

Temporary Defence Deployment Plan

St Mary Bourne

Spring Hill & Lower St Mary Bourne B3048

Last updated: 20 January 2020

| Updated by | Date | Reason |
|-------------|------------|-------------------------------------|
| Tanya Gray | 25/08/2015 | First Issue |
| Tanya Gray | 08/10/2015 | Re-draft following client feedback |
| Phil Garvey | 22/02/2016 | Re-Draft following client agreement |
| Donna Ryan | 07/04/2016 | Final Issue |
| Phil Garvey | 17/08/2016 | Revised template |
| Phil Garvey | 14/09/2016 | Revised following client comments |

FOR DEPLOYMENT PRINT PAGES 1 to 17

Do not print Supporting Information not required for deployment pages 18 to 23

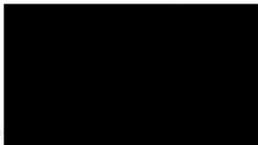
| Environment Agency Sign Off | |
|---|---|
| Operations Manager: Manager, EA Ops - SE - SLTSDN - FCRM OPS West | |
| Name: John O'Flynn | |
| Date: 23/09/2016 |  |

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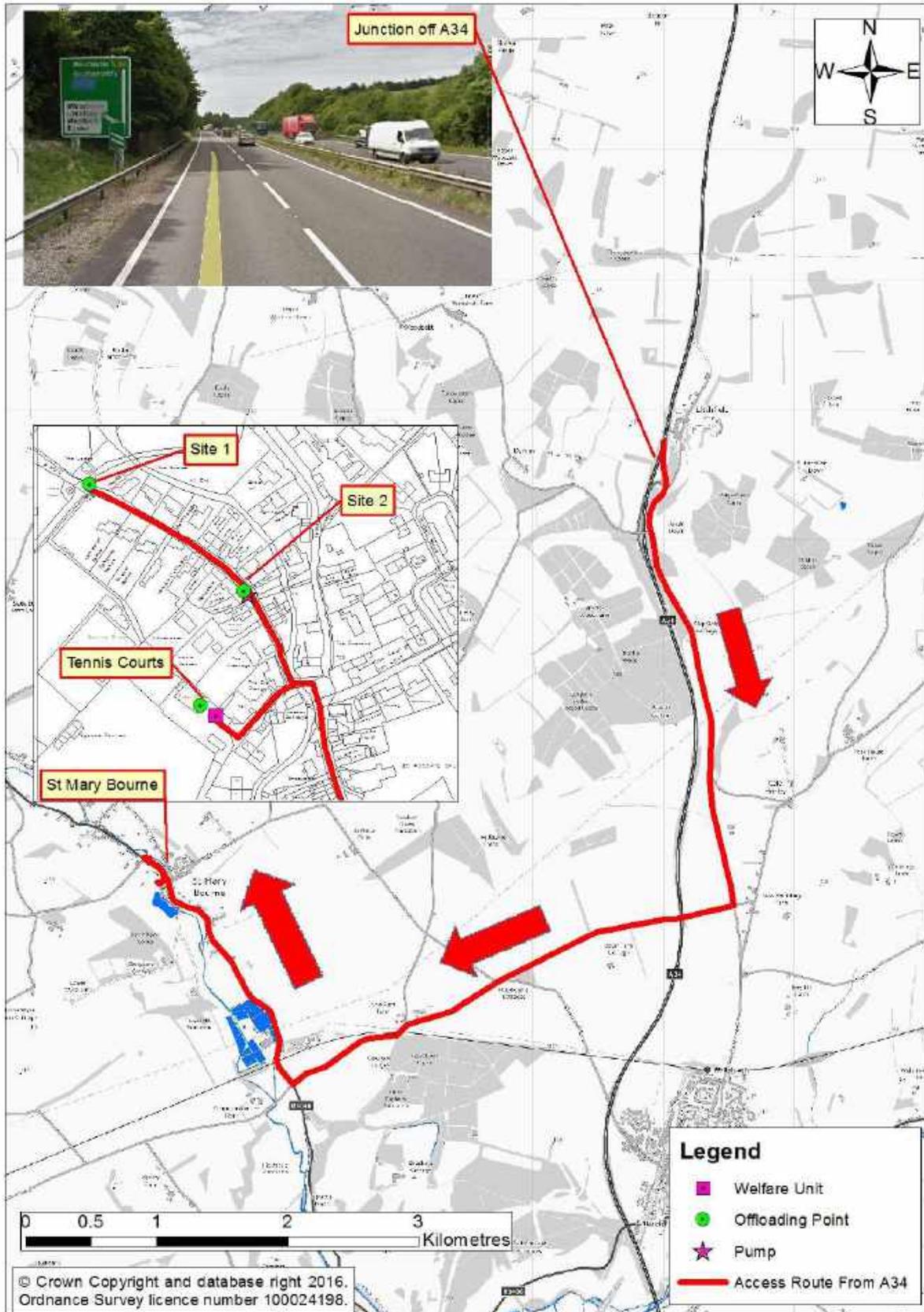
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KEY INFORMATION

