Devon • Cornwall • Isles of Scilly

LRF

Local Resilience Forum

MULTI AGENCY FLOOD PLAN

PREPARING FOR EMERGENCIES

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Revision History

Revision Date	Version No	Summary of Change	Changes made by	Authorised by	Date
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Distribution

Name	Department	Organisation
Severe Weather Subgroup members	-	DCIoS LRF
BMG members	-	DCIoS LRF
LRF Secretariat	-	DCIoS LRF

This Plan is owned by the Devon, Cornwall and Isles of Scilly Local Resilience Forum (DCIoS LRF) and is maintained, and updated by the LRF Severe Weather Subgroup All users are asked to advise the Secretariat of any changes in circumstances that may materially affect the plan in any way.

Details of changes should be sent to:

Devon, Cornwall and Isles of Scilly Local Resilience Forum Secretariat

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Contents

1. INTRODUCTION

1.1 Background

This plan supersedes all previous Local resilience Forum Flood Plans and provides a strategic overview of actions, roles and responsibilities specific to flooding and tactical information based on Local Authority boundaries. The risk of flooding has been assessed as very high in the Devon, Cornwall and Isles of Scilly Local Resilience Forum (DCIOS LRF) area. More information about the risk is contained in section 3 of this plan.

1.2 Aim

The purpose of this plan is to set out the principles that govern the multi agency response to a significant flooding incident in the 'DCIOSLRF area.

1.3 Plan Objectives

- To provide an agreed common framework, protocol and process for all agencies responding to a major flooding incident within the DCIOSLRF area
- To set out the response issues that should be considered at both Strategic and tactical levels in responding to a major flood incident
- To provide a clear and concise procedure for the assessment of weather warnings that may lead to flooding, together with a corresponding escalation procedure and plan activation process
- To provide flood specific roles, responsibilities and actions for all agencies involved in the response to a flood incident
- To identify the flood risks within the DCIOS LRF area and provide mitigation through this plan
- To specify the scope of the plan in order to cover all forms of flood risk
- To reflect the risk of each type of flooding incident occurring within the DCIOS LRF area
- To identify communities within the DCIOS LRF area at risk of flooding and to pre-plan the local response to a flooding event

1.4 Scope

This document is intended for organisations within the DCIOSLRF that would participate in and support, the response and recovery of communities affected by a flood incident.

It does not replace or supersede the LRF Combined Agencies Emergency Response Protocol (CAERP). This plan should be read and activated in the context of CAERP by which all emergencies (as defined by the Civil Contingencies Act 2004) are managed in the LRF area. CAERP outlines the roles and responsibilities of the organisations, which may be involved in an emergency within the LRF. Roles and responsibilities of organisations involved in the response to a flood incident are contained within this document at **Annex A**

The core components of the plan are

- The multi agency flood plan for DCIOS LRF

- Annexes for Cornwall, Devon (including Plymouth and Torbay) and the Isles of Scilly
- Appended to the annexes will be plans for identified High Risk Communities as outlined in **Annex K**

1.5 Organisational Responsibilities

All organisations involved in responding to a flood incident are to make their own arrangements both internally and with outside organisations to ensure that they are able to respond.

1.6 Critical Success Factors

The effectiveness of this plan is dependent on the following critical success factors:

- An effective public information and warning system
- An assembly either physical or via conference call of multi-agency incident commanders and liaison officers during the flood warning phase
- A dynamic risk assessment of the developing situation to determine the need, timing and priorities for implementing evacuation or shelter measures
- The timely mobilisation of staff
- The timely provision of transportation for evacuees especially the vulnerable
- An effective traffic management plan to divert non-essential traffic away from flood risk areas.
- Effective and timely recovery plan for each affected community

These should be considered in line with the response objectives.
Suggested Police strategy can be found at Appendix A.

1.7 Audience

The intended audience is all organisations that may respond to flooding within the LRF area. The document has specific relevance to organisations participating at Gold and Silver Command.

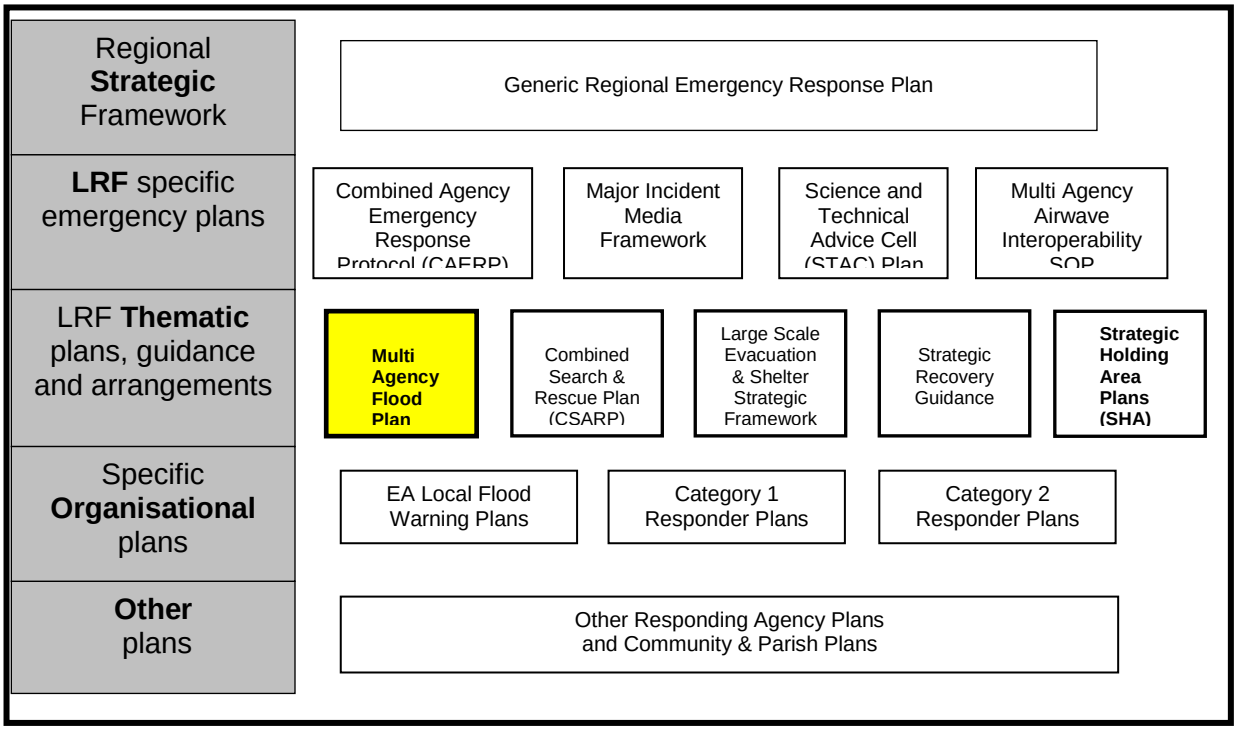
1.8 Review and Update

As a minimum this plan should be updated and reviewed a least every three years. Relevant updates should be inserted when they become available.

2. RELATED AND INTERDEPENDENT PLANS & PLANNING ASSUMPTIONS

2.1 Plans Overview

The relationship between this and other related LRF plans



This is the Devon, Cornwall and Isles of Scilly Multi Agency Flood Plan

Associated with this are annexes for Devon (including Torbay Council and Plymouth City Council areas), Cornwall and the Isles Of Scilly (under development) see **Figure 2a**.

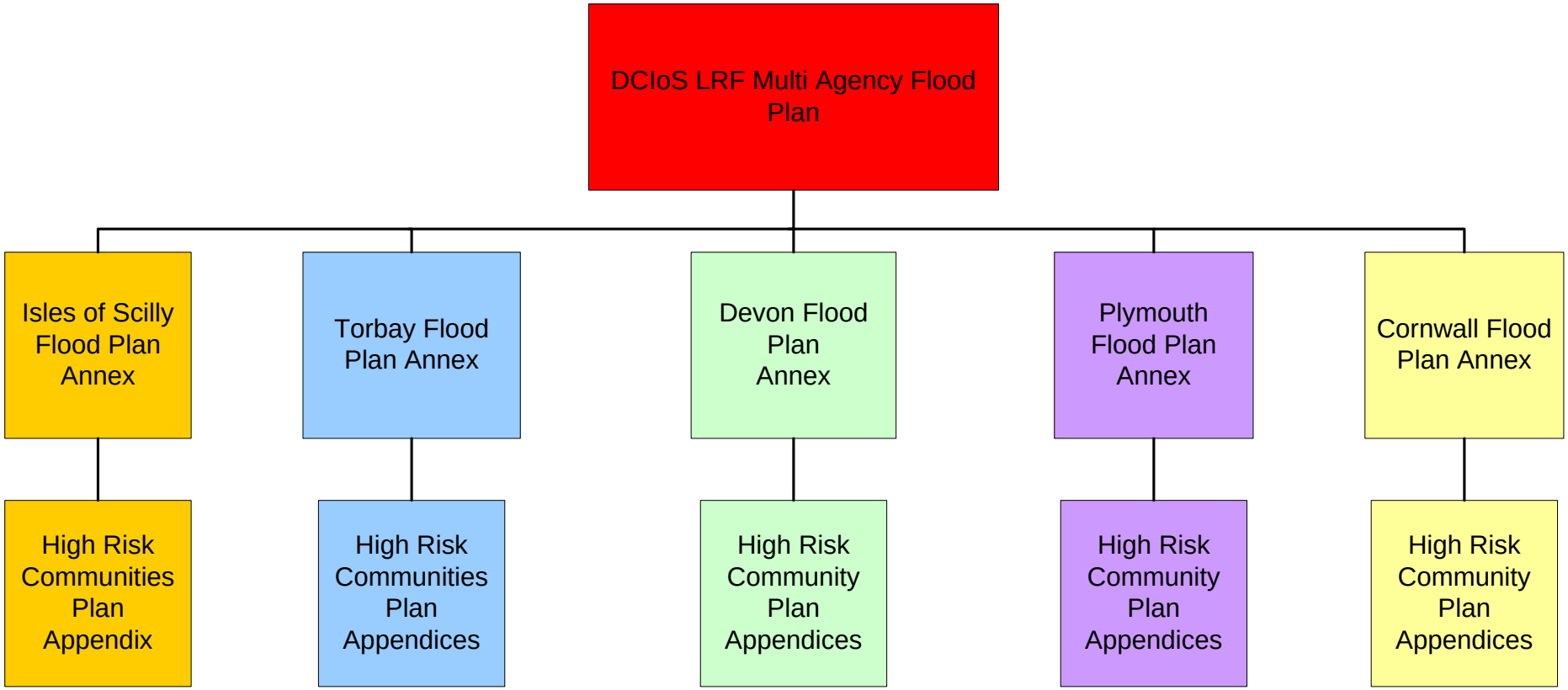
Appended to the annexes are High Risk Community Plans (under development). These are defined as where the community is at risk from:

A. Major tidal/coastal flooding affecting more than 100 properties, 100 or more properties in Flood Zone 2 Tidal.
B. Major fluvial flooding affecting more than 100 properties, 100 or more properties in Flood Zone 2 Fluvial.
C. Major surface water or minor watercourse flooding affecting more than 100 properties, 100 or more properties in Areas Susceptible to Surface Water Flooding.
D. High risk of flash flooding affecting more than 15 properties, 15 or more properties in Flood Zone 2 Fluvial and a Very High risk of flash flooding (Environment Agency National Rapid Response Catchment Methodology).

The list of these locations are contained in **Annex K**. The recommended list of plans will develop over time as more information on risks to particular communities becomes available, particularly in reference to rapid response (flash flooding) and surface water flooding.

Figure 2a

LRF Flood Plan Structure



2.2 Response Considerations

The following bullet points are possible characteristics of flood incidents:

2.2.1 Generic flooding

- People stranded over a large area and in need of rescue. This may only be possible using boats, helicopters or high-clearance vehicles. Rescue efforts may be hampered by severe weather
- People requiring evacuation and/or shelter
- Fatalities and casualties are likely to occur and locating missing persons (reuniting people) would be necessary
- Widespread structural damage, debris (including sediments) is likely to block roads and bridges, leading to significant transport disruption and the closure of primary transport routes within the affected areas
- Contamination of water supplies and loss of other essential services (water; electricity; telecommunications) for a period
- Drainage systems would 'back-up', forcing water to spill out of foul sewers and inside homes and buildings leading to health hazards
- Flooding of homes and businesses would create a requirement for temporary accommodation for up to 18 months
- Cordoned off areas would need to be maintained for up to 14 days. Many will try to return to hazardous areas to collect belongings
- There will be a significant movement of people. Many will self disperse but there will be those who require assistance both to move and to find accommodation
- Death of livestock, and consequently dead animals requiring disposal
- In addition to the immediate consequences of flooding, it may take between 6 and 18 months before business as usual conditions are restored due to the time required to dry-out buildings and repair the damage caused

2.2.2 Specific coastal and tidal flooding

- Inundation from breaches in defences would be mostly unpredictable, rapid and dynamic with minimal warning and less than 1 hour to evacuate. The depth and flow velocity would be unpredictable
- Inundation from overtopping of defences would be predictable at some locations but unpredictable in many others. Emergency services may have up to 8 hours to evacuate but is likely to be less depending on forecast information
- Salt damage to infrastructure and some destruction of property (including a significant number of mobile homes) leading to people needing alternative accommodation. In coastal flooding scenarios, up to 41800 residents are at direct risk from tidal flooding . However more residents may be at indirect risk due to loss of essential services such as water, sanitation and electricity
- People (including tourists) in coastal villages and towns evacuated from flooded sites will require assistance with sheltering or returning home. In Cornwall during the peak season, there are an estimated additional 290,000 visitors to the county in any given day. In addition there are 14 known licensed caravan and camp sites located within the tidal flood risk area, with the capacity of up to 437 Touring caravans, 398 static Caravans/Chalets/Park Homes and 666 tent pitches. In Devon during the peak season, there are an

estimated additional 200,000 visitors to the county on any given day. In addition there area 26 known caravan and campsites at risk of fluvial flooding

2.2.3 Specific fluvial (river) flooding

- The event may include major flooding of a large built up area
- Inundation from overtopping of defences would be predictable at some locations but unpredictable in many others. Emergency services may have up to 3 hours to evacuate in some catchments but this is likely to be considerably less in most locations
- Properties could be flooded within built up areas and across a wide rural area
- The water depth and flow velocity would be variable and fast flowing water could necessitate the closure of bridges, road and rail links
- Most people would try to evacuate themselves and some could become stranded but it is still estimated that up to 110,000 people may need to be evacuated some of whom could require assistance with sheltering for up to 12 months
- In Cornwall during the peak season there are an estimated 290000 visitors to the county in any given day. In addition there are 39 known licensed caravan and camp sites located within the fluvial flood risk area, with a capacity of up to 128 Touring Caravans, 1882 Static Caravans/Chalets/Park Homes and 1965 tent pitches. In Devon during the peak season there are an estimated additional 200000 visitors in the county in any given day. In addition there are 74 known caravan and campsites at risk of fluvial flooding
- Due to the number of catchments susceptible to flash flooding and without an Environment Agency Flood Warning Service many properties could be flooded in isolated communities due to very heavy local rain, typically thunder storm conditions. Deep water and high velocities could be experienced with very little warning posing a significant risk to life

2.2.4 Specific pluvial (surface water) flooding

- Flooding occurs very rapidly and often without warning. Flood waters may be deep and fast flowing depending on the local topography but are likely to subside quickly, usually within minutes rather than hours
- This type of flooding is most common in built up areas where large areas of concrete are unable to absorb excess water, however can also be a problem in rural areas, particularly when catchments are saturated causing water to run-off fields onto roads and into property or where there are rapid response catchments with settlements situated downstream from steep valleys where heavy localised rainfall occurs
- Forecasting of this type of flooding is difficult
- Indicative maps of the area at risk of this type of flooding are now available for emergency planning

2.3 Warning time

In areas where the Environment Agency Flood Warning Service is offered for communities affected by fluvial flooding warnings are issued with between 0.5 and 2

hours notice of flooding occurring. In areas where the Environment Agency can provide a Flood Warning Service for communities affected by tidal flooding warnings are issued with between 4 and 8 hours warning.

For many communities no warning service is available and awareness raising by issuing of press releases and weather forecast information can provide up to 24 hours warning.

For communities affected by flash flooding no warning is available particularly for summer thunder storm conditions which are very difficult to forecast.

3. THE RISK OF FLOODING

3.1 Background

This plan is a major element of the response to potential flooding in Devon, Cornwall and Isles of Scilly.

In this document risk is a function of both the chance or likelihood of a hazard becoming a reality and the consequences or impact of that occurrence. The consequence will depend upon the exposure of people and property to the hazard and their respective vulnerability to harm.

Because of climate change, both the chance and consequences of flooding are increasing. Sea level rise, more frequent and higher storm surges, increased winter rainfall, and more intense summer rainfall will add to existing risk and it may not prove possible to improve fixed defences sufficiently to maintain or raise protection standards.

Floods are mostly natural events that result either from excessive rainfall that leads to pluvial flooding, rivers overflowing their banks, or from tidal storm surges on the coast or in estuaries. They cause death and damage only because human activity takes place in areas such as river valleys or estuaries where floodwater spreads. In built up areas, man made drainage systems may have inadequate capacity or become blocked leading to flooding also.

To limit both risk of flooding, the historic response has been to construct fixed, raised defences in the form of walls or embankments or other structural measures such as bypass channels or pumped drainage systems. These do not eliminate the chance of flooding entirely. They may though, lead to a false sense of security or complacency in those living or working in the defended areas, who would be unprepared for a flood should one occur.

3.2 Sources of Flooding

The Devon, Cornwall and Isles of Scilly Local Resilience Forum (LRF) area is potentially at risk to flooding from a number of sources:

3.2.1 River (Fluvial) Flooding – is usually caused by prolonged periods of heavy rainfall or intense rain over an area. The area affected by fluvial flooding has been mapped by the Environment Agency.

Within the DCIOS LRF area, there are around 37000 properties at risk from a 1 in 100 year event (Flood Zone 3) and 50000 properties at risk from a 1 in 1000 year event (Flood Zone 2). There are no properties believed to be at risk from fluvial flooding for the Isles of Scilly.

3.2.2 Tidal and Coastal Flooding – The combination of high astronomic tides and adverse weather conditions can cause storm surge and wave overtopping of

defences. In severe events this may result in the breach of sea defences and inundation of the surrounding area.

Risk to life can be high with the potential for people being caught in fast flowing waters and currents adding to the usual risks associated with flooding. In vulnerable areas there is potential for significant damage to property from high-energy waves.

There are 15000 properties at risk from a 1:200 year event and 19000 properties at risk from a 1:1000 year event within Devon and Cornwall. The number of properties at tidal risk on the Isles of Scilly is unknown.

3.2.3 Reservoirs Breach/Dam Inundation – This refers to a failure of a reservoir dam. There are a number of these within the Devon and Cornwall area. Flooding from these could occur with little or no warning.

In Devon and Cornwall there are currently 33 identified reservoirs (over 25,000m³). There are no reservoirs (over 25,000m³) identified for the Isles of Scilly.

Inundation maps are available from the Environment Agency and are held by the reservoir owners. These maps are only available to those who have the appropriate security clearance and authorisation to view them.

At the time of writing this plan (March 2010) the Environment Agency is in the process of identifying the top 100 highest risk reservoirs in England and Wales, which will require specific on and off site emergency plans to be written. We have not been informed whether or not any of these high risk sites are in the DCIOS LRF area.

3.2.4 Groundwater Flooding – Groundwater flooding is the result of a rise in the water table to above the rock or soil that makes up the land surface. The problem is most common in areas with chalk strata but can occur in any area with underlying permeable deposits, including sands and gravels.

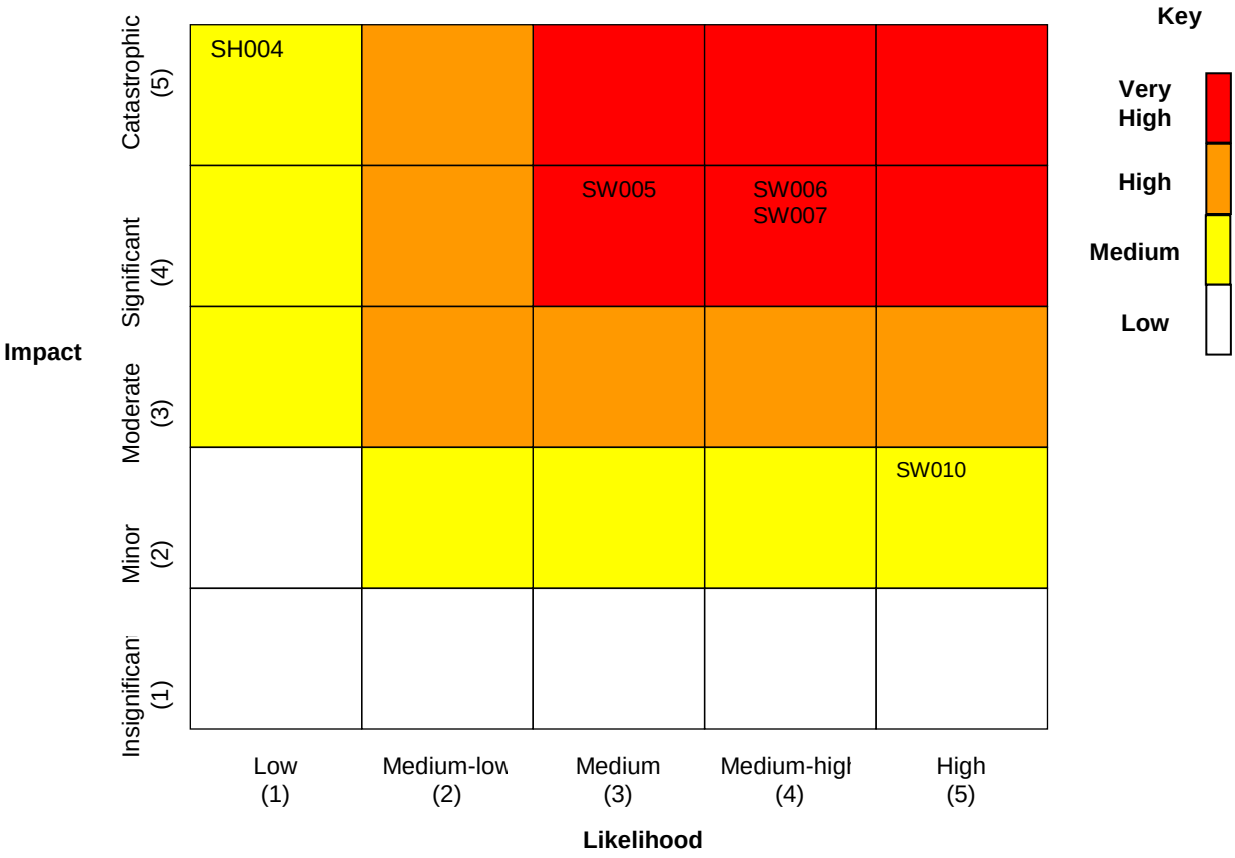
The DCIOSLRF area is not at significant risk from this type of flooding.

3.2.5 Surface Water (Pluvial) Flooding – This usually happens where drainage systems are unable to cope with heavy spells of rainfall. It will be most problematic when catchments are already saturated or frozen and in built up areas with impermeable surfaces. It will usually occur rapidly, but may be relatively short lived in areas where the water can quickly drain away.

Indicative surface water maps are available from the Environment Agency for emergency planning.

* All at risk property number data is approximate. Additionally in large areas of Devon, Cornwall and Isles of Scilly properties are at risk from both fluvial and tidal events, either if they occur independently or simultaneously. These properties are counted in both the fluvial and tidal figures.

3.3 Flooding Risk Rating Matrix



3.4 Table of Risk Reference Numbers

Ref No:	Hazard or Threat Category
SW005	Major coastal & tidal flooding
SW006	Major fluvial flooding
SW007	Localised fluvial Flooding (flash flooding)
SW010	Localised flooding from other sources
SH004	Major Reservoir dam failure caused by internal erosion or overtopping

3.5 Forecasting Flooding

Flood forecasting is undertaken by the Flood Forecasting Centre and the Environment Agency in their Regional Flood Warning Office in Exeter in conjunction with the Devon Area Office in Exminster and the Cornwall Area Office in Bodmin. Note: No flood forecasting service is currently provided for the Isles of Scilly.

The elements which the Agency monitors are:

For fluvial events:

- River levels monitored remotely by telemetry from Flood Warning Stations. Note: Many smaller watercourses do not have telemetry and no specific warning is provided for these.
- Actual rainfall - monitored remotely from rain gauges throughout the catchments.
- Predicted rainfall - by monitoring weather radar and studying Met Office forecasts.
- The Catchment Wetness Index (CWI) i.e. the degree of saturation of a catchment, which indicates how it will respond to rainfall.

