Martock Parish Council Flood Risk Guide For Planning Applicants

Version 1.0, January 2020

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1. Introduction

1.1 The purpose of this Guide is to provide information and evidence from a community perspective that will lead to safe, sensible and sustainable development and the necessary action and mitigation that prevents flooding. Reference is made in this document to past flooding problems and issues, so as to guide future plans and avoid problems in the future.

2. Planning Context

2.1 The strategic documents listed in this Guide will continue to have an impact on flooding issues relating to planning within the Parish in the future. They are summarised below for the benefit of both the developer and the local community.

National Planning Policy Framework (NPPF)

2.2 In assessing flood risk, local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations.

2.3 To avoid flood risk, Local Plans should take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure.

2.4 In order to manage and mitigate flood risk, 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. Local Plans should be supported by a Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other relevant flood risk management bodies, such as lead local flood authorities and internal drainage boards. Local Plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by:

- applying the Sequential Test
- if necessary, applying the Exception Test
- safeguarding land from development that is required for current and future flood management
- using opportunities offered by new development to reduce the causes and impacts of flooding
- where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations

2.5 The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. The Strategic Flood Risk Assessment will provide the basis for applying this test. A sequential approach should be used in areas known to be at risk from any form of flooding. . In the first instance the area to which the 'search' for reasonably available alternative sites will apply will be district-wide, but there will be cases where this area of

search will be smaller. Some examples of justifying a reduced 'area of search' include it potentially being impractical to suggest that extensions of existing business premises, such as farm holdings, could be developed elsewhere in the district; and where there is a need for new development that has a defined catchment area such as a school, hospital, or doctor's surgery.

2.6 If, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the development to be located in zones with a lower probability of flooding, the Exception Test can be applied, if appropriate. For the Exception Test to be passed:

- it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared
- a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall

2.7 Both elements of the test will have to be passed for development to be allocated or permitted.

2.8 When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment following the Sequential Test, and if required the Exception Test, it can be demonstrated that:

- within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location
- development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and it gives priority to the use of sustainable drainage systems

2.9 For individual developments on sites allocated in development plans through the Sequential Test, applicants need not apply the Sequential Test. Applications for minor development and changes of use should not be subject to the Sequential or Exception Tests but should still meet the requirements for site-specific flood risk assessments.

3. Somerset Flood Risk Management Strategy

3.1 The Flood Risk Management Authorities in Somerset are working together to achieve the following objectives:

a) The impact of flooding from all sources will be reduced from 2012 levels by 2024. Any increase in the risk of flooding, as a consequence of climate change, will be mitigated where practicable
b) To establish a co-ordinated programme of flood risk and drainage management, including flood risk from all sources, integrating existing strategies, plans and assessments into one Flood Risk Management Plan by 2016
c) The Somerset Strategic Flood Management Partnership will deliver this strategy and work with local communities to develop and deliver fully integrated flood risk and drainage management services, beginning with a co-ordinated works programme
d) Local communities will be made more aware of flood risk, and in partnership with risk management authorities they will take informed decisions to minimise that risk through individual and community action.

e) Strategic development across the County will integrate consideration of flood risk and sustainable drainage into planning and development management systems and seek to reduce flood risk wherever practicable; inappropriate development which could increase flood risk will be avoided, as will inappropriate development in areas of significant flood risk

f) Flood risk management will be fully considered in the local plan development process and identify flood defence infrastructure that development needs to contribute towards

g) Flood risk and drainage management will contribute towards better water quality and wider environmental benefits.

4. South Somerset's Strategic Flood Risk Assessment

4.1 The Somerset Strategic Flood Risk Assessment (SFRA) issued in 2008 was prepared to inform the South Somerset Local Development Framework (LDF) on the issue of flooding within the district and is now due for review. Reference is being made to in the document to the fact that Martock has suffered from surface flood water incidents.

4.2 Areas are highlighted in the SFRA that are at risk of flooding from rivers, and flooding incidents that have occurred in the past from rivers, surface water, sewer flooding, and groundwater are identified. Some areas are within Flood Zone 3 (high flood risk), like many of the market towns and rural centres.

5. South Somerset Local Plan

5.1 Climate change is likely to mean wetter winters and more extreme weather events in South Somerset and therefore potentially more frequent flooding. National planning policy states that a sequential, risk-based approach should be applied to avoid development in areas of flood risk, taking account of the impacts of climate change.

5.2 Surface water flooding is also an issue at many of the main settlements in the district, including Martock. Sustainable Drainage Systems (SuDS) are encouraged as they mimic natural drainage by reducing the amount and rate of water flow following rainfall, therefore reducing the risk of surface water flooding. SuDS have several other benefits such as removing pollutants from urban run-off at source, ensuring that new developments do not increase flood risk downstream, and combining water management with green space which can increase amenity, recreation and biodiversity. The SFRA states that there is a relatively high potential for SuDS in South Somerset due to the permeable underlying geology.

6. Catchment Flood Management Plans (CFMPs)

6.1 The Environment Agency produce Catchment Flood Management Plans (CFMPs) to identify strategic flood risk management policies in river catchments over the long term (50-100 years). The River Parrett CFMP covers most of South Somerset. It states that in the future the main problems may be related to higher intensity summer storms that overwhelm the local sewers and smaller streams.

