

Sports Complex – Temple Park, South Shields
Flood Risk Assessment



Report Ref: JCC17-051- (C) 01
Rev: 00
August 2017

James Christopher Consulting Ltd
4 McMillan Close
Saltwell Business Park
Gateshead
NE9 5BF
www.jc-consulting.net
0191 4914684

Document Control Sheet



Sports Complex – Temple Park, South Shields Flood Risk Assessment

Project No: JCC17-051

Document Ref: JCC17-051-(C) 01

Report Description: Flood Risk Assessment

Author: Alex Short

Client: Tolent Living Limited
Derwent House
Fifth Avenue Business Park
Team Valley Trading Estate
Gateshead
NE11 0NL

Document History:

Revision	Status	By	Date	Checked	Signed	Authorised	Signed
00	Planning	A Short	07/08/2017	T Holland		K Haigh	

CONTENTS

1	INTRODUCTION	1
1.1	Background	1
1.2	Report Scope	1
2	RELEVANT POLICY, LEGISLATION AND GUIDANCE	3
2.1	Overview	3
2.2	National Planning Policy Framework	3
2.3	The Flood and Water Management Act 2010	3
2.4	South Tyneside Council Strategic Flood Risk Assessment – Level 1	4
2.5	Local Flood Risk Management Strategy for South Tyneside Council	4
2.6	Tyne Catchment Flood Management Plan	4
3	SITE AND SURROUNDINGS	5
3.1	Site Location and Description	5
3.2	Topography	5
3.3	Hydrology	5
3.4	Drainage	5
3.5	Water Mains	5
3.6	Flood Defence	6
3.7	Reservoir	6
3.8	Geology and Hydrogeology	6
4	CURRENT SITE FLOOD CLASSIFICATION	7
4.1	Flood Risk and Probability	7
4.2	Flood Risk Vulnerability and Flood Zone Compatibility	7
4.3	Flood Assessment	8
4.4	Tidal Flooding	8
4.5	River (Fluvial) Flooding	9
4.6	Groundwater Flooding	9
4.7	Overland/ Surface Water (Pluvial) Flooding	9
4.8	Sewer Flooding	10
4.9	Canals and Artificial Waterways	10
4.10	Reservoirs/ Lakes	10
4.11	Water Mains	10
4.12	Climate Change	11
5	CONCLUSIONS AND RECOMMENDATIONS	12
5.1	Conclusions	12
5.2	Recommendations	12

APPENDICES

APPENDIX A	NORTHUMBRIAN WATER SEWER RECORDS
APPENDIX B	NORTHUMBRIAN WATER ASSET RECORDS

1. INTRODUCTION

1.1 BACKGROUND

James Christopher Consulting Ltd (JCC) has been commissioned by Tolent Living Ltd to undertake a Level 1 Flood Risk Assessment (FRA) for a proposed sports complex development on the site of Temple Park, South Shields, NE34 8QN. This site specific FRA has been completed to support the planning application.

A site location plan is shown in Figure 1.1. The site is located at Ordnance Survey Grid Ref: NZ 37180 63525.

Developments have the potential to be at risk of a range of flooding mechanisms and increase the potential flood risk to the development and the surrounding area. As such flood risk is assessed with respect to damage to properties, risk to human life, and the effect the development may have on surrounding bodies of water and drainage systems. This Level 1 FRA has been prepared to examine the possible sources of flooding, within the context of the National Planning Policy Framework (NPPF) and Technical Guidance.

Consultation will be undertaken with the Environment Agency (EA), Northumbrian Water Limited (NWL) and South Tyneside Council (STC) as part of the planning application. Data has also been gathered from a number of other sources including; National Soil Research Institute (NSRI), local ground investigations, aerial photographs, Ordnance Survey (OS), evidence obtained from the EA online tools and anecdotal evidence.