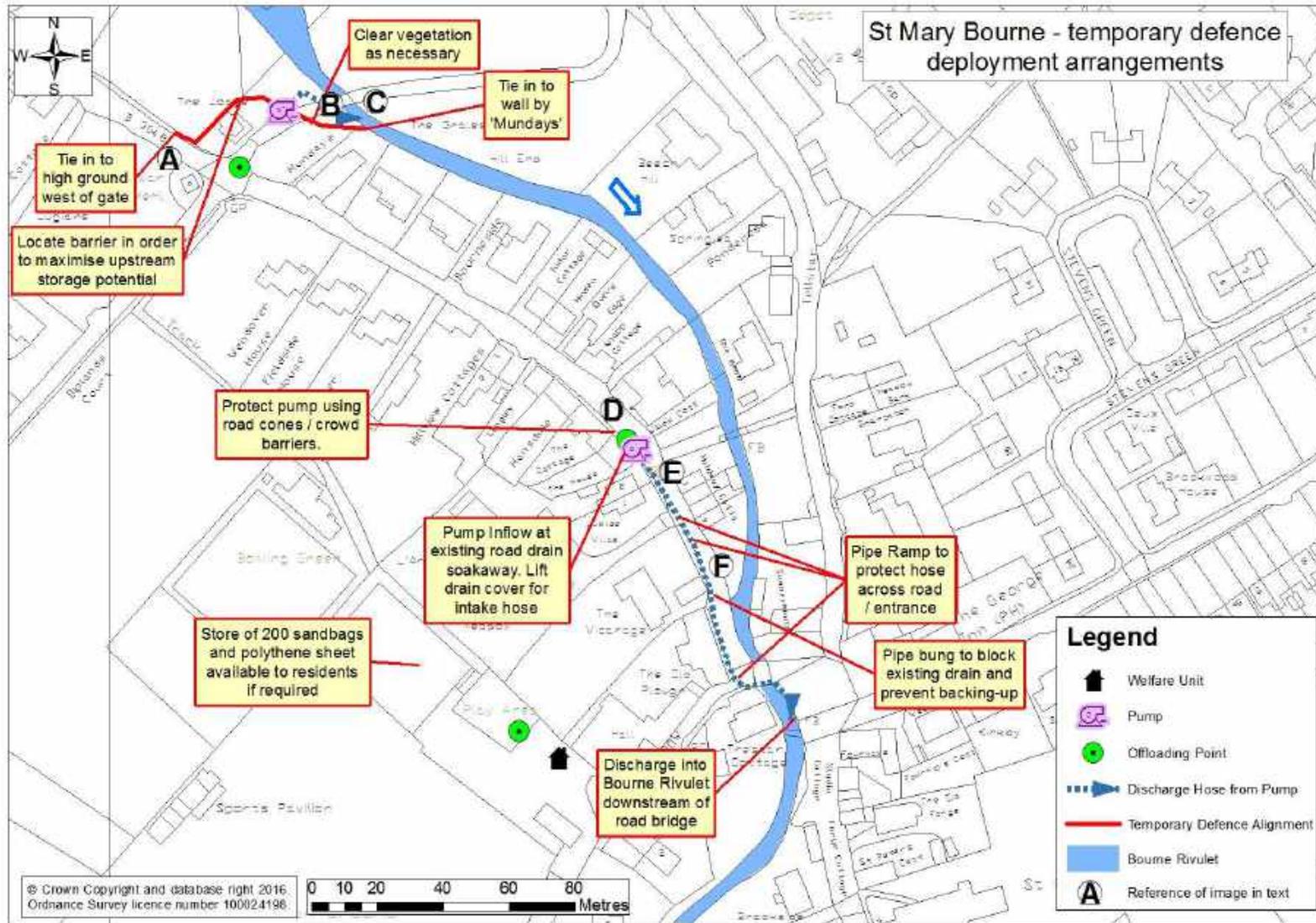
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| Restrictions | Weight Height 2.5m Romsey Depot Width | |
| High Risk Receptors | | |
| Requirements | Toolbox talk on barrier deployment required at each shift change. Ensure life jackets are worn – working near river All operatives to wear PPE at all times | |
| Deployment Triggers | <p>Stage 1 - Level at Spring Hill Gauge downstream of ford reaches 78.50mAOD <i>Action:</i> Move equipment from Romsey Depot to village. (<i>approx. 6hrs</i>)</p> <p>Stage 2 – Forecast rising limb above 78.50mAOD at Spring Hill Gauge <i>Action:</i> Partially deploy barriers at Spring Hill Lodge. <i>Action:</i> Place sandbags in secure storage locked in the tennis court. <i>Action:</i> Remove any vehicles and vegetation (<i>approx. 2.5hrs</i>)</p> <p>Stage 3 - Recorded level at Spring Hill gauge downstream of ford reaches near bank full 78.60mAOD <i>Action:</i> Deploy ancillaries, signage and traffic management <i>Action:</i> Deploy remaining barriers and sandbags (<i>approx. 6hrs</i>)</p> | |
| Collection Depot Addresses | Romsey Depot Canal Walk, Romsey, SO51 8FW | Central store TBA via Highways network |
| Site Access: | Site 1 Opposite the War Memorial on north side of B3048. Spring Hill Lodge offloading point is at SP11 6AY, NGR SU 44201 15059 | Site 2 Property called 'The House' on south side of B3048 at location SP11 6AY, NGR SU 44180 15071 (see Image D). |
| Assembly Point(s): | Recreation Ground car park (adjacent to Village Tennis Courts) SU 42102 50390 SP11 6BE | |
| Site-specific H&S Risks / Risks | <ol style="list-style-type: none"> Vehicles continuing to use village street during deployment of pumps / discharge hose. Historically the foul sewer in the village street has surcharged during flooding. There is a risk of waterborne infection in the water ponding / being pumped out Vegetation clearance at Spring Hill Lodge – may need use of chainsaw. | |
| Mobile Signal: | Weak-None. Liaise with Parish Council (01264 738039) to use landline phones if needed, with relay of information on site. | |