7. Martock Neighbourhood Plan

7.1 The Neighbourhood Plan's objective is to facilitate good sustainable development, which includes:

- Ensuring policies steer development to areas of lower flood risk as far as possible
- Promoting the use SuDS – SuDS aim to reduce the need for hard, engineered drainage systems, manage water at or near the surface, maximise infiltration into the ground, and deliver ecological benefits.
- Maximising the use of 'natural' SuDS features including infiltration, swales, storage basins, ponds and wetlands. These natural systems can manage flood risk, improve water quality, increase biodiversity and provide amenity benefits, such as additional public open space integrating with cycling and walking routes, providing additional habitat, and contributing to the character of the new "place"
- Promoting water efficiency in new development by incorporating rainwater harvesting technology alongside other SuDS features
- Encouraging measures such as tree planting, street trees, rain gardens and green roofs through new development
- Maintenance of existing flood prevention measures.(Para.7.16,Neighbourhoood Plan)
- Liaison with landowners and tenant farmers in the Parish and Martock rainfall catchment area to minimise 'run off' from the land, and to promote flood reduction measures.(Para. 7.16, Neighbourhood Plan).

8. Local Problems and Issues

Historic and Current Flooding

8.1 Martock has always suffered from periodic flooding and steps are being taken continually to reduce this risk. Climate change has, however, increased both the amount of rainfall together with the frequency and intensity of heavy storms. In consequence the Parish has developed robust strategies for addressing the issue and minimising flood damage.

8.2 Fluvial flood events in Martock village have tended to be 'flash floods', lasting 4-8 hours, usually when peak flood flows in Hurst Brook, ('main river'), have not been able to flow past the restricted capacity of Frickers Bridge and Hurst Bow Bridge. Water on the flood plains both upstream and downstream of the village, together with the more rural areas of the Parish, last longer and can take days to subside.

8.3 Surface water flood events mainly caused by blocked highway drainage systems have occurred more frequently in recent years, which may be because of a funding issue of the respective maintenance authority.

8.4 The Parish has a history of flooding consisting of fluvial and surface water incidents. The River Parrett, (as illustrated below in Fig. 1), over-tops in to the recognised flood plain. This impacts on the Martock to South Petherton Road, which is used to access the South Petherton Hospital, requiring the road to be closed on occasions for safety reasons. Flood water from the Parish area drains in to the River Parrett, which causes over-topping when coupled with the water draining from further upstream.

Fig. 1 - River Parrett flood water on the Martock to South Petherton Road 2013

8.4 The Martock Flood Alleviation Scheme developed in the 1970's was designed to protect properties and the highway from flooding in Water Street, Martock, and also Hurst. The last recorded flood being in 1993. The Scheme was constructed to a 1 in 10[1] standard and following the 1993 flood, further improvements were made by concrete lining of the 'main river' channel in the village to minimise blockages, which caused previous flooding. The pictures in (Figs 2 &3), show flooding from Hurst Brook,('main river'), Martock, in 1993 and 1979, respectively.

Fig. 2 Water Street, Martock, 1993 – view from Hurst Bow Bridge,Hurst Brook, ('main river'),extreme right

[1] a flood level or peak that has a one in ten, or 10%, chance of being equalled or exceeded in any year

Fig. 3 The B3165 Hurst - July,1979

8.5 Both Water Street and Hurst were flooded in the summer of 1979.

8.6 Where 'Main River' is adjacent to Stoke Road, Martock, the water course is designed to over-top by the Martock Flood Alleviation Scheme, the excess flood water then flows in to a channel that by-passes Frickers Bridge, which has restricted capacity and was the main cause of the flooding of Water Street.

8.7 Stoke Road is used by many residents and is now regarded as the main route to and from the village and the A303 dual carriageway. Following flooding incidents that caused disruption to business and commuters, a voluntary Parish Flood Warden Scheme was introduced in 2013, which allows the closure of both Stoke Road and the Martock to South Petherton road in the interests of public safety during flooding incidents.

Fig. 4 Hurst Brook,('main river'), adjacent to Stoke Road, Martock, November 2012

8.8 On 6 February 2016, flood water washed out 75 feet of chain link fencing fastened to concrete posts which were embedded in 2 feet of concrete at Martock Recreation Ground.

Fig. 5 Martock Recreation Ground - damaged chain link fencing on 06.02.16

8.9 The Coat Road to East Lambrook/Kingsbury Episcopi is subject to flooding from the River Parrett. Other locations which have been subject to surface water flooding include Sparrow's Corner, Bower Hinton on the B3165, (see Fig. 6), this road also having flooded at Stapleton. Discussions have recently taken place, (January 2018), with relevant landowners and the Highway Authority with the aim of resolving the flooding issue at Sparrow's Corner, and also store flood water in an attenuation pond, reducing flood risk downstream.

Fig. 6 B3165 Sparrow's Corner, Bower Hinton, November 2014

8.10 East Street in the centre of Martock, has also suffered from surface water flooding in 2012, when the surface water drainage system for Foldhill Lane and East Street was overwhelmed by flood water. Following the construction of an improved drainage system in Foldhill Lane and East Street, no further floods have been recorded.

8.11 In April 2016 the first of the Somerset Rivers Authority 'Hills to Levels' sites was completed in the Martock rainfall catchment area, which consists of the parishes of Stoke sub Hamdon, Montacute, Odcombe, Yeovil Without, Brympton, Tintinhull and Ash. Further sites were completed in 2017 and more are planned, all with the aim of slowing the flow of flood water, reducing peak flood flows together with creating storage areas which are capable of releasing flood water when it is safe to do so, without causing flooding downstream.

8.12 No further floods associated with flood water draining from the Martock rainfall catchment area have been reported in the Parish since the first site was completed, although it is accepted that further upstream flood storage is required to further reduce the risk of flooding.

Fig. 7 Flood storage at Lufton – full on 31.03.18

Fig. 8 Release of flood water at Lufton, 31.03.18.to create storage for rainfall 01/02.04.18

8.13 A reservoir flood storage area at Cartgate has a capacity of 34.308 cubic metres, requiring an annual inspection under the provisions of Section 10(2), Reservoirs Act 1975. No reported floods have occurred as a result of a failure at the reservoir. Discussions have been taking place for over 3 years with Highways England in an effort to reduce the water flow through the sluice which controls the outflow at the reservoir. Currently the sluice is 100% open. To reduce the flow of water it has been requested that the sluice is reduced to a 25% opening.

