FLOOD RISKS IN THE LITTLETON AND HARESTOCK AREA

Purpose of presentation

This purpose of this short presentation is to provide the residents of Littleton and Harestock with a general introduction to the subjects of local flood risks, flood resilience and Parish Council planning for flooding.

Parish Council Notes:

- *The summary information presented here was obtained from Government, National, Local Authority, Charities and local organisation sources.*
- *Online links are provided for Littleton and Harestock residents to obtain further information about flood risks, flood resilience and planning for flooding.*
- *If you want more information about how the Parish Council will act during a flood event, please contact the LHPC Clerk (01962 886507) who will direct you to the appropriate LHPC councillor.*
- *Littleton residents, with a property at risk from flooding, should take professional advice about flood resilience measures and ensure their insurance provides adequate cover.*

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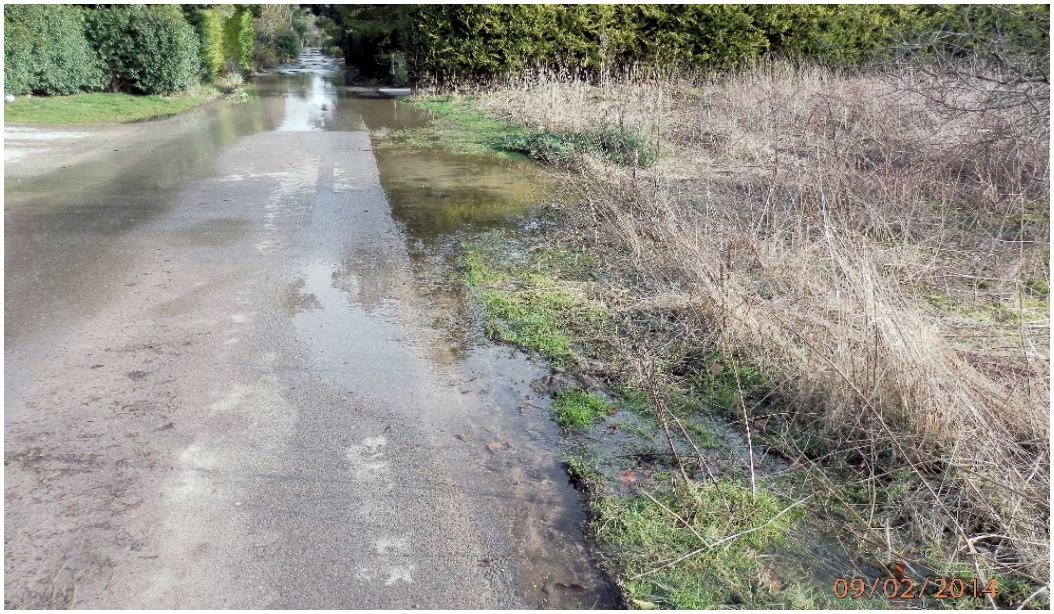
Why are the Littleton and Harestock communities at risk from flooding?

The Littleton and Harestock areas are located approximately 100-60 metres above sea level. The nearest river (River Itchen), is about 4 kilometres East and is around 20-50 metres lower than Littleton and Harestock, therefore, river flooding is unlikely. The areas are at risk from groundwater flooding, flash flooding, sewage flooding and flooding from burst water mains.

Groundwater Flooding

- Parts of Littleton are at risk from periods of groundwater flooding. There is less risk in Harestock, as the area has a mains drainage system.
- Our communities sit above the Upper Chalk geological formation, a principal aquifer (water-bearing rock) under Southern England.
- The chalk aquifer below the Winchester area will absorb rainwater and has an enormous capacity for holding this as groundwater. Southern Water extracts drinking water from boreholes sunk into the chalk.
- The level of the groundwater (water table) in the chalk can vary significantly with seasonal rainfall. Generally, the groundwater level in Winter is higher than in Summer.
- Following an extended period of wet weather, the water table in the chalk aquifer (water-bearing rock) below the Winchester area will rise; possibly far enough to breach the ordinarily dry land surface as either springs or surface pooling. Springs may appear in unexpected places.
- Like a draining sponge, groundwater can exit the ground at lower elevations before higher ground elevations. Springs and surface pooling can appear anywhere along the general direction of flooding depending on the shape of the land surface and obstructions.