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MAP 1 OFFLOADING SITES



MAP 2 SITES LOCATIONS IN DEPLOYMENT ORDER



SUGGESTED PLANT WITH OPERATIVES

- 1 x 15 tonne loader crane lorry
- 1 x telehandler
- 1 x 7.5 tonne lorry
- 2 x tractor and 12" trailer-mounted pumps
- 1 x Transit van

MINIMUM OPERATIVES

FIRST TRIGGER

- Site Controller
- Banksman
- 2 x operatives

SECOND TRIGGER

- Site Controller
- Banksman
- 6 x operatives
- 1 x Flood Support Officer

THIRD TRIGGER

- Site Controller
- 6 x operatives
- 1 x Flood Support Officer

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ASSETS TOTAL (TRANSPORTATION METHOD)

BARRIERS (to be transported on 15 tonne HGV)

- 70m x 1m height barrier,
- 1 x 100m roll of polythene sheeting membrane
- 4 x 30° outside corner section of 1m height barrier
- 4 x 30° inside corner section of 1m height barrier

PUMPS (to be transported on 7.5 tonne HGV)

- 1 x 2" pumps (seepage at Spring Hill Lodge Barrier)
- 1 x 5m lengths of reinforced suction hose, including inlet strainer
- 1 x 15m length of discharge hose
- 1 x spill tray

PUMPS (to be towed and operated by tractor)

- 1 x 12" pumps (trailer mounted)
- 1 x 5m lengths of reinforced suction hose, including inlet strainer
- 4 x 30m lengths of discharge hose
- Tractor to tow and operate pump
- 1 x spill tray

SANDBAGS (to be transported on 7.5 tonne HGV)

- 300 x Sandbags with 1 x 100m roll of polythene sheeting

OTHER EQUIPMENT

- 1 x Pipe Bung for 225mm road drain
- 3 x Pipe Ramp 4.5m long suitable to cross a 12" pump discharge hose laid together
- Tape measure
- Spade to dig / enlarge sump
- 15m x Crowd barriers (to protect pump and ancillaries)
- Traffic management signage
- 80 cones (Hired from A-Plant Lux (Appx B))
- Hand tools for vegetation clearance at Munday's

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REQUIRED MATERIALS PER SITE

| Site No | Postcode | Location | OS Grid Reference |
|---|-----------------|---|-------------------|
| Site Specific Materials | | | |
| Site 1 | SP11 6AY | Rear of Spring Hill Lodge From roadside gate west of Spring Hill Lodge to the rear of 'Mundays' | SU4420115059 |
| <ul style="list-style-type: none"> <input type="checkbox"/> 70m x 1m height barrier (or similar), <input type="checkbox"/> 1 x 100m roll of polythene sheeting membrane <input type="checkbox"/> 4 x 30° outside corner section of 1m height barrier <input type="checkbox"/> 4 x 30° inside corner section of 1m height barrier <input type="checkbox"/> 2" Pump <ul style="list-style-type: none"> <input type="checkbox"/> Spill tray <input type="checkbox"/> 1 x 5m length of reinforced suction hose, including inlet strainer <input type="checkbox"/> 1 x 15m length of discharge hose <input type="checkbox"/> 50 sandbags + 50 in reserve <input type="checkbox"/> 1 x 100m roll of Polythene Sheeting for sandbags <input type="checkbox"/> Hand tools for vegetation clearance <input type="checkbox"/> Mobile lighting unit and generator may be required depending on time of deployment | | | |
| Site 2 | SP11 6BT | B3048 village street from 'The House' to downstream of bridge opposite The George Inn | SU4418015071 |
| <ul style="list-style-type: none"> <input type="checkbox"/> 1 x 12" trailer-mounted pump including tractor to tow and operate or similar suitable for pumping at rate of 1m³/s <ul style="list-style-type: none"> <input type="checkbox"/> Spill tray for pump <input type="checkbox"/> 2 x 5m length of reinforced suction hose, including inlet strainer, for use with 12" pump <input type="checkbox"/> 4 x 30m of lengths of discharge hose, for use with 12" pump <input type="checkbox"/> 3 x Pipe Ramp each 4.5m long suitable to cross two 12" pump discharge hoses laid together <input type="checkbox"/> 200 sandbags (to be held in reserve) <input type="checkbox"/> 1 x 100m roll of polythene sheeting <input type="checkbox"/> 80 road cones <input type="checkbox"/> 15m x Crowd barriers (to protect pump and ancillaries) <input type="checkbox"/> 1 x Pipe Bung for 225mm road drain | | | |