8.14 Flooding from sewers has been minimal in recent years, with one reported flooding in January 2014, in a field to the south of Stoke Road, caused by tree root ingress.

8.15 It was evident, from the public consultation undertaken during the preparation of the Neighbourhood Plan, that there is a strong desire from the community to resist any developments adjacent to any of the following water courses; River Parrett; 'Main River', Martock; Mill Brook; Hinton Meads Brook; Hurst Brook; Madey Mill Stream; Western Brook; Bower Hinton Brook; Cobden's Rhyne; Furber's Rhyne. Given the historic fluvial flooding events in the Parish no proposed developments in the vicinity of these water courses will be supported.

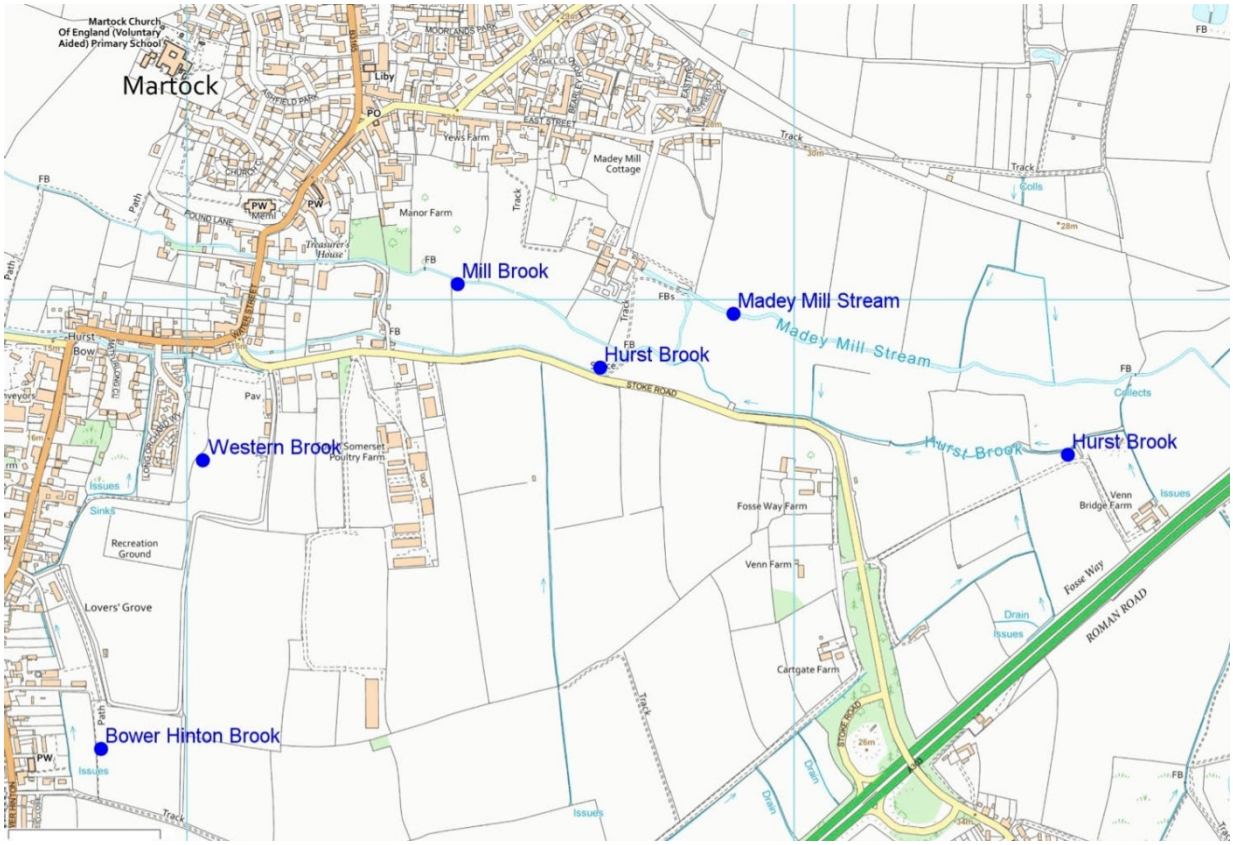

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Fig. 9 Map showing the location of Madey Mill Stream, Hurst Brook, Mill Brook, Western Brook, Bower Hinton Brook and Hinton Meads Brook