Groundwater springs breaching the surface
Surface flooding down South Drive to Main Road Littleton (9 February 2014).

- Over time, and with a reduction in the amount of rainfall, the groundwater held in the chalk aquifer tends to drain away beyond the Winchester area, the local groundwater level falls, and the floodwater disappears.
- Climate change is likely to affect the volume, intensity and frequency of rainfall and increase the groundwater flood risk in Littleton and Harestock.

Flash Flooding Risk

- Flash flooding can occur throughout the year in periods of intense rainfall or perhaps during snowmelt where the water drainage system is either overwhelmed or blocked.
- Flash flooding causing water pooling can occur unexpectedly anywhere in the rural and urban landscape of Littleton and Harestock, and be exacerbated by blockages in road drainage, ditches and watercourses. Littleton relies on water drainage through soakaways which can be overwhelmed in heavy rain.
- The Main Road/North Drive Littleton junction is protected by a concrete sump (Village Pond) and new soakaways were installed in 2012. Harestock is served by mains drainage which, if not overwhelmed, can remove flash flood water from roads.
- Flash flooding is relatively short-lived but can cause property damage if water continues to pool for days.

Sewage Flooding Risk

- There may be flooding incidents involving sewers, pumping stations and septic tanks all of which have implications for public health.
- In Littleton, some sewage is pumped away, but most wastewater and sewage are held in static tanks *(of varying age, technology and quality)* awaiting disposal by residents. Some properties have sewage treatment systems and discharge 'grey water' to soakaways.
- During Littleton groundwater flooding events, some sewage tanks might flood, and sewage could enter the surface floodwater. Contamination of groundwater with sewage during a flooding event is difficult to detect, but it is a severe public health hazard.
- Littleton and Harestock residents should read the LHPC statement about Septic Tanks and Small Sewage Treatment Plants.