For tidal events:

- Predicted tide heights from Proudman Oceanographic Laboratory charts.
- Predicted residual surges provided daily by the Met Office.
- Predicted wave heights provided daily by the Met Office.

Actual tidal levels monitored remotely by telemetry from Tide Gauges

3.6 Defence operations by the Environment Agency (EA)

The Environment Agency maintains and operates a range of flood defence assets, such as flood barriers, gates, pumping stations, sluices and trash screens that contribute to reducing flood risk. For further information on the location of these defences refer to the Environment Agency. Note: the Environment Agency does not own or operate any flood defence assets on the Isles of Scilly.

In the event of a flood, the Environment Agency will deploy resources to ensure the continued and safe operation of these assets and as far as possible will ensure they perform the role for which they were designed. Should the performance of any of these assets falter, the Environment Agency will act appropriately to either maintain protection standards or warn the appropriate agencies and public at risk of the likely consequences.

The Environment Agency will also inspect raised defences to check on their continued integrity. They will take action to strengthen any that give cause for concern and will alert the relevant agencies and the public if this does not succeed.

The responsibility for the condition and operation of private flood defences rests with the owner. In the event of their failure and inaction of the owner, the Environment Agency may use its powers to repair the defence and seek redress through appropriate channels.

The Environment Agency has agreements with several organisations who operate EA defences on their behalf, typically this is the operation of Flood gates by Parish/Town Council groups in response to flood warnings.

3.7 Temporary measures by the Environment Agency

The Environment Agency maintains a limited stock of sandbags and sand for its own operational use. The Environment Agency policy does not provide for the provision of sandbags to others. However, in the context of support for the civil authorities, the Environment Agency will make resources available as Environment Agency priorities and circumstances allow, and this may include sandbags.

At the present time, the Environment Agency does not maintain a reserve stock in this region of proprietary demountable defences or similar temporary equipment.

3.8 Flood warning by the Environment Agency

The Environment Agency operates a flood forecasting and warning service which relies on direct measurements of rainfall and river levels, tide levels, in-house predictive models, rainfall radar data and information from the Flood Forecasting Centre & Met Office. This service operates on a 24 hour, 365 day basis and the warning arrangements are described in brief under Section 5 of this document and in the Local Flood Warning Plan. Some businesses and property owners and occupiers are registered with Floodline Warnings Direct and receive direct warnings through this system.

3.8.1 Flood Warnings

The Environment Agency operates a flood warning service in areas at risk of flooding from rivers or the sea (excluding the Isles of Scilly).

If flooding is forecast, warnings are issued using a set of four easily recognisable codes. Comprehensive details are contained in the Devon, Cornwall and Isles of Scilly Local Flood Warning Plan. A description of the codes is shown below.

3.8.2 Warning Codes

Other information with regard to flood warning can be found in **Annex C**

	Flood Alert is issued in order that the public at risk and the emergency services and civil authority are aware of increasing chance of flooding and take appropriate preparatory action. • **Timing**: Two hours to two days in advance of flooding. • **Triggers:** Forecasts or observations indicate flooding from rivers may be possible; forecast intense rainfall for rivers that respond very rapidly; forecasts of high tides, surges or strong winds. • **Public Actions**: Be prepared for flooding; Prepare a flood kit; move livestock. • **Partner Actions**: Monitor local conditions, weather and flood forecasts.
	Issued when flooding of homes and businesses is expected. Property owners, the public at risk, the emergency services and the civil authority should act to protect life and property. • **Timing**: Half an hour to one day in advance of flooding. ○ **Public Actions**: Move family, pets and valuables to safe place; put flood protection equipment in place; turn off services if safe to do so. ○ **Partner Actions**: Keep up to date with local conditions, weather and flood forecasts; refer to flood response plans. In most instances, a Flood Warning will not escalate to a Severe Flood Warning, but Category 1 responders should be alert to that possibility and liaise with the Environment Agency in that respect.
	Issued when flooding poses a significant risk to life or significant disruption to communities. Risk to life could result from deep fast flowing water, debris or damage to buildings or structures. Significant disruption could result from widespread flooding or damage to critical infrastructure. In such circumstances, it is likely that there would be considerable disruption to traffic movement due to extensive road flooding. • **Timing**: When flooding poses a significant threat to life and different actions are required. May be issued without prior issue of Flood Alert or Flood Warning if onset of severe flooding is rapid. • **Public Actions**: Stay in safe place; be ready should you need to evacuate; co-operate with the emergency services • **Partner Actions**: Act to protect life and property. This is likely to involve an enhanced response and the commitment of significant resource.

Warning / Alert no longer in force	Issued when a Severe Flood Warning, Flood Warning or Flood Alert is no longer in force because no further flooding is currently expected for the area. No new impacts are expected, though there may still be standing water following flooding, flooded properties and flooded or damaged infrastructure. ◆ **Public Actions:** Be careful around remaining flood water; contact insurance company if you have been flooded ◆ **Partner Actions:** Recovery phase actions

4. COMMUNICATION PLAN

4.1 Multi Agency Communication Arrangements

The LRF Telecommunications Plan (under development), will detail multi agency arrangements, but in essence the primary means of communicating between the Devon, Cornwall and Isles of Scilly Local Resilience Forum (DCIOS LRF) members is by fixed telephone, mobile phones or e-mail. Emergency Service Staff in the field will use mobile and Airwave.

4.1.1 Airwave

A number of organisations now use Airwave radios to communicate. In the event of a Major Incident consideration should be given to using shared interoperability talkgroups which are mandated into all Airwave radios. A communication plan should be produced to ensure that affect on the capability of the Airwave system is minimised.

4.2 Media

The media interest in any significant flood event, based upon historical experience, is likely to be very high. The Strategic Co-ordination Group's media response will be in line with the agreed LRF Major Incident Media Framework.

Upon declaration of a Major Incident the Strategic Co-ordination Group may if appropriate, initiate and maintain a link with the Government News Network to ensure that a common communications message is produced.

4.3 Warning the Public

The Environment Agency has a responsibility to issue flood warnings to the public (see section 3.8.2).

The issuing of guidance and information to the public following a flood incident will be co-ordinated by the police, with advice from the organisations represented at the Strategic Co-ordination Group.

The LRF Warning and Informing Strategy (under development) deals with raising public awareness to flooding, including details of what the public should do to help themselves prior to, during and post a flooding incident.

Vulnerable people may require different and specialist communication methods.

Gold/Silver should consider the most appropriate agency(s) to set up a help line to respond to queries from members of the public.

5. PLAN ACTIVATION – THRESHOLDS AND TRIGGERS

5.1 Protocol for convening a Strategic Co-ordinating Group (SCG) meeting prior to a flood incident. (see figure 5a)

5.1.1 EA/MET Office National Flood Forecasting Centre or the MET Office Public Weather Advisor issues a warning that there is a risk and probability of flooding or local circumstances dictate that there is an increased risk of flooding above that which might normally be expected.

5.1.2 EA and relevant Local Authority(s) discuss current information and consider there is a risk of flooding in their area and the relevant LA/EA need to share this information with multi-agency partners at LRF Level. This decision will take into account the risk and probability of flooding.

5.1.3 LA/EA requests Police via the Force Incident Manager (Control Room) to co-ordinate a SCG meeting to ensure the information is shared with all relevant LRF partners. In most instances this initial meeting is likely to be a teleconference. This will be co-ordinated by the duty Gold Chief of Staff or nominated deputy.

5.1.4 Meeting to be chaired by senior Police Officer. **NB: This meeting should be attended by senior emergency planning practitioners and other appropriate officers as this will still be the planning phase.**

5.1.5 Consideration must be given to the timescale for subsequent individual agency conference calls and concurrent activity, which may need to be held by partners to cascade this information.

5.1.6 Multi agency conference calls to disseminate this information will not be resourced by some agencies once a SCG has been held to discuss the possibility of flooding.

5.2 No Notice flood event

5.2.1 In the event of a no notice flood event the command and control as outlined in Figures 6b or 6c should be implemented and all relevant agencies notified by the police.

5.2.2 Partners being informed of flood incidents other than from the police should ensure that the police are informed of the flood incidents via the control room.

5.2.2 Partners should contact the Police Control Room and request Silver/Gold as appropriate is established immediately (unless notification has already been received).

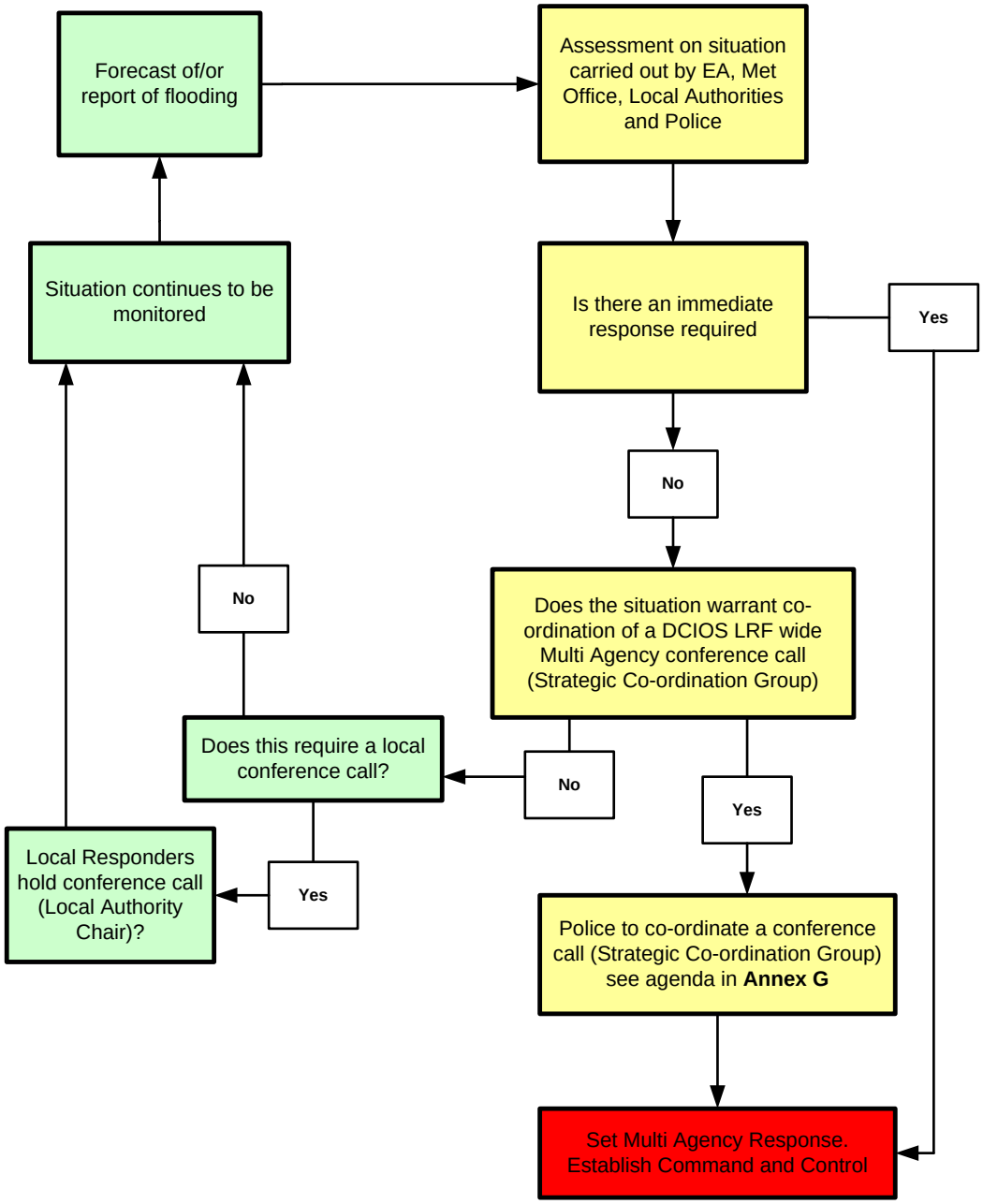
5.3 Roles and Responsibilities

5.3.1 Specific roles and responsibilities of LRF partners can be found in **Annex A .** These are in line with those outlined in the Devon, Cornwall and Isles of Scilly Combined Agency Emergency Response Protocol (CAERP) section 3.

5.4 Reservoir Inundation

5.4.1 On receipt of information that a Dam inundation incident is likely to happen or has happened Gold and Silver should be informed and convened.

Figure 5a – Assessment Process for all flood events



NB: For extreme events Command & Control will be established from the onset

Figure 5b - Response level definitions

An alert level describes the expected scale of response to a flood incident. These are defined as:

Response Level	Actual or forecast Impact	Response
0. (Low flood risk)	• No flooding	• No specific response, normal awareness of possible flood risk.
1. (Moderate flood risk)	• Fast flowing rivers • Bank-full rivers • Flooding of fields and recreation land • Minor road flooding • Car park flooding • Farmland flooding • Surface water flooding (linked to river flooding). • Spray/wave overtopping on coasts. • Overland flow from rivers and streams • Localised flooding due to heavy storms	• Consider the need for Strategic Co-ordination Group. • Individual responders flood plans and procedures may be activated • Some routine or preparatory responses may be underway, e.g. diversion of minor roads, duty officers put on standby, resources mobilised • Heightened awareness if flood risk • EA Issue Flood Alert
2. (Substantial flood risk)	• Flooding of homes • Flooding of businesses • Flooding of cellars and basements • Rail lines vulnerable in tunnels and cuttings • Flooding of major road infrastructure • Flooding of rail infrastructures • Significant wave/spray overtopping on coasts • Significant flood plain inundation (high risk to caravan parks or campsites) • Flooding of major tourist/recreational attractions	As for level 1, plus: • Consider the need for Strategic Co-ordination Group • Multi-agency flood plan activated if required. • Responders undertake actions continued in MAFP if activated. • EA Issue Flood Alert & Flood Warning
3. (Severe flood risk)	• Large numbers (at least 100) of homes/businesses expected to flood • Large numbers of people are likely to be affected by	As for level 2, plus: • Convene Strategic Co-ordination Group • Police co-ordinate multi-agency response

	flooding • Highest risk to life • Severe adverse impact on local infrastructure anticipated: e.g. transport, hospitals & utilities • Significant impact on the capacity of professional partners, organisations and the public (e.g. vulnerable groups) to effectively respond • Flood defence failures or overtopping, which could result in extreme flooding	• Multi-agency control centres open • EA issue Flood Alert, Flood Warning & where appropriate Severe Flood Warning
4. (Recovery)	• Flood water receding.	• Local authority to facilitate rehabilitation of the community and restoration of the community.

6. COMMAND AND CONTROL

6.1 Principles of Command and Control

The DCIOS LRF's CAERP details the command and control structure for dealing with a major incident. To summarise they are:

- Gold Command (Strategic)
- Silver Command (Tactical)
- Bronze Command (Operational)

The command and Control structure of a single location flood incident is contained in **Figure 6b**

The Command and Control structure of a multi location flood incident is contained in **Figure 6c**

Differences in Command & Control in the different Council areas can be found in the following Council Annexes:
Annex M for Devon
Annex N for Cornwall
Annex O for Plymouth
Annex P for Torbay
Annex Q for Isles of Scilly

6.2 Gold (Strategic) Command

The response to a flooding incident will, by necessity, involve a combined response by a range of local agencies operating from a multi-agency Strategic Command Centre (SCC).

The senior officers of the agencies represented at the Strategic Co-ordination Group (SCG), chaired by the Gold Commander, are responsible for determining the combined, strategic response to the incident, formulating policies and setting objectives, together with being responsible for the executive response by their respective agencies.

The Gold Commander will be the senior police officer. The SCG will be located at Police headquarters at Middlemoor. The SCG will comprise of senior representatives from some or all of the following agencies:

- Police
- Fire and Rescue Services
- Ambulance Service
- Local Authorities (including highways)
- Primary Care Trust
- Acute or Foundation Hospital Trust
- Environment Agency
- MET Office
- Highways Agency
- Health Protection Agency

- Government Office for the South West
- Joint Regional Liaison Officer
- Royal Air Force Liaison Officer
- Maritime and Coastguard Agency
- Animal Health
- Water Companies
- 'Infrastructure' representative(s) (e.g. telecommunications/utilities)
- other organisations as required

6.3 Science and Technical Advice Cell

The role of the Science and Technical Advice Cell (STAC) is to ensure timely co-ordinated scientific and technical advice during the response to an emergency.

The establishment of a STAC is likely to be particularly important where there may be significant wider health and environmental consequences.

The STAC should bring together technical experts from those agencies involved in the response and who may provide scientific and technical advice to the Gold Commander.

The STAC would be expected to advise on issues such as the impact on health of the population, pubic safety, environmental protection and sampling and monitoring of any contaminants.

Please refer to the Devon, Cornwall and Isles of Scilly LRF Science and Technical Advice Cell Plan.

6.4 Strategic Co-ordination Group - Initial Meeting Agenda

Details of the agenda for the initial meeting can be found at **Appendix F**.

6.5 Silver (Tactical) Command

The role of silver is to implement the policies and strategic decisions made by Gold. Silver may also be known as the Incident Control Point.

For flooding incidents Silver Command may be established at a Police Station or other suitable premises or location. The location for Silver will be chosen with regard to the nature and extent of the flooding, possible locations to consider are detailed in paragraph **6.8**

6.6 Silver – Activation

Any organisation may request that the police set-up silver control.

The Police will notify partner agencies of the establishment of a silver control.

Agencies required to attend / be represented:

- Fire and Rescue Services

- Ambulance Services
- MCA / RNLI
- Environment Agency
- Highways Agency
- Local authority
- Electricity suppliers (National and Local)
- Gas suppliers
- Telecommunications providers
- Water and sewerage service providers
- Primary Care Trust
- Health Protection Unit

Consideration should be given to the attendance of:

- Network Rail
- Voluntary agencies
- Port Authorities
- COMAH site operators
- National Farmers Union (NFU)
- Military Liaison Officers
- Nuclear site operators

6.7 Silver Control Resources

Organisations attending Silver Control must initially be self-sufficient. They should be able to provide their own:

- Communications with own organisation
- Appropriate mapping requirements
- Administration support
- Stationery, logs etc
- Appropriate protective, bad weather clothing
- Relief staff

6.8 Protocols for Operating at Silver

The nominated Silver (tactical) manager from each agency will work within the Silver co-ordination structure at the designated Silver Control.

Only that person or their nominated deputy will attend Silver meetings.

The role of Silver is to implement the policies and strategic decisions made by the Gold Co-ordination Group.

Each Silver commander will manage their organisations response at tactical level.

Depending on the nature of the incident this may be established at a fixed SILVER location based on Police Basic Command Unit (BCU) areas.

Cornwall and Isles of Scilly BCU	Cornwall Council Emergency Centre, New County Hall, Truro, TR1 3AY

Plymouth BCU	Crownhill Police Station, Budshead Road, Plymouth, PL6 5HT
Devon BCU	Heavitree Police Station, Heavitree Road, Exeter, EX1 2LR and/or Paignton Police Station, Southfield Road, Paignton, TQ3 2SP
Isles of Scilly Flood Incident only	Town Hall, St Mary's, Isles of Scilly, TR21 0LW

If the flood event affects Cornwall & the Isles of Scilly the Silver will be at Truro and a Bronze covering the Isles of Scilly will be based in St Mary's
A Search and Rescue Cell should be established in support of SILVER(s) to ensure the best assets are being used. This should be chaired by a Police POLSA.

6.9 Silver Command - Initial Meeting Agenda

The generic agenda for the initial Silver Command meeting can be found at **Annex I**. The agenda also includes a number of other considerations that the group may wish to consider.

6.10 Search and Rescue Co-ordinating Group (SAR Co-ordinating Group)

The purpose of a SAR Co-ordinating Group is to co-ordinate all search and rescue (SAR) taskings and resources involved in an incident where multiple SAR resources are involved in responding to that incident. This avoids duplication of effort and resources by various agencies who would ensure all taskings received by their own agencies are fed into the SAR Co-ordinating Group.

The SAR Co-ordinating Group will contain a representative from all the SAR agencies involved and will be co-ordinated by the police. This will be a Force Police Search Advisor (POLSA) who will have knowledge of the operational capabilities of all responding agencies.

The composition of the SAR Co-ordinating Group l will be decided by the POLSA in consultation with other agencies and will include a loggist to record taskings and decisions.

The SAR Co-ordinating Group co-ordinator will be responsible to the incident Silver and will meet regularly to discuss operational matters and deployments. This allows Silver to concentrate on the co-ordination of all other agencies and processes at the incident.

In single location incidents this will be a bronze function. In multi incident locations this will be a silver function

6.11 Operational ('Bronze') Command

Generally located at the incident site, the operational or 'Bronze' Commanders implement directives given by Silver Command and execute operational orders. It is highly likely that there will be several Bronze Commands and although it is likely that

a multi-agency Bronze Command will be established (with command being vested in the most appropriate agency, probably the police or fire service), it is also possible that several agency specific Bronze 'Commands' will be established, in order to undertake agency specific tasks. If an Evacuation Briefing Centre (EBC) see Section 9.2 is required the Bronze 'location' Commander will be located here.

6.12 Command and Control Structure

At the declaration of a Major Incident, the command and control of the multi agency response will follow national guidelines. The structure for flood response is shown in **figure 6a.**

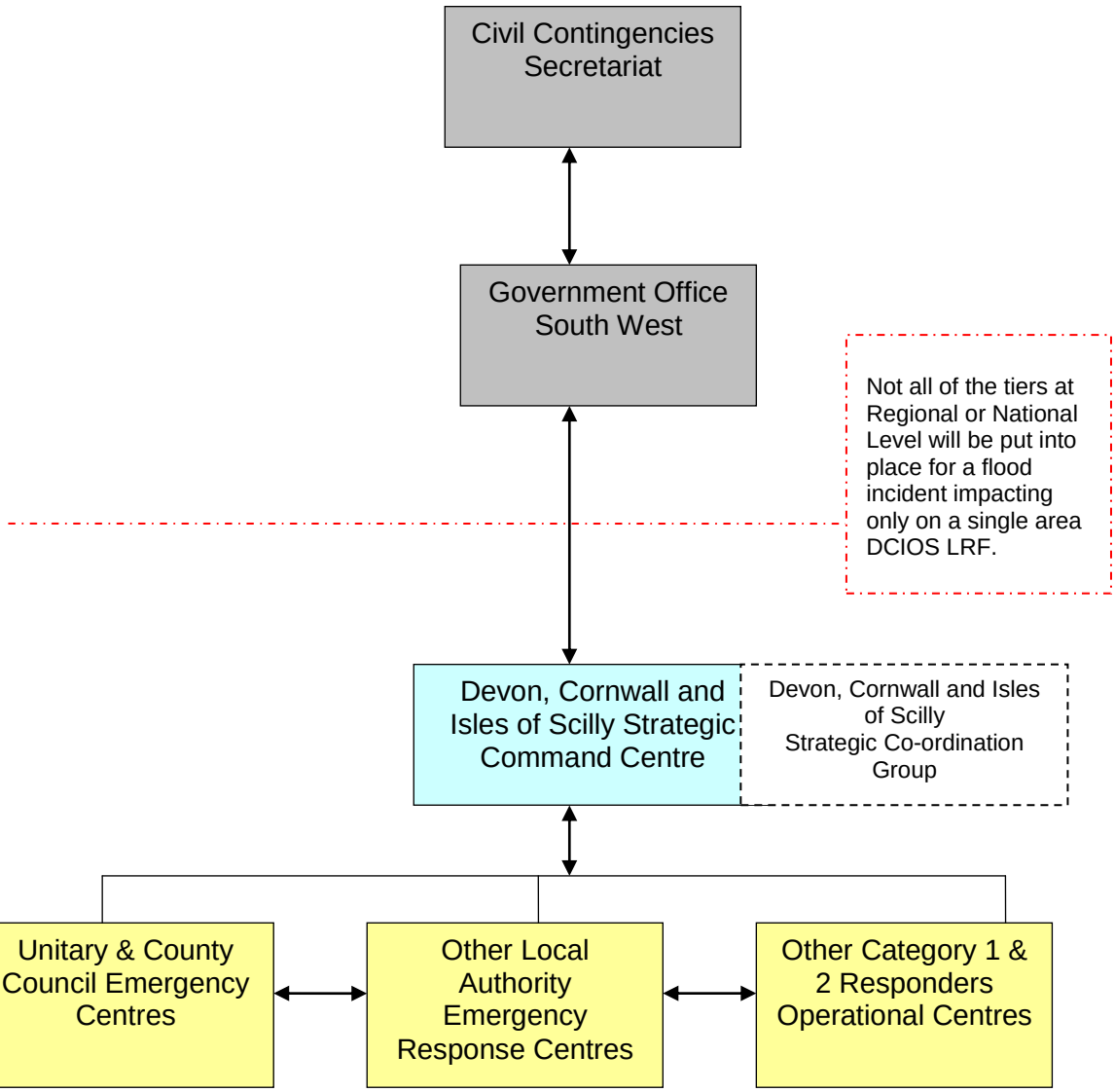
6.13 Health and Safety

Each Agency is responsible for the Health & Safety of their responders. Each Agencies personnel should carry out dynamic risk assessment if they are deployed to respond to or deal with the necessary form of flood incident. All responding organisations including voluntary agencies should be aware of the risks associated with working in or nearby floodwater:

- No untrained staff should enter the water in flooded areas. There are a number of risks such as contaminated water and underwater hazards such as listed manhole covers.
- If a bridge is thought to have been damaged or is under severe pressure, it should be closed, no one to cross it including responders until a bridge engineer has inspected the structure and deemed it safe.
- Responders working close to fast flowing or where it is difficult to see the boundary between a water course and land should wear appropriate PPE
- Risk of electrocution
- The power of the water can make it easy to become unbalanced.
- Risk of drowning and hypothermia
- Further information on health hazards and health and safety risks should be obtained from STAC.

