

# Southampton Local Flood Risk Management Strategy

## Water Framework Directive Preliminary Screening Assessment Report

October 2014



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# 1. Introduction

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## 1.1 The Water Framework Directive

The Water Framework Directive (WFD) was passed into UK law in 2003 and for the first time, combines water quantity and quality issues together. An integrated approach to the management of all freshwater bodies, groundwaters, transitional (estuarine) and coastal waters (TraC) at the river basin level has been adopted. It effectively supersedes all water related legislation which drives the existing licensing and consenting framework in the UK.

The overall requirement of the Directive is that all river basins must achieve “good ecological status” by 2015 unless there are grounds for derogation. It also requires that Environmental Objectives be set for all waterbodies; the River Basin Management Plans (RBMPs) set out the objectives for the waterbodies within the study area.

Ecological Status is expressed in terms of five status classes (high, good, moderate, poor or bad) which are defined using biological, physico-chemical and hydromorphological criteria. The biological assessment criteria uses numeric measures of communities of plants and animals (e.g. fish, rooted plants). The physico-chemical assessment uses elements such as temperature and nutrient levels, which support the biological communities. The hydromorphological assessment uses water flow, sediment composition and movement, continuity (in rivers) and the structure of physical habitat. The overall ecological status of a waterbody is determined by whichever of these criteria is assessed to be the poorest. For example, if a waterbody achieved ‘Good status’ for chemical and physico-chemical assessments, but only achieved ‘Moderate status’ for the biological assessment; it would be classed overall as having ‘Moderate ecological status’. To achieve the overall aim of good surface water status, the WFD requires that surface waters be of at least Good ecological status and Good chemical status.

The WFD recognises that some waterbodies have been physically altered, for example for navigation or flood defence, and allows for these water bodies to be designated as Heavily Modified Water Bodies (HMWB) or Artificial Water Bodies (AWB) and need to achieve good ecological potential rather than ecological status. Ecological potential means that the waterbody is managed to achieve the biology that can be achieved given its modified condition. HMWBs are classified by:

- identifying the impacts of physical modification affecting the water body;
- identifying possible mitigation measures necessary to ensure the hydromorphological characteristics of a water body are consistent with Good or maximum ecological potential; and
- assessing whether all of those measures have been taken.

## 1.2 WFD Objectives

The WFD contains five Environmental Objectives, which aim to prevent a negative change to the status of water bodies, which could be caused by a deterioration of any of the biological, physico-chemical or hydromorphological Quality Elements listed in Annex V of the WFD, as shown in Table 1.1 below. The Environmental Objectives taken from Article 4 of the Water Framework Directive (WFD) are shown below in Table 1.2<sup>1</sup>.

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<sup>1</sup> Table 11 of Assessing shoreline management plans against the requirements of the Water Framework Directive, Guidance and Background Information, Environment Agency, 2009

**Table 1.1: Biological, physico-chemical or hydromorphological quality elements**

Quality Elements	Description
Biological assessment	Uses numeric measures of communities of plants and animals (for example fish and rooted plants)
Physico-chemical assessment	Looks at elements such as temperature and the level of nutrients, which support the biology
Hydromorphological assessment	Looks at water flow, sediment composition and movement, continuity (in rivers) and the structure of physical habitat

**Table 1.2: Environmental objectives in the WFD**

Objectives	Description
WFD1	No changes affecting high status sites
WFD2	No changes that will cause failure to meet surface water Good Ecological Potential or result in a deterioration of surface water Ecological Potential
WFD3	No changes which will permanently prevent or compromise the environmental objectives being met in other waterbodies
WFD4	No changes that will cause failure to meet good groundwater status or result in a deterioration in groundwater status

There is also a duty to enhance and restore water bodies where possible and by implication there is a need to ensure that actions do not prevent water bodies from reaching a good status and potential. In order to meet the objectives, any activity which has the potential to have an impact on any of the Quality Elements must be assessed. The Local Flood Risk Management Strategy (LFRMS) actions will therefore be considered to ensure there are no future failures in meeting the Environmental Objectives, and any failures that do occur can be defended.

- Please note, the term ‘surface water’ and ‘surface waters’ within the report refers to coastal and transitional waters, rivers, streams or lakes, as defined by the Water Framework Directive. It does not refer to surface water run-off or surface water ponding which may be caused by rainfall as referred to in Section 2 in relation to the LFRMS.

### 1.3 Other legislation

Where sites are protected under other European Legislation, such as the Habitats Directive<sup>2</sup>, Birds Directive<sup>3</sup> or the Shellfish Waters<sup>4</sup> and Shellfish Harvesting<sup>5</sup> Directives, the WFD also sets standards to ensure compliance with any relevant objectives for these sites. For sites where more than one quality standard applies, compliance with the stricter standard is required.

The designated conservation sites which lie within or directly adjacent to the LFRMS area, include the Solent & Southampton Water SPA and Ramsar site, River Itchen SAC and the Solent Maritime SAC (Figure 1-1). Nationally and locally designated sites within the study area

<sup>2</sup> European Commission, 1992, *The Habitats Directive (92/43/EEC)*, Brussels

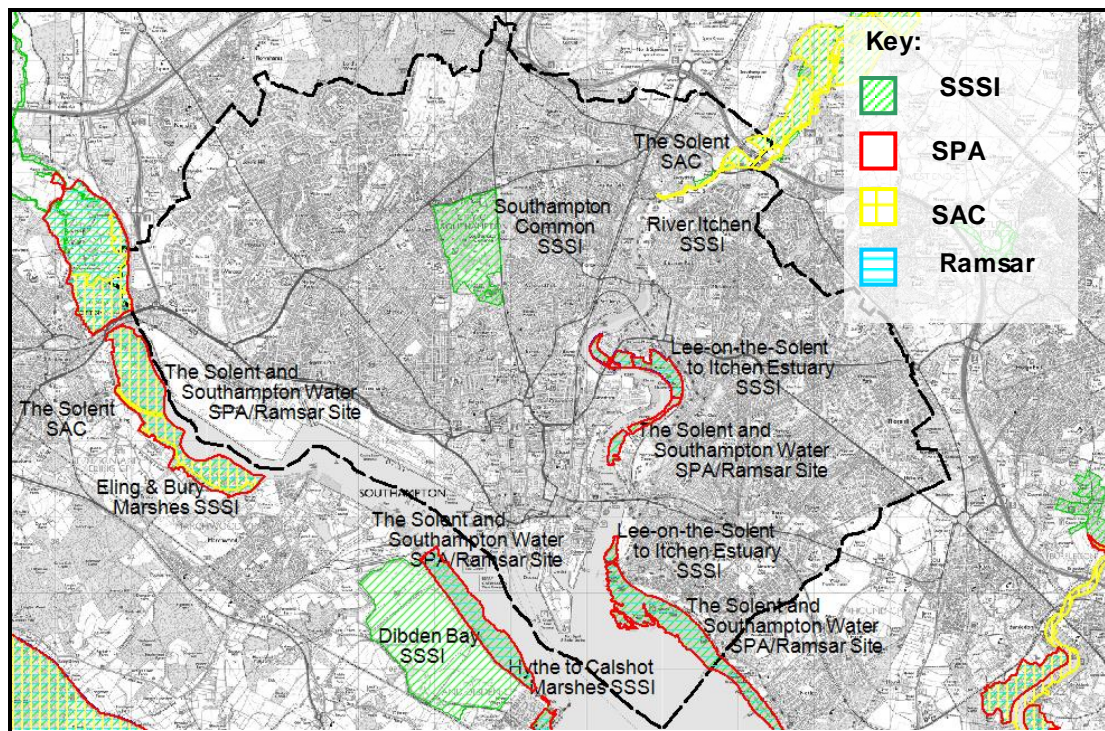
<sup>3</sup> European Commission, 1979, *Birds Directive (79/409/EEC)*, Brussels