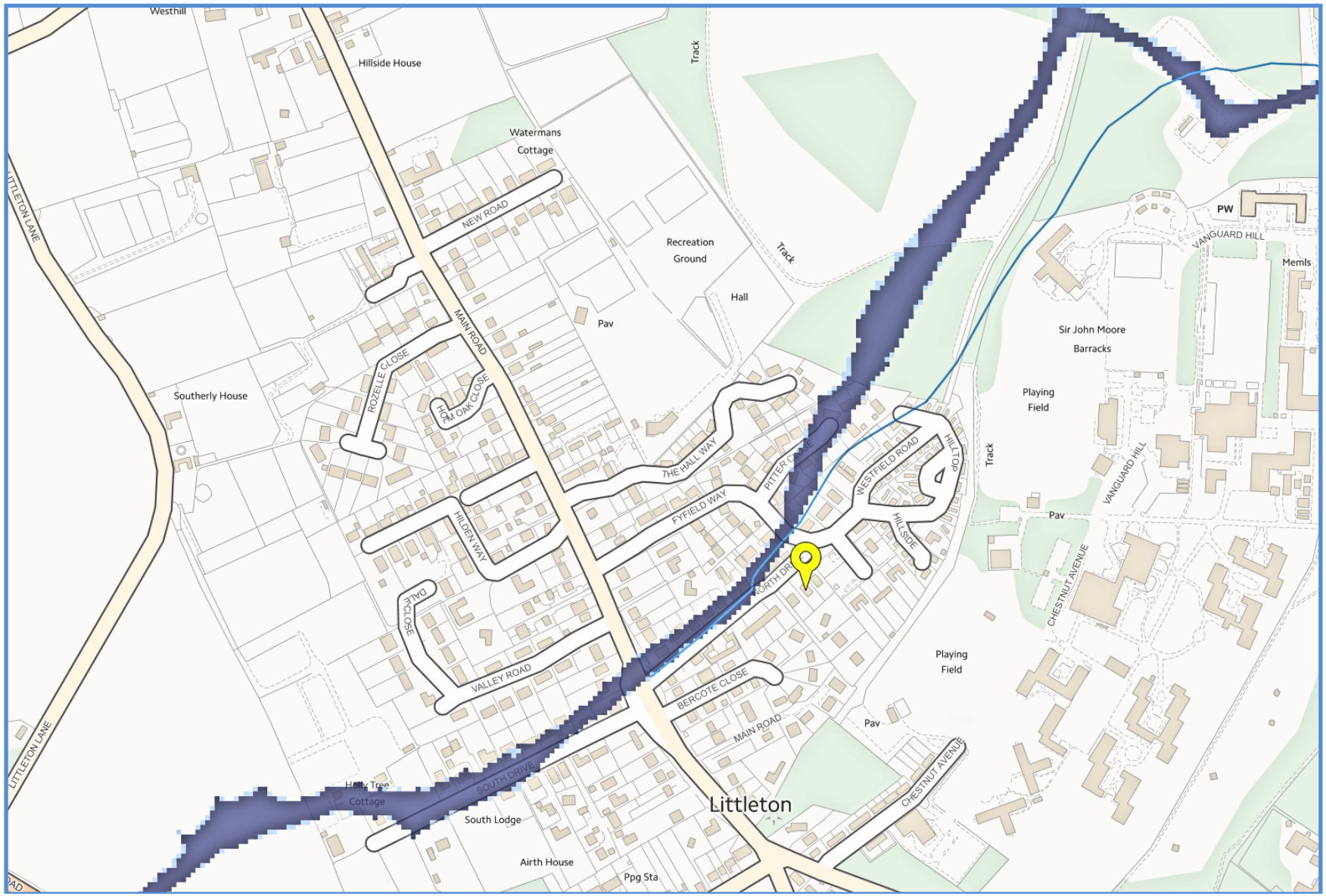
Water Mains Flooding Risk

- Littleton and Harestock residents could be surprised by a burst water main which could lead to the failure of the water supply and flooding in low lying areas where water might pool unexpectedly.
- A mains water burst can be sudden and be relatively destructive. The effects of such 'flash' flooding might be worse if drains and soakaways are blocked with debris, silt, ice or snow.

Where does it flood in Littleton?

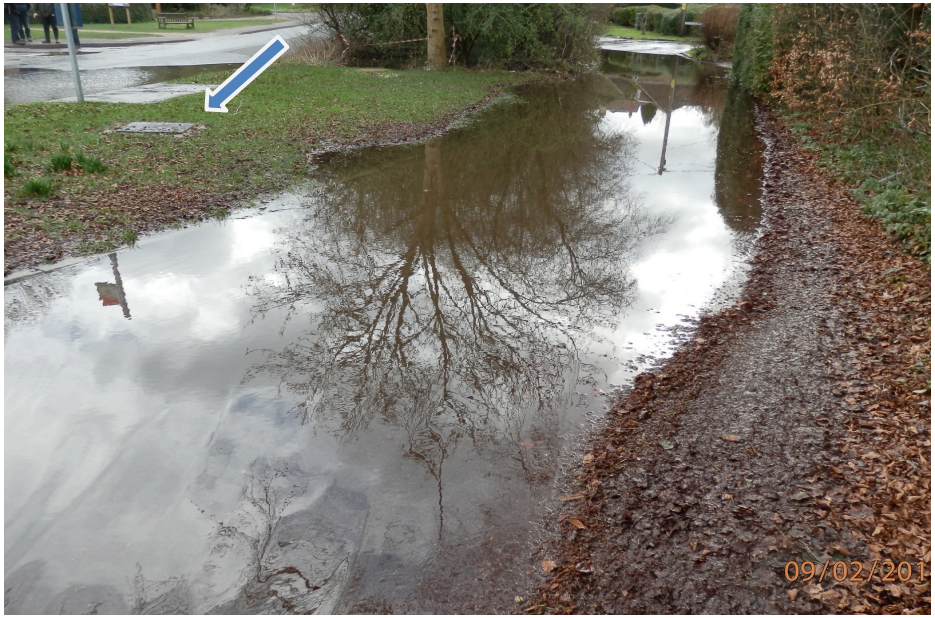
- Groundwater flooding events in Littleton, of varying size, occurred in the winter months of **1994/95, 2000/01, 2002/03 and 2014.** A flood event will last about 4-6 weeks, although, for some properties, drying out and remedial work may take many months. From observations of the flooding in 2000 and 2014 the flooding tends to follow the low points along South Drive, Main Road, North Drive, Fyfield Way and Pitter Close eventually discharging onto MoD land. When in full spate it has the characteristics of a stream following the path of least resistance. The water follows roads, footpaths and spreads across gardens. In parts the floodwater can move swiftly (e.g. about 1 metre every 1-2 seconds at a depth of 10 – 30 cm).
- The Environment Agency Flood Map for Planning (Littleton and part of the Harestock areas) shows the 'Flood Zone 3' which represents the potential flood risk axis after a prolonged period of wet weather and a high water table, leading to groundwater release and surface flooding.