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DEPLOYMENT SEQUENCE & OPERATION

| No | Instruction | Site | Appx |
|-----------------|---|------|------|
| STAGE 1 | | | |
| 1. | Contact Parish Council and landowner Spring Hill to close Spring Hill Lodge driveway. | 1,2 | C |
| 2. | Notify residents Spring Hill Lodge and Mundays imminent deployment | 1 | C |
| 3. | Contact Hampshire County Council Highways / Hampshire Police to implement traffic management | 1,2 | C |
| 4. | Remove any cars parked along the village street south-east from 'The House' | 2 | |
| 5. | Clear 5m corridor of vegetation at Spring Hill Lodge on barrier alignment | 1 | |
| 6. | Bring self-contained welfare to site. NOTE there are public toilets available in the recreation ground car park. | | |
| 7. | Load required equipment and transport to site | | |
| 8. | Obtain tractor unit (to tow and work pump) and 12" trailer-mounted pump and deliver to village. | | |
| 9. | UNTIL TRIGGER 2 REACHED STORE AT RECREATION GROUND CAR PARK (SP11 6BE , grid reference SU 42102 50390) | | |
| 10. | Secure equipment and provide security | | |
| STAGE 2 | | | |
| 11. | Deploy signage as indicated on Traffic Management Plan | 1,2 | B |
| 12. | Unload all Site 1 equipment at the entrance to Spring Hill Lodge. Offloading lorry to be parked across entrance and offload stillages onto driveway. Components to be erected manually and empty stillages lifted back onto lorry. | 1 | |
| 13. | Mark out barrier alignment ENSURE DRAIN COVER REAR OF SPRING HILL LODGE ON WET SIDE OF THE BARRIER¹ | 1 | |
| 14. | Erect 70m of 1m height barrier with membrane rear of Spring Hill Lodge from the high ground at the field gate (Image A) ² , around the rear of the lodge to the driveway (Image B) ³ . | 1 | |
| 15. | Please refer to the deployment map and confirm on the ground, but deployment lengths and corner positions equate to (from the west end): 7m, then 90° inside turn 17m then 30° outside turn 8m then 30° outside turn 9m to edge of driveway. Leave gap across driveway and store components for the barrier section to cross the driveway adjacent to the driveway. | 1 | |
| 16. | Erect barrier and sandbags wrapped in polythene sheeting between Spring Hill driveway and wall at Mundays (Image C). | 1 | |
| STAGE 3: | | | |
| 17. | Complete the barrier across Spring Hill driveway using components stored adjacent (see point 15 above) | 1 | |
| 18. | Deploy 1 x 2" pump at Mundays end, dig sump ⁴ . | 1 | |
| 19. | Deploy signage in the village street to restrict traffic speed. | 2 | |
| 20. | Place crowd barrier around pump (Image D). | 2 | |
| 21. | Deploy 12" trailer-mounted pump on roadside at point SU 42160 50456 opposite Willow Cottage (see Map 2 and Image D). | 2 | |
| 22. | Remove gully cover and utilise as pump sump | 2 | |

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| No | Instruction | Site | Appx |
|------------------|--|------|------|
| 23. | Deploy 120m discharge hose along the southern road verge from 'The House' to downstream over the bridge and discharge into the river opposite 'The George' public house ⁵ . | 2 | |
| 24. | Deploy pipe ramp sections across two private driveways and 'Bourne Meadow' (Image E). | 2 | |
| 25. | Deploy discharge hose in Bourne Rivulet downstream of bridge opposite 'The George' public house. | 2 | |
| 26. | Lift drain grating cover outside 'The Vicarage' at SU 42184 50413. Block downstream pipe with polythene sheeting and 225mm pipe bung ⁶ (Image F). | 2 | |
| 27. | Deploy sandbags and polythene sheeting to individual properties as required. | | |
| 28. | Activate 12" pump once water starts to pond in village street ⁷ | | |
| Operation | | | |
| 29. | Refuel pumps | | |
| 30. | Monitor seepage | | |
| 31. | All sites to be manned at all times | | |

Notes

¹ could form a flow bypass.