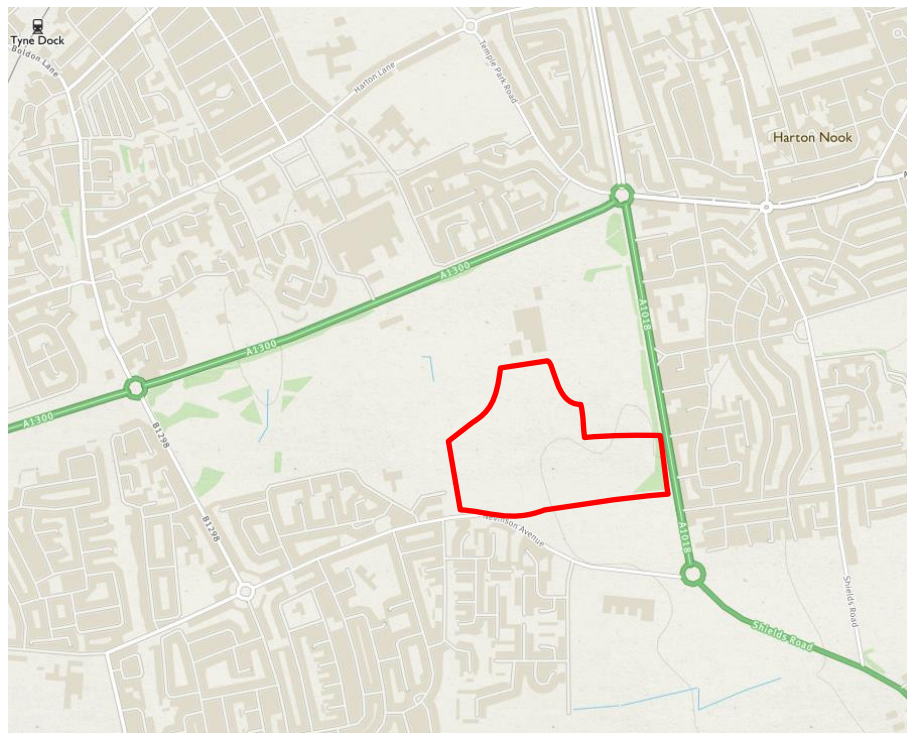


Figure 1.1 Ordnance Survey Map – Site Location

1.2 REPORT SCOPE

The Level 1 FRA is based on readily available existing information, including reference to the South Tyneside Council Strategic Flood Risk Assessment (SFRA) to confirm the extent of flood risk at the site. The report includes the review of site information and likely extent of any flood risk at the site; identification of whether there are any flooding or surface water management issues related to the development that may warrant further consideration; identification and scoping of other flood risks

as required i.e. groundwater flooding; and determining whether further assessment is required i.e. a Level 2 FRA.

A FRA should consider a range of flooding mechanisms to satisfy the following three key objectives:

- To assess flood risk to the proposed development and to demonstrate whether any residual risk to the development and its user would be acceptable;
- To assess the potential impact of the proposed development on flood risk elsewhere and to demonstrate that the development would not increase flood risk elsewhere; and
- To satisfy the requirements of national planning policy.

Flood risk should be considered alongside other spatial planning matters such as transport, housing, economic growth, natural resources, regeneration, biodiversity, the historic environment and the management of other hazards. Policies should recognise the positive contribution that avoidance and management of flood risk can make to the development of sustainable communities, including improving local amenities and better overall quality of life.

A FRA should be carried out to an appropriate degree at all levels of the planning process. It should assess the risks of all forms of flooding to and from the development, taking into account climate change, and should inform the application of the sequential approach if applicable.

CIRIA C624 “Development and Flood Risk – Guidance for the Construction Industry” recommend a phase approach with three levels of assessment as define below:

- Level 1: Screening Study to identify whether there are any flooding or surface water management issues related to a development site that may warrant further consideration. The screening study will ascertain whether a Level 2 or 3 FRA is required.
- Level 2: Scoping Study to be undertaken if the Level 1 FRA indicates that the site may lie within an area that is at risk of flooding, or that the site may increase flood risk due to increase run-off. This study should confirm the sources of flooding which may affect the site.
- Level 3: Detailed Study to be undertaken if the Level 2 study concludes that the quantitative analysis is required to assess the flood risk related to the development site.

2 RELEVANT POLICY, LEGISLATION AND GUIDANCE

2.1 OVERVIEW

The Level 1 FRA has been undertaken using the following legislation and guidance:

National Planning Policy Framework

- Flood and Water Management Act
- South Tyneside Council Strategic Flood Risk Assessment – Level 1
- Local Flood Risk Management Strategy for Durham
- River Tyne Catchment Flood Management Plan

2.2 NATIONAL PLANNING POLICY FRAMEWORK

The NPPF published in March 2012, is a key part of the government's reform to make the planning system less complex and more accessible; to protect the environment and to promote sustainable growth.

In addition, the Technical Guidance to the NPPF published in March 2012 by the Department for Communities and Local Government has also been reviewed in relation to flood risk. This document provides additional guidance to ensure the effective implementation of the planning policy set out in the NPPF on development in areas at risk of flooding.

The NPPF aims to prevent inappropriate development in areas at risk of flooding and to ensure that, where development is necessary in areas at risk of flooding, it is safe without increasing flood risk elsewhere. Local Authorities should only consider development in flood risk areas appropriate where informed by a site specific FRA, based upon the EA's Standing Advice on flood risk.

The NPPF requires that a site-specific FRA is required for proposals of 1 hectare or greater in Flood Zone 1; all proposals for new development (including minor development and change of use) in Flood Zones 2 and 3, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the EA); and where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding. This means that the FRA should identify and assess the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

Development should be directed as far as practicable towards Flood Zone 1 areas (Low Probability (<0.1% Annual Exceedance Probability (AEP) of fluvial/ sea flooding)) to avoid fluvial flood risks wherever this is possible. For development proposed in Flood Zone 1, if the development area is greater than 1 hectare a FRA will still be required to address design issues related to the control of surface water runoff and climate change, as well as considering any other potential sources of flood risk for the development site.