<sup>4</sup> European Commission, 2006, *The Shellfish Waters Directive (2006/113/EC)*, Brussels

<sup>5</sup> European Commission, 2004, EC Regulation 853/2004 (w hich replaces the *EU Shellfish Harvesting Directive 91/492/EC*), Brussels



(such as the Lower Test Valley SSSI and Chessel Bay Local Nature Reserve) have not been assessed, as these are not covered by the remit of the WFD.



**Figure 1-1: Designated conservation sites in Southampton**

Within the Solent and Southampton Water, there are several Shellfish Waters Directive designated areas, and designated Shellfish Harvesting Areas. The WFD requires all protected shellfish areas to comply with their individual standards. The Shellfish Waters Directive (2006/113/EC) requires compliance with mandatory standards for parameters including dissolved oxygen, suspended solids, metals and other contaminants.

In terms of the designated harvesting area, the EC Regulation 853/2004 (which replaces the EU Shellfish Harvesting Directive 91/492/EC) aims to protect consumers of foods including shellfish, and is implemented in England by the Food Hygiene (England) Regulations 2006. The requirements of these regulations will also be considered.

# 2. Southampton LFRMS

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## 2.1 Background

It is a requirement under Section 9 of the Flood and Water Management Act 2010 (FWMA) for a Lead Local Flood Authority (LLFA) to ‘develop, maintain, apply and monitor a strategy for local flood risk management in its area’. Southampton City Council (SCC), as a LLFA, therefore has a duty to develop the LFRMS for Southampton to assess the local flood risk within the city and propose ways of managing them.

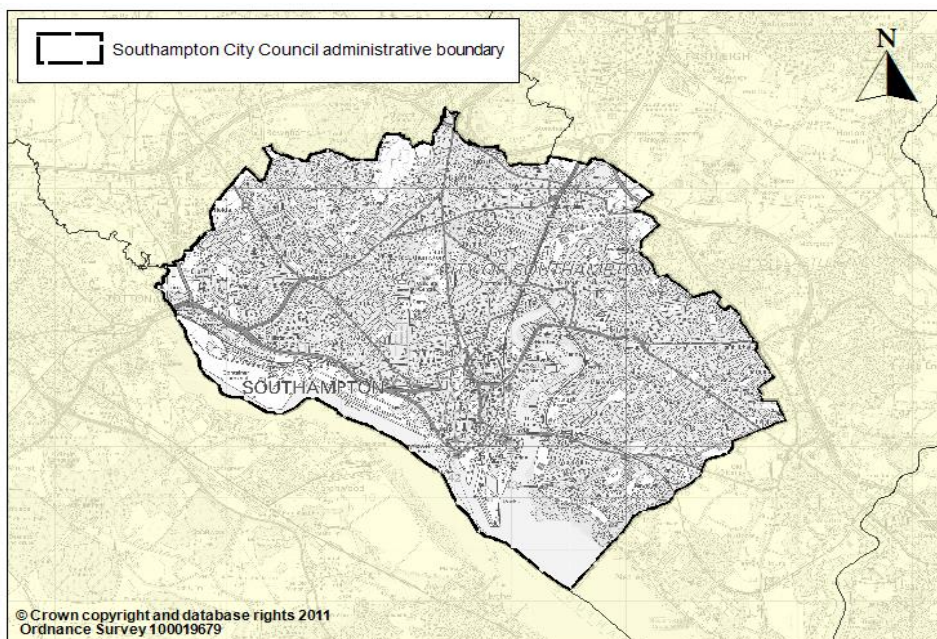
The definition of *local flood risk* is provided in Section 9(2) of the FWMA as being flood risk from:

- Surface runoff,
- Groundwater; and
- Ordinary watercourses.

An ordinary watercourse is defined further by the act as a watercourse that does not form part of a main river including, but not limited to, all streams, ditches, culverts and ponds. Main rivers can be identified on a main river map, and like the sea and reservoirs, are not classed as local risk and therefore remain the responsibility of the Environment Agency.

Where there is an interaction between local sources of flood risk and risks which are the responsibility of the Environment Agency, it may be necessary for all sources of flood risk to be considered to some extent in the LFRMS. An example of a flood risk occurring due to an interaction of sources is ‘tidal locking’ which is the result of the tide entering an ordinary watercourse, causing a backlog of water which is unable to discharge. As there are several interactions of flood sources in Southampton, the LFRMS shall include flooding from all sources to ensure an integrated approach to the management of flood risk.

The LFRMS covers the administrative boundary of Southampton (Figure 2-1).



**Figure 2-1: Area covered by the LFRMS**

SCC have and continue to undertake activities to manage flood risk within Southampton so the LFRMS has incorporated any short term recommendations from existing flood risk management plans and strategies and existing duties and responsibilities as well as proposing other actions to try to manage flood risk across the city. Where a WFD assessment has already been completed for any of the existing recommendations the information has been incorporated within this preliminary screening assessment report.

## **2.2 Requirements of the LFRMS**

It is a statutory requirement set out in the FWMA, for the LFRMS to specify:

- a) The risk management authorities in the authorities areas,
- b) The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area,
- c) The objectives for managing local flood risk, relevant to the local area and reflecting the level of risk,
- d) The measures proposed to achieve the set objectives,
- e) How and when the measures are expected to be implemented,
- f) The costs and benefits of the measures, and how they are to be paid for,
- g) The assessment of local flood risk for the purpose of the strategy,
- h) How and when the strategy is to be reviewed, and
- i) How the strategy contributes to the achievement of wider environmental objectives.

In addition to the above requirements, the LFRMS must also be consistent with the National Flood and Coastal Erosion Risk Management Strategy (2011)

## **2.3 Aim & Objectives of the Southampton LFRMS**

The purpose of the Southampton LFRMS is to identify the extent and sources of flood risk across the city, and outline the approach to managing the risks. The overarching aim of the LFRMS is to better understand, communicate and manage the risk of flooding in Southampton through viable, sustainable and coordinated approaches, for the benefit of people, property, land and the environment, both now and in the future.

There are 8 objectives of the Southampton LFRMS which are:

- 1) Improve the knowledge and understanding of all sources of flood risk across the City.
- 2) Work in partnership with other authorities who have a role in flood risk management, including across administrative boundaries.
- 3) Identify ways to increase public awareness of the flood risk across the City.
- 4) Identify ways of improving support for people at direct risk to promote appropriate individual and community level planning and action.
- 5) Ensure that planning decisions are properly informed by flooding issues so future development assists with reducing and mitigating flood risk.
- 6) Identify appropriate measures which reduce the likelihood of harm to people and damage to the economy and the environment.
- 7) Maintain, and improve where necessary, flood risk management infrastructure and systems to reduce flood risk.
- 8) Identify all available funding mechanisms to enable delivery of flood risk management interventions.