² The barrier should be deployed to maximise storage of floodwater in the floodplain upstream of Spring Hill Lodge

³ Once the section across the driveway is completed on Trigger 3 this barrier is to ensure any water escaping the Bourne Rivulet at the constriction of the driveway bridge is returned to the channel.

⁴ Activate pump once water is observed on 'dry' side of the barrier.

⁵ Depending on the magnitude of the flood there may be a requirement to deploy a second 12" pump so deploy a second discharge hose in readiness

⁶ high water levels in the river are known to back up through here

⁷ Any issues to be fed back to Area Incident Room. If one 12" pump not sufficient deploy a second pump alongside the first. The road drain acting as a sump is unlikely to have sufficient room for a second intake hose, place suitable low point or dig a hole road verge.

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IMAGES A TO F



Image A – Field to north-west/upstream of Spring Hill Lodge. Barrier behind gate and alongside of Spring Hill Lodge on the right to hold water within field and prevent flow onto road.

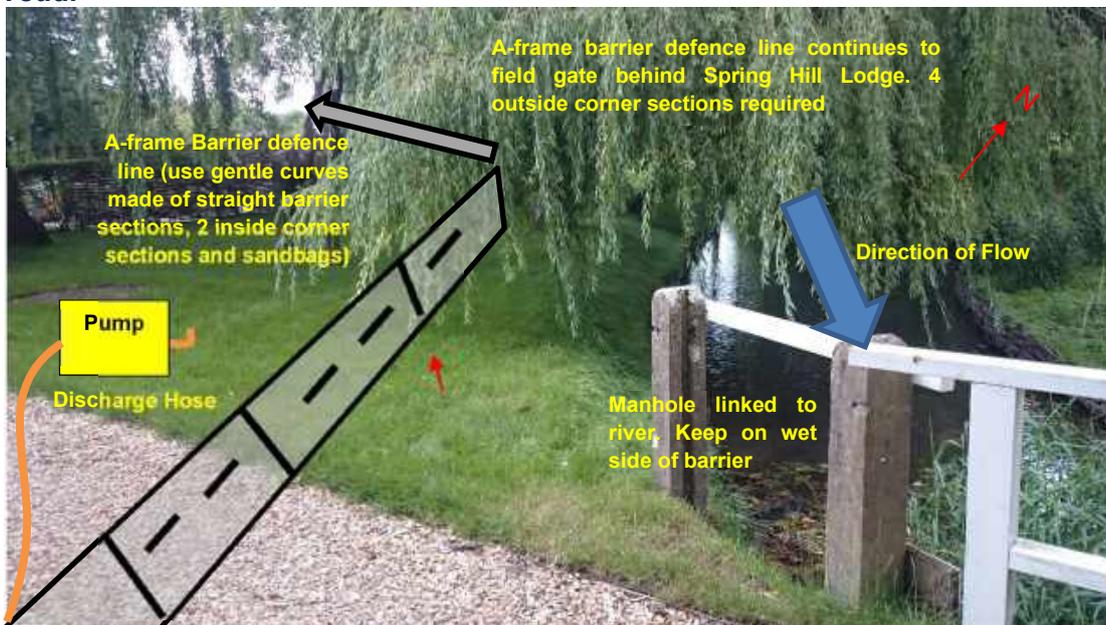


Image B – Rear of Spring Hill Lodge view looking north-west, river looking upstream on the right.

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Image C – Immediately downstream of the Spring Hill driveway bridge, looking south west. Deploy either barrier or sandbags wrapped in polythene to raise river bank between bridge and the wall round Mundays



Image D – 12” pump and tractor deployment location outside ‘The House’, view looking downstream to the south-west.