2.3 THE FLOOD AND WATER MANAGEMENT ACT 2010

The Flood and Water Management Act 2010 determined the need for flood risk to be managed within the framework of National Strategies for England and Wales and within Local Strategies for each Local Flood Authority Area. The national strategy for England sets out the principles for flood risk management and which organisations are responsible for implementation.

In accordance with the national strategy for England, Lead Local Flood Authorities (LLFAs) have been allocated responsibility for developing independent Local Flood Risk Management Strategy's (LFRMS's) to address sources of local flooding. Each LFRMS identifies which local organisation is accountable for managing flood risk and establishes partnership agreements, as well as undertaking an assessment of flood risk and developing plans / actions, for tackling these risks.

2.4 SOUTH TYNESIDE COUNCIL STRATEGIC FLOOD RISK ASSESSMENT – LEVEL 1

The Level 1 Strategic Flood Risk Assessment (SFRA) was undertaken to provide a robust assessment of the extent and nature of the risk of flooding and its implications for land use planning. The principle aim is to set out flood risk constraints to help inform the preparation of the Local Development Framework for South Tyneside.

2.5 LOCAL FLOOD RISK MANAGEMENT STRATEGY FOR SOUTH TYNESIDE COUNCIL

The Local Flood Risk Management Strategy for South Tyneside was prepared to meet the requirements of the Flood risk Regulations, 2011. South Tyneside Council has a duty to develop, maintain, apply and monitor a strategy for local flood risk management that encompasses all sources of flooding. This strategy aims to provide a framework for how they will manage local flood risk.

2.6 TYNE CATCHMENT FLOOD MANAGEMENT PLAN

The Catchment Flood Management Plan (CFMP) is a plan produced by the EA to aid the understanding of the scale and extent of flooding now and in the future, and set policies for managing flood risk within the catchment. The CFMP's aim is to promote more sustainable approaches to managing flood risk.

- The CFMP summarises the need to manage future flood risk with four main messages:
- Flood defences cannot be built to protect everything;
- Climate change will be the major cause of increased flood risk in the future;
- The floodplain is our most important asset in managing flood risk; and
- Development and urban regeneration provide a crucial opportunity to manage the risk.

3 SITE AND SURROUNDINGS

3.1 SITE LOCATION AND DESCRIPTION

The proposed site is located in South Shields, South Tyneside (OS Grid Ref: NZ 37180 63525). The site is currently a public park. The site is bounded by Temple Park Centre and John Reid Road (A1300) to the North, King George Road A1018 to the East, Nevinson Avenue and residential properties to the South and Temple Memorial Park to the West,.



Figure 3.1 Aerial Image – Site Location

3.2 TOPOGRAPHY

A topographical survey has still to be completed for the site. Based on a site walkover and Ordnance Survey data the site falls from North to South with a change in level of approximately 3m.

3.3 HYDROLOGY

The Ordnance Survey maps and EA maps show that the site is in within the catchment of the River Tyne, approximately 3.1km to the North West of the site and the North Sea approximately 3km to the North East of the Site. There are no known watercourses or ditches within the vicinity of the site

3.4 DRAINAGE

A copy of the NWL sewer records has been obtained for the site and surrounding area, see Appendix A. A NWL combined sewer runs from South to North through the site, it is unknown if it collects any flows from within the site. There are various NWL sewers near the site within King George Road and Nevinson Avenue.

3.5 WATER MAINS

A copy of the NWL asset records has been obtained for the site and surrounding area, see Appendix B. There are potable water mains within King George Road and Nevinson Avenue.

3.6 FLOOD DEFENCE

There are no flood defence structures present within 1km of the site boundary identified on the EA flood maps.

3.7 RESERVOIR

There are no reservoirs or bodies of water within 1km of the site boundary.

3.8 GEOLOGY AND HYDROGEOLOGY

A ground investigation has not been carried out for the site.

The superficial geology identified by the British Geological Survey (BGS) website as Pelaw Clay. This is understood to be made up of clay and pebbles with closely spaced jointing. The bedrock underlying the site is Yellow Sands Formation sandstone. The ground is identified as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils impeding the drainage.

The EA have designated the superficial deposits as a secondary undifferentiated aquifer, meaning it has previously been classed as a minor and non-aquifer due to variable characteristics of the rock type. The groundwater level on the site is to be confirmed.

4 CURRENT SITE FLOOD CLASSIFICATION

4.1 FLOOD RISK AND PROBABILITY

The risk framework outlined in the SFRA defines the flood risk using the categories in Table 4.1. The EA flood map defines the geographical extent of fluvial flooding for Flood Zones 1, 2, 3a and 3b.