# 3. Assessment Methodology

The methodology used for this assessment has been taken from the Environment Agency document 'Assessing new modifications for compliance with WFD: detailed supplementary guidance, Environment Agency, 2010'. This follows an 8 step process which is illustrated below in Figure 3.1.

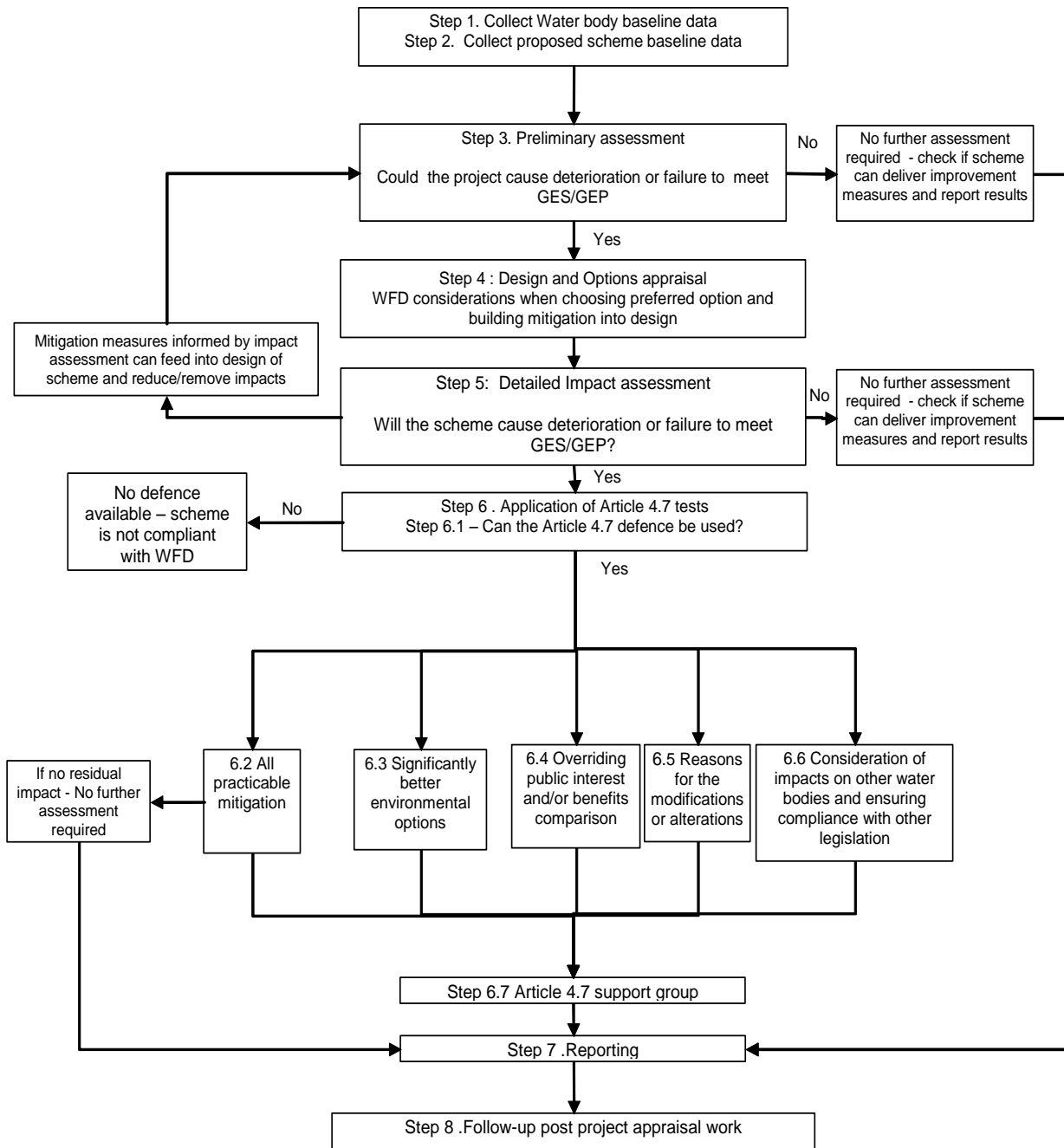


Figure 3-1: WFD Assessment process

# 4. WFD Preliminary Screening

## 4.1 Water body baseline data (Step 1)

The LFRMS area lies within the South East River Basin District (RBD), in the Test & Itchen catchment.

### 4.1.1 Waterbodies present within the LFRMS area

The waterbodies within the LFRMS area include:

- Southampton Water transitional waterbody (GB520704202800)
- Central Hants Bracklesham Group ground waterbody (GB40702G500900)
- Monks Brook surface waterbody (GB107042016310)
- Tanners Brook surface waterbody (GB107042016620)
- Sholing Common streams surface waterbody (GB107042016220)
- Highfield stream surface waterbody (GB107042016230)
- Southampton Common lake (GB30745224)
- Westwood stream (GB107042016550)

#### ***Southampton Water Transitional Waterbody***

The Southampton Water transitional waterbody is a HMWB, due to the presence of extensive hard coastal defences along the length of the Strategy frontage and reclaimed land in the dock areas. The waterbody is therefore classified as being at Moderate overall potential with an objective of reaching ‘Good potential’ status by 2027. It has been deemed to be disproportionately expensive and technically infeasible to achieve Good potential by 2015.

In the case of the Southampton Water transitional waterbody, the mitigation measures identified by the RBMP are given below in Table 4.1.

**Table 4.1: Southampton Water mitigation measures identified by the RBMP**

Mitigation Measure Identified	Is This Measure in Place?
Reduce impact of dredging	In Place
Prepare a dredging / disposal strategy	In Place
Avoid the need to dredge (e.g. minimise under-keel clearance; use fluid mud navigation; flow manipulation or training works)	In Place
Alter timing of dredging / disposal	In Place
Reduce sediment resuspension	In Place
Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works.	In Place
Indirect / offsite mitigation (offsetting measures)	Not In Place
Operational and structural changes to locks, sluices, weirs, beach control, etc	Not In Place
Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone	Not In Place

### **Central Hants Bracklesham Group Groundwater**

The Central Hants Bracklesham Group groundwater body is a drinking water protected area currently with Good overall potential and will meet Good overall status by 2015. The status objective for this waterbody is to achieve Good quantitative and Good chemical status by 2015. Further general information on this waterbody is outlined in Table 4.2.

**Table 4.2: General information on Central Hants Bracklesham Group groundwater**

<b>General Information</b>	
Waterbody ID and Name	Central Hants Bracklesham Group (GB40702G500900)
Current Overall Potential	Good
Status Objective (Overall)	Good by 2015
Status Objective(s)	Good quantitative status by 2015, Good chemical status by 2015
Justification if overall objective is not good status by 2015	
Protected Area Designation	Drinking Water Protected Area
Groundwater body has an upward trend in pollutant concentrations	No
Elements Failing Good Status	-

No mitigation measures have been put forward by the RBMP.

