shallow furrow runs across the market garden strips southwest to northeast direction, and collects the surface water from the western two thirds of the area of the Common.
- the accumulation of rainwater then flows north towards an old water trough which overflows into another depression which then runs into a large depression behind Crawhall Crescent
- when this fills up, to a depth of about 1m, its overflows into further semi circular depression which forms an arc with a general northwest orientation and feeds into a 150mm drain which discharges into the main surface water drain and eventually empties into the Postern Burn.
- this 150mm drain can cope with surface water runoff equating to about 25mm rainfall a day, and takes about 2hrs to reach flood levels following the start of a rainstorm. This has happened 3-4 times a year since the Sept 2008 floods.

A4.5 In the past two years, the Council have cleaned out the west side perimeter ditch, increased its depth and gradient. This now discharges more rainwater more quickly into the same single 150mm outlet drain from the Common and so into the Postern Burn. This markedly increases the speed of the buildup of flood water is quicker, and so the risk of actual flooding is now greater.

A4.6 So, if rain falls at a rate equivalent to more than 25mm a day for more than 2-3hrs, there is a risk of flooding. This happened three times in 2012, with two instances of actual flooding.

#### **A5: Lancaster Park**

A5.1 Poor and poorly designed drainage of the central field on Lancaster Park results in almost marsh conditions in some parts of the field in wet weather and the footpaths regularly flood. In the September 2008 high rain, several houses were flooded and more relied on sandbags to prevent flooding.

A5.2 In 2010, the Council installed a drain but this has not stopped runoff following the natural slope of the field southwards, encroaching on the paved footpath and rendering access to houses on Brumell Drive impractical. The footpaths to the north of the field were relaid in 2012, but the footpaths to the south of the field are still a problem.

#### **A6: Loansdean (Heron's Field and The Chip – New Loansdean)**

A6.1 The Heron's Field is a small grassed area behind part of The Fairway in the estate known as New Loansdean. Bungalows on the west side of The Chip also back onto this area. It lies on the southern boundary of the housing

estate and was left by the builders as an amenity for residents. Adjacent to this area is a field which is the subject of repeated planning applications for housing development. Along the western boundary is a culvert which runs into Churchburn. Critically this area of land between Loansdean and Catchburn is a watershed between the Wansbeck and Blyth catchments (qv A3 Hepscott) so drainage patterns on this site are naturally complex and any changes can have far reaching implications.

A6.2 Historically, the area floods after heavy or prolonged periods of rain. At its worst, water has completely flooded gardens in properties which back onto Heron's Field and has, on occasion, entered some properties causing considerable damage. Despite various measures undertaken to alleviate the situation over the years, the problem persists.

#### A6.3 Incident Log:

- Sept 2008: The culvert at the end of the Heron's Field overflowed (the 3rd time since 2006). Nos 1, 3, 5, and 7 The Chip suffered flooding. Gardens and garages were inundated and water ran under the properties resulting in interference with electrics.
- June 2009: The culvert overflowed and gardens and garages were flooded. The Fire Service was contacted for sandbags as the water was rising rapidly.
- Subsequently, investigations were carried out (unsuccessfully) to determine who was responsible for the maintenance of the culvert
- Sept 2009: Gardens in The Fairway backing onto the culvert flooded. NWL said the flooding was not their responsibility, quoting Riparian law, implying that the culvert was the property-owners' responsibility.
- Nov 2009: Drains in The Chip blocked and water backed up, flooding the front gardens of nos 1, 3, 5 and 7. The culvert at the end of the field was in danger of overflowing and back gardens also flooded before workmen arrived to clear the culvert and sinkhole, which was blocked. Once cleared, water ran freely in the culvert.
- July 2012: No 7 The Chip in imminent danger of flooding. A council officer noted that the culvert was 'full but flowing well' and concluded that run off the neighbouring fields flows into the culvert, and given the limited capacity and poor maintenance of the culvert, contributes to the risk of flooding along The Chip.

#### A6.4 Immediate conclusions:

- the culvert needs to be regularly and appropriately maintained
- the issue of surface run-off from the Loansdean Field and other fields to the west towards the New Loansdean estate needs to be addressed.

A6.5 Surface water 'ponding' occurs in many parts of the field, but particularly along the boundary of the estate, very close to existing properties. After heavy or prolonged rain, even without the added pressure of water from the culvert, the ground in Heron's Field becomes saturated and water collects in large pools. These pools remain for days, sometimes weeks, after the rain ceases and water drains from these pools into gardens backing on to the Heron's

Field, depositing mud. Blockages in the culvert are not the only cause of flooding.

A6.6 Development of Loansdean Field disrupting the drainage and speeding up runoff is likely to worsen the risk of flooding. Developer proposals to 'design' a flood route towards the north western boundary to protect development on the new site are seen as a piecemeal approach ignoring the impact on neighbouring houses or further downstream (eg in Hepscott).