All organisations need to ensure that they have appropriate and adequate resources that can be sustained over a protracted period if required – in particular, staff resource, Personal Protective Equipment (PPE) and accommodation. Organisations should consider activating/reviewing appropriate Business Continuity Plans and Mutual Aid agreements.

Figure 6a – Flood Response Structure



For Environment Agency Internal flood incident response structure see Annex D

Figure 6b

Single Location Flood Incident Command & Control

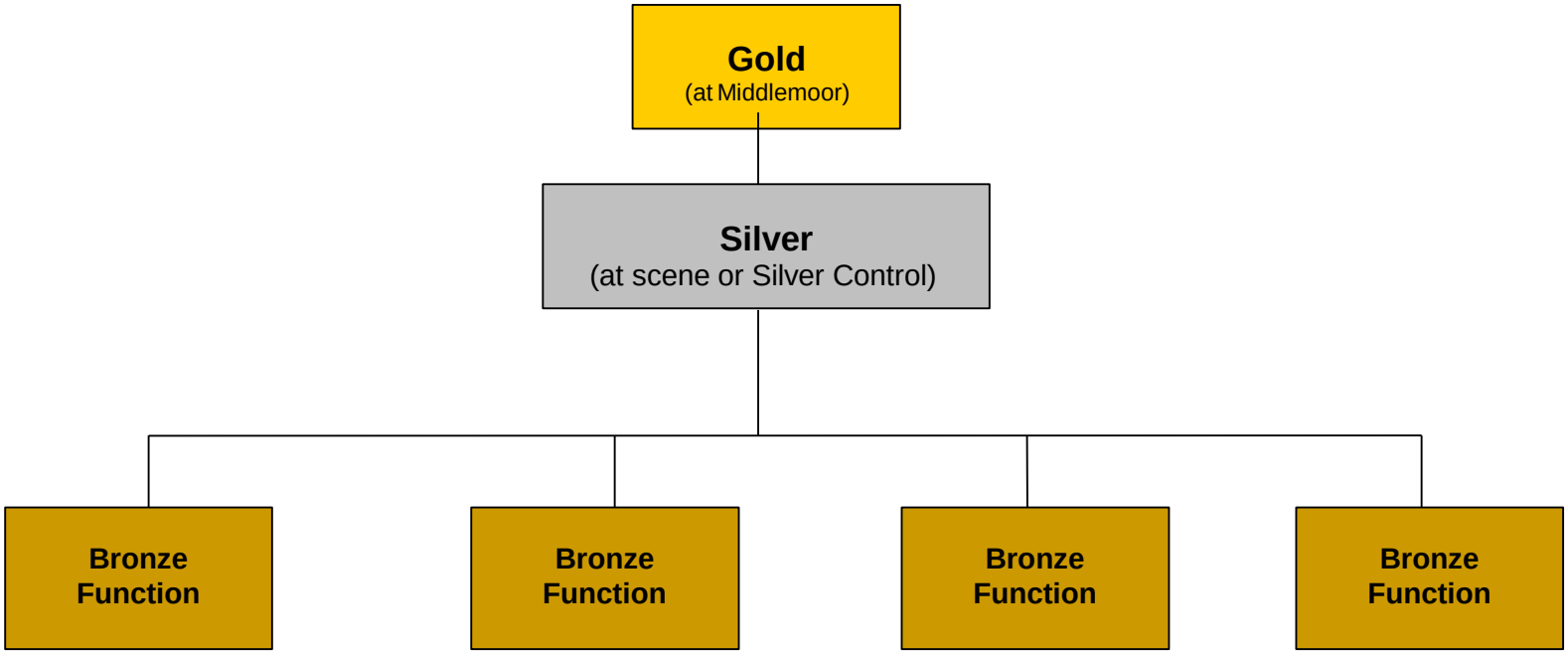
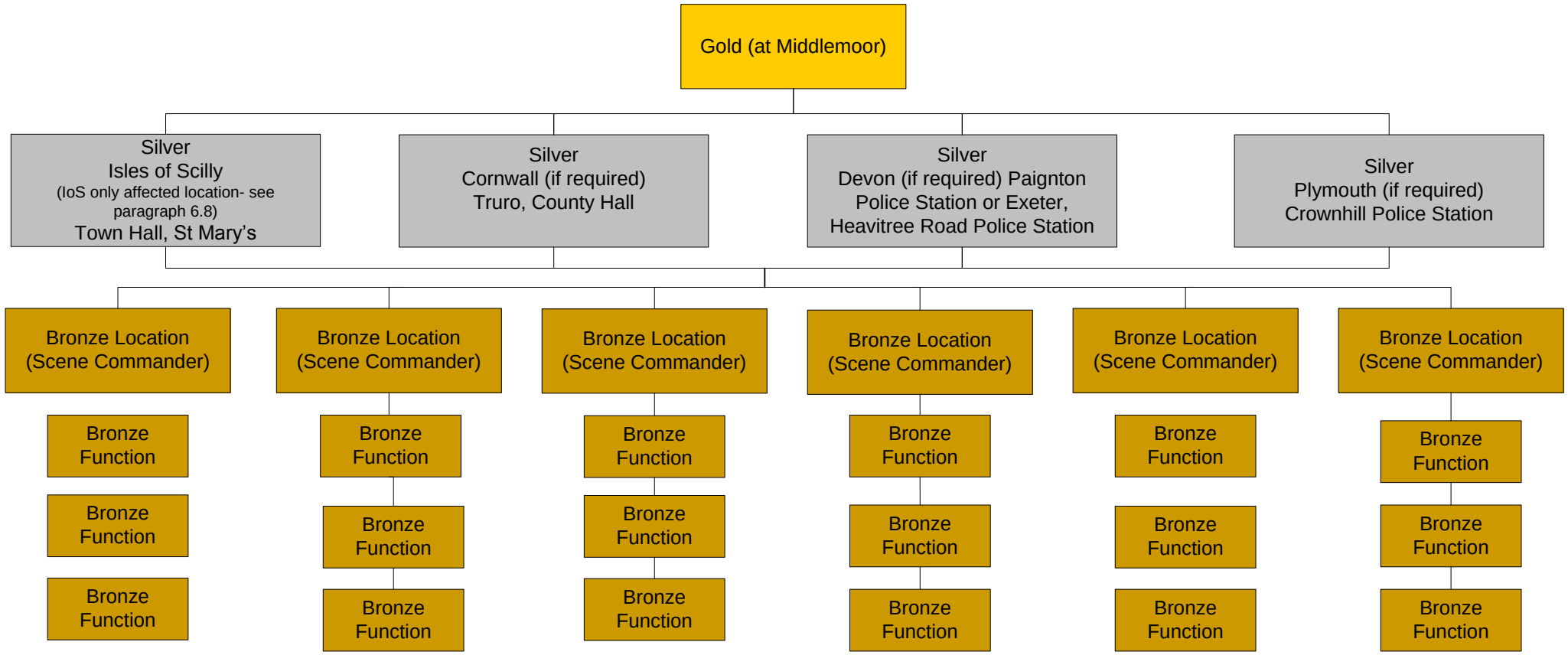


Figure 6c

Multi Location Flood Incident Command & Control



7. VULNERABLE PEOPLE AND GROUPS

7.1 Vulnerable People

Vulnerable people lists are held and maintained by individual organisations and establishments and will be made available to the SCG upon request.

7.2 Data Sharing and Handling Protocols

The LRF data sharing and handling protocol is in place to ensure effective sharing of information prior to and during the emergency response.

This protocol documents outlines the principles of identifying and building relationships with bodies responsible for vulnerable people, so that the potential scale and mechanism for a response can be agreed before an emergency occurs. The procedures are flexible and able to adjust to changing circumstance and will provide clear triggers between responders.

7.3 Vulnerable Group Locations

Detailed locations of facilities / buildings for vulnerable groups (e.g. schools, nurseries, care homes) but not individuals' homes are contained, where necessary, within the High Risk Communities Annexes. A list of the vulnerable locations for the DCIOS LRF area is held by the LRF Coordinator.

8. KEY INFRASTRUCTURE

8.1 Critical National Infrastructure

Details of critical national infrastructure sites on known flood zone areas are held securely by Devon and Cornwall Constabulary and will be made immediately available upon request by the SCG, they include some but not all**;**

1. Electrical Sub Stations
2. Water Treatment Works
3. Sewage Treatment Works
4. Telephone Exchanges
5. Gas / Fuel Depots
6. COMAH / REPPIR Sites

LRF Multi Agency Plans for dealing with the impacts that the loss of these sites might have on local communities are under development and will be held securely on behalf of the LRF by Devon and Cornwall Police and made immediately available upon request be the SCG.

8.2 Other Key Infrastructure, Vulnerable Sites & Vital Domestic Supplies

A high level overview of a number of other key infrastructure, vulnerable sites and sites which supply vital domestic supplies, are located in the appendices for the High Risk Communities (see Annex K)

This will include

1. Police Stations
2. Fire Stations
3. Hospital / Accident and Emergency Departments
4. Ambulance Stations
5. Coastguard and RNLI Stations
6. Local Authority Offices and Depots
7. Prisons
8. Airports
9. Harbours / Docks and Marinas
10. Railway Stations / Tracks/other important access roads
11. Bridges (including utilities in their decks)
12. Motorways / Major Trunk Roads
13. Schools
14. Universities
15. Residential / Care Homes
16. Hotels
17. Children’s Homes
18. Sheltered Housing
19. Hostels
20. Caravan / Holiday Parks
21. Electrical Sub Stations
22. Water Treatment Works

23. Sewage Treatment Works
24. Telephone Exchanges
25. Gas / Fuel Depots
26. Gas and oil pipelines - above and ground installations (AGI's)
27. Petrol stations
28. Supermarkets
29. Communication masts
30. Transport hubs

It is important that an overview of the affect or possible affect the flooding is having on the critical infrastructure. Gold should establish an overview of the condition of the various infrastructure networks based on information supplied by the Silvers

9. EVACUATION AND SHELTERING OF PEOPLE

9.1 Evacuation and Shelter Plan

The decision to evacuate or shelter the community should be taken at an early stage with information being supplied by all relevant agencies. The needs of vulnerable people must be considered at an early stage as this may reflect the priority of these who need to be evacuated and the time this process will take. This plan is based on the pre evacuation of communities at risk from flooding.

The LRF Large Scale Evacuation and Shelter Strategic Framework details the generic multi-agency arrangements to evacuate shelter, accommodate and care for people displaced by evacuation.

Specific information in relation to flooding is contained within the High Risk Community Flood Plans and where necessary includes;

- safe evacuation routes and rendezvous points, (preferably marked on a map)
- traffic management arrangements for known flood zone roads
- shelters/reception centres to accommodate displaced victims (plus any valuables they may bring, including essential medication and pets)
- issues regarding the evacuation and sheltering of pets, welfare of livestock and zoos.(The Animal Welfare Act 2006 places a duty of care on anyone taking responsibility for the care of animals. As such a separate pet area should be established for at least one shelter, under the control of a designated local authority animal warden. Plans should be put in place for communicating to owners that animals will not be allowed into the main shelter for health and safety reasons. More information on evacuation and pets can be found in the LRF Evacuation and Shelter Plan)

Evacuation phase with regards to flooding occurs prior to flooding occurring. If flood water is present (whatever depth) this is a search and rescue operation due to the additional risk factors.

9.2 Evacuation Briefing Centres (EBC)

The EBC acts as a BRONZE CONTROL to co-ordinate the activities of the organisations involved in the evacuation for each High Risk Community. These locations will be pre identified in the High Risk Community Plans and will need to be identified at other locations where flooding has occurred or is likely to occur (locations where detailed plans do not exist). The Bronze Scene Commanders for these communities should be based at EBC.

The role of the EBC is to act as the central location for all responding agencies and Voluntary Organisations to attend, be equipped and briefed before carrying out the evacuation or search and rescue operators for a community.

If specialist Search and Rescue resources are required to carry out the evacuation at this location and a number of other locations a Search and Rescue Cell should be set up. See Section 6.10

9.3 Evacuation Assembly Points (EAP)

The Police, in conjunction with the Fire and Rescue Service will identify as many EAP's as necessary to achieve a controlled and co-ordinated evacuation of the area.

The relevant Local Authority will need to be informed early in this process to arrange transport for those being evacuated.

The aim of the EAP is to provide locations for evacuated persons to RV before moving to a Rest Centre or other accommodation.

The Police will advise the relevant local authority which locations will be used as early as possible.

All evacuation assembly points will be managed by the police, assisted by other relevant organisations.

These locations will be pre identified in High Risk Community Plans and will need to Identified at other locations should flooding occur or is likely to occur.

9.4 Rest Centre Plans

Detailed Rest Centre Plans are held and maintained by Local Authorities.

As soon as the decision is made to evacuate the Police should request the relevant local authority open rest centres to shelter displaced people.

Information should also be provided on the approximate number of people being evacuated and the estimated length of time shelter will be required.

The decision as to which rest centres will be used will be reached by discussion between the Police and relevant Local authority.

The Local Authority will organise the appropriate staffing of any rest centres.

9.5 Transport Arrangements

If transport, specialist or otherwise, is required by the Police for the evacuation they will ask the relevant Local Authority to arrange this, in conjunction with other organisations including private sector providers.

In most cases travel is likely to be in evacuees own vehicles or on foot excepting the need for additional support for vulnerable persons.

All agencies should be aware that roads, which may be required for transporting their own staff or evacuees, may not be passable.

9.6 Return Home of Evacuees

The decision to allow persons to return to their homes must be made by appropriate representatives of the Tactical Co-ordinating Group. However this may require a Policy decision to be made by the Strategic Co-ordinating Group.

Police will inform the Local Authority Officer responsible for Rest Centre Management as soon as it is safe for people to return home, so the manager can advise staff and evacuees and start the deregistration process.

It may not be possible for all evacuees to return to their properties due to damage and the Local Authority should seek to provide them temporary accommodation.

No announcements about returning to homes should be made to evacuees until Rest Centre Managers warn staff.

Rest Centre Managers will identify people needing assistance to return home and will make necessary arrangements.

9.7 Casualty Clearance

Should there be significant numbers of causalities resulting from a flooding incident they should be dealt with as described in CAERP Section 10.

10. RECOVERY

10.1 Recovery

At, or shortly after the declaration of a Major Incident, the LRF will convene a Recovery Co-ordination Group, led by the local authority to prepare for the management of the post response activity that is aimed at restoring and rebuilding affected communities in the aftermath of a major flood event. This process will be managed in line with the LRF Strategic Recovery Guidance.

10.2 Handover of Strategic Co-ordination

At the end of the immediate emergency response and relief phases of an emergency, where there is no longer threat to life and property, the responsibility for co-ordination of multi-agency response will transfer from the Police to a lead Local Authority for the remediation and reconstruction of the community.

The transition is likely to be formalised through the multi-agency Strategic Co-Ordination Group, known as 'Gold'. This may occur within hours, days, or even weeks, of the incident. At this time, the Police will hand over responsibility to the most appropriate Local Authority to continue recovery actions through the Recovery Co-ordination Group (RCG). The form in Appendix J should be used to hand over specific areas to the relevant district or unitary Local Authorities in phases.

It is important prior to this being agreed that the effects on that area are evaluated and that there is no threat from secondary issues such as loss of utilities etc.

10.3 Relief (Short Term)

The priority of the Relief Phase is to provide initial relief to those people affected by the incident, often this phase commences during the Reaction Phase of the Response process through the provision of Rest Centres.

The relief requirements may vary considerably depending on the nature of the emergency and as such it is important that a continual assessment of need is conducted.

The relief phase will also look at medium term measures that may be required by the emergency, such as the provision of temporary housing, health and wellbeing support (including psychological) and aftercare.

It should be acknowledged that one of the most critical requirements of those who have been affected by the incident will be for information, particularly regarding what has happened, what will happen shortly and the whereabouts of loved ones. It is important that responders attempt to provide as much accurate information as possible without compromising other aspects of response operations.

Key actions required by the Relief Phase include:-

- Assessment of the relief needs generated by the emergency

- Assessment of the health and wellbeing needs generated by the emergency
- The provision of Rest Centres
- Development of medium term measures where necessary
- Provision of information to those affected by the emergency
- Consultation with Community Independent Advisory Group(s)
- Organise multi agency meetings to give advice to committees affected

10.4 Remediation (Medium Term)

Key actions for the RCG to consider during the Remediation Phase include:

- Detailed impact assessment of the emergency
- Engagement with affected communities/welfare needs/housing/elected members and community leaders etc.
- Media message
- Public health issues
- Monitor the impact of the flooding on the health and wellbeing of those affected by the flooding
- Site clearance/control of clean up operation/waste disposal (see environmental considerations below)
- Assessing the “downstream” consequences of the emergency
- Restoration of Utilities
- Repairs to public assets/infrastructure – schools, buildings. Roads, bridges etc
- Assistance with VIP visits
- Domestic and business insurance issues
- Reallocation of senior staff responsibilities/maintain critical services through Business Continuity Management measures
- Implementing mutual aid arrangements
- Prioritising & managing resources
- Managing the financial implications
- Delivery of normal services
- Assistance to local business
- Establishment of Community Representation Group(s)
- Focus for decisions on Appeals
- Developing a specialist Co-ordination Group for long term regeneration work
- Determining medium and long term priorities/set strategies

Consider involving representatives of the Association of British Insurers (ABI) in the rehabilitation process at a strategic level.

Environmental considerations

Below are a list of environmental considerations which should be considered with the chair of STAC.

- Disposal of animal carcases if farmland is flooded
- Disposal of flood damaged personal property
- Disposal of silt, gravel and other flood debris
- Disposal of contaminated sand bags

- Saline intrusion of fresh water sites of special scientific interest (tidal events)
- Pollution if sewage industrial sites are flooded or pollution from flooded vehicles, stored fertilisers etc

10.5 Recovery Co-ordination Group Membership

- Senior representatives attend as relevant from:
- Regional Government Office
- Chair of Community Recovery Committee (if formed)
- County Council / District/Borough/ Unitary Authority
- Environment Agency
- Food Standards Agency
- Primary Care Trust (to represent all NHS organisations)
- Social Care Representative
- Health Protection Agency
- Animal Health Service
- Utility Companies
- Transport Providers
- Association of British Insurers
- Maritime and Coastguard Agency
- Police
- Fire and Rescue
- Regional Development Agency
- Ministry of Defence
- Natural England
- Site Operator (If relevant)
- Health and Safety Executive
- Chairs of Sub-Groups including the chair of the STAC
- Voluntary Organisation Representative
- Government Decontamination Service (GDS) (If contamination issues)

10.6 Regeneration Phase (Long Term)

Key actions for the Regeneration Phase include:

- Consideration of appropriate memorials
- Introducing measures to promote economic regeneration
- Engagement of the community and other affected parties
- Long-term health and wellbeing monitoring
- Consideration of the wider consequences of the emergency

Strategic Focus

Operations progress from immediate response to recovery. There are a number of issues to be considered at a Strategic level. It is important to recognise that it is unlikely that it will be possible to go back to the pre-existing condition and as such the incident should be treated, from a recovery perspective, as an opportunity to improve the area. It is desirable that representatives of the Association of British Insurers (ABI) are involved in the Recovery process

- Key issues for consideration:
- Strategies for delivery of normal services
- Reallocation of senior staff responsibilities
- Determining short, medium and long term responsibilities
- Managing the financial implications
- Implications of and solutions to any lack of resources
- Implementing mutual aid arrangements
- Comprehensive liaison
- Engagement with affected communities
- Assistance to local business
- Focus for decisions on appeals, memorials and anniversaries.

10.7 Insurance Industry

Following an emergency, the insurance industry will provide the following:

- Facts and figures about who and what is covered by household and business insurance
- Specific guidance on the issues likely to arise after a flood event
- Details of the protocol between the insurance industry, the police and other emergency responders on communication and co-operation after a major event
- Key contact details of the organisations that represent the insurance industry.

11. TRAINING AND EXERCISING

11.1 Training

It is the responsibility of each agency to ensure that their staff are aware of the roles and responsibilities of their organisation and the actions required.

Should there be a requirement for training in any aspects included in this document then these should be brought to the attention of the LRF Training and Exercise Sub Group.

11.2 Flood Response Exercise

This plan will be exercised as part of the Devon, Cornwall and Isles of Scilly Local Resilience Forum (LRF) training and exercise strategy. Due to the risk posed by flooding there should be a minimum of one multi agency flood exercise annually unless there is an activation of the plan due to a real incident.

11.3 LRF Flood Plan Activations/Exercise Schedule

Organiser	Title of exercise/ operator	Type	Date	Relevant lessons or link
No notice event	Op Skippers	Live incident	17.11.2010	See debrief document (under development)
DEFRA	Exercise Watermark	National Exercise	07.03.2.11	

12. REFERENCES

Civil Contingencies Act (2004)
http://www.ukresilience.info/preparedness/ccact.aspx

HM Publication Emergency Preparedness - Part 1 of the Civil Contingencies Act (2004)
http://www.ukresilience.info/preparedness/ccact/eppdfs.aspx

HM Publication Emergency Response and Recovery
http://www.ukresilience.info/preparedness/ccact/errpdfs.aspx

HM Publication Evacuation and Shelter Guidance (2006)
http://www.ukresilience.info/upload/assets/www.ukresilience.info/evac_shelter_guidance.pdf

Home Office Publication Exercise Planners Guide (1998)
http://www.ukresilience.info/preparedness/exercises/plannersguide.aspx

Freedom of information Act (2000)
http://www.dca.gov.uk/foi/guidance/index.htm

Data Protection Act (1998)
http://www.informationcommissioner.gov.uk

Identifying People who are vulnerable in a crisis – Guidance for Emergency Planners and Responders (2008)
http:www.cabinetoffice.gov.uk/media/132976/vulnerable_guidance.pdf

NPIA Guidance on Emergency Procedures 2009
http://www.npia.police.uk/en/13174.htm

13. GLOSSARY OF TERMS

A glossary of terms and abbreviations used within the guidance text

Term or abbreviation	Meaning or definition
ALL CLEAR	Issued when there are no Flood Alerts or Flood Warnings in force
CATCHMENT AREA	The entire geographical area drained by a river and its tributaries; an area characterized by all runoff being conveyed to the same outlet
CBRN	Chemical, Biological, Radiological and Nuclear
CCC	(Cabinet Office) Civil Contingencies Committee
CCS	(Cabinet Office) Civil Contingencies Secretariat
COBR	Cabinet Office Briefing Room
COMAH	Control of Major Accident Hazards Regulations
DECC	Department of Energy and Climate Change
DCIOS LRF	Devon, Cornwall and isles of Scilly Local Resilience Forum.
EMERGENCY POWERS	The powers taken by the Government under the Energy Act 1976
ERAS (Extreme Rainfall Alert Service)	The Met Office and Environment Agency working in partnership have developed an Extreme Rainfall Alert Service (ERAS) delivered by their joint Flood Forecasting Centre
FFC	Flood Forecasting Centre
FLOOD DAMAGE	Flood damage is usually classified as tangible or intangible. Tangible damages are the replacement costs or monetary loans resulting from the effects of floodwater and debris on crops, soil, buildings, furnishings, goods, roadways, utilities and levees; the added costs of protective efforts, evacuation and emergency care; and losses because of the interruption of commercial activities. Intangible damages are

	those which are difficult to measure in monetary terms, such as harm to life and health, inconvenience and discomfort
FLOODPLAIN	The lowland areas, which border a river, usually dry but subject to flooding. Also the portion of a river valley which has been inundated by a river during historic floods
FLOODPLAIN MANAGEMENT	A program that uses corrective and preventative measures to reduce flood and erosion damage and preserve natural habitat and wildlife resources in floodprone areas. Some of these measures include: adopting and administering Floodplain Regulations, resolving drainage complaint, protecting riparian habitat communities, and assuring effective maintenance and operation of flood control works
FLOOD ALERT	Issued when flooding of low-lying land and roads is possible. The alert is issued in order that the public at risk and emergency responders are aware of increasing chance of flooding and take appropriate preparatory action.
FLOOD WARNING	Issued when flooding of homes and businesses is expected. Property owners, the public at risk, the emergency services and the civil authority should act to protect life and property.
FRS	Fire and Rescue Service
FSA	Food Standards Agency
GDS	Government Decontamination Service
GNN	Government News Network
GROUNDWATER FLOODING	Groundwater flooding is the result of a rise in the water table to above the rock or soil that makes up the land surface. The problem is most common in areas with chalk strata but can occur in any area with underlying permeable deposits, including sands and gravels.
LRF	Local Resilience Forum
MCA	Maritime Coastguard Agency

PPE	Personal Protective Equipment

PROPERTIES	All residential dwellings and commercial premises, including occupied mobile homes and caravans sites in low-lying coastal zones (including summer tourists)
PROPERTIES AFFECTED	A residential or commercial building where flood water has affected the utilities (energy and water) that supply that property
PROPERTY FLOODED	A residential or commercial building where flood water has entered to a level that has resulted in damage or limitation of use, including basements that are habitable or of commercial use
PROPERTY IMPACTED	A residential or commercial building where flood water that has entered the boundary of land but not resulted in the property itself being flooded
RCG	Recovery Co-ordinating Group
RDPH	Regional Director of Public Health
REGIONAL RESILIENCE TEAM (RRT)	Regional Resilience Teams based in GORs which monitor their regional supply position and liaise with their Local Resilience Forums or their equivalents and BERR.
REPPIR	Radiation (Emergency Preparedness and Public Information) Regulations
RESERVOIRS BREACH	This refers to a collapse of a reservoir dam. Flooding from these would be instantaneous with significant movement of debris (including vehicles) and sediment. The impact is likely to be devastating to anything in the floods wake. It is likely that there will be little or no warning.
RIVER (FLUVIAL) FLOODING	A river bursting its banks leading to flooding is usually caused by prolonged periods of heavy rainfall. Fluvial flooding can be both deep and high velocity, depending on the nature of the river catchments.
RNLI	Royal National Lifeboat Institute
SCG	Strategic Co-ordinating Group
SEVERE FLOOD WARNING	Issued when flooding poses a significant risk to life or significant disruption to communities This could relate to extreme water depths or

	velocities, danger from debris, danger from buildings or structures, critical infrastructure disabled, isolated communities, large numbers of evacuees or the need for military support. In such circumstances, it is likely that there would be considerable disruption to traffic movement due to extensive road flooding. Those at risk and emergency responders should act to protect life and property. This is likely to involve an enhanced response and the commitment of significant resource.
STAC	Scientific and Technical Advice Cell; Health, scientific and technical advice at the SCG level will be provided through the Science & Technical Advice Cell (STAC), which brings together experts from all agencies to provide advice to the Gold Commander.
STORM SURGE	A storm surge is a high flood of water caused by wind and low pressure, most commonly associated with hurricanes. It is primarily caused by the extremely high winds, which push the water rapidly, building it up into a huge wave. At the same time, the low pressure caused by a hurricane also causes the water level to rise up in the lowest-pressure spots and to sink in areas of higher pressure, exacerbating the wave buildup caused by the winds. Additionally, the shape of the ocean floor may affect how high the waves of the storm surge are when they reach land
SURFACE WATER FLOODING	This usually happens where drainage systems are unable to cope with heavy spells of rainfall. It will be most problematic when catchments are already saturated or frozen and in built up areas with impermeable surfaces. It will usually occur rapidly, but be relatively short lived.
TIDAL AND COASTAL FLOODING	The combination of high astronomic tides and adverse weather conditions can cause storm surge and wave overtopping of defences. In severe events this may result in the breach of sea defences and inundation of the surrounding area.