### **Monks Brook Surface Waterbody**

Monks Brook surface waterbody is a HMWB due to urbanisation and the requirement for flood protection. The current overall potential for this waterbody is classed as moderate, with the objective of reaching 'Good potential' status by 2027. It has been deemed technically infeasible to reach good status by 2015. Further general information on this waterbody is outlined in Table 4.3.

**Table 4.3: General information on the Monks Brook waterbody**

<b>General Information</b>	
Waterbody ID and Name	Monks Brook (GB107042016310)
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Technically infeasible
Protected Area Designation	Nitrates Directive, Urban Waste Water Treatment Directive
SSSI Related	No
Hydromorphological Designation	Heavily modified
Reason for Designation	Flood Protection, Urbanisation
Ecological Potential (and certainty)	Moderate

Elements Failing Good Status	(Biological) Invertebrates – Current status moderate, to achieve good by 2015 (Ecological) Mitigation measures assessment – Current status moderate, predicated to remain moderate at 2015.
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The mitigation measures for the Monks Brook surface waterbody as identified by the RBMP are shown in Table 4.4.

**Table 4.4: Monks Brook mitigation measures identified by the RBMP**

Mitigation Measure Identified	Is This Measure in Place?
Appropriate channel maintenance strategies and techniques – woody debris	In Place
Appropriate channel maintenance strategies and techniques – minimise disturbance to channel bed and margins	In Place
Appropriate techniques (invasive species)	In Place
Appropriate timing (vegetation control)	In Place
Appropriate vegetation control technique	In Place
Selective vegetation control regime	In Place
Set-back embankments	In Place
Flood bunds (earth banks, in place of floodwalls)	In Place
Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone	Not in Place
Removal of hard bank reinforcement/revetment, or replacement with soft engineering solution	Not in Place
Preserve and, where possible, restore historic aquatic habitats	Not in Place
Increase in-channel morphological diversity	Not in Place
Re-opening existing culverts	Not in Place
Alteration of channel bed (within culvert)	Not in Place
Remove obsolete structure	Not in Place
Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works	Not in Place
Educate landowners on sensitive management practices (urbanisation)	Not in Place
Operational and structural changes to locks, sluices, weirs, beach control etc	Not in Place
Retain marginal aquatic and riparian habitats (channel alteration)	Not in Place
Improve floodplain connectivity	Not in Place



### **Tanner's Brook Surface Waterbody**

Tanner's Brook is a HMWB due to the presence of urbanisation. It achieves Moderate overall potential with the objective to achieve good ecological potential by 2027. It is deemed disproportionately expensive and technically infeasible to reach good status by 2015. Further general information on this waterbody is outlined in Table 4.5.

**Table 4.5: General information on the Tanners Brook waterbody**

<b>General Information</b>	
Waterbody ID and Name	Tanners Brook (GB107042016620)
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive, technically infeasible
Protected Area Designation	Nitrates Directive
SSSI Related	No
Hydromorphological Designation	Heavily Modified
Reason for Designation	Urbanisation
Ecological Potential (and certainty)	Moderate
Elements Failing Good Status	(Ecological) Mitigation Measures currently moderate and likely to remain moderate by 2015.

Several mitigation measures have been set out in the RBMP for Tanner's Brook. Table 4.6 lists the measures identified.

**Table 4.6: Tanner's Brook mitigation measures identified by the RBMP**

<b>Mitigation Measure Identified</b>	<b>Is This Measure in Place?</b>
Appropriate channel maintenance strategies and techniques – woody debris	In Place
Appropriate channel maintenance strategies and techniques – minimise disturbance to channel bed and margins	In Place
Appropriate techniques (invasive species)	In Place
Appropriate timing (vegetation control)	In Place
Appropriate vegetation control technique	In Place
Selective vegetation control regime	In Place
Operational and structural changes to locks, sluices, weirs, beach control etc	Not in Place
Preserve and, where possible, restore historic aquatic habitats	Not in Place
Increase in-channel morphological diversity	Not in Place
Re-opening existing culverts	Not in Place
Alteration of channel bed (within culvert)	Not in Place
Flood bunds (earth banks, in place of floodwalls)	Not in Place

Set-back embankments	Not in Place
Improve floodplain connectivity	Not in Place
Removal of hard bank reinforcement/revetment, or replacement with soft engineering solution	Not in Place
Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone	Not in Place
Educate landowners on sensitive management practices (urbanisation)	Not in Place
Retain marginal aquatic and riparian habitats (channel alteration)	Not in Place
Appropriate techniques to align and attenuate flow to limit detrimental effects of these features (drainage)	Not in Place
Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works	Not in Place

### ***Sholing Common Streams Surface Waterbody***

Due to urbanisation and the requirement for flood protection, Sholing Common Streams designated as HMWBs. The current overall potential is moderate with the objective to reach good status by 2027. The justification for not meeting good status by 2015 is that it is technically infeasible to do so. Further general information on this waterbody is outlined in Table 4.7.

**Table 4.7: General information on the Sholing Common Streams**

<b>General Information</b>	
Waterbody ID and Name	Sholing Common Streams (GB107042016220)
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Technically infeasible
Protected Area Designation	Natura 2000 (Habitats and/or Birds Directive), Nitrates Directive, Shellfish Water Directive
SSSI Related	No
Hydromorphological Designation	Heavily Modified
Reason for Designation	Flood Protection, Urbanisation
Ecological Potential (and certainty)	Moderate
Elements Failing Good Status	(Biological) Invertebrates – Currently moderate (quite certain), predicted to be moderate by 2015 (Supporting conditions) Quantity and dynamics of flow – Currently supports good, remains supporting good by 2015 (Ecological) Mitigation Measures Assessment – Currently moderate, to remain moderate by 2015

The RBMP identifies several mitigation measures for Sholing Common Streams, however none of which are currently in place. The measures are listed in Table 4.8 below.

**Table 4.8: Sholing Common Streams mitigation measures identified by the RBMP**

Mitigation Measure Identified	Is This Measure in Place?
Selective vegetation control regime	Not In Place
Increase in-channel morphological diversity	Not In Place
Re-opening existing culverts	Not In Place
Alteration of channel bed (within culvert)	Not In Place
Flood bunds (earth banks, in place of floodwalls)	Not In Place
Set-back embankments	Not In Place
Improve floodplain connectivity	Not In Place
Remove obsolete structure	Not in Place
Operational and structural changes to locks, sluices, weirs, beach control etc	Not In Place
Educate landowners on sensitive management practices (urbanisation)	Not In Place
Appropriate vegetation control technique	Not In Place
Appropriate timing (vegetation control)	Not In Place
Appropriate techniques (invasive species)	Not In Place
Retain marginal aquatic and riparian habitats (channel alteration)	Not In Place
Appropriate channel maintenance strategies and techniques – minimise disturbance to channel bed and margins	Not In Place
Appropriate channel maintenance strategies and techniques – woody debris	Not In Place
Appropriate techniques to align and attenuate flow to limit detrimental effects of these features (drainage)	Not In Place
Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works	Not In Place

### ***Highfield Stream Surface Waterbody***

Highfield Stream is a HMWB, classified due to urbanisation. The current potential status of this waterbody is moderate. It is considered disproportionately expensive and technically infeasible to meet good potential by 2015, therefore the objective is to achieve good potential by 2027. Further general information on this waterbody is outlined in Table 4.9.