LITTLETON GROUNDWATER FLOOD RISK ZONE 3



This Environment Agency sourced map is reproduced here under Open Government Licence.

- There is a lot of variation in the flow pattern due to surface conditions along the flood track *(slope, the width of flow, surface type, obstructions and the built environment)*. As the flooding runs off downhill and spreads through the built landscape (with buildings and garden obstructions) it slows down and can cross the surface of many properties.
- The floodwater will pool where there is a low gradient, or if it is obstructed *(it can be deeper than 30 cm, particularly in depressions).*
- Residents should be aware that the impact of groundwater flooding in Littleton is more extensive than implied on the Environment Agency Map. There is some static groundwater pooling in gardens on either side of the flood track shown *(this can be upslope or downslope of the flood track depending on surface exposure of the water table).* Therefore, gardens may be flooded independently of any water flowing along the flood track.
- The actual track of the floodwater is influenced by the level of the water table, full drainage tanks and soakaways and the built environment which has continued to expand significantly in the last 20 years. Buildings and garden obstructions, erected since 2000, continue to change the nature and direction of the groundwater flooding.
- Given the rolling nature of the terrain, the underlying geology, potential climate change, potential silting of drainage systems and increasing urbanisation there is a continued risk of intermittent flooding in Littleton.
- Littleton residents living in the projected flood impact zone should expect flooding events about every 10 -15 years and perhaps on an even shorter timescale.



Surface water flooding at the
Main Road/South Drive, Littleton junction (13 February 2014)

Note the metal lid marks the position of a large soakaway.
The soakaway and drain have been overwhelmed by floodwater.

Monitoring the groundwater flood risk.

- **Rainfall indicators**. The amount of Winter rainfall is a good indicator of the potential for flooding. During the period September 2012 to February 2013 there was no apparent flooding in Littleton. One year later and with significantly increased rainfall, there was flooding in Littleton starting in early February 2014. The Parish Council monitors the level of rain in Winchester as an indicator of the flood risk. See winchesterweather.org.uk for local climate data.
- **Borehole water level indicators**. The Environment Agency measures the level of groundwater in the Harestock Corner borehole and issues regular reports for Kings Worthy, Headbourne Worthy and Littleton. The type of graphical report available from the Environment Agency provides clear visibility of seasonal groundwater level cycles, and when flood conditions are imminent. The peak groundwater level occurs approximately 1-3 months after the peak rainfall and remains high for about 2 months afterwards (See the Harestock Corner Graph at Environment Agency Borehole Data).

Flooding and planning applications

- In a planning application a Flood Risk Assessment (FRA) identifies the level of flood risk to your property or site. You should seek detailed advice from Winchester City Council about the requirements of a flood risk assessment.
- The Littleton Village Design Guideline (DG) 17 states that '*proper and adequate environmental surveys and reports should be submitted as appropriate prior to a planning application being considered. DG17 identifies the need for Flood Risk Assessment (FRA) in support of planning applications where appropriate'*.
- LHPC is required to consider and comment on all planning applications within its area of responsibility. Flood risks and arrangements for sustainable drainage are factors which are assessed.