Annex A - Flood Specific Roles and Responsibilities

Organisation	Risk	Pre-planning	Emergency Response			Recovery
			Minor flood (medium consequence)	Major flood (high consequence)	Notes	
Environment Agency	Tidal, fluvial, surface water	Prepare and maintain Local Flood Warning Plan; Advise on development proposals; update flood risk maps; support LRF flood risk assessments; maintain watercourse capacity; maintain flood management structures; Develop and improve Flood Warning arrangements; Help inform DCIOS LRF multi-agency flood plan; Inform the public of risk and recruit to Flood Warnings Direct	Monitor catchments; Issue warnings to other responders, public and media; Operate EA defences; Liaise with other agencies and advise of likely escalation, Share understanding of catchments with other responders to help inform the response; Support LA's and Emergency Services, respond as necessary to other environmental impacts	(As for minor flood) Attend Gold and Silvers as requested so long as resources allow.		Support LA's and community as resources allow; Repair any damaged defences; Carry out reconnaissance to improve service for subsequent events

Fire and Rescue Services **(Cornwall FRS/Isles of Scilly FRS/ Devon & Somerset FRS)**	Tidal, fluvial, surface water	DCIOS LRF multi-agency flood plan. Standard operational response to a special service. Responsibilities under: Fire and Rescue Services Act 2004 The Fire and Rescue Services Emergencies) (England) Order 2007 Civil Contingencies Act 2004 (including business continuity plans) local IRMPs Direct receipt of flood warnings from EA and weather advisories from the Met. Office.	Liaise with other agencies and prioritise response and resources. Give assistance with pumping with priority to flooding involving a risk of life, fire or explosion, (e.g. hospitals and homes for the elderly, public utilities and food storage, heritage sites). Environmental issues (e.g. chemicals).	As with minor flood. Proactive resource allocation including: mutual aid via Sections 13/16 of the FRS Act 2004; National Mutual Aid Protocol for Serious Incidents National Resillience and other FRS assets (e.g. boats) via FRSNCC in West Yorkshire. Assess resources. Follow DCIOS LRF procedures. Attend SCG and other co-ordinated response meetings.	No current statutory duty on FRSs for flood rescue; provision in line with local IRMPs.	Assist other agencies to minimise the impact on the community.

Devon and Cornwall Police	Tidal, fluvial, surface water flooding	Prepare and maintain operational response plans and with other organisations and partners review and exercise in accordance with the Community Risk Register	**Strategic Aims:** 1. Save and protect life 2. Co-ordination of the emergency services, Local Authorities and other responding agencies 3. Secure, protect and preserve the scene and control sight seers and traffic. 4. Establish the condition of infrastructure in affected areas (road, rail, utilities etc, see Section 8) 5. Collation and disruption of casualty information 6. Prevention of crime 7. Family liaison 8. Co-ordination of Media response 9. Safeguard the environment 10. Maintain and restore critical activities 11. Facilitate the recovery of the community 12. Protect the health &	As with Minor Flooding (Medium consequence) Set up Gold and refer to the basic principals for dealing with a Major Incident in the Management of Major Incident Manual & NPIA Guidance on Emergency Procedures 2009	Consider Mutual Aid requests (see Force Mobilisation Plan)	Support the Local Authority in their role of Co-ordinating the recovery and assist in making the communities feel safe and be safe.

			safety of responding personnel (see section 6.13) **Establish:** communication with the Environment Agency and inform the emergency services, local authority and other organisations affected. Co-ordinate the emergency response and establish a multi agency Silver. Identify locations for the multi agency Forward Control Point and Silver. A recovery group is established at the outset of an incident chaired by the Local Authority (see Section 10).			
Maritime Coastguard Agency	coastal/tidal	Responsibilities under the Civil Contingencies Act 2004. Direct receipt of flood warnings from EA and weather advisories from the Met. Office.	Act upon local contingency plans as required in liaison with other agencies. For other areas liaise with other agencies as requested Attend SCG and other	As for minor flooding		▪ Participate in Community Flood Surgery's as requested.

		Operational coordination staff available 24/7	co-ordinated response meetings			

South Western Ambulance Service Trust	Tidal, fluvial, surface water flooding	Met office weather warning system in place. Major incident plan in place. Business continuity plan in place. On call officer cadre in place. Pager / SMS system in place. Airwave radio major incident deployment in place. Health on call cadre rota up to date. HPA on call cadre rota up to date. Fall back control facility in place. Identified premises at risk of flooding and consider impact on service delivery EA mapping		Attend		

		information received by emergency planning unit for distribution				
Local Authorities	Tidal, fluvial, surface water flooding	Up to date vulnerable persons and sites database Pre-determined rest, And reception centres Multi-agency pre-planning re; RVP's, transport routes etc. Pre-arranged communication strategy Updated information on council web site Pre-arranged information help line and trained staff Pre-arranged help line for staff – (should they come in to work or not – is it safe?) Review of council properties at risk	Co-operation with emergency services and EA to co-ordinate the Response Liaison with utility and transport companies especially water company to ensure provision of clean drinking water to residents Transport of public / evacuees to rest centres Provision and staffing of rest / reception centres and associated services Provision of anti-flooding measures and workforce to construct and maintain mitigating measures	Co-operation with emergency services and EA to co-ordinate the response Warning and informing the public Activation of information help-line for public Liaison with utility and transport companies especially water company to ensure provision of clean drinking water to residents Provision of information centre / media centre Co-ordinate response from faith and voluntary groups Transport of public /	*As required after immediate actions;* Provision of temporary sanitary facilities? If applicable, provision of emergency mortuary and / or activation of mass fatalities plan (see separate plan for details) Local authority seek mutual aid from other local authorities	Removal of mud / Debris Structural and condition surveying of council properties damaged by the flooding; remedial action to repair such properties Consultation with health authorities on hygiene and environmental health issues in affected areas Provision of temporary or longer-term accommodation for residents made homeless by the flooding Assisting residents in removal of damaged furniture and household goods

Local Authorities cont'd		Sand bag policy (District Councils in Devon)		evacuees to rest centres Provision and staffing of rest / reception centres and associated services Providing signage for road closures Maintaining traffic flows (in conjunction with police) especially for emergency services and repair effort Provision of anti-flooding measures and workforce to construct and maintain mitigating measures Provision of resources		Assisting in rearranging education of pupils affected by school closures Invoking council's business recovery plan if council premises are affected Provision of welfare advice

Primary Care Trusts	Tidal, fluvial, surface water flooding	Contribution to MAFP, planning for community health resources Met office weather warning system in place Major incident plan in place Business continuity plan in place On call officer cadre in place Fall back control facility in place	Engage with multi agency Silver if required	Coordination of primary care resources, including: Primary Care Teams to attend rest centres and provide primary care medical support to evacuees; Coordination of community hospital resources; Coordination of community nursing and other community health service resources; Links with Acute and Foundation Hospital Trusts Maintaining links with Social Services regarding rest centre medical requirements;		Participate in Community Flood Surgery's as requested.

Strategic Health Authority	Tidal, fluvial, surface water flooding			Coordinate the overall NHS response and resources; Maintain links to Regional Office of the South West and Department of Health	The Strategic Health Authority may initiate command and control measures in a widespread or severe event where: More than one PCT is involved in responding One or more of involved PCTs is unable to cope The incident is so widespread or severe that it requires a strategic response, and/or Regional or National command and control measures have been implemented.	

Health Protection Agency	Tidal, fluvial, surface water flooding	Risk assessments on vulnerable populations and critical infrastructures, focusing on risks to exposure to microbial and chemical contaminations, disruption to mains water, power and health risks. Ensure robustness of flood alert system, that HPA is within alerting cascade for multi-agency partners Make sure emergency plans are in place and known about, and they are consistent among organisations.	Maintain a rota for 24 hour cover set up Provide public health support and advice to NHS organisations, particularly primary care trusts and the RDPH, and other agencies involved in responding or managing the incident at a local level Provide surveillance of infectious disease Provide advice on chemical decontamination Provide impartial and authoritative advice to health professionals, other agencies and the public Carry out chemical contamination risk assessment	As for minor flooding, plus; Support the management of the incidents and support the co-ordination of the NHS response through attendance at control centres, including the strategic co-ordination centre Provide specialist input to incident management teams, including STAC if called.		Provide advice on clean-up of standing floodwater Continue to provide surveillance of infectious disease Continue to provide advice on chemical decontamination Carry out chemical contamination risk assessment Monitor short-term and long-term health risks associated with flooding (mental health issues from displacement)

Power & Gas Distributors	Tidal, fluvial, surface water flooding	Identify critical infrastructure in predicted flood zone e.g. sub-stations, cable tunnels, joint bays, regulators – medium to low pressure. High pressure gas installations COMAH sites – storage (SW to delegate action). Vulnerable persons database – use system to pull off all addresses in a predicted area by post code.	Set up bronze command at site. Work with blue lights to isolate supplies. Make safe. Wait for water to recede. Re-establish supplies.	As previous with additional silver and gold level command within company. Possible reconfiguration of supplies where possible. Possible lock-out of regulators to maintain pressures in gas mains. Invoke mutual aid and resource plans. Prepare for recovery.		

Water & Sewerage Service Providers (South West Water & Council of Isles of Scilly)	Tidal, fluvial, surface water flooding	Prepare and maintain operational response plans Control room response to severe weather and flood warnings in place Vulnerable customer database in place Pre arranged response teams available Able to identify critical infrastructure in predicted flood zones	Operational and tactical teams to prioritise response and resource	As for minor plus Strategic team available Attendance at gold and silver teams so long as resources allow this. National mutual aid scheme in place with other water companies.		Support local authority in recovery process Provide clean up services as appropriate

BT	Tidal, fluvial, surface water flooding	Flood warning received Environment Agency and distributed to key players and operational in BT and/or People and operations at risk identified BT holds copies of flood plain information and this can be mapped to BT buildings. BT key operational buildings flood plan activated upon notification from the Environment Agency. BT critical access network assets [underground] to be affected identify and plans in place for service provision in the event of a major flood BT service controls workforce determine on	Possibility of water ingress to BT building People and operations at risk identified following risk assessment Activation of BT Group Incident response process Co-operation with emergency services and EA Provision of anti-flooding Workforce tasked to site if safe to do so Communications to workforce on action to take Key personnel identified as part of Incident management process Customer impact identified and mitigation plan enabled	Ingress into BT building which threatens BT equipment People and operations at risk identified following risk assessment Activation of BT Group Incident response Process Co-operation with emergency services and EA Provision of anti-flooding measures (e.g. sandbags) Workforce tasked to site if safe to do so Forward Control Point Manager appointed/ Engaged Local Liaison Managers working with government incident teams feeding back to BT operational teams	Risk assessment vital for People, operations and buildings Information for Government vital from which to base risk assessment Safety of BT people is paramount and may precluded BT teams attending on site. Customer service prioritisation as important part of the process to ensure ongoing communicatio	Once safe action may be taken to remove water Building closed to BT teams Water tested for contaminates. Remedial action taken if contaminates found Building is dried out Structural survey if required Equipment tested Building re opened Ongoing review of impact on networks and customer service – regular reports Incident management level reduced and timescale for Business As Usual

BT cont'd		customer driven service priorities review requirements for blue light service communications BT threat Assessment Review Group [TARG] in place working with Government on increasing threat. BT Business Continuity Management structure and Group wide prioritisation put in place with BT to engage all Lines of Business in Impact of flood on service work stack scoped to identify impact on wet joints	Local Liaison Managers LLMs] and Regional managers [RMs] working with Government Regional leads to coordinate on the ground requirements to feed into BT Incident response Teams BT Controls team rescheduling work flow and prioritising all customer service requirements BT liveried fleet to be repositioned outside the danger zone where possible		ns. All to be managed through activated Incident management response	Identified Ongoing risk assessment

Highways Agency	Fluvial, surface water flooding & groundwater flooding on M5, A30, A38, A303	Highways Agency is undertaking a national project identifying locations vulnerable to flooding on HA road network. When complete this will be used to manage/ mitigate the risks Service Provider (who manages the network on behalf of the HA) Contingency Plans identify locations vulnerable to flooding and details the command structure on managing incidents. Access to EA data on areas susceptible to surface water flooding (CDs). Direct receipt of Met Office severe weather alerts and EA flood warnings and acting upon these to ensure our Service Providers are monitoring and reacting. Rigorous maintenance of highway drainage on HA network	Engage with multi-agency Silver if required Implement road closures on HA network with Devon and Cornwall Police when required. Implement diversion routes in liaison with Local Highway Authority	Engage with multi-agency Silver and/or Gold if required Managing Agent Contractor's staff to attend any incident affecting HA network and assist as appropriate Implement road closures on HA network with Devon and Cornwall Police when required. Implement diversion routes in liaison with Local Highway Authority		Clear and repair HA network road surface as required as flood waters recede Clear and repair any highway drainage as required as flood waters recede

DEFRA	Fluvial, Tidal, Groundwater, Surface water, Reservoir	Ensure that structures and resources are in place to ensure that Flood Management Division and other parts of Defra can play their part in responding to a flooding event. Encourage Regional Government Offices and Local Resilience Forums (LRFs) to prepare appropriate emergency plans for flooding and providing guidance. Ensure central Government has appropriate national planning assumptions for flooding and that annual National Risk Assessments are maintained with CCS. Direct reservoir undertakers to produce flood plans	Use EA Reports to anticipate events (and their likely scale) as far as possible to provide triggers for the right levels of preparedness in central Government. Initiate communications across central government, including press offices and providing situation reports.	Advise Defra Senior Management, Ministers, CCS and other Government Departments and agencies on the developing scale of events. Ensure effective communications with Parliament, the news media and others (see Annexes 4 & 5). Collect briefing on the impacts of the flooding on all Defra interests. Work with CCS in escalating or de-escalating the central Government response (see Table 2). Co-ordinate the cross-Government and multi-agency response to the flooding (supporting CCS if event escalated to COBR). Facilitate Ministerial and other VIP visits to the affected areas. Ensure that clear responsibilities are established for overseeing		Advise on follow-up Ministerial/VIP visits. Ensure arrangements are in place for identifying any lessons to be learned. Liaise with Association of British Insurers on insurance issues.

Annex B - Affects of Flooding on Utilities

1. Western Power Distribution

If the floodwater affects Western Power Distribution's main substations electricity supplies to a significant area are likely to be lost. As well as affecting the supplies to properties, this will also result in the street lighting and traffic lights not working. There would be no mains electricity supply to any South West Water, Wales and Western, and BT installations within the affected area (although they may have standby generation). The time necessary to restore supplies would be dependent on the ability to travel within the affected areas.

Rising floodwaters may reduce the clearances from overhead lines. Over a road the minimum clearance for lines with a voltage of 33,000 volts or less is 5.8 metres, otherwise it is 5.2 metres.

Access to underground apparatus may be lifted by the water pressure. Live conductors should not be exposed as a result of this but there will be the hazard of open covers.

Underground cables should be relatively unaffected. However, if there is significant subsidence or ground movement near cables this may cause the cable to fail.

Flooding in properties may damage the internal electrical wiring. If the electricity supply is not switched off this may result in fires or persons receiving electric shocks. Properties affected by floodwater will need to have the internal wiring checked by a competent electrician before the main switch is back on.

2. South West Water and Council of the Isles of Scilly

2.1 Affect on Water Treatment Works

Flooding of Water Treatment Works could lead to disabling of Air Blowers, Re-circulation Pumps, Wash Water Return Pumps and the Main Power Supply Transformers. This would mean an extended shut down for the Treatment Works and no water could be supplied to its dependent area.

2.2 Supply to Taps

Provided no significant burst mains occurred, there would be unlikely to be a problem with maintaining a portable water supply. It would be prudent, if the situation were serious, for pressure tests to be taken at strategic points, thus confirming the maintenance of positive pressure in the system.

2.3 Bursts

Questionable pressure readings would point to a burst main or mains. Small/medium bursts in the flooded area could not have their locations

determined until well after the flows had abated. In the event of a serious trunk main failure, every effort would be necessary to both find the point of failure and to instigate a repair. This would require significant number of sandbags, etc., to protect the area during the work. For either eventuality, a Boil Water notice would be in effect. It may be possible to valve-off some small-medium burst provided the valve positions were determinable, although this would certainly require extensive mains disinfection on reinstatement of supplies.

2.4 Back-Siphonage

Back-siphonage, although possible is unlikely whilst mains pressure remained positive. As a precaution, we would take random bacteriological samples during the period of flooding. If the results of the pressure tests suggest back-siphonage, either within the flow area or on higher ground, then we would declare our own incident and instigate Boil Water restrictions immediately over the affected area. The size of the affected area would depend on conditions at the time but could include all the properties in the flooded area and many outside it.

2.5 Emergency Tankers/Bowsers

These would certainly be extensively deployed in the first instance, it would be necessary to locate bowsers outside the flow area but the greater concern would be if a trunk main failed in which case areas very remote from the flood area might easily be affected.

2.6 Waste Water - Main Drainage

Any area under some feet of water would totally overload the public sewers with the floodwaters becoming contaminated with sewage - a number of properties would become flooded directly from water escaping from the sewers. Storm overflows would also have triggered resulting in pollution of streams and rivers and therefore floodwaters. Any sewage pumping stations within the catchment would be overloaded and, assuming they continued to work, would pump continuously, either to another part of the catchment, another catchment or to a treatment works. It is also most probable that overflows from the pumping stations would also be triggered. Some flooded areas could receive raw sewage but the dilution would probably be great and the environmental impact from this cause relatively light.

If sewers and other drainage systems became blocked during the event and also if pumping stations had failed due to flooding or damage to electrical equipment, it could take a considerable amount of time to return systems to normal. So much so that its possible problems could continue owing to the inability of the system to cope after floodwaters have subsided.

Getting to the various locations would be extremely difficult. Some manhole covers would lift causing hazards underfoot.

3. British Telecommunications (BT)

A major flood would certainly have an impact upon BT's infrastructure but this would vary depending on the level of the water and the force with which it arrived. The underground cable network is in the main waterproof although prevention of water ingress cannot be guaranteed and thus faults may well become apparent immediately or in the longer term.

Roadside cabinets are vulnerable as they only afford splash protection to the terminating cables. If water reached the air vents in the cabinet then service to customers could be lost or severely disrupted. An increase in water level could also affect BT buildings such as telephone exchanges and repeater stations.

The apparatus contained in the exchange could itself be damaged and any loss of power either from the mains or from standby engines would cause loss of service. The provision of expedient service would be difficult as faults due to the constant exposure to water could only be effectively repaired once the area had dried out.

Any switch, transmission or power equipment damaged by the ingress of water into an exchange would also have to be replaced. The likelihood of failure in the longer term would make this an imperative in order to establish the true cost of the incident. An additional problem could be sewage-contaminated water in underground structures. Customer fault rates would be high during the incident and continue to increase as people return to their homes and attempted to make calls, possibly to find that their line was not working.

Once the water level had receded, any cables or equipment that had been exposed would have to be renewed before corrosion takes a hold. This would also include plug and socket terminals in customer premises.

BT, like many other organisations, would also find it difficult to deploy resources into the affected areas due to road blockages and collateral damage.

4. Wales and West Utilities/National Grid

4.1 Immediate Problems

A major flood may have an effect on Wales & West Utilities low pressure infrastructure but this would depend on the level of flood water. The pipeline network is resistant to water ingress but in the event of either third party interference damage or failure as a result of ground movement it is possible that water ingress would occur.

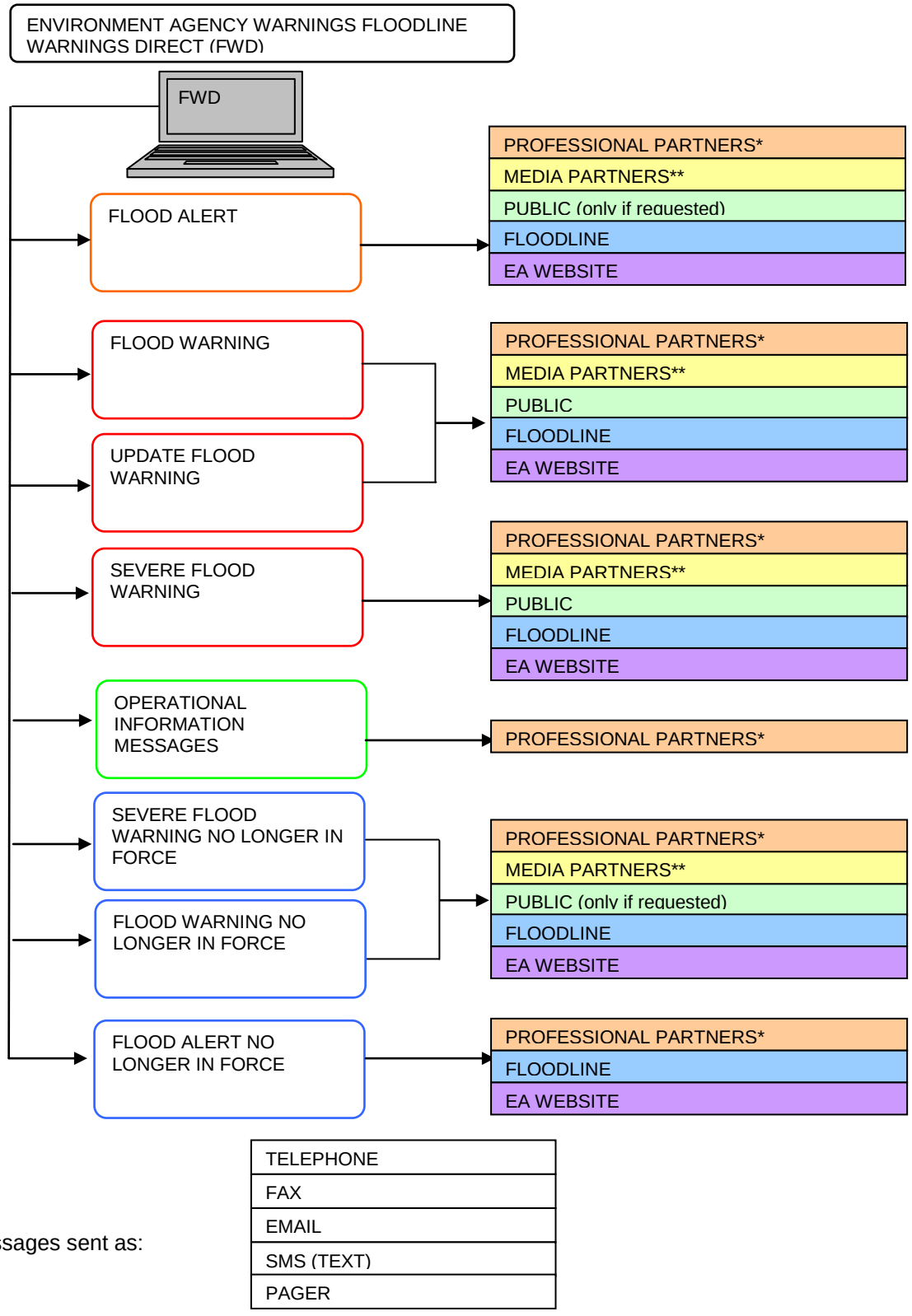
4.2 Flooding at a Pressure Reduction Station

It is possible that a pressure reduction station could be affected by floodwater if the equipment open ventilation pipes were breached. However, this is very unlikely as this would require the flood water to be at a depth of approximately 2 metres at the point of the installation. If this were to occur site attendance would be necessary and may result in the plant being isolated in a controlled manner, causing a loss of the gas supply to the affected areas.