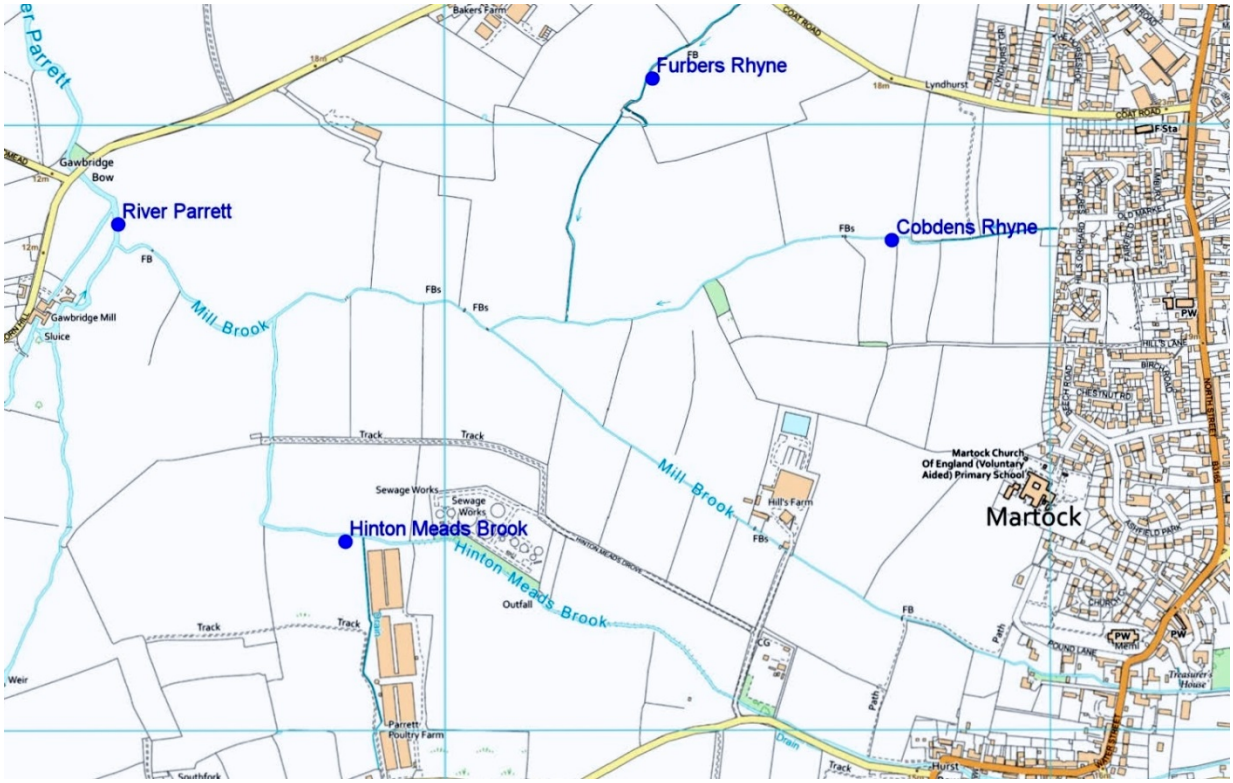

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Fig.10 Map showing the location of the River Parrett, Cobdens Rhyne and Furbers Rhyne

Recent Developments with Potential Impact on Flooding

8.16 All applications for developments upstream of the Parish in the rainfall catchment area are monitored. Landowners and farmers in the catchment report that they have witnessed an increase in the 'run off', following developments on the outskirts of Yeovil. Increased water volumes drain through Martock Parish. Planning permission has been granted for further housing and commercial developments on the edge of Yeovil.

8.17 The Long Orchard Way, (Mertoch Leat), housing development, adjacent to both Hurst Brook,, ('main river'), and the Parrett Internal Drainage Board Rhyne, (Western Brook), gained planning consent in April 2013. South Somerset District Council, the local planning authority, commissioned Roger Tym & Partners to complete a report on infrastructure planning in South Somerset. The Report published in January 2012, stated, "*The Hurst Brook has significant flood issues and so should be avoided by development*"[2].

8.18 When the original plans for Long Orchard Way were passed, Western Brook was to remain an open water course which as a designated rhyne would continue to be maintained by the Parrett Internal Drainage Board. The site developers then went in to administration and the subsequent developers gained permission for a section of Western Brook to be culverted.

8.19 The policy of both the Environment Agency and the Somerset Drainage Boards Consortium, which is reflected in the South Somerset District Council Strategic Flood Risk Review in relation to culverts is: ***No watercourse should be culverted unless there is an overriding need to do so; culverting introduces an increased risk of blockage, (with consequent increase in flood risk).***

[2] Para.8.17, Roger Tym & Partners 2012

A blockage in a culvert can be very difficult to remove and likely to result in a severe flood risk.

8.20 The trash screens at each end of the Western Brook culvert have been obscured by debris on a number of occasions, increasing flood risk and the annual maintenance charge to site residents.

8.21 In the event that the culvert has insufficient capacity for flood water a swale was constructed over the culvert, which has now been nicknamed the 'double decker' water course.

8.22 Plans have been passed for a housing development on land adjacent to Long Orchard Way, Martock. In contrast to the Long Orchard Way, (Mertoch Leat), development, the upstream section of Western Brook, from the culverted section, will remain an open water course maintained by the Parrett Internal Drainage Board, with a 9 metre wide maintenance strip alongside the rhyne. The original Flood Risk Assessment for the site raised some drainage issues which were resolved following discussions between local residents, IDB and the authors of the FRA, so that now surface water drainage from the site will be less than the average 'run off' from one property.

8.23 Surface water drainage from a commercial development on Stoke Road, Martock, is proposed to drain in to the existing highway drainage system near to where Hurst Brook, ('main river') overtops. Prior to this site being developed flood water from the land flowed on to the road surface. Liaison has taken place with the Internal Drainage Board and County Highways regarding the new proposed drainage strategy.

Fig.11 Flood water draining from a commercial site Stoke Road, Martock, prior to development 2014

8.24 A further housing development at Triways, Foldhill Lane, Martock, was rejected twice by the Planning Inspectorate, one of the grounds for refusal on each occasion was the risk of flooding downstream, where surface water has to pass through a road culvert which is 1.7 metres (67 inches) wide, and 0.66 metres (26 inches) high. Following further alterations to the site drainage proposals and at a third appeal to the Planning Inspectorate, planning permission was granted. The site, which is to the north of the disused Durston to Yeovil railway line, was referred to as being south of the railway line by the Planning Inspector, which is where existing housing is located, the development site consisting of green fields.