Littleton flood relief schemes

- **Hampshire County Council Road Drainage Improvements**. In 2012 Hampshire County Council developed a more resilient road drainage system at the junction of Main Road and North Drive, Littleton. In normal conditions the increased capacity of this soakaway-based drainage system prevents flash flooding in that area. In flood conditions this drainage system appears to keep the area clear of surface water longer until the soakaways are flooded with groundwater.
- **Residents' Association Drainage**. Following the 2014 Littleton flooding event, the Fyfield Residents' Association obtained a Government grant to install emergency drainage pipes to take floodwater from Fyfield Way and Pitter Close downhill onto MoD land (St John Moore Barracks).
- **Proposed Hampshire County Council Flood Relief Scheme for outer Winchester**. Since 2000 Hampshire County Council has examined several schemes for flood relief through Littleton. Engineers are developing a comprehensive strategic flood relief scheme that incorporates Littleton, MoD Land (St John Moores Barracks), the Andover Road, farmland to Headbourne Worthy (under the railway) and on to the River Itchen. This scheme will be a relatively expensive and likely to be implemented in phases over several years. If the scheme is approved, construction will not start until late 2020 at the earliest.

LHPC Flood Plan

The LHPC has a Flood Plan (as part of the Community Emergency Plan) which includes:

- Monitoring of flood indicators.
- Provision of support to Littleton residents (where possible).
- Warning Littleton residents about flood risks. LHPC monitors the local rainfall pattern and the level of the groundwater (Harestock Corner Borehole is owned by the Environment Agency). It is possible to provide an alert to residents if groundwater flooding is forecast as imminent. The alert will be published on the LHPC website and an 'alert flyer' will be delivered to all the properties located along the Zone 3 flood line shown on the map in this brief. As part of this warning there will be a request to have sewage facilities, which may be affected by flooding, to be emptied as soon as possible.
- Ordering sandbags from Winchester City Council according to a plan based on the 2014 flooding.
- Controlling and coordinating the distribution of sandbags.

- Assistance to residents using volunteers (where possible/as available).
- Coordination with Emergency Services, Winchester City Council and Hampshire County Council.
- Coordination with Hampshire Highways about diversions (away from and through Littleton), road closures, signage and road cones.
- Identification of vulnerable residents in flood conditions (where possible) and arranging assistance (as possible).
- Keeping in contact with residents about refuse collections and transport issues.
- Supply and positioning of LHPC provided mobile toilet facilities (as required). Winchester City Council and public health authorities might also supply mobile multi-toilet units. LHPC will arrange for emptying of these units and maintenance repairs if they fail.
- Gathering evidence to support subsequent applications for financial support by the Community.
- Coordination with Winchester City Council about the removal of sandbags (which may be contaminated with sewage).
- Coordination with Hampshire Highways about clean-up operations (drain cleaning, clearance of road detritus/sediment, removal of cones/signage, road repairs).

Advice to Littleton and Harestock residents about flooding

- **Advice about Property Flood Resilience (PFR) and Property Level Protection (PLP)**. Property Flood Resilience (PFR) is about self-help preparations in advance of flooding to minimise damage should water enter your property. Property Level Protection (PLP) is about the self-help actions to be undertaken to reduce water getting into your property once flooding starts. PFR and PLP measures need to be applied on a building by building basis depending on the flood risk. Property owners are likely to need professional assistance in planning resilience and creating barriers to floodwater. Littleton and Harestock property owners might consider the following sources of information which contain useful online links and references:
  - The Know Your Flood Risk Campaign has a mission to raise awareness of the risk of flooding from all sources. It has published online a Home Owners Guide to Flood Resilience.
  - The National Flood Forum is a charity which exists to support individuals and communities at risk of flooding. It has published online Six Steps to Property Level Flood Resilience - Guidance for Property Owners (University of Manchester/ Building Research Establishment).