**Table 4.9: General information on the Highfield Stream**

General Information	
Waterbody ID and Name	Highfield Stream (GB107042016230)
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive, technically infeasible
Protected Area Designation	Nitrates Directive
SSSI Related	No
Hydromorphological Designation	Heavily Modified
Reason for Designation	Urbanisation
Ecological Potential (and certainty)	Moderate
Elements Failing Good Status	(Supporting conditions) Quantity and dynamics of flow – Currently supports good and likely to remain supporting good at 2015 (Ecological) Mitigation measures assessment – Currently moderate and predicted to remain moderate at 2015 as technically infeasible.

The mitigation measures for Highfield Stream surface waterbody are listed in Table 4.10, none of which are currently in place.

**Table 4.10: Highfield Stream mitigation measures identified by the RBMP**

Mitigation Measure Identified	Is This Measure in Place?
Appropriate vegetation control technique	Not In Place
Removal of hard bank reinforcement/revetment, or replacement with soft engineering solution	Not in Place
Increase in-channel morphological diversity	Not In Place
Re-opening existing culverts	Not In Place
Alteration of channel bed (within culvert)	Not In Place
Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works	Not In Place
Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone	Not In Place
Remove obsolete structure	Not In Place
Selective vegetation control regime	Not In Place
Educate landowners on sensitive management practices (urbanisation)	Not in Place
Appropriate timing (vegetation control)	Not In Place
Appropriate techniques (invasive species)	Not In Place
Retain marginal aquatic and riparian habitats (channel alteration)	Not In Place



Sediment management strategies (develop and revise)	Not In Place
Appropriate channel maintenance strategies and techniques – minimise disturbance to channel bed and margins	Not In Place
Appropriate channel maintenance strategies and techniques – woody debris	Not in Place
Appropriate techniques to align and attenuate flow to limit detrimental effects of these features (drainage)	Not In Place
Operational and structural changes to locks, sluices, weirs, beach control, etc	Not In Place

### ***Southampton Common Lake Surface Waterbody***

Southampton Common Lake is a HMWB, with the reason for designation listed as recreation and the wider environment. Currently this waterbody achieves good status and therefore the objectives listed are to achieve good ecological potential by 2015. Further general information on this waterbody is outlined in Table 4.11.

**Table 4.11: General information on the Southampton Common Lake**

<b>General Information</b>	
Waterbody ID and Name	Southampton Common Lake (GB30745224)
Current Overall Potential	Good
Status Objective (Overall)	Good by 2015
Status Objective(s)	Good ecological potential by 2015
Justification if overall objective is not good status by 2015	N/A
Protected Area Designation	Nitrates Directive
SSSI Related	No
Hydromorphological Designation	Heavily Modified
Reason for Designation	Other, Recreation, Wider Environment
Ecological Potential (and certainty)	Good
Elements Failing Good Status	-

No mitigation measures are listed within the RBMP.

### ***Westwood Stream Surface Waterbody***

Westwood stream does not meet the requirements of the WFD and has a current overall potential of poor. The objective for this waterbody is to achieve good ecological potential by 2027, since it would be disproportionately expensive to do so by 2015. Further general information on this waterbody is outlined in Table 4.12.

**Table 4.12: General information on the Westwood Stream**

<b>General Information</b>	
Waterbody ID and Name	Westwood Stream (GB107042016550)
Current Overall Potential	Poor
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological status by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive
Protected Area Designation	Natura 2000 (Habitats and/or Birds Directive), Nitrates Directive, Shellfish Water Directive
SSSI Related	No
Hydromorphological Designation	Not designated A/HMWB
Reason for Designation	
Ecological Potential (and certainty)	Poor (quite certain)
Elements Failing Good Status	(Biological) Invertebrates – Currently poor (quite certain), predicted to be poor by 2015 (Supporting conditions) Quantity and dynamics of flow – Currently supports good, predicted to be supporting good by 2015 Morphology – Currently supporting good, predicted to be supporting good by 2015

No mitigation measures are proposed in the RBMP.

#### **4.1.2 Internationally protected sites**

For the LFRMS area the following internationally designated sites are present for which additional standards will apply:

- Solent & Southampton Water SPA/Ramsar site
- Solent Maritime SAC
- River Itchen SAC

Further information on the designated sites is contained within the Southampton LFRMS HRA screening report.

#### **4.1.3 Designated Shellfish Waters**

For the LFRMS area the following designated Shellfish Water is present for which additional standards will apply:

- Southampton Water Shellfish Water

## **4.2 LFRMS baseline data (Step 2)**

The aim of this stage of the report is to collect information on the proposed development. The draft actions from the LFRMS are summarised in Table 4.13. It is only the measures that can physically affect the environment which need to be taken through the assessment process and these have been identified with an asterisk (\*).

**Table 4.13: LFRMS actions**

Objective	Action	How?
<p><b>Improve the knowledge and understanding of all sources of flood risk across the City.</b></p>	Investigate flooding incidents	Follow the established procedure and guidelines to investigate relevant flooding incidents.
	Develop & maintain a register of flood risk assets	Populate asset register with information on existing infrastructure and who owns and/or is responsible for maintaining it.
		Identify where further survey/site investigation is required.
Improve knowledge & understanding of flood risk	Identify opportunities to monitor groundwater through other projects.	
<p><b>Work in partnership with other authorities who have a role in flood risk management, including across administrative boundaries.</b></p>	Joint working	Continued co-ordination of the internal approach across SCC departments.
		Continued co-ordination and partner involvement with Southampton Flood Board.
		Continued involvement with the Hampshire Strategic Flood Group.
		Identify opportunities to work in partnership with other authorities and organisations.
<p><b>Identify ways to increase public awareness of the flood risk across the City.</b></p>	Raise awareness of flood risk	Improve communication & involvement through a number of measures.
<p><b>Identify ways of improving support for people at direct risk to promote appropriate individual and community level planning and action.</b></p>	Property level protection schemes	Identify other areas within Southampton which might require & benefit from development of a PLP scheme.
	Support establishment of local flood groups	Explore & secure funding opportunities to pursue any identified schemes.
<p><b>Ensure that planning decisions are properly informed by flooding issues so future development assists with reducing and mitigating flood risk.</b></p>	Increased use of Sustainable Drainage Systems (SuDS) in new developments *	Facilitate setting up local flood groups.
<p><b>Ensure that planning decisions are properly informed by flooding issues so future development assists with reducing and mitigating flood risk.</b></p>	Implementation of Southampton Coastal Strategy priority schemes *	Implement the policy on targets for the use of Sustainable Drainage Systems (SuDS) in new developments to reduce runoff volume and peak discharge where possible.
		Explore & secure funding opportunities to pursue schemes.
<p><b>Ensure that planning decisions are properly informed by flooding issues so future development assists with reducing and mitigating flood risk.</b></p>	Implementation of Southampton Coastal Strategy priority schemes *	Develop preliminary study.