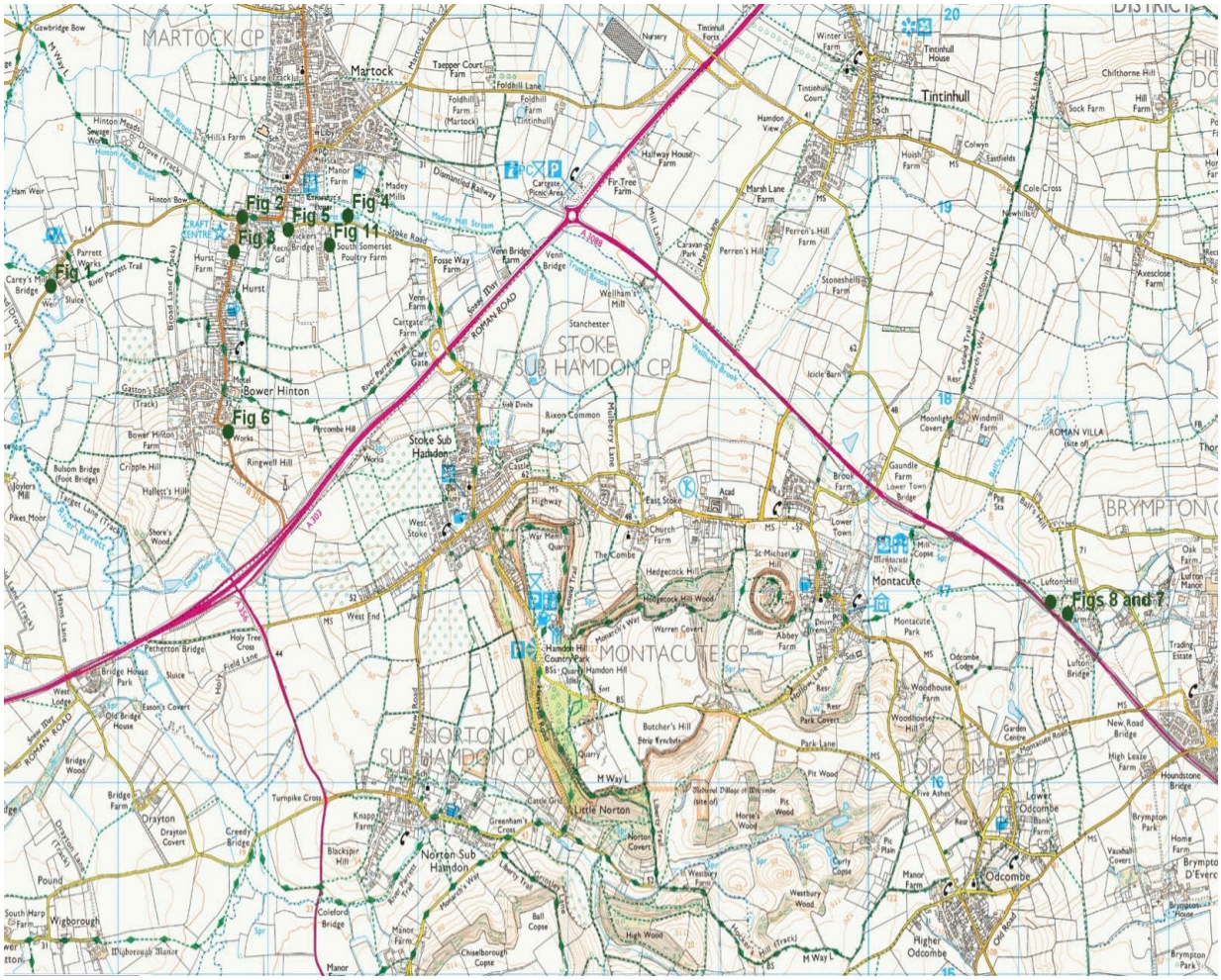

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Fig. 12 Map of the locations of the photographs Figures, 1,2,3,4,5,6 7,8 and 11

9. Natural Factors Affecting Flooding In The Parish

9.1 The height of the tide will influence the ability to drain water from the River Parrett and its tributaries in to the Bristol Channel. Water can only be successfully drained when the height of the tide in the Bristol Channel is below that of the River Parrett. As such, anything that influences the periods of time when the relative water levels are favourable / unfavourable for the River Parrett to drain in to the Bristol Channel are ultimately also likely to influence the ability for water to be drained from the Martock area. Therefore we need to understand the factors that can influence the height of the tide in the Bristol Channel.

9.2 The height of the tide will be affected by three principal factors, the Tidal Cycle, Mean Sea level Atmospheric Pressure and Wind Driven Water Movement, by far the greatest of which being the Tidal Cycle. However, short term changes in meteorological conditions, contributing to the other two factors, can and will cause differences from the standard Tidal Cycle heights, in extreme weather conditions these differences can be large.

9.3 The Bristol Channel has the second largest tidal range in the world, in the region of 13m depending on location. Tides are the rise and fall of sea levels caused by the combined effects of the gravitational forces exerted by the Moon and the Sun, and the rotation of the Earth. While both the Moon and the Sun influence the ocean tides, the Moon plays the biggest role because it is so much closer to the Earth than the Sun. The height data provided in tide tables is calculated for standard meteorological conditions, based on astronomical data and therefore can be predicted in to the near future. However, any long range predictions will need to take in to account significant change in Average Sea Level due to the effects of Climate Change, which is forecast to increase levels around the UK over the coming decades in all current scenarios, in the worst case scenario by some 0.51-1.13m (based on Cardiff in 2100).

9.4 Tidal predictions are computed for average barometric pressure. A 1mb difference from the average can cause a difference in sea level height of about 1cm. Lower pressure will tend to raise sea level and higher pressure will tend to depress it. However, the water level does not adjust itself immediately to a local change of pressure, it responds to the average change in pressure over a considerable area, water taking some time to move as a result of a change in driving forces. Changes in level due to barometric pressure seldom exceed 0.3 metres but, when mean sea level is raised or lowered by strong winds or by storm surges, this effect can be important.