- **Advice from the Environment Agency**. The Environment Agency provides Flood Warnings for England. You can use the **interactive map** to focus on flood warnings and alerts. This Environment Agency Website includes advice on:
  - How to plan for flooding.
  - What to do in a flood.
  - How to recover after a flood.
  - Your property's long-term risk of flooding.
  - The 5-day flood risk and where to sign up for flood warnings.

- **General advice to residents about flooding in Littleton** (incorporates some Winchester City Council advice about flooding).
  - Check gullies, drains, ditches and watercourses which might cause a flooding problem.
  - Fix drainage problems and carry out the development of flood resilience and flood protection measures in advance.
  - Check insurance risks coverage. Store all paperwork above potential flooding levels.
  - Talk to your immediate neighbours in advance about cooperating during flooding events.
  - Trench across gardens to focus water runoff downhill. Please coordinate this with neighbours.
  - Organise with neighbours the removal of garden obstructions (garden features, walls, fences, earth mounds) to enable floodwater to pass downhill and to minimise water pooling.
  - If your sewage system is liable to flood, then have it emptied before it does so. This emptying activity may be outside of the regular maintenance cycle.
  - Use sandbags (or other measures) to prevent floodwater penetration of your buildings. Please discuss with neighbours.
  - Do not use sandbags or other obstructions to prevent the natural flow of floodwater across low priority areas such as gardens or open spaces as this will create unnecessary pockets of pooling floodwater
  - During emergency flooding events LHPC intends to be the single source of ordering sandbags from Winchester City Council.
  - The LHPC Community Emergency Plan contains a detailed and prioritised sandbag distribution plan for Littleton based on observations made during the 2014 flooding event. The priority of sandbag distribution, under the control of the Parish Council, will follow the order of likely groundwater flooding effects and impact. There will be additional sandbags left at convenient locations. If you can, and to enhance protection, use plastic sheeting on the flood side of sandbags, ensuring the plastic runs underneath and is held down by the sandbags.
  - Contact the Parish Council office (Tel: 01962 886850) and you will be directed to the appropriate LHPC councillor:
    - If sandbags are required.
    - If there are vulnerable people who might be at risk during the flooding and require assistance.
    - If you require general assistance (voluntary help).
  - If you leave your property for the flood duration you are advised to contact the LHPC Clerk (01962 886507) with your details. The Parish Council will inform the Police that the property is empty.

Community recovery after flooding

There is no single agency responsible for actions to assist the Littleton community in recovery after flooding. Littleton is unlikely to have the highest priority for assistance and it is likely to take several weeks (perhaps longer) for the community to recover from flooding. The following table illustrates the main recovery actions to be carried out.

Recovery Action Responsibilities after flooding in Littleton (Resolution actions in red)					
Actions *(There is no prioritisation shown in this list)*	Residents/ Property Owners	Littleton & Harestock Parish Council	Winchester City Council	Hampshire County Council	Utility & Service Suppliers
Repair private property & damage	Repair/Maintain				
Repair septic tanks/sewage systems	Repair/Maintain				
Maintain Fyfield drainage system (Private)	Repair/Maintain				
Remove mobile toilets (Private Rental)	Remove				
Inspect flood route		Inspect			
Restore Bin collection services			Restore		
Apply for Post Flood Repair Grants (as available)	Apply	Monitor	Process		
Remove road contaminated debris and sandbags	Report	Report/Monitor	Remove		
Remove temporary road signage and cones		Report/Monitor		Remove	
Restore roads with access restrictions		Report/Monitor		Restore	
Repair road surface damage & potholes	Report	Report/Monitor		Repair/Maintain	
Repair road drainage systems		Report/Monitor		Repair/Maintain	
Repair utilities infrastructure	Report	Report/Monitor			Repair/Maintain
Remove mobile toilets (Communal)		Report/Manage	Report/Manage		Remove
Restore postal services					Restore
Restore services (transport/food deliveries etc)					Restore