Objective	Action	How?
<b>Identify appropriate measures which reduce the likelihood of harm to people and damage to the economy and the environment.</b>		Develop detailed scheme design.
		Scheme implementation
	Identification of priority surface water management schemes within hotspot catchments *	Identify feasible options for managing surface water.
		Explore & secure funding opportunities to pursue feasible schemes.
<b>Maintain, and improve where necessary, flood risk management infrastructure and systems to reduce flood risk.</b>	Improve existing drainage infrastructure *	Partners to develop maintenance schedules to target areas at higher flood risk locations.
		Prioritise highway drainage works (cleansing, maintenance & improvement) at hotspot flood risk locations.
	Maintenance activities on main rivers	Implementation of required maintenance schedules for EA FRM assets and routine inspection of relevant infrastructure.
	Improve watercourses *	Identify & pursue opportunities to secure funding to make improvements to the watercourses.
	Regulation of works on rivers	Implementation of consenting & enforcement activities for regulating works on main rivers and ordinary watercourses.
	Designation of features/structures	Apply a risk-based approach to designate features/structures which affect flood & coastal erosion within the City.
Retrofitting SuDS schemes *	Identify opportunities to retrofit SuDS schemes to areas for multiple benefits to include reducing surface water flood risk.	



### 4.3 Preliminary assessment (Step 3)

The aim of this stage is to screen out the draft actions of the LFRMS (which can physically affect the environment) from further assessment if they are unlikely to have any impact on the WFD objectives. If it is envisaged that no deterioration will occur across any of the WFD quality elements as a result of the draft actions and that they will not prevent the water body from meeting its status or potential objectives, then no further WFD compliance assessment is required. The step by step process shown in Figure 4-1 is used in the following preliminary assessment of each of the draft actions.

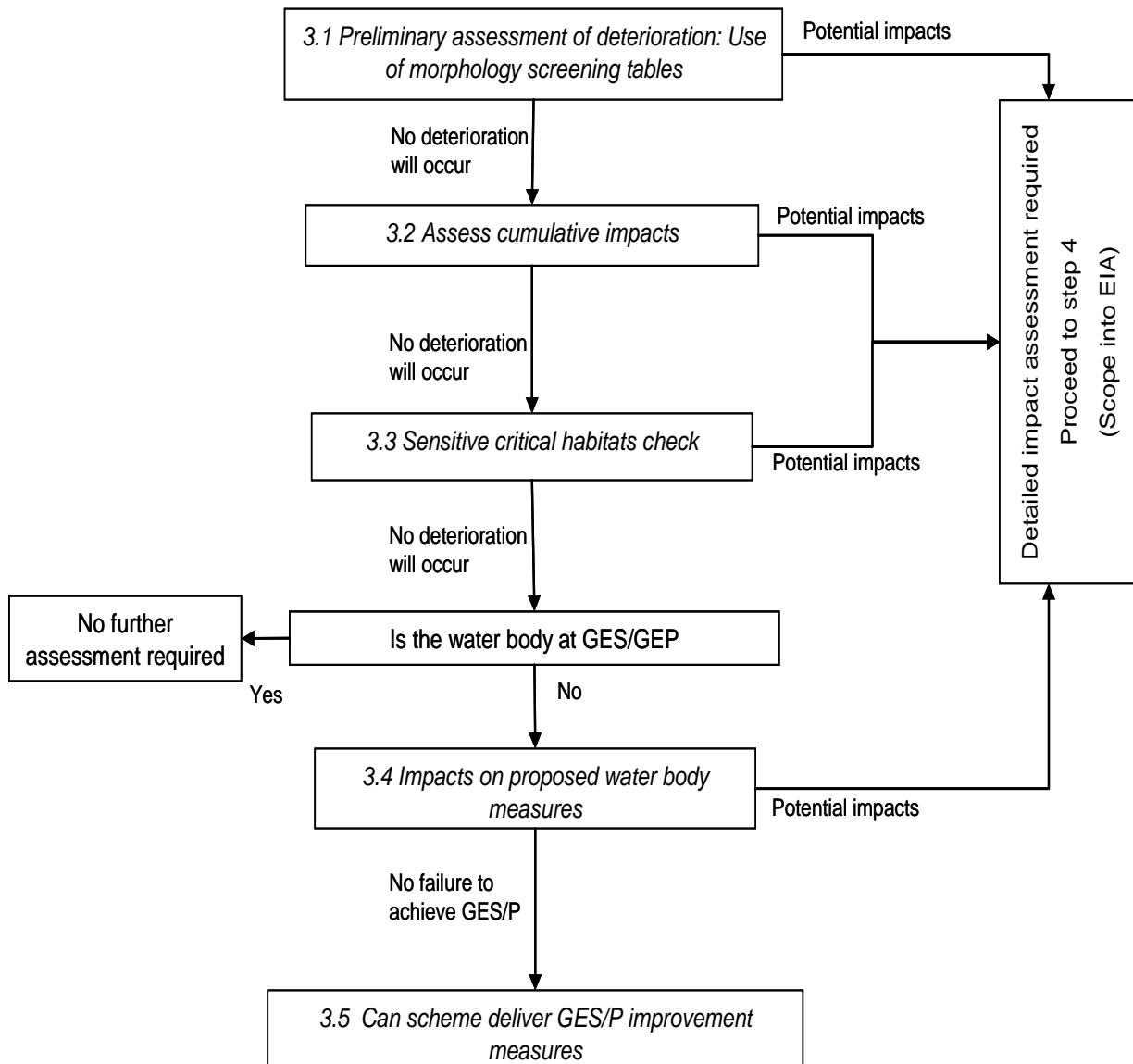


Figure 4-1: The preliminary assessment step-by-step process

In terms of the preliminary assessment of deterioration, there are certain activities that are considered not to be at risk of causing deterioration or failing to achieve WFD status/potential objectives. These are listed in Table 4.14.

**Table 4.14: Activities not requiring WFD compliance assessment**

<b>Types of modification not requiring WFD assessment</b>	
Maintenance activities	Re-pointing (block work structures)
	Void filling ('solid' structures)
	Re-positioning (rock or rubble or block work structures)
	Replacing elements (not whole structure)
	Re-facing
	Skimming/covering
	Blockage removal
	Removal of management of in-stream debris/rubbish from culverts and trash screens (not woody debris)
	Vermin control
Linear flood defences	Temporary flood defences

If the action falls in to the above activities then they can be screened out of further WFD assessment. If a quality element is not likely to be affected by the action then it can also be scoped out of any further assessment.

If there are no impacts likely across any of the quality elements, then it is necessary to move to the second step which involves a consideration of cumulative impacts within a water body. Whilst an individual scheme may have an insignificant impact on WFD quality elements within a reach, the combined effect of several small-scale schemes within a water body may cause deterioration.

The third step involves checking if the proposed development is located on habitats that are critical to the individual biological quality elements or on particularly sensitive habitats then further investigation is required. It may also be necessary to carry out further investigation if the proposed development is predicted to negatively impact on any salt marsh or seagrass habitat in transitional/coastal waters.