4.3 Long Term Problems

If no system water ingress was recorded it is anticipated that there would be no long term problems with the pipeline network associated with a flooding incident. If water ingress were to occur or ground movement as a result of flooding incident caused damage to pipelines, the repairs would take priority in line with the operators safety and security of supply policy. The clearance of water following an incident of water ingress is a difficult engineering process and depending on the area affected may be a lengthy procedure, which may also be dependent on our ability to access the area following any flood damage.

Annex C Environment Agency Flood Warning & Informing Cascade



Messages sent as:

TELEPHONE
FAX
EMAIL
SMS (TEXT)
PAGER

1 Flood Guidance Statement (FGS)

The Met Office and Environment Agency working in partnership issue the Flood Guidance Statement (FGS) on a daily basis by 11:00 by their joint Flood Forecasting Centre. In severe situations additional updates are provided at six hourly intervals, so up to 4 issues per 24 hour period are possible.

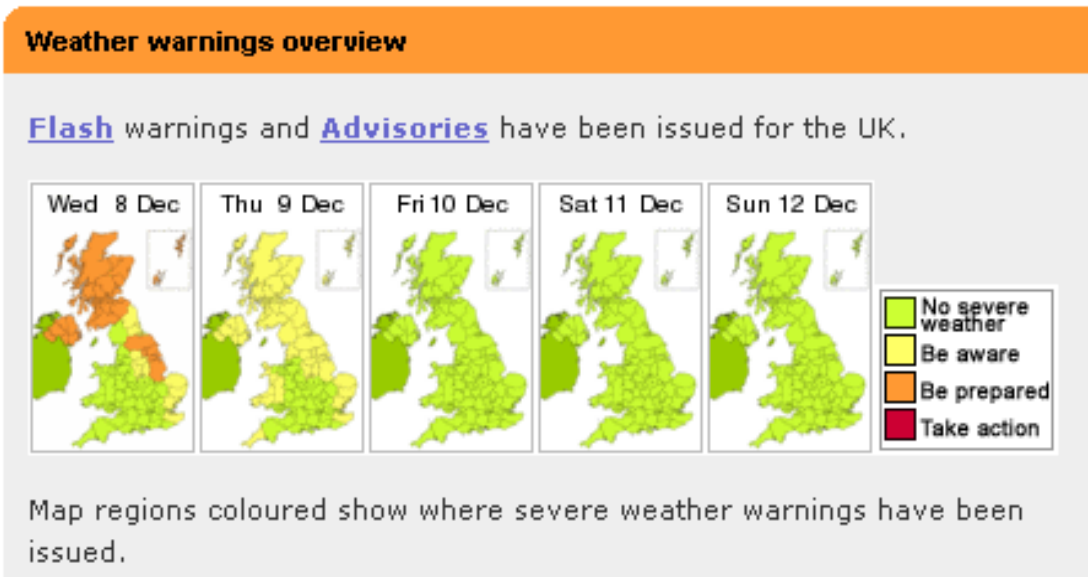
The Flood Guidance Statement (FGS) presents an overview of the flood risk across England and Wales at county level over five days and identifies possible severe weather, which could cause flooding and significant disruption to normal life. It provides an assessment of risk from fluvial, coastal and extreme rainfall leading to surface water flooding. The FGS represents the risk of flooding based on probability and impact. It is biased towards broad scale weather information and an awareness of catchment and coastal conditions. An annotated example of the FGS is included below along with a potential impacts key and public advice for each level of risk.

2. Severe & Extreme Weather Warnings

Severe weather events are not unusual and are experienced on a number of occasions throughout the year, but more commonly winter months. They will impact on individual areas, but often not significantly. Extreme weather events are unusual and only happen around three or four times per year. They have a significant impact on infrastructure and may lead to casualties.

The Met Office National Severe Weather Warning Service (NSWWS) for Severe Weather and Extreme Weather events uses a “traffic light” type alert system (example below). This alert system indicates varying levels of risk of impacts and a comment on actions to take at each level, as detailed in the tables at the end of this Annex.

Severe Weather Warning Overview



Flood Guidance Statement (an annotated example)

FLOODFORECASTINGCENTRE

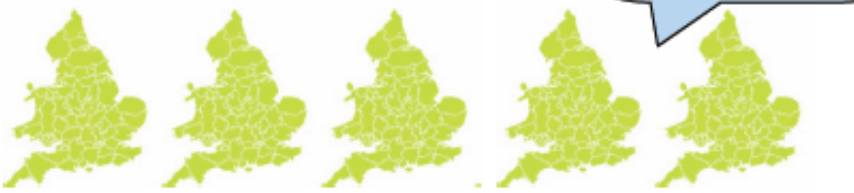
a working partnership between Environment Agency | Met Office

Appendix 1

Flood Guidance Statement 10:30hrs day/month/year

Our assessment of daily flood risk for England and Wales is below.

Improved FGS uses partner-facing county boundaries on all five days



10:30 – 2359hrs Sunday dd/month/year	0000 – 2359hrs Monday dd/month/year	0000 – 2359hrs Tuesday dd/month/year	0000 – 2359hrs Wednesday dd/month/year	0000 – 2359hrs Thursday dd/month/year

General Overview of Flood Risk

Updated to focus the statement on Flood Risk.

Overview of the flood risk for the next 5 days.

Example text

The flood risk over the next 5 days remains very low.

Warnings and Alerts in force in England and Wales at 10:30hrs

Updated to use new EA Flood Warning Codes terminology

Flood (click here)
0 Severe Flood Warnings / 0 Flood Warnings / 0 Flood Alerts

Severe Weather (click here)
Advisory – **no** / Early – **no** / Flash – **no**

Extreme Rainfall
0 Alert

Best Judgement

Best judgement commentary now split under distinct headings for different types of flood risk

River Flood Risk

Statement on the risk level for river flood risk.
Forecaster commentary will explain how the risk level was determined.

Coastal/tidal Flood Risk

Statement on the risk level for coastal/tidal flood risk.
Forecaster commentary will explain how the risk level was determined.

Surface Water Flood Risk

Refers to Surface Water Flood Risk, instead of 'extreme rainfall that could cause surface water flooding'

Statement on the risk level for surface water flood risk.
Forecaster commentary will explain how the risk level was determined.

Groundwater Flood Risk

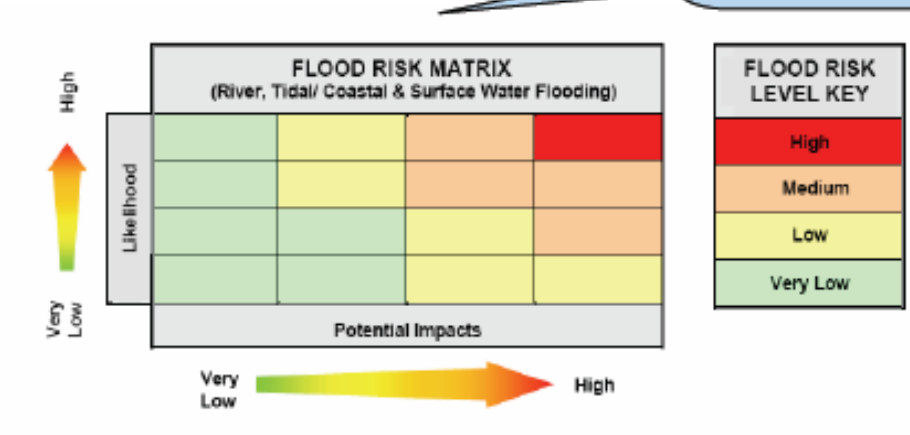
From April 2011 FGS will include Groundwater Flood risk

Statement on the risk level for groundwater flood risk.
Forecaster commentary will explain how the risk level was determined.

Next Statement Due: 10:30hrs on Day/month/year
Contact Details: Flood Forecasting Centre Duty Hydrologist. 0300 12345 01

Flood Risk Matrix

New FGS Flood Risk Matrix combines likelihood and potential impacts



For the detailed version of the Flood Risk Matrix click here

Flood Risk Matrix hyperlinked from FGS to 'Detailed potential impacts key' (Appendix 2)

From April 2011, FGS will include facility to report post event on forecast v actual flood outcome.

Page 2 of 2

POTENTIAL IMPACTS KEY

to be used by FFC (FGS), EA (Flood Aware) and Met Office (weather alerts / warnings of heavy rain) as an optional link on websites

	Very low	Low	Medium	High
Typical impacts	**Minimal disruption** • Generally no impact, however there may still be • Isolated and minor flooding of low-lying land and roads • Isolated instances of spray/wave overtopping on coastal promenades • Little or no disruption to travel although wet road surfaces could lead to difficult driving conditions	**Minor disruption** • Localised flooding of land and roads – risk of aquaplaning • Localised flooding could affect individual properties • Individual properties in coastal locations affected by spray and/or wave overtopping • Localised disruption to key sites identified in flood plans (e.g. railways, utilities) • Local disruption to travel – longer journey times	**Significant disruption** • Flooding affecting properties and parts of communities • Damage to buildings/structures is possible • Possible danger to life due to fast flowing/deep water/ wave overtopping/ wave inundation • Disruption to key sites identified in flood plans (e.g. railways, utilities, hospitals) • Disruption to travel is expected. A number of roads are likely to be closed	**Severe disruption** • Widespread flooding affecting significant numbers of properties and whole communities • Collapse of buildings/structures is possible • Danger to life due to fast flowing/ deep water/ wave overtopping/ wave inundation • Widespread disruption or loss of infrastructure identified in flood plans (e.g. railways, utilities, hospitals) • Large scale evacuation of properties may be required • Severe disruption to travel. Risk of motorists becoming stranded

PUBLIC ADVICE KEY

to be used by EA (Flood Aware) and Met Office (weather alerts / warnings of heavy rain) on websites and broadcasts

	Very low	Low	Medium	High
Public Advice	**No action required** • Keep an eye on the weather	**Flooding is possible - be aware** • Remain alert and ensure you access the latest weather forecast for up to date weather information. • Be aware of conditions and drive accordingly • Check flood warning page • Call Floodline 0845 988 1188 for the latest flooding information	**Flooding is expected - be prepared** • Remain vigilant and ensure you access the latest weather forecast • Consider re-scheduling your journey. Don't drive or walk through flood water • Think about preparing for flooding and take precautions where possible • Check flood warning page • Call Floodline 0845 988 1188 for the latest flooding information	**Significant risk to life - take action** • Remain extra vigilant and ensure you access the latest weather forecast • Avoid all non-essential travel or postpone journeys if at all possible • Follow advice given by authorities under all circumstances, and be prepared for extraordinary measures • Check flood warning page • Call Floodline 0845 988 1188 for the latest flooding information

OPERATIONAL INFORMATION KEY- Potential Impacts				
	Very low	Low	Medium	High
Response level	• Single agency response under Business as usual (BAU)	• Some multi-agency response but mostly BAU • Local Resilience Forums (LRF) level or equivalent • Operational level of response	• Multi-agency response likely to be needed at LRF level and/or regional level • Tactical level response likely Strategic response possible	• Multi-agency Strategic response likely at LRF level or regional level • Mutual aid likely with perhaps national co-ordination
Flood Warnings in force or forecast to be issued	Generally none • Although some frequently issued Flood Alerts could be issued	Generally Flood Alerts • Although some frequently issued Flood Warnings for caravan sites or individual high risk properties could be issued	Flood Alerts and Flood Warnings • Flood Alerts • Flood Warnings	Significant number of Flood Warnings • Flood Alerts • Significant number of Flood Warnings • Potential to issue Severe Flood Warnings

Detailed severe weather warnings are available for up to five days ahead.

- **Advisories** are issued by 13:00 daily, though they may be updated at other times if required. They indicate confidence of expected severe or extreme weather. Early and Flash warnings supersede advisories when confidence levels reach 60% or greater.
- **Early warnings** of severe weather will normally be issued up to several days in advance whenever the overall risk of widespread disruption in any UK region is 60% or greater.
- **Flash warnings** of severe weather are issued when confidence of an event reaching specified criteria is above 80%, and should give a minimum of two hours notice.

A table of types of severe weather warnings and potential effects can be found at Annex F.

3. Extreme Rainfall Alert (ERA) Service

The Flood Forecast Centre have developed an Extreme Rainfall Alert (ERA) service delivered by their joint Flood Forecasting Centre. The Service uses the latest Met Office forecasting technology, combined with Environment Agency expertise, to advise of the risk of surface water flooding from extreme rainfall.

The Service comprises two products

- **Guidance** - issued when there is a 10% or greater chance of extreme rainfall.
- **Alert** - issued when there is a 20% or greater chance of extreme rainfall.

Confidence levels will increase closer to the rainfall event and when the meteorological situation becomes clearer. The table below outlines the trigger thresholds:

Extreme Rainfall Alert Service Trigger Thresholds

	Guidance	**Alert**
Probability of thresholds being exceeded. Either: 30mm per hour 40mm in three hours or 50mm in six hours	Very low 10% or greater	Low/Moderate 20% or greater
Guidance to responders on receipt	Extreme rainfall may lead to surface water flooding. **Be prepared should the situation worsen.**	Extreme rainfall may lead to surface water flooding. **Consider activating your emergency procedures.**

The above thresholds are considered to be thresholds above which surface water flooding becomes likely, particularly in built up areas.

Alerts may be issued without being preceded by Guidance in a rapidly developing situation. Similarly, guidance will not always be followed by an Alert, for example if weather conditions improve or that the probability of the event never reaches 20%.

It is important to note that in contrast to severe weather events which in general occur more frequently in winter, **ERA thresholds are more likely to be exceeded in the summer months**. This is because the air needs to have a high moisture content and for this to be achieved the air needs to originate from a warm source. The main Extreme Rainfall Alert period is May to September.

4. Limitations

Surface water flooding has very short lead times and is complicated by processes involved in overland flow, such as interaction with local topography and drainage infrastructure.

The Service cannot provide a site-specific real time surface water flood forecast, but does offer a county level alert of an impending rainfall. It is based on probability of an event occurring and is not certain.

Met Office Weather Warning Overview

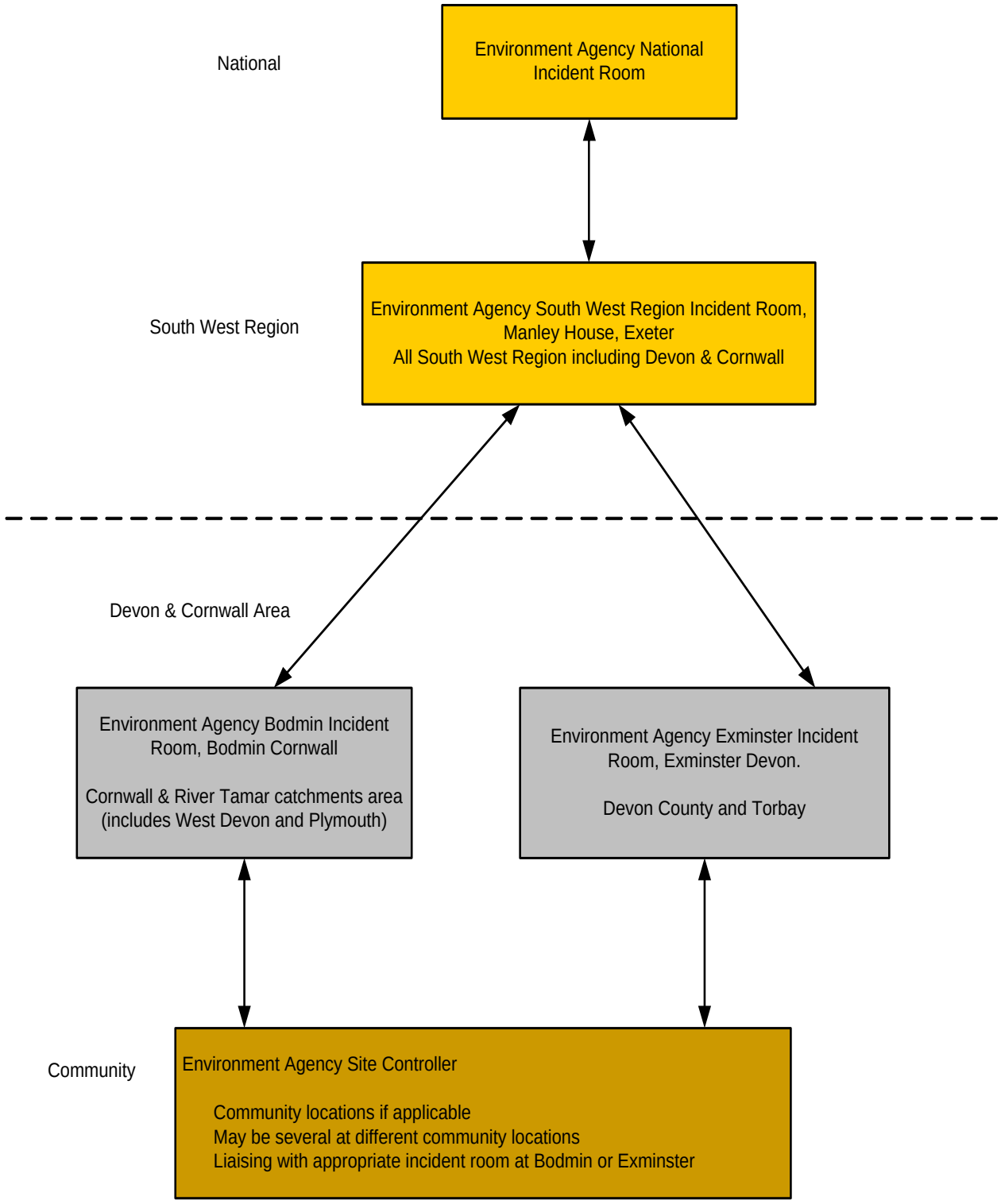
Severe Weather Events

Colour and risk levels for severe weather events (can often occur, particularly in Winter)					
	Green		**Yellow**	**Amber**	
Warning	None		Advisory	Early	Flash
Risk	Very low <20%	Low ≥20% <40%	Moderate ≥40% <60%	High ≥60% <80%	Very high >80%
Headline	No severe weather expected		Moderate risk of severe weather	High risk of severe weather	Severe weather is imminent or is occurring
Impact			Moderate risk of some damage to infrastructure and local disruption	High risk that there will be some damage to infrastructure and local disruption	Very high risk that there will be some damage to infrastructure and local disruption
Advice			Ensure you access the latest weather forecast	Remain vigilant and ensure you access the latest weather forecast **(See Figure 5d)**	Ensure you access the latest weather forecast and take precautions where possible

Extreme Weather Events

Colour and risk levels for extreme weather events (these are rare)					
	Green	**Yellow**	**Amber**	**Red**	
Warning	None	Advisory	Advisory	Early	Flash
Risk	Very low <20%	Low ≥20% <40%	Moderate ≥40% <60%	High ≥60% <80%	Very high >80%
Headline	No extreme weather expected	Low risk of extreme weather	Moderate risk of extreme weather	High risk of extreme weather	Extreme weather is imminent or occurring
Impact		Low risk of major damage to infrastructure and the environment	Moderate risk of major damage to infrastructure and the environment	High risk of major damage to infrastructure and the environment. Casualties are possible	Major damage to infrastructure and the environment is likely. Casualties are possible
Ad		Ensure you access the latest weather forecast	Remain vigilant and ensure you access the latest weather forecast	Remain extra vigilant and access the latest weather forecast. **(See Figure 5d)** Be aware of risks that might be unavoidable. Follow any advice given by authorities	Remain extra vigilant and access the latest weather forecast. Follow orders and any advice given by authorities under all circumstances and be prepared for extraordinary measures

Annex D - Environment Agency Internal Flood Incident Response Structure



Annex E – Public Advice

Summary of advice to provide to the public:

1. *Before a Flood*

Prepare a Flood kit and include the following:

Pack a small bag with essential belongings and include warm clothes, torch (check batteries), radio (wind up or battery powered), food, water, other drink, mobile phone (pre input useful numbers), any medicines that you might need to take, any important documents that you have and a first aid kit. Keep this bag easily accessible.

- Collect personal belongings, including insurance and bank details, and essential telephone numbers together, and keep them in a waterproof bag.
- Move people, pets, valuables and sentimental items upstairs or in a high place downstairs.
- Keep a separate list of useful telephone numbers to hand (this should include your local Council, your insurance company and **Floodline – 0845 988 188**).
- Find out where and how to turn off your Gas and Electricity. Ensure that you switch it off if flooding is imminent before evacuating.
- If possible, move electrical equipment and furniture upstairs.
- Any furniture that you cannot move upstairs, try to raise well off the floor.
- Alert neighbours and assist the elderly, infirm and those with small children.
- Block doorways and air bricks
- Avoid walking and driving through floodwater, there could be hidden hazards.
- Keep up to date with local radio for further information and announcements and via **Floodline 0845 988 1188**.

2. *During a flood*

- Continue to listen for situation updates on your local radio or via Floodline 0845 988 1188
- Keep dry, out of floodwater if possible
- Stay in your property, if safe to do so, until advised otherwise by the emergency services or floodwater has receded
- Do not walk or drive through flowing floodwater
- If it is necessary to walk through shallow floodwater, take care for hidden holes, obstacles or other hazards
- Do not walk on river banks, sea defences or cross bridges over fast flowing rivers
- Avoid contact with floodwater and wash exposed skin before handling food or attending to wounds
- If possible move electrical equipment and furniture upstairs

3. *If an evacuation becomes necessary*

- Stay calm and do not panic.
- Police officers and / or other officials will try to visit all properties at risk to advise on the requirement to evacuate.

- If road conditions permit, move vehicles to unaffected areas and ask friends / family if you can share their parking facilities.
- You will hear about your evacuation point for transport and the location of the reception centre either verbally or by a leaflet.
- Try to check that any elderly / vulnerable family members or neighbours know about the evacuation.
- Try to inform family members / friends as to where you are evacuating.
- Listen to the advice of the authorities and follow any instructions to leave a property.

4 After a flood/returning home

- Contact your insurers as soon as possible and follow their advice. Most insurers have a 24hr helpline. Do not throw away damaged goods until your insurer has authorised you to do so. It is a good idea to take photographs of the damage.
- Check the safety of electricity and gas before use. A qualified electrician needs to check any electrical equipment and circuits that have been exposed to floodwater.
- Avoid contact with any remaining floodwater or items having had contact with floodwater unless wearing protective gloves / clothing.
- Boil all tap water until it is declared safe by the water supply company
- Wash yours and your children's hands frequently with bottled water if your supply has not been declared fit for use. Disinfect any children's toys.
- Dispose of any contaminated food, including tinned food, defrosted food, and packaged food that have been exposed to floodwater.
- Seek medical assistance if any health issues appear, especially flu like symptoms.
- Ventilate your property whilst taking care for security.
- Do not throw rubbish and furniture outdoors; wait for an organised collection.
- During these hard times, bogus / cowboy builders / traders are frequently offering their services. Make sure that you get a written quotation that is on letter headed paper with a landline contact number and address.