9.5 The effect of wind on sea level – and therefore on tidal heights and times - is very variable and depends largely on the topography of the area in question. In general it can be said that wind will raise sea level in the direction towards which it is blowing. A strong wind blowing onshore will pile up the water and cause high waters to be higher than predicted, while winds blowing offshore will have the reverse effect. Winds blowing along a coast tend to set up long waves which travel along the coast, raising sea level where the crest of the wave appears and lowering sea level in the trough. These waves are known as "storm surges". They have a period of many hours and wavelengths measured in hundreds of kilometres.

9.6 A storm surge is a large scale increase in sea level due to a storm. Low atmospheric pressure allows sea level to rise, and gale force winds combined with the Earth's rotation force water towards the coastline.

9.7 Each of the factors described will have their own individual effect on the ability of the River Parrett to drain in to the Bristol Channel. The combination of the effects can serve to either shorten or lengthen the periods of time when draining can occur, by adding constructively or destructively, e.g. the period of high water levels in the Bristol Channel may be extended beyond that expected from the Tidal Cycle alone when Meteorological forcing continues to add water to an otherwise ebbing tide. The Meteorological effects will vary, both spatially and temporally, dependent on the severity of a storm system (central pressure and associated wind speed and direction) and its track across the area (a storm passing to the North of the region will tend to produce W'ly winds and increase water levels, a storm passing to the South having the opposite effect).

9.8 Storm Surge models are run four times per day producing forecasts up to two days ahead. The model surge is combined with tides predicted at tide gauge sites to give the best estimate of the total water level.

9.9 In the worst case, the cumulative effects of Tidal Cycle, low Atmospheric Pressure and strong winds are likely to result in extended interruptions to the effective drainage of the River Parrett and, as a consequence, its tributaries, including those passing through Martock and its surrounding area. Over time Climate Change and its associated rise in Sea Levels will further reduce the ability to drain excess water in to the Bristol Channel.

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10. Future Concerns

10.1 There is considerable concern regarding the impact on flooding in the Parish from housing and industrial developments upstream, particularly on the outskirts of Yeovil.

10.2 Hydrology is a complex subject which requires the correct application of the appropriate methodology to provide a meaningful result for any conclusions reached in FRAs. The rainfall data and profiles that are used to model surface water drainage systems can be from two sources: The Flood Studies Report (FSR), and the Flood Estimation Handbook (FEH).Both can be used for small sites. The data for the FSR was produced in 1975, and the FEH in 1999, the latter with revisions in 2013, which should be used for all current designs.

10.3 At present no gauged flow recording equipment is sited on any of the water courses in the Parish, and therefore all the water flow data is estimated. The estimated data is used for flood modelling to produce FRAs, (Flood Risk Assessments), in relation to drainage strategies for developments. Decision makers should have a consideration of the uncertainty within the conclusions for the drainage design in relation to this factor.

10.4 The ever-increasing loss of open fields that are able to absorb rainfall, decreasing downstream 'run off'; and the ever-extending areas of hard surfaces such as roads, pavements, driveways, building foundations etc., particularly combined with the threat of climate change, is a major concern in relation to the increased risk of flooding in the Parish.

10.5 Yearly budget reductions for the respective authorities who have the responsibility for the maintenance of the Parish drainage systems and water courses also increases the risk of flooding incidents.

10.6 The removal of trees and hedgerows, which reduce the impact on surface water 'run off', to make way for developments, increases flood risk.

10.7 Agricultural practices which increase 'run off' from fields are also of concern. Good post-harvest farming practices are recommended by DEFRA to ensure that soil does not become compacted and impervious following late harvests of crops like potatoes and maize. It is essential that this advice continues to be followed.

10.8 The practice of culverting water courses to allow developments to proceed exacerbates flood risk by increasing the risk of blockages, which can be difficult to clear.

11. Martock Emergency Plan

11.1 Details relating to action to be taken in the event of flooding in the Parish are contained in the Martock Emergency Plan (pages 9-10, 44-59), located on the internet at www.martockonline.co.uk

11.2 In the event that residential properties are flooded, several locations in the Parish have been identified where, if necessary, residents can be safely accommodated until other more permanent accommodation are available.

11.3 A Flood Warden Scheme for the Parish was introduced in 2013. The volunteer Flood Wardens have the authority to close roads in the interests of community safety and provide assistance to any flood victims.

12. Advice to Developers

12.1 Developers will be encouraged to focus on locations not currently subject to the likelihood of flooding, or in the future, taking in to account climate change.

12.2 It is expected that development is unlikely to be permitted where the only access/egress is solely to a road which has a recent history of flooding incidents.

12.3 On developments where attenuation/retention ponds are utilised as part of the drainage strategy, the ponds must be capable of storing surface water, so that the release of the water does not increase flood risk downstream at any time, particularly during flooding incidents in the area. The preferred method of control at the outflow from any such pond would be a penstock, which would be capable of being closed to hold flood water back in storage, as opposed to a hydro-brake which continues to discharge flood water during a flood situation.

12.4 The impact of any development on flooding downstream or in the surrounding area must always be considered and where necessary mitigation measures will be introduced, including Sustainable Drainage Systems, (SUDs), to minimise the risk of foul sewers being overwhelmed causing flooding.

12.5 Where appropriate, new home owners should be made aware of their responsibilities regarding any watercourse which is adjacent to their land.

12.6 Developers must ensure that the correct consents and permissions are obtained before a development is commenced.

12.7 The Flood Maps produced by the Environment Agency do not accurately reflect the more recent flooding scenarios in the Parish and therefore are not included, but can be viewed by the links below:

- Flood Map for Planning
  https://flood-map-for-planning.service.gov.uk
- Flood risk from rivers or the sea
  https://flood-warning-information.service.gov.uk/long-term-flood-risk/map
- Flood risk from surface water
  https://flood-warning-information.service.gov.uk/long-term-flood-risk/map
- Flood risk from reservoirs
  https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

Parish Soil Structure

12.8 If soil samples are taken during periods of prolonged significant rainfall, the results are likely to be challenged as not being representative of the drainage profile for that location.