Flood Zone	Definition	Probability
Flood Zone 1	At risk from flood event greater than the 1 in 1000 year event (greater than 0.1% annual probability).	Low Probability
Flood Zone 2	At risk from flood event between the 1 in 100 and 1 in 1000 year event (between 1% and 0.1% annual probability)	Medium Probability
Flood Zone 3a	At risk from a flood event less than or equal to the 1 in 100 year event.	High Probability
Flood Zone 3b	Land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood or otherwise defined by the Local Planning Authority. This zone also comprises land where water has to flow or be stored in times of a flood.	Functional Floodplain

Table 4.1 Fluvial Flood Zone Definition

Flooding is a natural process that can present a range of different risks depending on its form. Flood practitioners and professionals define the risks presented by flooding according to an Annual Exceedance Probability (AEP), or as having a 'return period'.

Flood Risk includes the statistical probability of an event occurring and the scale of the potential consequences. Flood risk is estimated from historical data and expressed in terms of the expected frequency of a flood of a given magnitude. The 10 year, 50 year and the 100 year floods have a 10%, 2%, and 1% chance of occurring in any given year, respectively. However, over a longer period the probability of flooding is considerably greater.

For example, for the 100 year return period flood:

- There is a 1% chance of the 100 year flood occurring or being exceeded in any single year;
- A 26% chance of it occurring or being exceeded in a 30 year period; and
- A 51% chance of it occurring or being exceeded in a 70 year period.

Table 4.2 below provides a summary of the relevant AEP and corresponding return period events of a particular severity.

AEP	Definition
100%	1 in 1 Year
10%	1 in 10 Years
2%	1 in 50 Years
1%	1 in 100 Years
0.5%	1 in 200 Years
0.1%	1 in 1000 Years

Table 4.2 Definition of AEP and Return Period Flood Events

4.2 FLOOD RISK VULNERABILITY AND FLOOD ZONE COMPATIBILITY

In terms of flood risk vulnerability, the proposed development is classified as "Less Vulnerable" in the NPPF and SFRA which includes buildings used for assembly and leisure.

The SFRA states that the suitability of all sites in flood risk terms will be subject to ratification by the EA, a detailed site-specific FRA being prepared to support any planning application and demonstration that surface water runoff from the development will pose no detrimental impact to off-site areas.

The proposed site is Less Vulnerable Infrastructure and as such is suitable for Flood Zones 1 and 2 with an exception test required for developments in Flood Zone 3. The site is classified by the EA as Flood Zone 1, therefore the proposed development is suitably located.

4.3 FLOOD ASSESSMENT

Potential sources of flooding and associated mechanisms for review are as follows:

- Tidal Sources - Potential flooding resulting from tidal sources;
- River (Fluvial and Tidal) Sources - Potential flooding resulting from watercourses near to the site or from the sea;
- Groundwater Flooding- Potential flooding as a result of rising groundwater levels;
- Overland/Surface water (Pluvial) Flooding - Potential flooding as a result of surface water flows from adjacent land;
- Sewers and Drains - Potential flooding resulting from sewers or drains;
- Reservoir/Lake Flooding - Potential flooding resulting from overtopping or bursting of reservoirs or lakes; and
- Infrastructure - Potential flooding as a result of failed or burst water mains.

4.4 TIDAL FLOODING

Coastal flooding occurs when sea levels rise above the normal tidal range. This can happen anywhere around the coast, including the estuaries. Tidal flooding is a result of one or a combination of high tides, storm or tidal surges, wave action and high sea levels combining with high river flows.

The site is located approximately 3km from the North Sea. Based on the EA flood map there is <0.1% (1 in 1000) risk of tidal flooding on the site, as shown in Figure 4.4.