If it is determined that no deterioration of sensitive critical habitats will occur then water bodies of GES/GEP can be scoped out of any further assessment. If the water body is not of GES/GEP then the fourth step is required. This involves considering if the action will impact on proposed WFD improvement/mitigation measures by causing a deterioration or failure to meet the water body objectives.

In terms of the fifth step, for water bodies that are of less than good status, it is necessary to consult the RBMP to ascertain whether the required measures can be built into the LFRMS draft actions so as to meet GES/GEP.

Assessment of each of the draft actions against steps 3.1 to 3.3 are detailed in Table 4.15.

**Table 4.15: Steps 3.1 to 3.3 of the preliminary assessment**

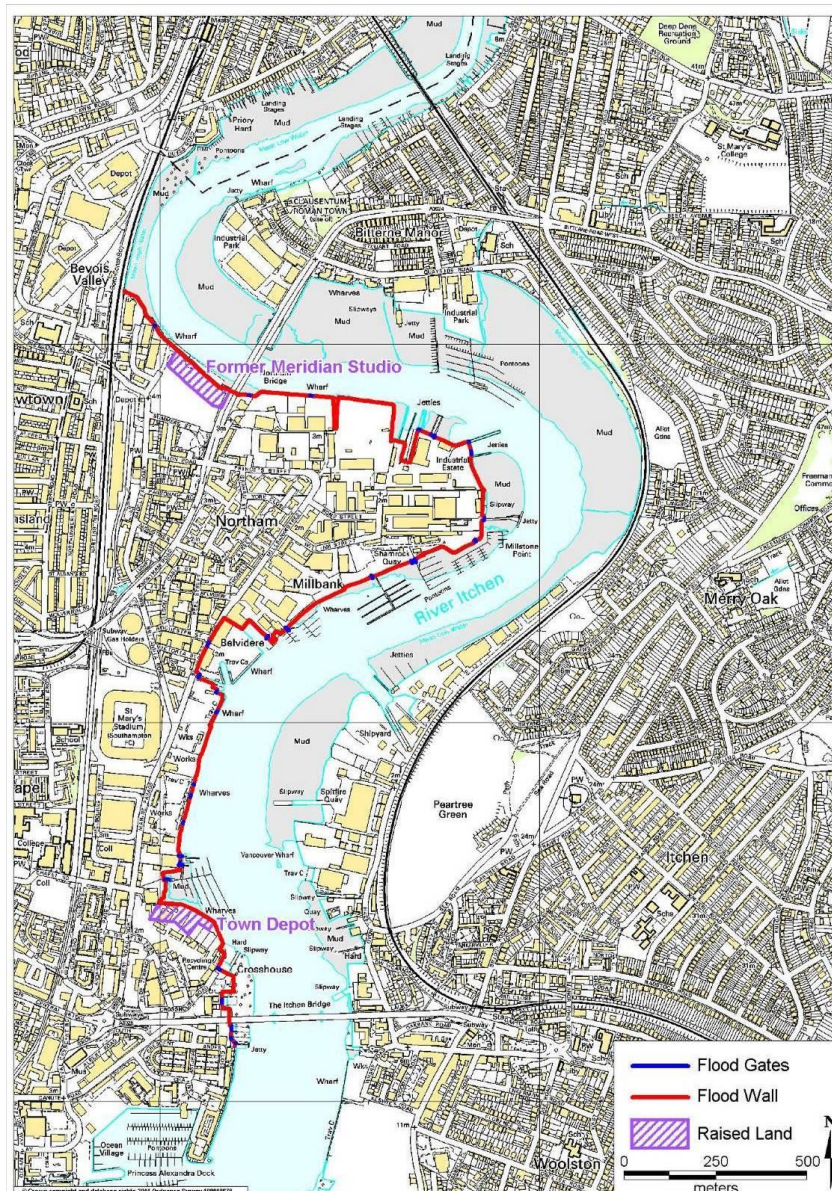
LFRMS action	Type of action	Preliminary assessment of deterioration (Step 3.1)			Step 3.2	Step 3.3	Assessment under Steps 3.4 & 3.5 required?
		Waterbody	Modification likely?	Potential impact?	Cumulative impacts likely?	Sensitive critical habitats present? If yes, is there a potential impact?	
Increased use of Sustainable Drainage Systems (SuDS) in new developments (see Section 4.3.3)	Structural	Dependent on location of development.	Not likely	Not likely	Not likely	Dependent on the location of development but potential impact is not likely as SuDS should be designed to control the quantity & quality of surface water runoff.	May be required at the scheme level depending on the location of development.
Implementation of Southampton Coastal Strategy priority schemes – River Itchen Flood Alleviation Scheme (see Section 4.3.1)	Structural	Southampton Water transitional waterbody	Yes	Not likely	Not likely	Mudflats are present along parts of this frontage. Potential impact not likely.	Yes
Identification of priority surface water management schemes within hotspot catchments – Tanners Brook/Holly Brook Flood Alleviation (see Section 4.3.2)	Possible structural	Tanners Brook surface waterbody	Uncertain due to lack of information on the proposed scheme	Uncertain due to lack of information on the proposed scheme	Uncertain due to lack of information on the proposed scheme	None present	May be required at the scheme level preliminary screening
Identification of priority surface water management schemes within hotspot catchments – Rolles Brook Flood Alleviation Scheme	Structural	Rolles Brook is not classified as a waterbody in the SE RBMP therefore it has been scoped out of the assessment.					
Improve existing drainage infrastructure	Structural	Dependent on location	Not likely	Not likely	Not likely	None present – works would be within existing developed areas.	No

LFRMS action	Type of action	Preliminary assessment of deterioration (Step 3.1)			Step 3.2	Step 3.3	Assessment under Steps 3.4 & 3.5 required?
		<i>Waterbody</i>	<i>Modification likely?</i>	<i>Potential impact?</i>	<i>Cumulative impacts likely?</i>	<i>Sensitive critical habitats present? If yes, is there a potential impact?</i>	
Improve watercourses (see Section 4.3.3)	Structural	Dependent on location	Dependent on the type of works proposed	Not likely	Not likely	Dependent on the location but potential impact is not likely as any works will be implemented to improve habitats where possible.	May be required at the scheme level depending on the location and type of works.
Retrofitting SuDS schemes (see Section 4.3.3)	Structural	Dependent on location of scheme.	Not likely	Not likely	Not likely	Dependent on the location of development but potential impact is not likely as SuDS should be designed to control the quantity & quality of surface water runoff.	May be required at the scheme level depending on the location of development.

### 4.3.1 River Itchen Flood Alleviation Scheme

#### *Preliminary assessment of deterioration*

The preferred option for managing flood risk in the short to medium term (2015 to 2060) along the frontage from Mount Pleasant Industrial Estate to Ocean Village is an intermediate height floodwall, which will form the spine of defence until land raising as and when sites are brought forward and cleared for redevelopment (see Figure 4-2). The raised land will then provide robust flood protection from 2060 to 2110. In the case of the former Meridian Studios site and the Town Depot site, the land has already been cleared and would be suitable for raising in the immediate future.