12.9 The maps shown below describe the different soil structures in the Parish. It is suggested that all planning applicants view the maps which can be enlarged to specific locations within the Parish by following the link: http://www.landis.org.uk/soilscapes/

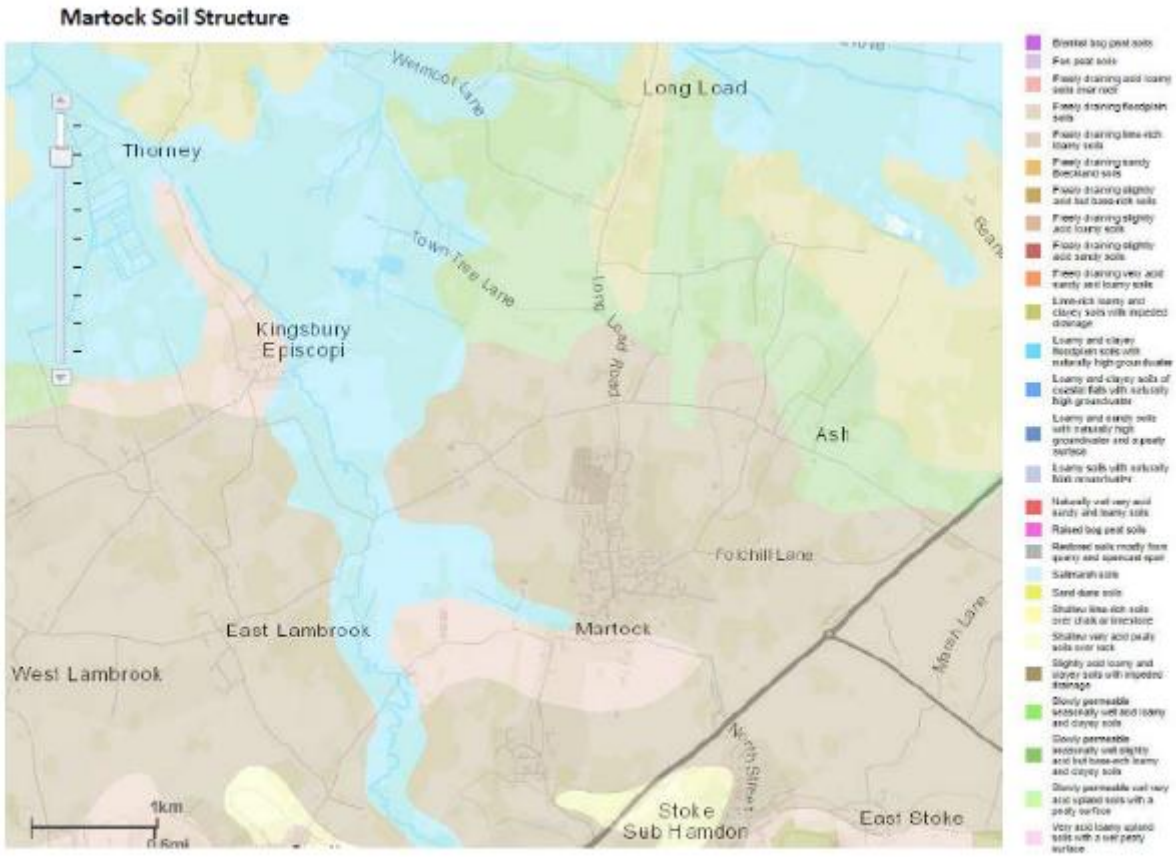


Fig. 13 Soil Structure Map developed by Cranfield University sponsored by DEFRA

13. SuDS

13.1 SuDS prevent water pollution and flooding in urban areas. SuDS also help create and sustain green spaces and habitat for wildlife. SuDS are a legal requirement for all new developments, except for surface water drainage from single dwellings.

13.2 This Guide describes the different types of SuDS, and how and when you must use them on your site.

13.3 Sustainable drainage systems (SuDS) are a natural approach to managing drainage in and around properties and other developments. SuDS work by slowing and holding back the water that runs off from a site, allowing natural processes to break down pollutants.

Types of SuDS

13.4 **Source control** measures - deal with run-off at, or close to, the surface where rainfall lands.

13.5 **Site control** measures - manage the surface water run-off from larger areas, such as part of a housing estate, major roads or business parks. The run-off from larger areas can be channelled to a site control measure using swales (shallow drainage channels) or filter drains.

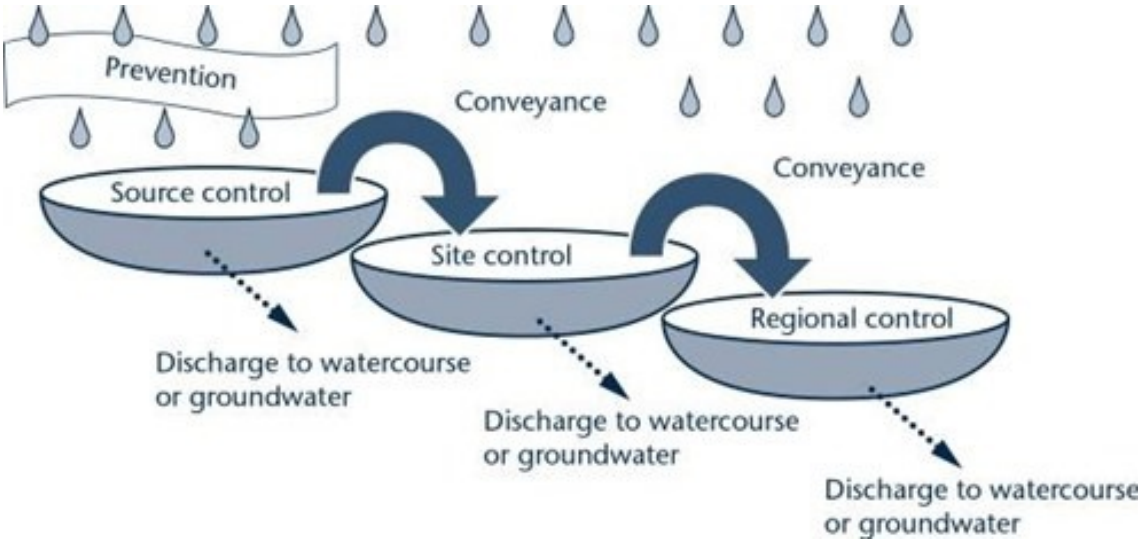
13.6 **Regional control** measures downstream of source and site controls deal with the gathered run-off from a large area. These systems use the same principles as smaller scale SuDS, but can cope with larger volumes of water.