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Image E – The Vicarage and The Old Plough (beyond The Vicarage on left) – driveways to be provided with pipe ramps



Image F – The Vicarage and The Old Plough (beyond The Vicarage on left)

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DEMOBILISATION

Wear gloves and protective clothing when demobilising.

Beware of contaminated materials, disposed of in line with EA operational instructions

- Remove Pumps
- Remove Barriers, Polythene Sheeting Membrane and Sandbags,
- Dispose of Polythene Sheeting in line with EA operational instructions
- Uncover any signage covered on deployment
- Remove Traffic Management Signage
- Remove Road Cones.
- Any reinstatement works, i.e. replacing fences, bollards etc. if Traffic Management is required to undertake reinstatement works traffic management to be retained until completion of reinstatement.

How to Dismantle Safely:

Refer to Appendix A for details of how to safely dismantle the barrier.

- Dismantle and remove temporary defences in reverse order to deployment.
- Ensure correct equipment goes into the correct container, report to ADM missing items
- Return to local depot as per deployment

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APPENDIX A - TEMPORARY BARRIER INSTRUCTIONS

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APPENDIX B - TRAFFIC MANAGEMENT PLAN

APPENDIX C - CONTACT INFORMATION

| | |
|---|---|
| Assembly Point: | EA Romsey Depot Canal Walk, Romsey, SO51 8FW |
| Site Access: | See Map 1 - Access to site follow B3048 |
| Nearest A&E: | Basingstoke & North Hampshire Hospital, Aldermaston Road, Basingstoke, Hampshire, RG24 9NA : 01256 473202 |
| Police: | Basingstoke Rural West / Hampshire Police 01962 841534 or 101/999 |
| Utility Services | |
| Electricity: | Scottish and Southern Energy Power Distribution 0800 072 7282 |
| Gas: | Southern Gas Network 0800 111 999 |
| Water: | Southern Water 0330 303 0368 |
| Sewage: | Southern Water 0330 303 0368 |
| Landowner | |
| Local Authority: | Basingstoke & Deane Borough Council (24hr Emergencies) 01256 844844 |
| | Test Valley Borough Council (24hr Emergencies) 01264 368000 |
| | Hampshire County Council Highways 0300 555 1388 (08:00-20:00) Out of hours contact via police 01962 841534 or 101 |
| Parish Council | St Mary Bourne Parish Council (Chair: David Peart) – 01264 738039 |
| Landowner: | Mr Rist, Spring Hill, Spring Hill Lane, St Mary Bourne, SP11 6AY , Contact via Parish Council |
| Environment Agency Contacts | |
| Field Team Leader: | FIDO 0800 169 7003 AFIDO 0800 169 7016 |
| Solent & South Downs Area Base Controller: | 0800 066 5625 |
| Hampshire Incident Room: | 01794 834503 |
| Others | |
| A-Plant Lux: | 01794 519246 24 hour callout number 0870 050 0792 |

NOTE Prior agreements should be in place with the landowner and Parish Council to enable swift access