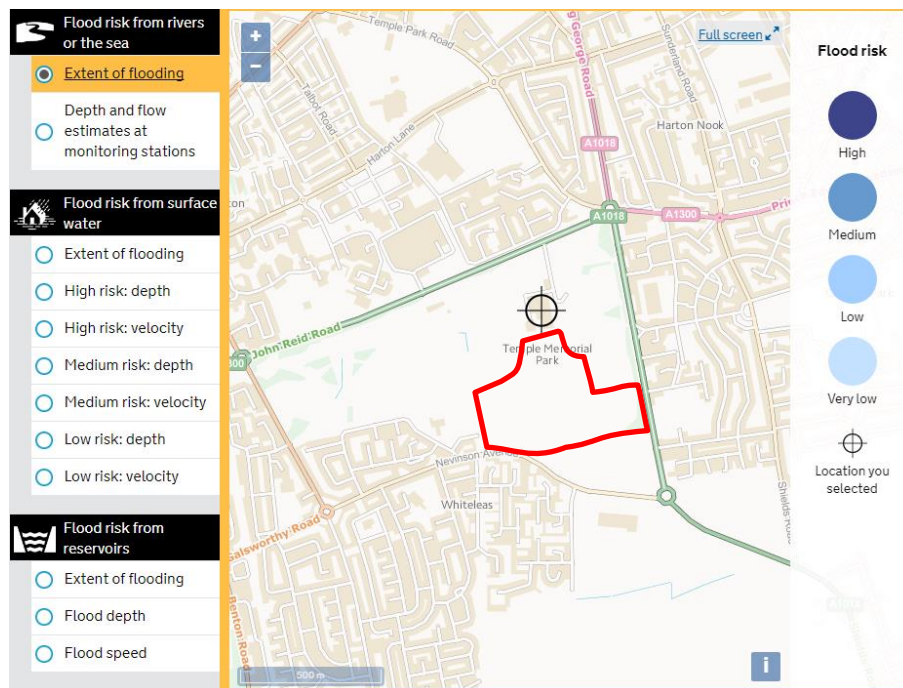


Figure 4.4 Environment Agency – Tidal Flood Map

4.5 RIVER (FLUVIAL) FLOODING

The EA flood map for the area shows the site is located outside of the areas defined as being at risk of flooding from river and / or sea as shown in Figure 4.4.

According to the EA, where there is no blue shading, this shows areas where flooding from rivers is very unlikely with <0.1% (1 in 1000) chance of flooding occurring each year

4.6 GROUNDWATER FLOODING

Groundwater flooding generally occurs during intense, long-duration rainfall events, when infiltration of rainwater into the ground raises the level of the water table until it exceeds ground levels. Groundwater flooding may take weeks or months to dissipate as groundwater flow is much slower than surface water flow and water levels thus take much longer to fall. Groundwater flooding is sporadic in time and location, but when it does occur, it usually lasts longer than surface water flooding and interferes with property and infrastructure (such as roads). Groundwater levels may also rise as a result of reactivating springs.

Based on the geological information available it is unlikely that the geological strata would be highly responsive to rainfall events and therefore the changes in groundwater level over time are unlikely to be significant resulting in groundwater flooding issues. The information available suggests that the site is not at risk from groundwater flooding.

4.7 OVERLAND/ SURFACE WATER (PLUVIAL) FLOODING

Pluvial and overland flow results from rainfall that fails to infiltrate the surface and travels over the ground surface. This is exacerbated by low permeable urban development or low permeability soils and geology (such as clayey soils). Overland flow is likely to occur at the base of an escarpment and low points in terrain. Local topography and built form can have a strong influence on the direction and depth of flow. The design of development down to a micro-level can influence or exacerbate this. Overland flow paths should be taken into account in spatial planning for urban developments. In addition, surface water flooding can be exacerbated if development increases the percentage of impervious area.

The EA flood map as shown in Figure 4.7, has identified that there is a very low risk (less than 0.1% annually) of surface water flooding on the site.

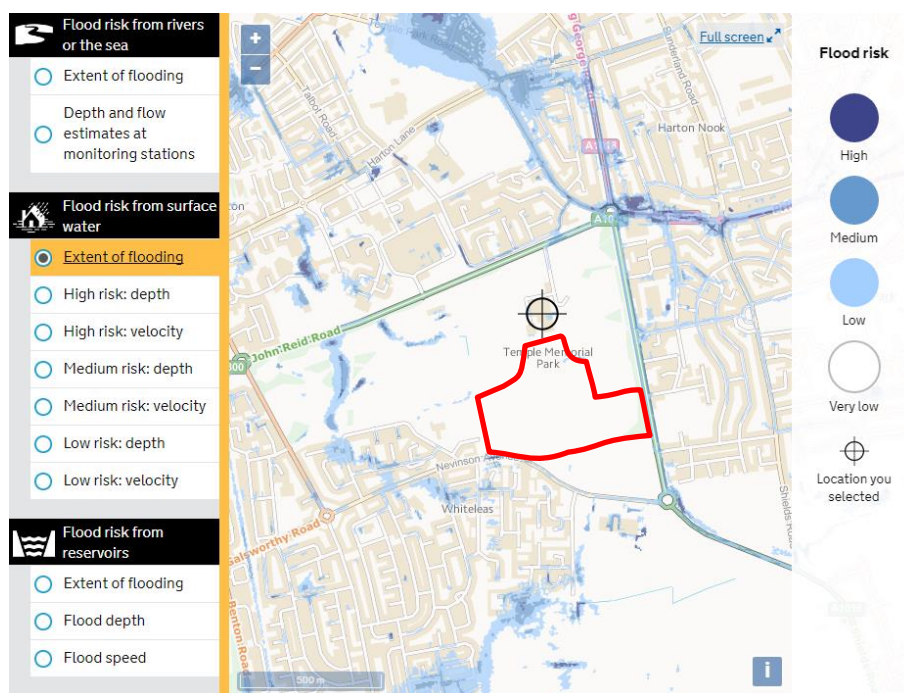


Figure 4.7 Environment Agency Flood Map

The area generally slopes from North to South which suggests rainfall is likely to flow towards Nevinson Avenue. The map shows that there is a low risk of surface water flooding in this location.