13.7 Rainwater that passes through small SuDS can feed into larger SuDS which deal with the gathered run-off from a wide area. It is best to connect the flows between SuDS components with swales, filter drains or ditches and avoid the use of pipes.

SuDS treatment and attenuation

13.8 When you design a sustainable drainage system you should consider including a number of connected components. The more likely the runoff is to be contaminated the more stages of treatment should be included. This is known as the treatment train.

13.9 You can include source control measures to capture and treat runoff close to where it lands. You can connect a number of source controls to a site control measure such as a detention basin. The overflow from site control measures can be finally treated in a regional control



SUDS measure before final discharge to the water environment.

Fig. 14 SuDs Source Control Measures

Benefits of SuDS

13.10 The benefits of SuDS are:

- preventing water pollution
- slowing down surface water run-off and reducing the risk of flooding
- reducing the risk of sewer flooding during heavy rain
- recharging groundwater to help prevent drought
- providing valuable habitats for wildlife in urban areas
- creating green spaces for people in urban areas

SUDS techniques

13.11 You can use the following SuDS techniques:

- green roofs
- permeable surfaces
- infiltration trenches filter drains and filter strips
- swales - shallow drainage channels
- detention basins, ponds and wetlands

14 Basic Steps for Site Selection

14.1

1. Prepare a statement of objectives/requirements for the site and facility/buildings and agreeing this with the client
2. Prepare a specification for site selection, establishing the criteria for evaluating sites based on the objectives/requirements and agreeing weightings with the client
3. Establish the outline funding arrangements
4. Determine responsibilities within the project team (client/project manager/commercial property agent)
5. Appoint/brief members of the team and developing a schedule for site selection and acquisition; monitoring and controlling progress against the schedule
6. Action site searches and collecting data on sites, including local planning requirements, for evaluation against the criteria. See technical due diligence and site appraisals for more information
7. Evaluate sites against the criteria and producing a short list of three or four
8. Establish initial options and developing costs
9. Discuss short-listed sites with relevant planning authorities
10. Obtain advice on the approximate open-market value of short-listed sites
11. Select the preferred site from the short list
12. Appoint agents for price negotiation and separate agents for independent valuation
13. Appoint lawyers as appropriate
14. Determine specific financial arrangements
15. Exchange contracts for site acquisition once terms are agreed, conditional upon relevant matters, such as ground investigation, planning consent and so on

14.2 Having followed the basic steps for the selection of the site it is recommended that any developer then takes in to account the relevant information contained in the Martock Parish Neighbourhood Plan.

15. Information Sources

National Planning Policy Framework, (NPPF) – https://www.gov.uk/government/publications/national-planning-policy-framework
Somerset Flood Risk Management Strategy**, -** www.somerset.gov.uk
South Somerset's Strategic Flood Risk Assessment, (SFRA) **-** https://www.southsomerset.gov.uk/.../south-somerset-strategic-flood-risk-assessment/South
Somerset Local Plan – https://www.southsomerset.gov.uk/planning.../south-somerset-local-plan-2006-2028/
Martock Neighbourhood Plan - www.martockonline.co.uk
Roger Tym & Partners Report on Infrastructure Planning in South Somerset 2012 - https://www.southsomerset.gov.uk/.../infrastructure_plan_final_report
Environment Agency, Chapter 8 – www.evidence.environment-agency.gov.uk/FCERM/en/.../Chapter8.aspx?pagenum=6
Somerset Drainage Board Consortium - www.somersetdrainageboards.gov.uk/Copy_of_Watercourses-_Part_2_Culverting_
South Somerset District Council Strategic Flood Risk Review - https://www.southsomerset.gov.uk/.../district.../south-somerset-strategic-flood-risk-assessment

Cranfield University, (sponsored by DEFRA) – http://www.landis.org.uk/soilscapes/
Martock Emergency Plan - www.martockonline.co.uk
Environment Agency, (Flood Maps) – https://flood-map-for-planning.service.gov.uk

16. Contacts

Environment Agency, (EA)
South Somerset District Council, (SSDC)
Lead Local Flood Authority – (SCC)
Highways Authority – (SCC)
Parrett Internal Drainage Board
Martock Parish Council, (MPC)
Water Authority - Wessex Water
Major local land owners
Somerset Rivers Authority, (SRA)
Farmers Wildlife and Advisory Group South West, (FWAGSW)
Natural England, (NE)

17 Abbreviations

CFMPs	Catchment Flood Management Plans
FEH	Flood Estimation Handbook
FRA	Flood Risk Assessment
FSR	Flood Studies Report
IDB	Internal Drainage Board
LDF	Local Development Framework
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems

18 Glossary

Leat	Artificial water course supplying water to a watermill or mill pond
Rhyne	Drainage ditch
Overtop	Water flow over the top of the bank of a water course