**SUPPORTING
INFORMATION
DO NOT PRINT
NOT REQUIRED
FOR DEPLOYMENT**

APPENDIX D- UTILITY MANAGEMENT PLAN

APPENDIX E - BACKGROUND INFORMATION

| | |
|-------------------------------------|---|
| <p>Stage Delivery Time</p> | <p>There is to be a 3-stage trigger for deployment</p> <p>Stage 1 River levels are rising or expected to continue to rise at St Mary Bourne. Recorded river level at Spring Hill gauge and telemetry box upstream of ford reaches 78.50mAOD (to be checked by FCRM or Ops team) (Inform decision by watching for rising levels upstream at Vernham Dean also). On this trigger Mr Rist (owner of Spring Hill) and the Chair of the Parish Council (Mr Peart) should be alerted. Remotely-held barriers at the main/regional store and sandbags from Romsey depot are to be moved to the deployment site. Transport barrier and pumps from Main/regional Store to Deployment Site: 7 hours (Barrier - 1 hour to mobilise, 1 hour to load. 3 hours to transport to deployment site and 2 hours contingency; and Pumps - 1.5 hours to load, 1 hour to transport to site and 2 hours contingency). Concurrent with transport of sandbags from Romsey: (1 hour to mobilise, 1 hour to load, 1 hour to transport to deployment site and 1 hour to offload. Operatives to then assist with barrier erection when lorries arrive from main/regional store and Stage 2 trigger point is reached).</p> <p>Stage 2 If levels have continued to rise above 78.5mAOD at Spring Hill gauge proceed to deploy the barrier around Spring Hill Lodge, leaving a gap across the Spring Hill access drive. Otherwise store barrier components temporarily locked in the tennis courts. Offload and store all sandbags at the tennis courts. Continue to monitor river levels and deploy if levels rise. Partial Deployment: 8 hours -Barrier (3 hours to deploy and 2 contingency) Pumps (6 hours to deploy and 2 contingency)</p> <p>Stage 3 Recorded level at telemetry box just upstream of ford reaches near bank full 78.60mAOD. On this trigger repeat the alerts to Mr Rist and the Chair of the Parish Council. Mobilise and deploy pumps and other assets to site. Deploy barrier to close gap across Spring Hill access drive. Deploy road cones along south side of the village street to protect operatives laying pump discharge hose. Locate 12" trailer-mounted pump outside 'The House' and deploy discharge hose along the south side of the village street with pipe ramps across the entrances to 'Little Meadow', 'The Vicarage' and Bourne Meadow road. Deploy 2" seepage pump at 'Spring Hill Lodge' to evacuate seepage back to wet side of barrier. Complete Deployment: 6 hours (1.5 hours to load pipe ramps, signage and other assets, 1 hour to transport to site, 1.5 hours to deploy signage, pipe ramps and road cones and complete barrier across Spring Hill Drive, 2 hours contingency)</p> |
| <p>Properties Protected:</p> | <p>21 residential properties protected in total in the 3.3% (1 in 30) AEP event (assessed from LiDAR, site walkover and liaison with residents based on historic events. Existing modelling not sufficiently detailed).</p> |
| <p>Assumptions</p> | |

| | |
|--|--|
| | |
|--|--|

APPENDIX E.1 - PUMP SIZING CALCULATIONS

- **Barrier Seepage Pumps**

Agreed with Area team. Larger pumps could be deployed if more readily available.

- **Surface Water Pumps**

The 12" pump is to drain the area of ponding in the village street. This ponding is jointly caused by surface water runoff from the hill to the south west, groundwater springs in the village and out-of-bank flow from the Bourne Rivulet upstream of the village. It is estimated that at the peak of a flood inflow rates to the ponding area will be approximately 0.6 m³/s and the pump will need to match this rate of inflow.

- **Over Pumping Pumps i.e. blocked channels**

Requirement not identified for this location, although the surface water pump will need to discharge downstream of the bridge opposite The George inn, as there is insufficient capacity under the bridge for the combined maximum flow.

- **Other Pumps**

No requirement identified.

APPENDIX E.2 - RISK ASSESSMENTS - HAZARD LOGS

APPENDIX E.3 - ENABLING WORKS

Vegetation clearance between Spring Hill access drive and 'Mundays' to enable deployment of barrier alongside Bourne Rivulet.

Removal of cars parked along the road through the village.

APPENDIX F - KEY COMMUNICATIONS MESSAGES

These are to be provided by National Team Direct.

APPENDIX G - DETRIMENT MAPPING

Detriment mapping has been undertaken where detailed hydraulic modelling exists.

At St Mary Bourne the only available hydraulic modelling is relatively coarse catchment-scale modelling and is not suitable for assessing detriment to individual properties. Deployment of the barrier at Spring Hill has been carried out in previous flood events with no detriment identified elsewhere as a result.

Sandbags are a contingency to provide extra protection to properties on the south side of the village street. These can be stored at the tennis courts and can be issued through the Parish Council in the event of any concerns by residents.