Surface water flooding can be exacerbated if development increases the percentage of impervious area which has the potential to change the surface water flow regime for the site and the surrounding area. Any development should look to restrict surface water flows to that of greenfield run off and attenuate flows in excess of this. It is important to ensure that any surface water flows generated by the change to impermeable area are collected on site and do not pass in to neighbouring land.

With the design of surface water management for the site in line with current legislation and design principles no further consideration of this flooding mechanism is required.

4.8 SEWER FLOODING

Flooding can occur when the sewerage infrastructure becomes overwhelmed by heavy rainfall (due to inadequate capacity) or blockages in drain systems (such as silt or debris accumulation). Works above or adjacent to existing sewer networks may also damage buried pipeline to the extent that it leads to flooding through damage during excavations or through damage causing blockages below ground.

There are not understood to be any flooding incidents caused by incapacity within the sewerage network affecting the site and as such no further consideration of this flooding type is required.

4.9 CANALS AND ARTIFICIAL WATERWAYS

There are no canals or artificial waterways within 1km of the site boundary, as such flood risk is considered low as such no further consideration of this flooding type is required.

4.10 RESERVOIRS AND LAKES

When reservoirs and lakes flood, there can be implications beyond the immediate area of the water body. The EA has identified that there is no risk of flooding on the site on the EA's online flood map, see Figure 4.10.

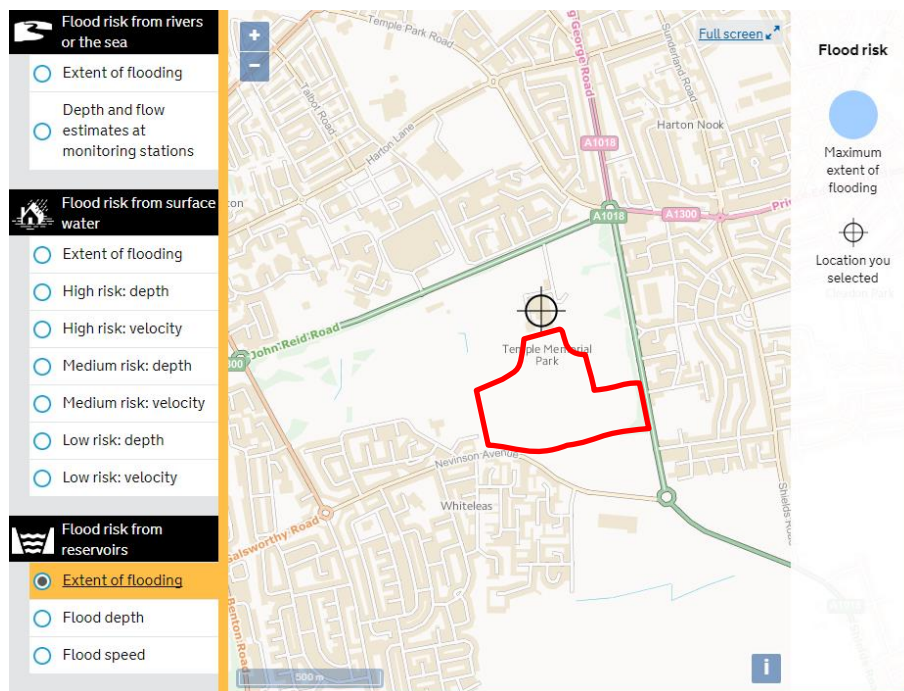


Figure 4.10 Environment Agency Flood Map

4.11 WATER MAINS

NWL asset records (Appendix B) show a potable water rising mains within King George Road and Nevinson Avenue. This areas are hard standing and the natural topography shows a slope from North

to South. It is likely that should a pipe fail, flood flows would be retained within the kerbline of the highway until a repair could be implemented. As such flood risk is considered low and as such no further consideration of this flooding type is required.

4.12 CLIMATE CHANGE

Climate change will be the major cause of increased flood risk in the future. The CFMP suggests that for climate change the EA tested the following changes up to 2110:

- 20% increase in peak flow in all watercourses. This will increase the probability of large-scale flood risk;
- A total sea level rise of 1050 mm by the year 2110. This will increase the probability of tidal flooding and increase the length of time that watercourses will not be able to flow freely to the sea at high tide (tide-locked).
- Therefore climate change was shown to have a significant impact on flood risk.

The impact of climate change will likely increase the risk of flooding from a number of the mechanisms considered, therefore it is recommended that the resident of the property sign up to the EA flood warning service and consider appropriate protection measures.