5 Useful Contacts for the Public

- The Environment agency's Floodline warnings direct system
- The Environment agency website at **www.environment-agency.gov.uk/flood**
- Contacting Floodline on 0845 988 11 88 – information is provided by recorded information and live call operators.
  (Minicom Textphone : 01904 692 297)
- Met Office **www.metoffice.gov.uk**
- Via the media
- Health Protection Agency **www.hpa.org.uk/flooding**
- AA Roadwatch will also be used to broadcast warnings
- Highways Agency Information line (HAIL) 08457 50 40 30 & email
- HA Traffic England Website
- Leaflets produced and distributed by the EA, which provide information and advice on flood warning arrangements
- Information & Advice regarding Repair and Restoration of buildings following floods from **www.ciria.org/flooding** and from **www.floodforum.org.uk**

- Information & advice regarding Recovery Procedures and activities from th3e British Damage Management Association **www.bdma.org.uk**
- The Flood Forum www.floodforum.org.uk

Annex F – Types of severe weather warnings and potential effects

Warnings are issued using a set of fixed weather criteria for the whole of the UK

	Met Office Criteria	Possible cause	Possible effects
Severe Gales	Repeated gusts of 70 m.p.h. or more over inland areas.	▪ Depressions (areas of low pressure) ▪ Tip: *Stronger gusts are possible in the vicinity of heavy precipitation, thunderstorms and weather fronts*	▪ High-sided vehicles at risk of being blown over ▪ Some trees uprooted ▪ Tiles, slates and chimneys dislodged from some buildings
Storms	Repeated gusts of 80 m.p.h. or more over inland areas.	▪ Depressions (especially quick-moving depressions) ▪ Tip: *Stronger gusts are possible in the vicinity of heavy precipitation, thunderstorms and weather fronts* ▪ Tip: *If ground is already waterlogged and /or treas are still in leaf, there is a higher likelihood of toppling trees.*	▪ Cars blown out of lanes on roads ▪ Widespread removal of branches from trees; many trees uprooted ▪ Tiles, slates and chimneys dislodged from many buildings; some structural damage • Where wind is forecast above 90 m.p.h. the following may occur: ▪ Collisions whilst driving ▪ Widespread uprooting of trees ▪ Injury due to flying debris ▪ Widespread damage to buildings; some buildings collapse
Heavy Snow	Snow falling at a rate of 2 cm/hour or more expected for at least two hours.	▪ Weather fronts. ▪ Tip: *If the weather has been cold for some time, precipitation falling through that cold air, is more likely to reach the ground as snow.*	▪ Increased journey times ▪ Minor accidents
Very Heavy Snow	Snow falling at a rate of 2 cm/hour or more expected for at least two hours, accumulating to 15 cm or more.	▪ Weather fronts. ▪ Tip: *Watch out if fronts are slow moving or semi-stationary.* ▪ Tip: *Warm fronts/occlusions can produce large amounts of snow.*	▪ Local routes impassable ▪ Local loss of power and telecommunication lines
Blizzard	Moderate or heavy snow accompanied by winds of 30 m.p.h. or more, with visibility reduced to 200 m or less; or drifting snow giving rise to similar conditions.	▪ Depressions. ▪ Tip: *Lying or banking snow adjacent to roads can create a hazard if strong winds blow the snow across or onto the carriageway.*	▪ Major routes impassable ▪ Local loss of power and telecommunication lines
Severe Blizzard	Heavy Snow accompanied by winds of 30 m.p.h. or more, reducing visibility to near zero.	▪ Deep or fast-moving depressions. ▪ Tip: *Previously-fallen powder snow can compound visibility reduction.* ▪ Tip: *Significant wind-chill possible.*	▪ Transport infrastructure paralysed ▪ Regional loss of power and communication lines
Heavy Rain	Rain expected to continue for at least two hours and to give at least 15 mm within a three hour period or, following previous heavy rain events, 25 mm/day.	▪ Weather fronts. ▪ Tip: *Flooding risk can be higher if ground is already waterlogged from previous rain, or is hard – e.g. due to drought in summer or front in winter.*	▪ Aquaplaning ▪ Flooding
	Warning may be triggered by thunderstorms (warnings will state this if expected).	▪ Thunderstorms ▪ Top: *Slow-moving thunderstroms (especially in summer) increase the risk of localised flooding.* ▪ Tip: *Other hazards include hail, strong winds and lightning risks.*	▪ Squally winds or tornadoes may remove roof tiles or chimneys ▪ Power surges
Fog	Visibility below 50 metres (restricted to heights where major roads occur).	▪ Clear skies overnight allow radiation fog to form. ▪ Cold air drainage from hills overnight.	▪ Difficulty identifying distances and speed ofmovement leading to increased journey times ▪ Road traffic accidents

		▪ Changes in wind may bring fog from elsewhere (advection fog) ▪ Anticyclones (areas of high pressure)	
Widespread Icy Roads, Glazed Frost, Freezing Rain	When rain falls onto surfaces with temperatures at or below zero; or condensation occurs on surfaces at or below zero; or already wet surfaces fall to or below zero. The ice is usually clear and difficult to distinguish from a wet surface. It usually forms in sheets. Warnings are issued when any depth of ice is expected over a widespread area.	▪ Weather fronts (especially warm fronts/occlusions) ▪ Tip: *Watch out if fronts are slow moving or semi-stationary.* ▪ Tip: *The only reliable method of clearing this ice is by thawing – it is usually a case of waiting until the warm air behind the front arrives over the area.*	▪ Damage to power and telecommunication lines ▪ Driving difficulties ▪ Difficulty when walking
Heatwave (NHS Heat-Health Watch)	Expectation of significantly higher than average temperatures in one or more regions of England and Wales; thresholds are pre-determined regionally via the Heat-Health Watch system	▪ Tropical Continental airmass in summer ▪ Top: with time, air pollution can cause respiratory problems	

Annex G – Pre Event SCG meeting (following EA/LA request)

1. Introductions and Apologies
2. FOIA – Classification
3. Lead Agency Briefing (planning stage currently EA/Met Office)
4. Mitigation activities to be carried out by partners and partner information
5. Command and Control
6. Warning and Informing of partners and communities (including leads)
7. Media Strategy
8. External liaison
9. Business Continuity issues
10. Next meeting
11. Summary of Key points and Actions

EA Briefing Format

1. Meteorological Forecast/Flood Risk
2. Flood warnings/professional Partner Liaison
3. Areas at risk/Vulnerable sites
4. Asset Management

Annex H – Initial Strategic Co-ordination Group Agenda

Standing Agenda

1. Introduction and apologies
2. Items for Urgent Attention
3. Update on current flood / anticipated flood position and weather
4. Reports from Silver(s) - other agencies required
5. Impact on communities
6. Infrastructure issues
7. Key Issues and Strategic Decisions
8. Communication and Media Strategies
9. Business Continuity
10. Finance and Logistics
11. Recovery - ensure Recovery Group is established (see Section 10)
12. Any Other Business
13. Time of Next Meeting/Organisations Attending Next Meet

Annex I - Silver Control Initial Group Agenda & Considerations

Standing Agenda

1. Introduction
2. Items for Urgent Attention (inc has a major incident been declared or does it need declaring)
3. Update on current flood / anticipated flood position and weather
4. Reports from Silver Control Group Members - other agencies required
5. Requirement for Strategic Co-ordination Group activation and/or decisions required
6. Health and safety risks, issues and advice
7. Key Operational Issues (inc evacuation, security etc)
8. Warning, Informing and media
9. Recovery Group update – (ensure Recovery Group established by Gold – see Section 10)
10. Any Other Business
11. Time of Next Meeting/Organisations Attending Next Meet

Other Considerations

- Identify decisions requiring to be made:
- (Timely decisions on evacuation are crucial)
- Now (this meeting)
- Next 2 hours
- Next 4 hours
- Specific warnings to the public
- General advice to the public
- Water rescue resources
- Identification of vulnerable populations (LAs and PCTs)
- Evacuation
- Transport
- Rest centres
- Identification of safe routes
- Rendezvous points (RVPs)
- Confirmation of communications, contact numbers etc
- Identification of potential future problems
- Press and media policy
- Future admin of Silver control (accommodation, feeding, communications, feedings, shifts etc)
- Timings of inter-agency updates / SITREPS

Annex J – Handover Document

Operation *Insert Name*

Insert Location to be handed over.
Insert Date

Handover Document

In line with agreed protocol (Combined Agencies Emergency Response Protocol) established by the Devon, Cornwall and Isles of Scilly Local Resilience Forum, the Devon & Cornwall Police assumed responsibility as the lead co-ordinating agency from the time a Major Incident was declared on the *Insert date of incident*

Devon & Cornwall Police have continued in that role during the reaction, rescue and retrieval phases of the incident. The Devon & Cornwall Police has now completed the retrieval phase to the best of our knowledge and belief.

Therefore, in accordance with the above protocol, the Devon & Cornwall Police now relinquishes the role as lead co-ordinating agency, which is passed to the relevant local authority, in this case, *insert name of relevant Local Authority.*

From the time and date shown below, all responsibility for the co-ordination of the remediation and regeneration phases of the incident pass to *insert name of relevant Local Authority,* including all further responsibility for the safety of the public, provision of adequate resources, and all financial arrangements relating to this Major Incident.

Signed on behalf of the Devon & Cornwall Police	Signed on behalf of the Insert name of relevant Local Authority

Time……

Date……

Annex K High Risk Communities

It has been agreed by the Devon, Cornwall and Isles of Scilly Local Resilience Forum (DCIOSLRF) that site specific tactical flood plans are required for communities where the flood risk has been defined in the LRF Community Risk register as High or very High.

This means the community is at risk from:

C. Major tidal/coastal flooding affecting more than 100 properties, 100 or more properties in Flood Zone 2 Tidal.

D. Major fluvial flooding affecting more than 100 properties, 100 or more properties in Flood Zone 2 Fluvial.

C. Major surface water or minor watercourse flooding affecting more than 100 properties, 100 or more properties in Areas Susceptible to Surface Water Flooding.

D. High risk of flash flooding affecting more than 15 properties, 15 or more properties in Flood Zone 2 Fluvial and a Very High risk of flash flooding (Environment Agency National Rapid Response Catchment Methodology).

EA Area	Lead LA	District	Name	No. Properties FLUVIAL FZ2	No. Properties TIDAL FZ2	TOTAL No. Properties FZ2	No. Properties surface water > 100?	Flooding Warning Service	Plan Status
Cornwall	Cornwall	N/A	Bodmin	129	0	129	Y	Yes	Extant Plan
Cornwall	Cornwall	N/A	Bude, Stratton and Flexbury	471	72	497	Y	Partial	Extant Plan
Cornwall	Cornwall	N/A	Camborne	129	0	129	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	Flushing	0	64	64	N	Yes	Draft In Progress
Cornwall	Cornwall	N/A	Hayle and Lelant	304	203	403	Y	Partial	Draft In Progress
Cornwall	Cornwall	N/A	Helston	285	0	285	Y	Partial	Extant Plan
Cornwall	Cornwall	N/A	Launceston	158	0	158	Y	Partial	Extant Plan
Cornwall	Cornwall	N/A	Looe	0	356	356	Y	Yes	Draft In Progress
Cornwall	Cornwall	N/A	Lostwithiel	288	76	292	Y	Partial	Draft In Progress
Cornwall	Cornwall	N/A	Mevagissey	157	81	167	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	Millbrook	107	63	127	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	Padstow	103	18	110	Y	No	Extant Plan
Cornwall	Cornwall	N/A	Par and St. Blazey	712	211	713	Y	Partial	Extant Plan
Cornwall	Cornwall	N/A	Penryn	114	216	312	Y	No	Extant Plan
Cornwall	Cornwall	N/A	Penzance and Newlyn	897	180	1005	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	Perranporth and Bolingey	422	0	422	Y	Yes	Extant Plan
Cornwall	Cornwall	N/A	Polperro	146	60	152	Y	Yes	Draft In Progress
Cornwall	Cornwall	N/A	Portreath	247	0	247	Y	No	Draft In Progress

EA Area	Lead LA	District	Name	No. Properties FLUVIAL FZ2	No. Properties TIDAL FZ2	TOTAL No. Properties FZ2	No. Properties surface water > 100?	Flooding Warning Service	Plan Status
Cornwall	Cornwall	N/A	Redruth	259	0	259	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	Rosecraddoc Manor	153	0	153	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	St. Austell	382	9	385	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	St. Ives	298	3	301	Y	No	Draft In Progress
Cornwall	Cornwall	N/A	Truro	182	162	336	Y	Yes	Extant Plan
Cornwall	Cornwall	N/A	Wadebridge	289	531	596	Y	Partial	Extant Plan
Devon	Devon	East Devon	Axminster	254	0	254	Y	Partial	Extant Plan
Devon	Devon	East Devon	Beer	173	0	173	Y	No	Draft In Progress
Devon	Devon	East Devon	Budleigh Salterton	199	14	206	Y	No	Draft In Progress
Devon	Devon	East Devon	Colyton	78	0	78	Y	Partial	Draft In Progress
Devon	Devon	East Devon	East Budleigh	100	0	100	Y	No	Draft In Progress
Devon	Devon	East Devon	Exmouth	1100	2471	2676	Y	Partial	Extant Plan
Devon	Devon	East Devon	Feniton	0	0	0	Y	No	Draft In Progress
Devon	Devon	East Devon	Honiton	188	0	188	Y	No	Draft In Progress
Devon	Devon	East Devon	Lympstone	143	124	170	Y	Partial	Extant Plan
Devon	Devon	East Devon	Newton Poppleford	180	0	180	Y	Partial	Draft In Progress
Devon	Devon	East Devon	Otterton	99	0	99	Y	No	Draft In Progress
Devon	Devon	East Devon	Ottery St Mary	260	0	260	Y	Partial	Extant Plan
Devon	Devon	East Devon	Seaton and Axmouth	353	538	597	Y	Yes	Extant Plan
Devon	Devon	East Devon	Sidmouth	627	263	627	Y	Partial	Extant Plan
Devon	Devon	East Devon	Stoke Canon	318	0	318	N	Yes	Extant Plan
Devon	Devon	East Devon	Woodbury	66	0	66	Y	No	Draft In Progress
Devon	Devon	Exeter City	Exeter	7259	110	7259	Y	Partial	Extant Plan
Devon	Devon	Exeter City	Topsham	194	256	279	Y	Yes	Extant Plan
Devon	Devon	Mid Devon	Bampton	135	0	135	Y	Partial	Draft In Progress
Devon	Devon	Mid Devon	Crediton	3	0	3	Y	No	Draft In Progress
Devon	Devon	Mid Devon	Cullompton	515	0	515	Y	Partial	Extant Plan
Devon	Devon	Mid Devon	Hemyock	152	0	152	Y	Partial	Draft In Progress
Devon	Devon	Mid Devon	Tiverton	1907	0	1907	Y	Partial	Extant Plan
Devon	Devon	North Devon	Barnstaple	2536	1479	2549	Y	Partial	Extant Plan

EA Area	Lead LA	District	Name	No. Properties FLUVIAL FZ2	No. Properties TIDAL FZ2	TOTAL No. Properties FZ2	No. Properties surface water > 100?	Flooding Warning Service	Plan Status
Devon	Devon	North Devon	Braunton	561	71	593	Y	Yes	Extant Plan
Devon	Devon	North Devon	Combe Martin and Berrynarbor	234	1	234	Y	No	Draft In Progress
Devon	Devon	North Devon	Ilfracombe and Hele	492	21	512	Y	No	Extant Plan
Devon	Devon	North Devon	Lynton, Lynmouth and Brendon	68	2	68	Y	Partial	Draft In Progress
Devon	Devon	North Devon	South Molton	96	0	96	Y	Yes	Extant Plan
Devon	Devon	South Hams	Dartmouth	144	598	607	Y	Partial	Extant Plan
Devon	Devon	South Hams	Harbertonford	127	0	127	Y	Partial	Extant Plan
Devon	Devon	South Hams	Ivybridge	28	0	28	Y	Partial	Draft In Progress
Devon	Devon	South Hams	Kingsbridge	409	209	456	Y	Partial	Extant Plan
Devon	Devon	South Hams	Salcombe	1	153	154	N	Yes	Extant Plan
Devon	Devon	South Hams	South Brent	49	0	49	Y	Partial	Draft In Progress
Devon	Devon	South Hams	Totnes	1114	663	1127	Y	Yes	Extant Plan
Devon	Devon	Teignbridge	Abbotskerswell	16	0	16	Y	No	Draft In Progress
Devon	Devon	Teignbridge	Ashburton	329	0	329	Y	No	Extant Plan
Devon	Devon	Teignbridge	Bovey Tracey	187	0	187	Y	Partial	Draft In Progress
Devon	Devon	Teignbridge	Buckfastleigh	279	0	279	Y	No	Extant Plan
Devon	Devon	Teignbridge	Dawlish	245	37	282	Y	No	Draft In Progress
Devon	Devon	Teignbridge	Dawlish Warren	84	116	116	Y	Partial	Draft In Progress
Devon	Devon	Teignbridge	Exminster	174	133	174	Y	Partial	Draft In Progress
Devon	Devon	Teignbridge	Kingskerswell	256	0	256	Y	No	Extant Plan
Devon	Devon	Teignbridge	Newton Abbot and Kingsteignton	2110	1127	2113	Y	Partial	Draft In Progress
Devon	Devon	Teignbridge	Shaldon	0	392	392	Y	Yes	Extant Plan
Devon	Devon	Teignbridge	Starcross	164	560	563	Y	Yes	Extant Plan
Devon	Devon	Teignbridge	Teignmouth	35	942	977	Y	Yes	Extant Plan
Devon	Devon	Torridge	Bideford	779	941	1025	Y	Yes	Extant Plan
Cornwall	Devon	West Devon	Horrabridge	91	0	91	Y	Partial	Extant Plan
Devon	Devon	West Devon	Okehampton	381	0	381	Y	Yes	Extant Plan
Cornwall	Devon	West Devon	Tavistock	536	0	536	Y	Partial	Draft In Progress

EA Area	Lead LA	District	Name	No. Properties FLUVIAL FZ2	No. Properties TIDAL FZ2	TOTAL No. Properties FZ2	No. Properties surface water > 100?	Flooding Warning Service	Plan Status
Cornwall	Isles of Scilly	N/A	Hugh Town	0	No data	No data	No data	No	Draft In Progress
Cornwall	Plymouth	N/A	Plymouth Barbican	0	627	627	Y	Yes	Extant Plan
Cornwall	Plymouth	N/A	Plympton	472	252	622	Y	Partial	Extant Plan
Devon	Torbay	N/A	Brixham	610	24	631	Y	No	Draft In Progress
Devon	Torbay	N/A	Paignton	525	421	905	Y	Partial	Extant Plan
Devon	Torbay	N/A	Torquay	471	63	514	Y	No	Draft In Progress

MAPPING PROTOCOL

1.0. Introduction

1.0.1. The aim of this protocol is to set a common standard for mapping associated with flood plans produced by agencies within the Devon, Cornwall and the Isles of Scilly LRF.

1.0.2. Mapping will be required for each Top Tier / Unitary Local Authority annex; this document sets out the minimum requirement for this mapping. Maps within the County/Unitary annex are primarily for use at Gold and Silver levels of command and control.

1.0.3. Mapping will be required for each Multi Agency Flood Plan, High Risk Community appendix; this document sets the minimum requirement. Mapping within the MAFP HRC are designed to be used at Silver control and CAT1&2 organisations' incident rooms. The maps should also be useful for Bronze commanders; however, responders are likely also to require street atlases/OS maps for additional detail.

1.0.4. All maps within the MAFP will be publicly viewable and may be used to help communities to plan for flooding at the local level.

1.0.5. Maps shall be clearly labelled as to which area and which type of flooding they represent, together with the date of production and the date and source of flood data. Copyright, disclaimers and licence text must be added where necessary.

1.0.6. Base mapping should be in black and white. The scale of base mapping is not dictated and should allow all relevant detail to be seen. Maps displaying areas susceptible to surface water flooding or flood outlines other than Flood Zone 2 must not have base mapping with a scale more detailed than 1:50 000.

1.0.7. The standard page size should be A3, in portrait or landscape, depending which is most advantageous. Where more complexity leads to difficulty in interpreting the map at A3, a note should be added in the legend suggesting an additional map be printed at a suitable size, but not larger than A1, or that additional maps showing a smaller area are available.

1.0.8. A North Arrow should be clearly marked, and North shall be towards the top of the page.

1.0.9. Any grid reference used on the map or referred to in the plan text shall be to the OS standard and will be represented thus, XX 1234 1234. Nothings and eastings need not be marked on map borders.

1.0.10. Each of the maps should use common symbology allowing a common Key layout for all maps in the HRC MAFP.

2.0. Symbology common to all maps.

2.0.1. Flood Zone 2 Fluvial, the 0.1% annual probability fluvial event without defences.

 (Transparent)

2.0.2. Flood Zone 2 Tidal, the 0.1% annual probability fluvial event without defences.

 (Transparent)

2.0.3 Highway routes unlikely to flood.

2.0.4. Highway routes likely to flood.

2.0.5. Diversion around flooded highway section.

2.0.6. Highway location likely to flood.

X

2.0.7. Strategic Rest Centre. Rest Centre Run/Managed by or for Top Tier Authority which meets all standards for H&S, Disabled Access etc.

2.0.8. Text boxes should be used to describe and highlight flooding of particular concern or other detail not easily conveyed in the plan text, text box background colour to be transparent, and test box to be placed out of flood zone if possible.

3.0. Mapping for MAFP Top Tier / Unitary Local Authority Annex.

3.1. Each MAFP Top Tier / Unitary Local Authority Annex will require the following minimum mapping suit.

3.1.1. **Map 1.1 – 1.x, Area Boundary, Flood Zone 2 Fluvial and Location of MAFP HRC locations.** This map will clearly show the limit of its geographical application by bounding with a line. Where the boundary is the coast the line should be stood off from the coast sufficiently that the coast is visible when printed at A3. The map will also show the location of MAFP HRC. If one map is insufficient, the area may be presented as a set of maps which when combined cover the full area. This Map will display Flood Zone 2 Fluvial, the 0.1% annual probability fluvial event without defences.

3.1.2. **Map 2.1 – 2.x, Area Boundary, Flood Zone 2 Tidal and Location of MAFP HRC locations.** This map will clearly show the limit of its geographical application by bounding with a line. Where the boundary is the coast the line should be stood off from the coast sufficiently that the coast is visible when printed at A3. The map will also show the location of MAFP HRC. If one map is insufficient, the area may be presented as a set of maps which when combined cover the full area. This Map will display Flood Zone 2 Tidal, the 0.1% annual probability fluvial event without defences

3.1.3. **Map 3.1 – 3.x, Key Transport Links, Fluvial.** This map will show the trunk road network, and other major routes, colour coded into ‘likely to flood’ and ‘not likely to flood’. In principle and if possible, the routes should include at least one ‘dry’ route into each of the communities identified as requiring a MAFP HRC. Locations most prone to flooding on this network should be noted with appropriate symbols, if a ‘dry’ diversion can be identified this should be highlighted. If one map is insufficient, the area may be presented as a set of maps which when combined cover the full area. This map should display location of all Strategic Rest Centres. This Map will display Flood Zone 2 Fluvial, the 0.1% annual probability fluvial event without defences.

3.1.4. **Map 4.1 – 4.x, Key Transport Links Tidal.** This map will show the trunk road network, and other major routes, colour coded into ‘likely to flood’ and ‘not likely to flood’. In principle and if possible, the routes should include at least one ‘dry’ route into each of the communities identified as requiring a MAFP HRC. Locations most prone to flooding on this network should be noted with appropriate symbols, if a ‘dry’ diversion can be identified this should be highlighted. If one map is insufficient, the area may be presented as a set of maps which when combined cover the full area. This map should display location of all Strategic Rest Centres. This Map will display Flood Zone 2 Tidal, the 0.1% annual probability fluvial event without defences.

It is not proposed that the resilience of the rail network be identified on this map at this time, we will seek to add this data in future revisions.

3.1.5. **Map 5, Local Radio Station Coverage.** This map will display the approximate known coverage of local radio broadcasts. Known black spots, or unusual reception patterns can be highlighted with text boxes. This protocol does not define the

symbology to be used to map these areas as an assessment of the availability of the data is yet to take place and a GIS technician will require flexibility to adequately display several overlying areas.

3.2. Symbology for MAFP County/Unitary Annex maps.

3.2.1. Area border. Only border of Top Tier / Unitary Local Authority Annex in question to be highlighted.

3.2.2. MAFP HRC location. All displayed, where several are close together spread and point to location. A table containing the name and key data relating to each MAFP HRC will appear in the body of the Annex.

4.0. Mapping for MAFP HRC

4.1. Each MAFP HRC will require the following minimum mapping suit.

4.1.1. All maps should as a minimum display the extent of all Flood Action Zones (FAZ) for the community in question. Maps 1 – 4 (and 5 if required) should all be of the same area. Map 1 & 2 should have the same base mapping. Map 3, 4 & 5 must not have base mapping with a scale more detailed than 1:50 000.