**Figure 4-2: Potential alignment of the floodwall and land raising areas**

The proposed concrete wall would only be a short to medium term defence, with the proposed land raising providing robust flood protection for the long term. It is therefore anticipated that the design life of the wall would be 50 years (lasting until 2060), which would mean that a reduced crest height would be required. This reduced crest height would allow for continuity from the City to the water and help maintain access to the waterfront. The proposed modifications will not involve hard structures seaward of the current front line structures therefore it is not anticipated



that any adverse effects will result and Environmental Objectives WFD2 and WFD3 will both be met by the proposed scheme.

### **Cumulative impacts**

The assessment of cumulative impacts has considered existing pressures on the waterbody, any recent schemes, local knowledge and other planned schemes that may introduce similar pressures to those already experienced by the waterbody. The only planned scheme that was known of at the time of writing this assessment is the redevelopment of the former Meridian studios and Town Depot sites. However, as this redevelopment is integrated within the scheme, it has been included within this assessment. In addition, the proposed intermediate flood wall will be located behind the current front line defence and the extent of coastal squeeze will therefore be limited. It is therefore considered that there are no likely cumulative impacts. The proposed scheme therefore does not require more detailed assessment.

### **Critical/sensitive habitats**

Mudflats are a protected habitat under the Southampton City Council Biodiversity Action Plan<sup>6</sup> (BAP) and are found along this frontage. Southampton City Council's policy for biodiversity protection, from the adopted local plan, includes a policy on Intertidal Mudflat Habitats. The policy states:

*'Development will not be permitted which would result in the reclamation of, or disturbance to, the remaining intertidal mudflat habitat and land along the River Itchen, the River Test and Southampton Water and Weston Shore outside of the SPA as shown on the Proposals Map unless:*

- 1. there is no adverse affect on nature conservation interests;*
- 2. there is no damage to the open character of the riverside and landscape;*
- 3. there is no damage to water-based recreation or leisure interests; and*
- 4. there is no net loss of intertidal mudflat habitat.'*

It is thought that the proposed scheme will meet policy NE5, as the setting back of defences will minimise the potential for coastal squeeze and the loss of mudflat habitat and therefore does not require more detailed assessment.

### **Is the water body at GES/GEP?**

The Southampton Water TraC waterbody is currently classified as having Moderate potential, with a proposed overall objective of reaching 'Good Potential' status by 2027. In order to achieve Good potential, the RBMP has identified a series of proposed improvement and/or mitigation measures to bring the waterbody up to Good potential. For Southampton Water the measures are given in Table 4.1 which shows that the following identified mitigation measures are not currently in place:

- Indirect / offsite mitigation (offsetting measures);
- Operational and structural changes to locks, sluices, weirs, beach control, etc; and
- Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone.

Of these, the first option is not considered to be relevant but operational changes to beach control and the preservation of marginal aquatic habitat, banks and riparian zone could be affected by the proposed scheme. However, while the proposed scheme would reduce the intertidal area due to a landward movement of the low tide mark, this would occur without implementation of the scheme and the length of shore to which this applies will be too small to

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<sup>6</sup> Biodiversity Action Plan, An update of the 1992 Nature Conservation Strategy, Southampton City Council, 2005, <http://www.southampton.gov.uk/s-environment/Biodiversity/action.aspx>



have an effect on the overall status of the Southampton Water waterbody. It is therefore not considered that the proposed scheme would compromise the above measures and therefore it should not prevent the achievement of Good potential.

Further detail is contained in the Southampton Coastal Strategy WFD Assessment Report (Appendix H) which is available to view/download at [www.southampton.gov.uk/flooding](http://www.southampton.gov.uk/flooding).

### **4.3.2 Tanners Brook/Holly Brook Flood Alleviation**

At present there is insufficient detail on the options for managing surface water within the Tanners Brook catchment to determine if any potential impacts as a result of modifications and/or cumulative impacts are likely. Given that any future scheme will try to implement measures which are complementary to or will enhance the local environment and mimic natural processes they will be designed to avoid any potential impacts and where feasible will be designed to help deliver GEP improvement measures relevant to the length of river associated with the scheme. For Tanners Brook the measures are listed in Table 4.6, which shows that the following identified mitigation measures are not currently in place:

- Operational and structural changes to locks, sluices, weirs, beach control etc
- Preserve and, where possible, restore historic aquatic habitats
- Increase in-channel morphological diversity
- Re-opening existing culverts
- Alteration of channel bed (within culvert)
- Flood bunds (earth banks, in place of floodwalls)
- Set-back embankments
- Improve floodplain connectivity
- Removal of hard bank reinforcement/revetment, or replacement with soft engineering solution
- Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone
- Educate landowners on sensitive management practices (urbanisation)
- Retain marginal aquatic and riparian habitats (channel alteration)
- Appropriate techniques to align and attenuate flow to limit detrimental effects of these features (drainage)
- Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works

A scheme level WFD preliminary screening assessment (Steps 1 to 3 as shown in Figure 3-1 and Figure 4-1) may be required depending on the location and nature of the management options which are proposed. If a screening assessment concludes that potential impacts are likely a full WFD assessment will be required.

### **4.3.3 Uncertainty**

It is difficult to assess the potential impacts from a number of the draft LFRMS actions because they do not identify individual schemes but rather they are policies to encourage such schemes. These actions include:

- Increased use of Sustainable Drainage Systems (SuDS) in new developments
- Improve watercourses
- Retrofitting SuDS schemes

Any schemes taken forward to help deliver these actions which are located within or directly adjacent to a classified watercourse within the SE RBMP would need a scheme level WFD preliminary screening assessment to be undertaken (unless the activity is listed in the exempt activities for WFD Screening). If the screening assessment concludes that potential impacts are likely a full WFD assessment will be required.

#### **4.3.4 Potential construction impacts**

It is possible that during the construction phase of any schemes delivering works which are within or directly adjacent to a waterbody that there may be localised and temporary water quality impacts as a result of the construction works. However, any impacts will be minimised as much as possible through the use of sensitive construction techniques and compliance with the Environment Agency's Pollution Prevention Guidelines. In addition, works should be timed to avoid sensitive times such as bird breeding seasons. It is believed that any impacts resulting from construction are unlikely to cause a permanent change in the ecological status or ecological potential of any of the waterbodies within the LFRMS area.

## 5. Conclusion

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It is concluded that overall the actions are unlikely to have any significant adverse impacts on the waterbodies present in the LFRMS area and given the current level of detail on specific actions a detailed assessment is not required on any of the actions at this stage.

It is concluded that the River Itchen Flood Alleviation Scheme will not require a detailed assessment as it is unlikely that any significant adverse impacts will result from implementation of the scheme because the works are proposed within or behind the existing structures along the frontage.

It is concluded that the Tanners Brook/Holly Brook Flood Alleviation Scheme will require a WFD preliminary screening assessment to be completed at the scheme level as there is insufficient information available on the proposed measures to be taken forward within this scheme.

Three of the actions were identified as not likely to have any potential impacts because they are policies which only encourage activities and as such there are no identified schemes to be assessed at this stage. These actions include:

- Increased use of Sustainable Drainage Systems (SuDS) in new developments
- Improve watercourses
- Retrofitting SuDS schemes

Any relevant schemes which are taken forward in the future to help deliver one (or more) of these actions may need to have a scheme level WFD preliminary screening assessment completed, dependent on the scheme location and proposed works.