5 CONCLUSIONS AND RECOMENDATIONS

5.1 CONCLUSIONS

This Level 1 FRA concludes that:

- Tidal Flooding – The Environment Agency mapping shows that the site is not at risk of flooding and as such will not require further assessment
- River Flooding (Fluvial) – The Environment Agency mapping shows that the site is not at risk of flooding and as such will not require further assessment
- Groundwater Flooding - there is a low risk of groundwater flooding occurring at the site, therefore no further assessment is required with respect to groundwater flooding;
- Surface Water (Overland) Flooding - the Environment Agency mapping shows that the site at very low risk of flooding. The proposed development will change the surface water flow regime for the site and proposals will need to be developed in line with local and national guidelines.
- Sewer Flooding - there are no known previous flooding incidents from the sewer and as such there is considered to be low risk of sewer flooding affecting the site;
- Canals and Artificial Waterways Flooding – the location of canals and artificial waterways are sufficiently far from the site and therefore unlikely to result in flood risk and as such will not require further assessment;
- Reservoirs and Lakes – The Environment Agency mapping shows that the site is not at risk of flooding and as such will not require further assessment;
- Water Mains – the topography of the area and the location of water mains suggest that any flooding would be retained within Dean Road and Sunderland Road and does not require further assessment ; and
- Climate Change - the potential impacts of climate change will likely increase the risk of flooding and suitable protection measures should be considered.

5.2 RECOMMENDATIONS

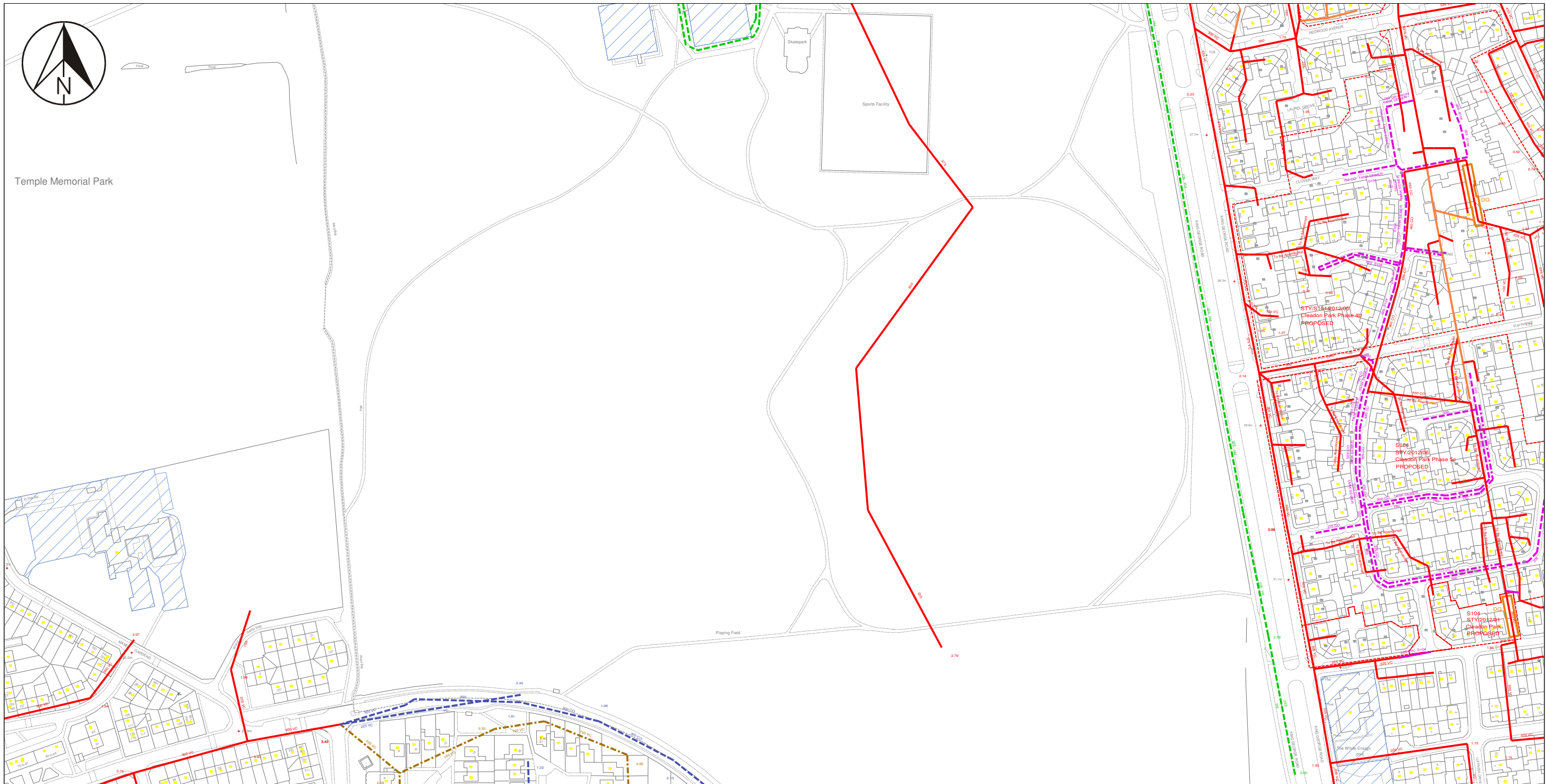
The Level 1 FRA shows that the site is not at risk from the flooding mechanisms assessed in this document. A drainage strategy will be prepared to demonstrate the proposals to manage surface water flow within the site. Consideration must be given to overland flow paths created by changes to impermeable areas on the site. As part of the drainage strategy reporting, appropriate guidance documents such as the SuDS Manual (CIRIA C753) should be used.