4.2. Minimum mapping requirement.

4.2.1**. Map 1. Flood Zone 2 Fluvial**, the 0.1% annual probability fluvial event without defences.

4.2.2. **Map 2. Flood Zone 2 Tidal**, the 0.1% annual probability fluvial event without defences.

4.2.3. **Map 3. Area Susceptible to Surface Water Flooding.**
Note: This map must not have base mapping with a scale more detailed than 1:50 000.

4.2.4. **Map 4.1 – 4.x. Area of potential vital domestic supply Fluvial/Tidal flood impact.** Area of community which may be without vital domestic supply during or after severe fluvial/tidal flooding. It should be noted that this relates to loss of local distribution assets and should larger installations supplying districts or regions be lost, entire communities may be without VDS. Separate maps should be produced for Fluvial/Tidal flooding if both have a significant impact on the community.
Note: This map must not have base mapping with a scale more detailed than 1:50 000.

4.3. Additional mapping if required.

4.3.1. **Map 5.1 – 5.x, Area of Increased Impact.** This map will display Flood Zone 2, Fluvial/Tidal and the area likely to suffer the greatest impact with defences in place during a fluvial/tidal event. Only one scenario may be represented on each map. A text box on face of map must contain information about the scenario used to identify the area of increased impact. Map title must state; Fluvial/Tidal, Defended/Undefended, Any Special Considerations. This map should contain the same information as Map 1-4.
Note: This map must not have base mapping with a scale more detailed than 1:50,000.

4.3.2. **Map 6.1 – 6.x, Traffic/Evacuation Plan.** For Fluvial/Tidal flooding. If the flood zone is displayed this should be presented in the same format as in Map 1 or 2. This map need not contain the information represented in Map 1-4 allowing additional space for traffic management information to be presented, this map must display FAZs. This map may need to show a larger area than Map 1 to 4 and may require a different scale base map to allow key transport routes to be visible. Separate maps

should be produced for Fluvial/Tidal flooding if both have a significant impact on the community.

4.3.3. **Map 7.1 – 7.x, Key Flood Risk Management Structures.**
This map need not contain the information represented in Map 1-4 allowing space for annotation.

4.4. Symbology for MAFP HRC mapping.

4.4.1. Flood information.

4.4.1.1. Area susceptible to surface water.

 (Transparent)

4.4.1.2. Area of Increased Impact.

 (Transparent)

4.4.1.3. River Centre Line. The centre line of watercourses. This will pick up the course of most watercourses. This line should be replaced with the Culvert line where the river passes through 'significant' culverts, see 4.4.9.2.

4.4.2. Incident management infrastructure.

4.4.2.1. Flood Action Zone. Line completely encloses the area, and a red capital letter will be located close to the centre of the FAZ. FAZ boundaries will as far as possible follow significant geographical features to allow them to be easily identified on the ground by operational staff.

4.4.2.2. Evacuation Briefing Centre. Multi-Agency muster point from which evacuation will be managed.

4.4.2.3. Evacuation Assembly Point. Prominent location where public will be requested to congregate in order to be evacuated, will offer limited weather protection if possible, but may be open to elements.

4.4.4.4. Shelter. Locally run emergency shelter offering weather protection and possibly some catering and/or over night accommodation. No minimum standard of disabled access, welfare facilities or catering provision is implied.

4.4.4.5. Emergency Service Station. Police, Fire, Ambulance, MCA or RNLI station.

4.4.4.6. Specific sites/infrastructure essential to incident response and not covered above, such as locked gates on evacuation routes, drop bollards on key routes or local stock of emergency equipment not held by blue light services.

4.4.4.7. COMAH/MACR Site.

4.4.4.8. Animals. Any known site containing over 25 domestic animals/pets, 100 farm animals/200 poultry or any registered dangerous animals, to include agricultural sites, zoos, dog rescue centres etc. Site details including address, contact details and stock to be listed in body of plan.

4.4.5. Vital Domestic Supplies

4.4.5.1. Electrical installations. Table of site locations, voltage and Western Power Distribution reference to appear as table in body of plan.

4.4.5.2. Water infrastructure. Table of site locations, description and South West Water reference to appear as table in body of plan.

4.4.5.3. Telecoms infrastructure. Table of site locations, description and supplier name and reference to appear as table in body of plan.

4.4.5.4. Area at risk of losing electricity. Area at risk should local distribution assets fail, should larger installations supplying districts or regions be lost entire communities may be without electricity.

(Transparent)

4.4.6. Community infrastructure.

4.4.6.1. Hospital. A record should be made of any emergency plan held by the site management and where a copy is held.

4.4.6.2. Railway Station. Station name and location in plan body.

4.4.6.3. Post Office. Location and contact details in plan body.

4.4.6.4. Chemist. Location and contact details in plan body.

4.4.6.5. Sports Centre. Location, ownership and contact details in plan body.

4.4.7. Vulnerable people

4.4.7.1. Schools. Table containing name, address and contact details in plan body. A record should be made of any emergency plan held by the site management and where a copy is held.

4.4.7.2. Residential care homes. Table containing name, address, outline details of vulnerability and contact details in plan body. A record should be made of any emergency plan held by the site management and where a copy is held.

4.4.7.3. Camping & Caravanning sites. Table containing name, address, contact details and number of pitches/caravans/lodges in flood zone in plan body. A record should be made of any emergency plan held by the site management and where a copy is held.

4.4.8. Sites of local interest

4.4.8.1. Any additional information such as public buildings including library, town/parish hall, local authority offices, large retail outlets, significant local employers etc. Table containing name, address, contact details and description to appear in plan body, this list will tend to contain bigger sites in bigger communities, and smaller sites in smaller communities, eg a small general store would be significant for community resilience in a village, but not in a large town. Sites need not appear on this list if they appear on the map under another heading such as rest centre.

4.4.9. Flood Defences

4.4.9.1. Raised Defences. Embankments, walls or other linear structures which prevent flooding by enabling water to be held above ground level with out flooding land or property, or which reduce impact of wave action, may be used to denote de-facto defences such as rail lines or major road embankments. Also used to denote embankments which form flood storage reservoirs.

4.4.9.2. Culverts. Sections of watercourse which are covered, the water passing through a pipe or other enclosed structure. Only to be added to map if the culvert forms a significant part of a flood defence scheme, or poses significant flood risk.

4.4.9.3. Flood Defence Structure. Significant structures which reduce flood risk or which, should they fail, could cause significant flooding, such as tide gates, large screens, pumping stations. List of structures to appear in a table in the text body detailing asset name, operator, function and grid reference.

4.4.10. Traffic control and evacuation

4.4.10.1. Evacuation Route. Routes to be numbered and a table in the body of the text will describe each. Evacuation routes may be those used for early evacuation as well as critical routes to take when flooding is imminent.

Annex M – Devon

Devon County Council Annex

THIS IS NOT A PLAN

THIS ANNEX MUST BE USED IN CONJUNCTION WITH THE DCIoS LRF MAFP

1. INTRODUCTION

This Annex forms part of the Devon, Cornwall and Isles of Scilly LRF Multi-Agency Flood Plan. It contains material specific to Devon County Council which may not be appropriate to include in the overarching LRF MAFP. This Annex relates to the Local Authority area of Devon and the following District, Borough and City Councils:

- East Devon
- Exeter City
- Mid Devon
- North Devon
- South Hams
- Teignbridge
- Torridge
- West Devon

1.2 Aim

The aim of this Annex is to set out the detail that is specific to the multi agency response to a significant flooding incident in the Devon County Council area.

1.4 Scope

This document is intended for organisations that would participate in and support, the response and recovery of communities within the Devon County Council area affected by a flood incident.

This Annex contains Devon County Council area specific details of;

- Related and inter-dependant plans
- Communications plans
- Roles and Responsibilities
- Command and control arrangements.
- Information about vulnerable people and groups
- Evacuation and sheltering of people (inc Strategic Rest Centres)
- Resources available
- Summary of High Risk Communities for which plans are not available.
- Area-wide mapping showing the location of High Risk Communities and access routes.

1.5 Organisational Responsibilities

All organisations involved in responding to a flood incident are to make their own arrangements both internally and with outside organisations to ensure that they are able to respond.

1.6 Audience

The intended audience is all organisations that may respond to flooding within the Devon County Council area. This Annex is primarily intended for use at Silver Control(s), although it may be of use to Gold.

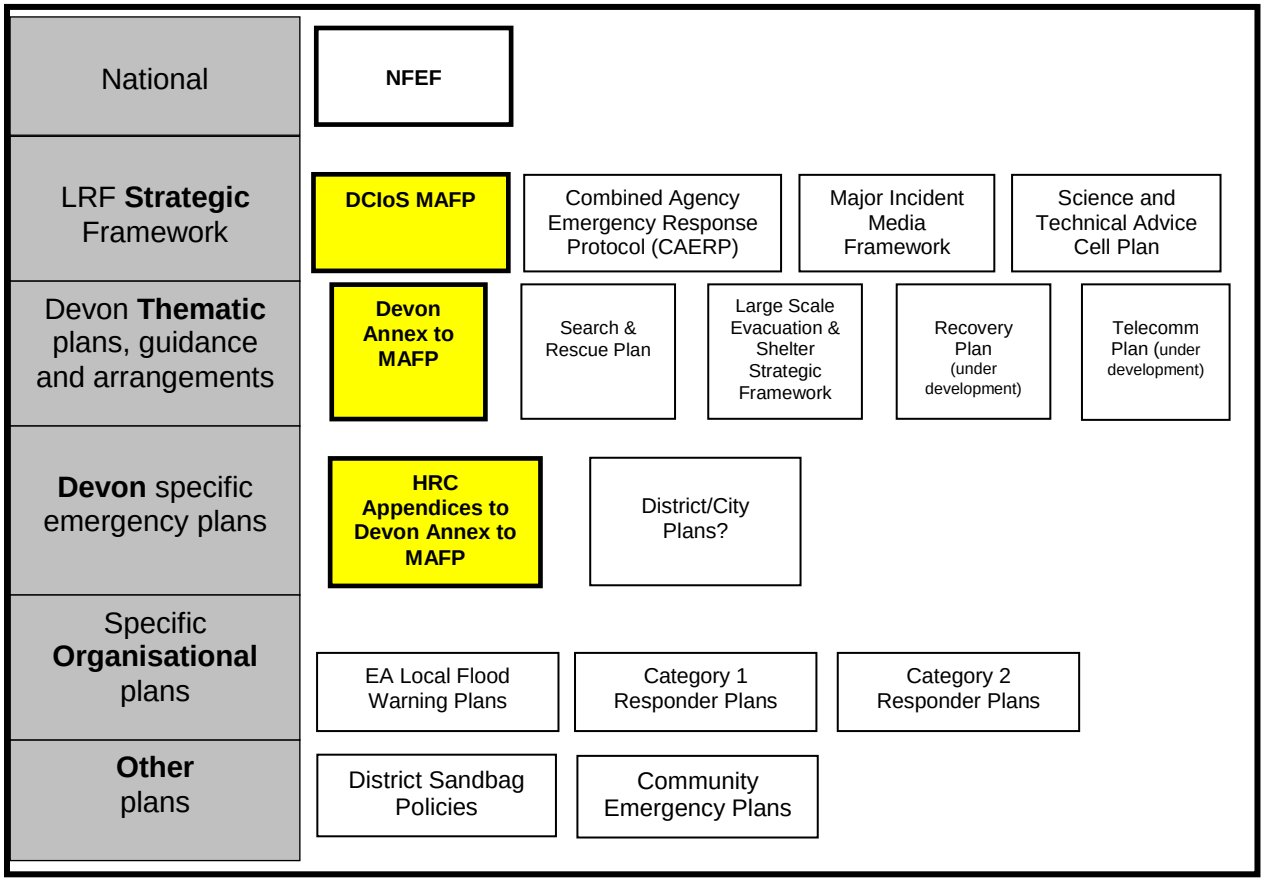
2. RELATED AND INTERDEPENDENT PLANS

2.1 Plans Overview

This is the Devon County Council Annex to the Devon, Cornwall and Isles of Scilly Multi Agency Flood Plan. Appended to this Annex are 57 High Risk Community Plans (under development). These are defined as where the community is at risk from:

A. Major Tidal/coastal flooding affecting more than 100 properties for 1 to 7 days
B. Major fluvial flooding affecting more than 100 properties for 1 to 7 days
C. Communities may also be considered for a High Risk Community Plan, if there are other risk factors such as, high numbers of properties at risk of surface water flooding, flash flooding, or there are other factors which means flooding is likely to have a significant impact

The list of these locations are contained in **Annex K**. The recommended list of plans will develop over time as more information on risks to particular communities becomes available, particularly in reference to rapid response (flash flooding) and surface water flooding.



3. DEVON COMMUNICATIONS

3.1 Multi Agency Arrangements

The Generic LRF Communication section is 4.1 of the LRF MAFP. The primary means of communicating between the agencies in the Devon LA area is by fixed telephone, mobile phones and/or e-mail. Emergency Service Staff in the field will use mobile and Airwave.

3.2 Media

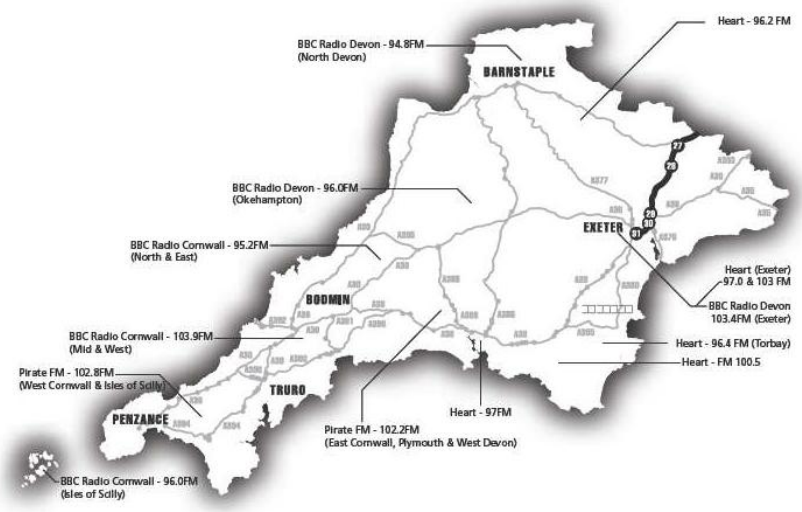
If a forecast is received suggesting a significant rainfall/risk of severe flooding and a SCG is established in accordance with LRF MAFP figure 5a, the Police will establish a Media Cell.

The Police will generally take the lead on media issues but each Agency will lead on its own area of interest under the general direction of the SCG media cell. All Media messages will be agreed by all parties and disseminated via the Media Cell situated within SCG. The following should be followed:

- Early teleconference between press officers from all relevant agencies to agree procedures as far as possible.
- Agreement on who will take the media leads [on specific issues] as far as possible.
- Spokespeople to be put on standby in case of need for interviews out of hours.
- Press Officers to liaise regularly at agreed times to discuss developments and to ensure consistency in messages to the media
- Where possible all organisations will consider the need to put extra press office cover on standby.
- All contact details (in and out of hours) to be shared between press offices.

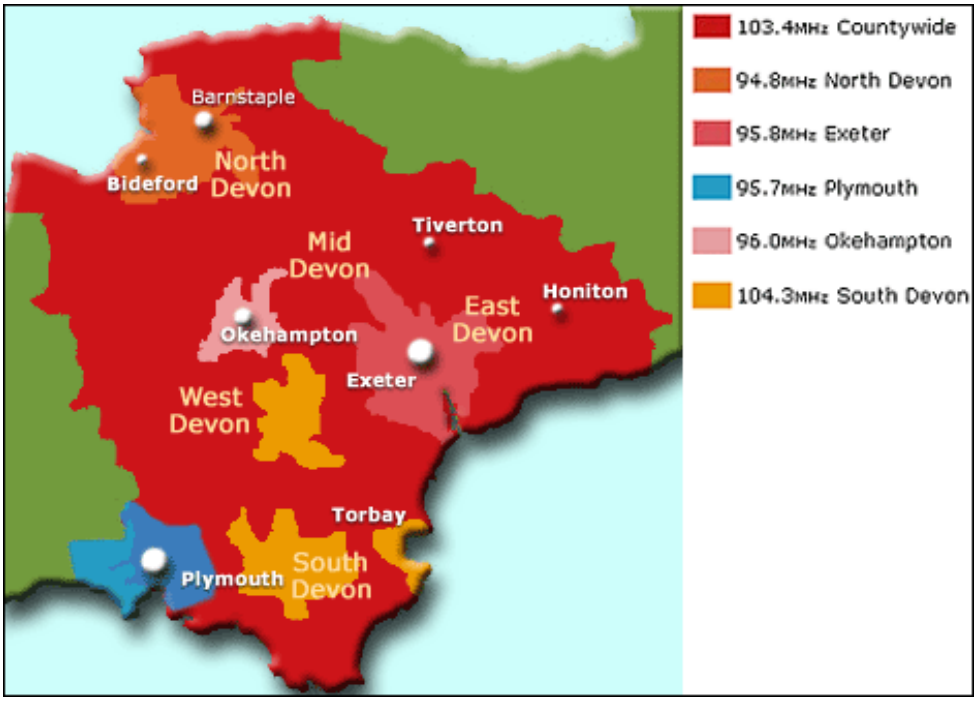
3.3 Warning the Public

The Environment Agency has a responsibility to issue flood warnings to the public (see section 3.8.2 of the LRF MAFP). The issuing of guidance and information to the public following a flood incident is contained in 4.3 of the LRF MAFP. In addition to information contained in the MAFP the following local radio frequencies are used in Devon:

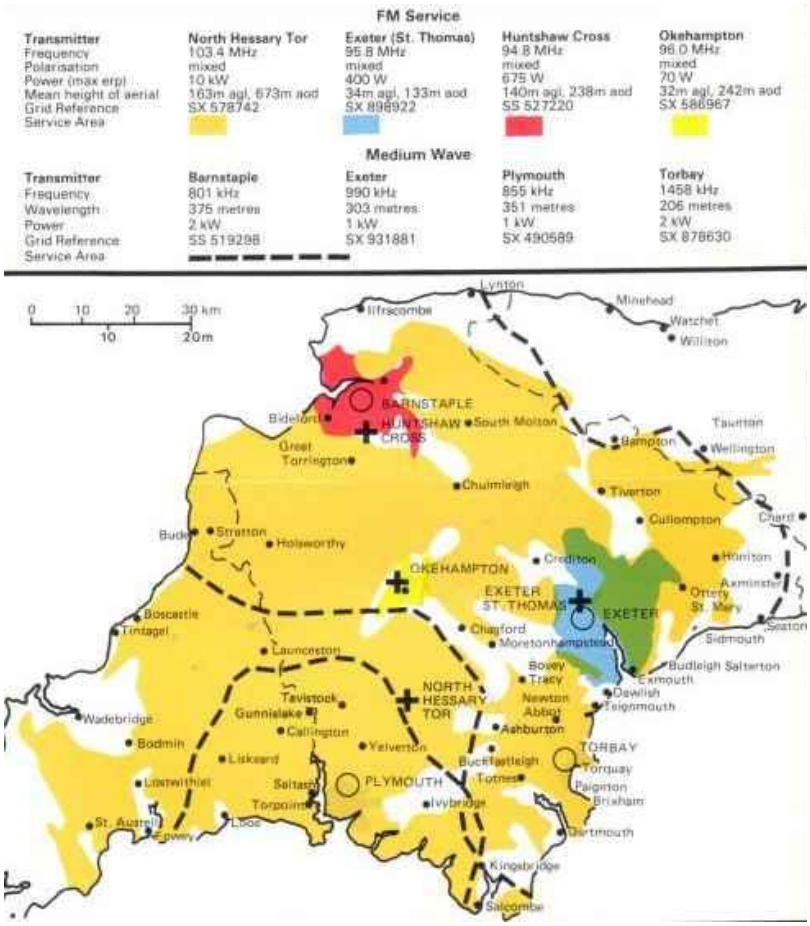


Area Covered	Station		
	BBC Radio Devon	Exeter FM	Heart
Countywide	103.4	-	
Torbay		-	
Exeter	95.8	107.3	97.0
Plymouth	95.7	-	97.0
North Devon	94.8	-	96.2
East Devon		-	103.0
Okehampton		-	
Tavistock		-	96.6
South Hams	104.3	-	101.2

BBC Radio Frequencies in Devon



It should be noted that some isolated communities cannot receive local radio broadcasts and that some Welsh radio stations may be received (mainly North Devon coastal locations)



3.4 Communication Shortfalls

Mobile Phone. Generally, mobile phone coverage is good. However it can patchy outside larger towns and cities and in valleys around the county. Total reliance on these means should avoided.

Broadcast TV/Radio. Some isolated communities cannot receive local radio/TV broadcasts and BBC radio void areas are indicated above. It should not be assumed that following a broadcast warning that all households/communities are aware.

Airwave. Airwave is a resilient communications network. Whilst there may be some areas not covered by fixed masts this can be overcome by utilising mobile 'pump-up' masts and/or other handsets as re-broadcasting stations. The same strategy will apply should a fixed mast fail. Therefore, it should be assumed that Airwave will provide total coverage.

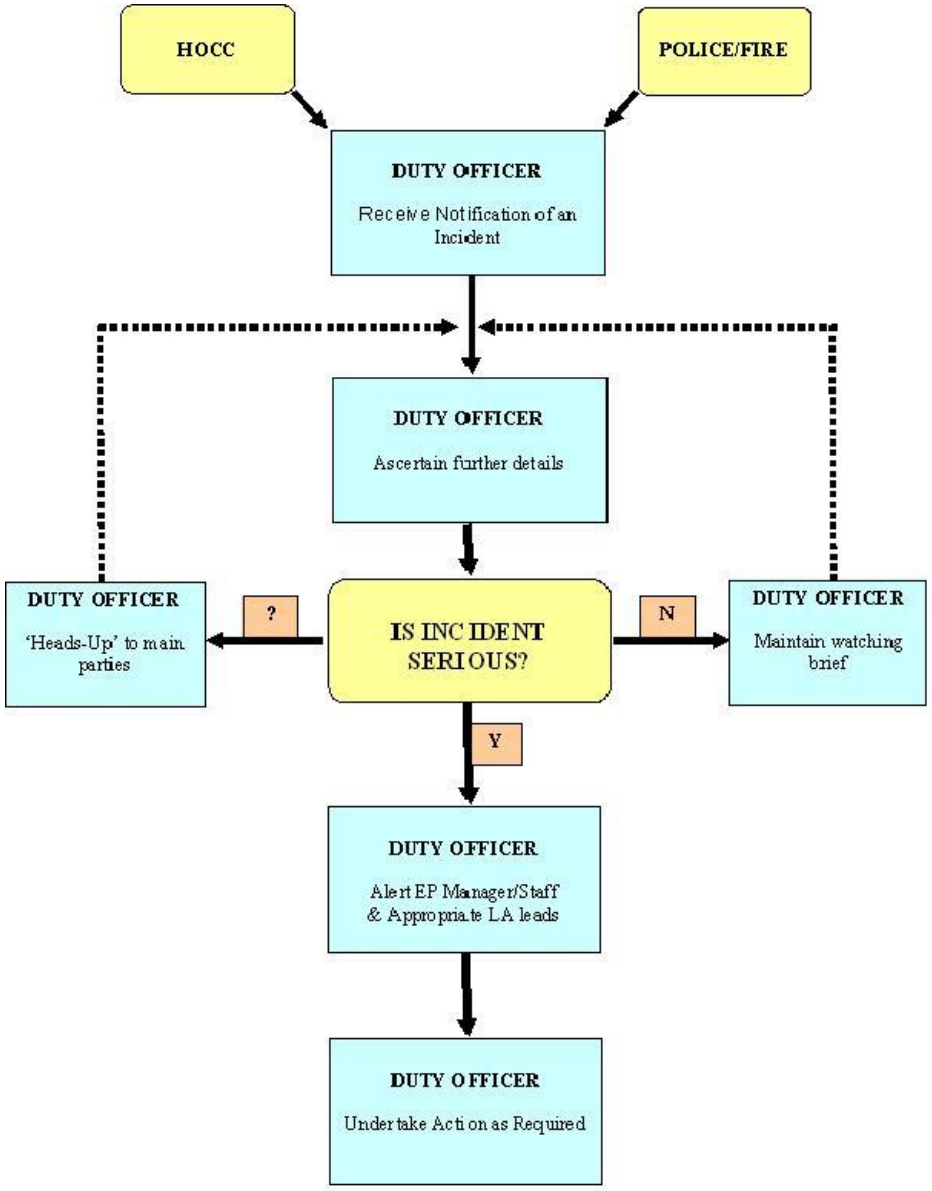
4. ROLES AND RESPONSIBILITIES

4.1 Specific roles and responsibilities of LRF partners

Specific roles and responsibilities of LRF partners can be found in **Annex A.** These are in line with those outlined in the Devon, Cornwall and Isles of Scilly Combined Agency Emergency Response Protocol (CAERP) section 3.