APPENDICES

APPENDIX A	NORTHUMBRIAN WATER SEWER RECORDS
APPENDIX B	NORTHUMBRIAN WATER ASSET RECORDS



APPENDIX A
NORTHUMBRIAN WATER SEWER RECORDS



NWL Responsibility		Private/Non NWL		Proposed		Annotations		Symbols	
Combined Foul Surface	Red solid line	Combined Foul Surface	Green solid line	Combined Foul Surface	Blue solid line	Abandoned	AAA	Chambers	Black square
Treated Eff	Blue dashed line	Foul Surface	Green dashed line	Foul Surface	Blue dashed line	Rising Main	Diagonal lines	Inlet/Outlet	Black rectangle with T
Untreated Eff	Red dotted line	Trade Eff	Green dotted line	Trade Eff	Blue dotted line	Backdrop	Black circle	Pumping Station	Black triangle
Overflow	Green solid line	Watercourse	Blue dashed line	Watercourse	Blue solid line	Direction of flow	Black arrow	Termination Node	Black triangle pointing right
								Attribute Change	Black line with slash
								Lamp Hole	Black square
								Hatchbox	Black circle
								Air Valve	Black diamond
								Property Connection	Black circle with P
								Dual Usage Chamber	Black circle with double lines
								Unknown End	Black circle with question mark
								Treatment Works	Black rectangle with STW
								Balancing Pond	Black rectangle

User : DAWSJ1
Title :

Date : 19/04/2017 09:43:30
Centre Point : 437249,563637

Map Sheet : NZ3763
Paper / Scale : A3@1:2700

The material contained on this plot has been reproduced from an Ordnance Survey map with permission of the controller of H.M.S.O. Crown Copyright Reserved. Licence No.100022480. The information shown on this plan should be regarded as approximate and is intended for guidance only. No Liability of any kind whatsoever is accepted by Northumbrian Water, it's servants or agents for any omission. The actual position of any water mains or sewers shown on the plan must be established by taking trial holes in all cases. In the case of water mains Northumbrian Water must be given two working days notice of their intention to excavate trial holes. With effect from 1 October 2011, private lateral drains and sewers automatically transferred to Northumbrian Water under a scheme made by the Secretary of State pursuant to section 105A Water Industry Act 1991. These former private drains and sewers together with existing private connections may not be shown but their presence should be anticipated. WARNING...Where indicated on the plan there could be abandoned asbestos cement materials or shards of pipe. If excavating in the vicinity of these abandoned asbestos cement materials, the appropriate Health & Safety precautions should be taken. Northumbrian Water accepts no liability in respect of claims, costs, losses or other liabilities which arise as the result of the presence of the pipes or any failure to take adequate precautions. Emergency Telephone Number: 0345 717 1100

25 m

APPENDIX B
NORTHUMBRIAN WATER ASSET RECORDS





Valves/Regulators 	Fittings/Symbols 	Storage/Operations 	Network Types Distribution Treated Raw	Specific Main Types Fire Supply Abandoned Asbestos Abandoned Out of Commission	Area Types Private Water Quality District Metering Easement
------------------------------	-----------------------------	-------------------------------	--	--	--


User : DAWSJ1
Date : 19/04/2017 09:39:47
Map Sheet : NZ3763

Title :
Centre Point : 437249,563637
Paper / Scale : A3@1:2700

The material contained on this plot has been reproduced from an Ordnance Survey map with permission of the controller of H.M.S.O. Crown Copyright Reserved. Licence No.100022480. The information shown on this plan should be regarded as approximate and is intended for guidance only. No Liability of any kind whatsoever is accepted by Northumbrian Water, it's servants or agents for any omission. The actual position of any water mains or sewers shown on the plan must be established by taking trial holes in all cases. In the case of water mains Northumbrian Water must be given two working days notice of their intention to excavate trial holes. With effect from 1 October 2011, private lateral drains and sewers automatically transferred to Northumbrian Water under a scheme made by the Secretary of State pursuant to section 105A Water Industry Act 1991. These former private drains and sewers together with existing private connections may not be shown but their presence should be anticipated. WARNING...Where indicated on the plan there could be abandoned asbestos cement materials or shards of pipe. If excavating in the vicinity of these abandoned asbestos cement materials, the appropriate Health & Safety precautions should be taken. Northumbrian Water accepts no liability in respect of claims, costs, losses or other liabilities which arise as the result of the presence of the pipes or any failure to take adequate precautions. Emergency Telephone Number: 0345 717 1100