4.2 Local Authority Roles and Responsibilities

The initial assessment of an incident within the Devon County Council area is outlined in the flow chart below:



The Devon–wide response to an emergency is outlined below:

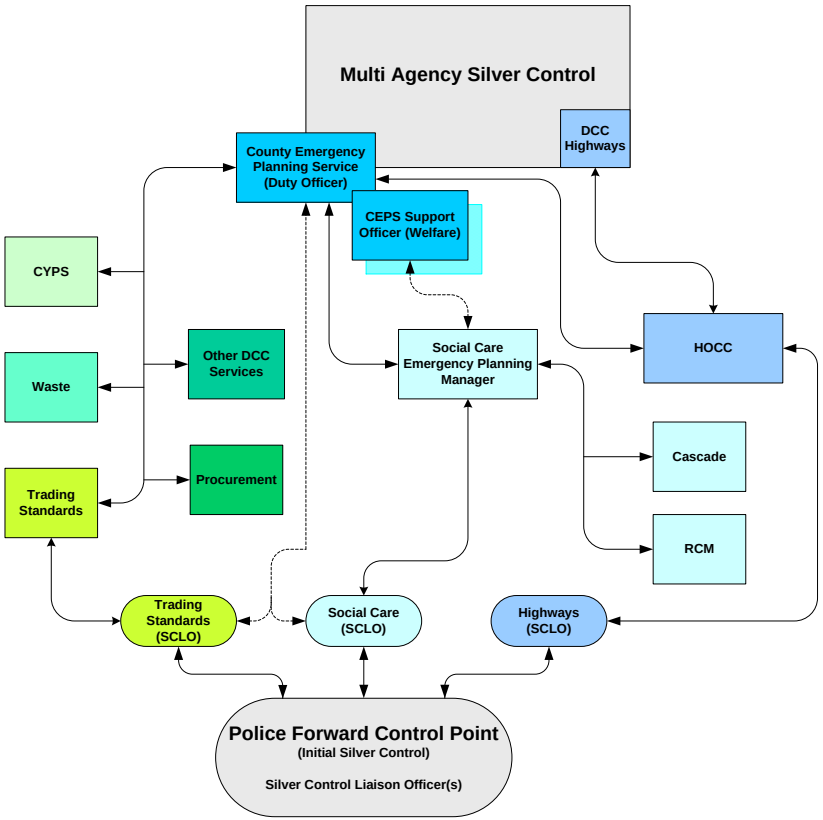
Contact details for agencies within the Devon area are contained in the Emergency Telephone Directory (Yellow Pages) as produced and distributed by Devon County Council Emergency Planning Service.

5. COMMAND AND CONTROL

5.1 Devon County Council

Devon County Council will fit into the agreed Command and Control structure:

COMMAND AND CONTROL



Multi Agency Silver Control may be run in addition to the Police Forward Control Point (FCP).

The CEPS Duty Officer will provide initial response and assessment of an incident as Silver and continue to manage the overview throughout the incident.

DCC Highway Operations Control Centre (HOCC) will always work in partnership with our blue light partners in the response and have a role at Silver Control.

If the FCP should stand alone the CEPS Duty Officer will request a Silver Control Liaison Officer (SCLO) to represent DCC's interests and provide partnership assistance.

The SCLO(s) when attending the FCP will represent DCC as a whole and report back through their own nominated management who can deal with any direct requests and pass other requests to the appropriate Service or the CEPS Duty Officer.

CEPS Duty Officer will maintain communications with the other Service leads involved to guarantee a co-ordinated DCC response.

The CEPSM will, where appropriate, appoint a support officer to assist the Social Care EPM with organising the Welfare requirements.

November 2010

6. VULNERABLE PEOPLE AND GROUPS

6.1 Vulnerable People

Vulnerable people lists are held and maintained by individual organisations and establishments and will be made available to the SCG upon request. Details of accessing these lists are included in the LRF Vulnerable People Tactical Framework at Annex A.

6.2 Vulnerable Group Locations

Detailed locations of facilities / buildings for vulnerable groups (e.g. schools, nurseries, care homes) but not individuals' homes are contained, where necessary, within the High Risk Communities Appendices. A list and map of the High Risk Communities in Devon are included in this Annex.

7. EVACUATION AND SHELTERING OF PEOPLE

7.1 Evacuation and Shelter Plan

The LRF Large Scale Evacuation and Shelter Strategic Framework details the generic multi-agency arrangements to evacuate shelter, accommodate and care for people displaced by evacuation.

Specific information in relation to flooding is contained within the High Risk Community Flood Plans and where necessary includes;

7.2 Rest Centre Plans

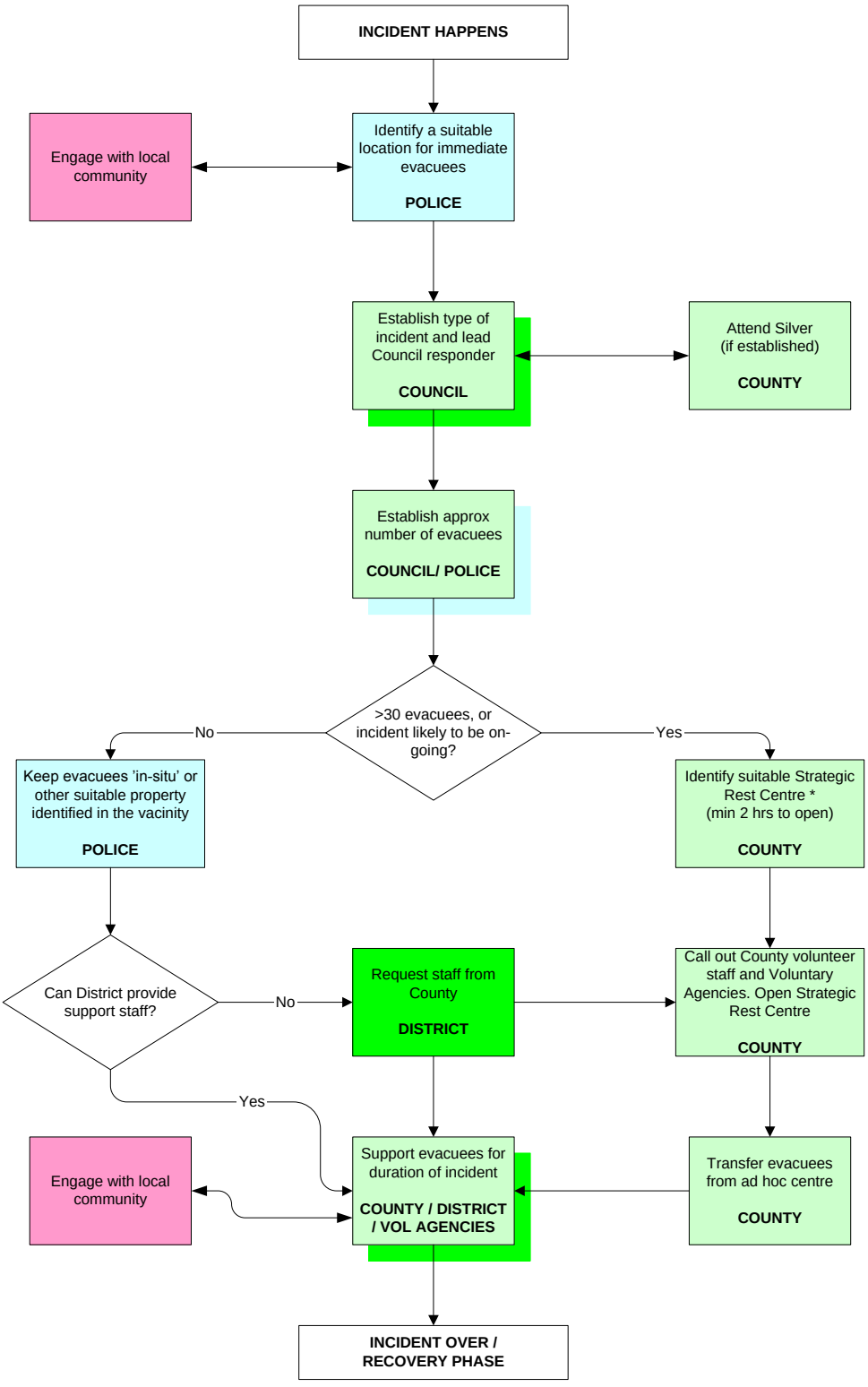
Detailed Rest Centre Plans are held and maintained by Devon County Council and a map showing strategic Rest Centres within the Devon County Council area is Appended to this Annex.

Whilst early notification is not always possible, the Police should alert Devon County Council at the earliest opportunity if they consider that an evacuation is likely to take place. Early notification provides an opportunity for the local authority to put appropriate staff on standby and prepare for the request to open Rest Centres.

Information should also be provided on the approximate number of people being evacuated, and the length of time shelter will be required.

The decision as to which rest centres will be used will be reached by discussion between the Police and Devon County Council. The Local Authority will organise the appropriate staffing of any rest centres. The protocol outlined in the flow chart below will be followed:

DEVON-WIDE RESPONSE TO AN EMERGENCY INCIDENT



Please note this is a simplified representation of the response to an incident, particularly at the 'front end'. The intention of the flow chart is to show the respective roles of County and District Councils in response to an emergency incident Nov 2010

7.3 Transport Arrangements

If transport, specialist or otherwise, is required by the Police for the evacuation they will ask Devon County Council to arrange this.

All agencies should be aware that roads, which may be required for transporting their own staff or evacuees, may not be passable and reference should be made to the traffic management plans as included in the HRC plans and the Devon Strategic Network Map.

8. RESOURCES AVAILABLE

8.1 Sandbag Policy

8.1.1 East Devon District Council

The Council will only provide empty sandbags, to Parish / Town Councils annually and can be collected from EDDC or if preferred they can be delivered to one address in that Town / Parish. Further supplies can be collected from Street Scene Depots during normal working hours.

With increasing flooding events and a perceived increase in requests for sandbags it is anticipated that this service will grow.

The Officers who have an emergency planning role within their job specification are responsible for ensuring that this service is delivered annually.

8.1.2 Exeter City Council

It should be noted that if major flooding of the Exe through Exeter was predicted the use of and available quantity of sandbags would be useless.

For imminent flooding situations from streams and rivers:

Exeter. Residents can telephone to request sandbags when heavy rain is forecast or falling. ECC will either deliver or sandbags may be collected.

Topsham. A sandbag store is located in a shed in the corner of the Matthews Hall car Park, Topsham. When particularly high tides are predicted to coincide with unfavourable weather conditions the store is unlocked so residents in vulnerable locations can help themselves (sometimes a lorry load is taken to Topsham Quay) to block up doorways etc. Whilst the danger only lasts a relatively short time it might be repeated over a couple of days. Residents then either keep the sandbags for future use or ECC will collect them.

8.1.3 Mid Devon District Council

Whilst no formal 'policy' for sand bags exists, the following is an indication of Mid Devon District Council's concept for provision:

- Generally a max of 12 sandbags provided – that being 6 each for a front/back door or 'normal' house.
- Sandbags are only provided 'out of hours' if there is a genuine emergency and not on demand.
- Used sandbags are NOT collected.

8.1.4 North Devon District Council

A supply of sandbags for purchase by the public are held in the Engineer's Business Unit, which is open to the public during normal office hours. Some parish / town councils hold a supply of sandbags, supplied by the district council to assist the community. In emergencies, the Council will, whenever possible, attempt to assist private owners with a supply of sandbags.

8.1.5 South Hams District Council

Limited stocks of sandbags are usually available for collection from Council depots Monday to Friday 08.00 to 16.00 excluding Bank Holidays. Sandbags are **not** supplied to any commercial properties.

The maximum number of sandbags issued is 10 per property, however, this may be further restricted during periods of high demand, extreme weather and flooding. Sandbags may be delivered to the elderly or persons with disabilities.

Additional sandbags can usually be purchased from builders merchant.

8.1.6 Teignbridge District Council

Wherever possible the public are encouraged to maintain their own system of flood defences and not rely on spontaneous requests for Council sandbags. The Council's policy on provision of sandbags to residents is as follows:

- Residents can collect sandbags ahead of events from the Teignbridge Service Depot in Forde Road during normal office hours. The allowance is up to 10 bags per household.

- During an incident the priority may be to protect Critical Local Assets, consequently TDC cannot guarantee availability, delivery or timing to residents. If there is an unforeseen flooding incident and there are requests from the public or the emergency services for sandbags then the delivery can arrive up to 2 hours later, by which time waters may have subsided.

- There are sandbag stores located close to vulnerable areas throughout the district. Locations of the stores and contact numbers of keyholders are held by the coastal and drainage engineering section and the out of hours duty standby officer.

8.1.7 Torridge District Council

Torridge has 'aqua-sacs' for sale at a cost of £3.50 per sac from all Receptions during office hours.

There are no procedures in place to provide sandbags or aqua-sacs to the public outside of office hours, due to limited resources. However, if there was major flooding within the Torridge area, sandbags are available to the Emergency Services with a supply of aqua-sacs.

There are approx 1000 sacs in storage, which would be available to the emergency services. A contract is in place with a local company who if necessary could transport the sacs to an area.

8.1.8 West Devon Borough Council

The Council holds a small supply of empty sandbags. These can be collected free of charge from the Tavistock Offices (Kilworthy Park, Tavistock) or Okehampton Customer Services Centre (10 St James Street, Okehampton). WDBC can only deliver sandbags in an extreme emergency or under special circumstances and by prior arrangement.

Sandbags are limited to 10 bags per household and neither sand nor filled sandbags are supplied to individual householders. Sand can be obtained from some Parish and Town Councils or purchased from local Builders' Merchants, DIY stores or Garden Centres.

The 26 Town and Parish Councils that hold supplies of sand and/or sandbags are listed on the website http://www.wdbc.gov.uk/app.asp?doc=15961&cat=1024.

Devon (Exc Torbay and Plymouth Unitary Council areas)

Location	Status
East Devon	
Axminster	Draft
Axmouth & Seaton	Draft
Beer	Draft
Budleigh Salterton	Draft
Colyton	Draft
East Budleigh	Draft
Exmouth	Draft
Feniton	Draft
Honiton	Draft
Lympstone	Draft
Newton Poppleford	Draft
Otterton	Draft
Ottery St Mary	Draft
Sidmouth	Draft
Stoke Cannon	Draft
Woodury	Draft
Exeter City	
Exeter	Under Review
Topsham	Under Development
Mid Devon	
Bampton	Under Development
Crediton	Under Development
Cullompton	Under Review
Hemyock	Under Development
Tiverton	Under Development
North Devon	
Barnstable	Draft
Braunton	Draft
Combe Martin & Brendon	Draft
Ilfracombe and Hele	Draft
Lynton/Lynmouth, Berrynarbor & Watermouth Cove	Draft
South Moulton	Draft
South Hams	

Dartmouth	Under Review
Harbertonford	Under Review
Ivybridge	Under Development
Kingsbridge	Under Review
Salcombe	Under Review
South Brent	Under Development
Totnes	Under Review
Teignbridge	
Abbotskerswell	Under Development
Ashburton	Under Review
Bovey Tracy	Under Development
Buckfastleigh	Under Review
Dawlish	Under Development
Dawlish Warren	Under Development
Exminster	Under Development
Kingskerswell	Under Review
Kingsteignton & Newton Abbot	Under Review
Shaldon	Under Review
Starcross	Under Review
Teignmouth	Under Review
Torridge	
Bideford	Draft
West Devon	
Okehampton	Under Review
Tavistock	Under Development

Annex N – Cornwall

Cornwall Council Annex

THIS IS NOT A PLAN

THIS ANNEX MUST BE USED IN CONJUNCTION WITH THE DCIoS LRF MAFP

Contents

MAPS

1. Introduction

This Annex forms part of the Devon, Cornwall and Isles of Scilly LRF Multi-Agency Flood Plan. It contains material specific to Cornwall Council which may not be appropriate to include in the overarching LRF MAFP. This Annex relates to the Local Authority area of Cornwall Council

1.2 Aim

The aim of this Annex is to set out the detail that is specific to the multi agency response to a significant flooding incident in the Cornwall Council area.

1.4 Scope

This document is intended for organisations that would participate in and support, the response and recovery of communities within the Cornwall Council area affected by a flood incident.

This Annex contains details of Cornwall Council specific;

- Related and inter-dependant plans
- Communications plans
- Command and control arrangements.
- Information about vulnerable people and groups
- Evacuation and sheltering of people (inc Strategic Rest Centres)
- Resources available
- Summary of High Risk Communities for which plans are not available.
- Area-wide mapping showing the location of High Risk Communities and access routes.

1.5 Organisational Responsibilities

All organisations involved in responding to a flood incident are to make their own arrangements both internally and with outside organisations to ensure that they are able to respond.

1.7 Audience

The intended audience is all organisations that may respond to flooding within the Cornwall Council area. This Annex is primarily intended for use at Silver Control(s), although it may be of use to Gold.

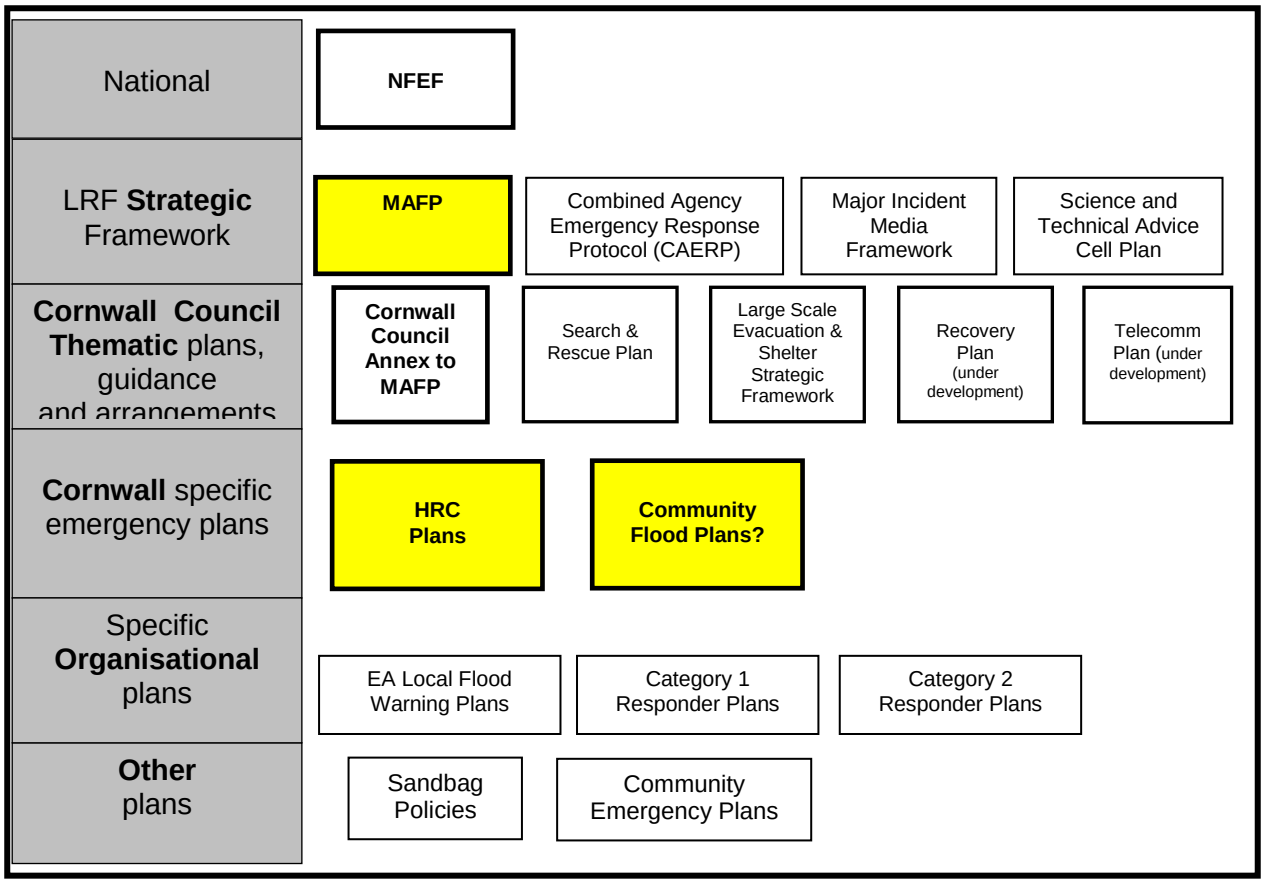
2. Related and Interdependent Plans

2.1 Plans Overview

This is the Cornwall Council Annex to the Devon, Cornwall and Isles of Scilly Multi Agency Flood Plan. Appended to this Annex are 18 High Risk Community Plans (under development). These are defined as where the community is at risk from:

D. Major Tidal/coastal flooding affecting more than 100 properties for 1 to 7 days
E. Major fluvial flooding affecting more than 100 properties for 1 to 7 days
F. Communities may also be considered for a High Risk Community Plan, if there are other risk factors such as, high numbers of properties at risk of surface water flooding, flash flooding, or there are other factors which means flooding is likely to have a significant impact

The list of these locations are contained in **Annex K**. The recommended list of plans will develop over time as more information on risks to particular communities becomes available, particularly in reference to rapid response (flash flooding) and surface water flooding.



3. Cornwall Council Communications

Local radio stations

BBC Radio Cornwall

Pirate FM

Atlantic FM

Almost 100% coverage for all areas is now possible.

Remote Coves appear to be the only area where occasional problems occur

4. Roles And Responsibilities

4.1 Specific roles and responsibilities of LRF partners can be found in **Annex A .** These are in line with those outlined in the Devon, Cornwall and Isles of Scilly Combined Agency Emergency Response Protocol (CAERP) section 3.

4.2 Roles and Responsibilities with the Cornwall Council area are outlined in the organisational charts below:

Cornwall Council is undertaking major review at this time but the latest structure chart can be obtained at the following web address

http://www.cornwall.gov.uk/default.aspx?page=797

5. Command and Control

5.1 Cornwall Council

Cornwall Council works within the LRF agreed Command and Control structure:

Cornwall Council operates Silver for all events in the Cornwall County .

The PCT emergency centre at John Keay in St Austell is Cornwall's back up facility.

6. Vulnerable People and Groups

6.1 Vulnerable People

Vulnerable people lists are held and maintained by individual organisations and establishments and will be made available to the SCG upon request. Within Cornwall Council these lists are held by:

LIST HOLDERS OF LISTS BY APPT

6.2 Vulnerable Group Locations

Detailed locations of facilities / buildings for vulnerable groups (e.g. schools, nurseries, care homes) but not individuals' homes are contained, where necessary, within the High Risk Communities Appendices. Map 1 & Map 2, Area Boundary, Flood Zone and Location of MAFP HRC Locations, show the location of the High Risk Communities in Cornwall Council

7. Evacuation And Sheltering Of People

7.1 Evacuation and Shelter Plan

The LRF Large Scale Evacuation and Shelter Strategic Framework details the generic multi-agency arrangements to evacuate shelter, accommodate and care for people displaced by evacuation.

Specific information in relation to flooding is contained within the High Risk Community Flood Plans and where necessary includes;

7.2 Rest Centre Plans

Detailed Rest Centre Plans are held and maintained by Cornwall Council and Map 3 & Map 4, Key Transport Links, shows the location of Strategic Rest Centres within the Cornwall Council

As soon as the decision is made to evacuate the Police should request the relevant local authority open rest centres to shelter displaced people.

The decision as to which rest centres will be used will be reached by discussion between the Police and Cornwall Council The Local Authority will organise the appropriate staffing of any rest centres.

7.3 Transport Arrangements

If transport, specialist or otherwise, is required by the Police for the evacuation they will ask Cornwall Council to arrange this.

All agencies should be aware that roads, which may be required for transporting their own staff or evacuees, may not be passable and reference

should be made to the traffic management plans as included in the HRC plans and the Cornwall Council Key Transport Links Maps, Map 3 & Map 4.

8. High Risk Communities

Cornwall

Location	Status
Par/St Blazey	New Draft
Truro	Existing
Bude and Stratton and Flexbury	Existing
Launceston	New in Development
Penryn	New in Development
Perranporth and Bolingey	New in Development
Bodmin	New in Development
Helston	Existing
Wadebridge	New in Development
Looe	New in Development
Mevagissey	Existing
Hayle and Lelant	To be Developed
Penzance and Newlyn	New Draft
Flushing	New in Development
Porttreath	New Draft
St Austell	New in Development
St Ives	Existing
Polperro	Existing
Millbrook	New in Development
Rosecraddoc	To be Developed
Lostwithel	New in Development
Redruth	To be Developed
Cambourne	To be Developed

Annex O – Plymouth

Under development

Annex P – Torbay

Under development

Annex Q – Isles of Scilly

See Flood Response Plan (Isles of Scilly)

This plan must be read in conjunction with the LRF Multi Agency Flood Plan