

## Appendix 4

### **Somerset Rivers Authority (SRA) 2024-25 Enhanced Programme: descriptions of schemes proposed for inclusion, plus schemes on a reserve list**

#### **River Parrett maintenance: Water Injection Dredging and silt monitoring SRA reference: IDB19-25. Workstream 1**

Somerset Rivers Authority (SRA) is proposing to continue funding a long-running programme of Water Injection Dredging (WID) and silt monitoring along the River Parrett between Burrowbridge and Northmoor. This work is part of a series of measures helping to reduce flood risks for around 1,300 homes and businesses, and around 7,500 hectares of land, including 5.3 miles (8.5 kilometres) of A-roads and 30 miles (48 kilometres) of minor roads.

The Parrett is a tidal river. Enormous volumes of sediments flow in from the sea and from the river's big catchment (roughly 478 square miles in size, or 770 square kilometres). When sediments build up along the river channel, there is less space left for water, and this lessened capacity can have bad consequences for the area through which the Parrett flows. Since the devastating floods of 2013-14, a lot of dredging has been done to increase and then maintain the Parrett's capacity. Through allowing more water to be conveyed, dredging helps to delay the running of spillways and the filling up of moors, and to create possibilities for earlier pumping. SRA funding for dredging also helps to bring peace of mind to people, especially given the wetness of the weather over the last 18 months and the large amounts of water this has brought down to the Somerset Levels and Moors.

Water Injection Dredging (WID) has been advanced as a technique for the SRA by the Parrett Internal Drainage Board since 2016. It is much cheaper, quicker and less disruptive than conventional dredging using excavators, partly because WID uses the Parrett's own tidal power. Moving along the river, a WID vessel pumps out high volumes of water targeted at sediment build-ups identified through silt monitoring and channel surveys. Sediments are forced off the river bed and then dispersed through natural processes, downstream as the tide goes out.

Regular silt monitoring and channel surveys also give the SRA and its partners greater understanding of how the Parrett system really works. Such knowledge has many uses, for example in helping to manage flows during times of flood.

## **River Parrett maintenance: Enhanced Water Injection Dredging** ***SRA reference: IDB19a-25. Workstream 1***

As well as continuing to support Water Injection Dredging along the River Parrett, Somerset Rivers Authority (SRA) is proposing to pay for additional work by the Parrett Internal Drainage Board (IDB) along the river's upper banks. The reason for this is that while Water Injection Dredging is effective in removing sediments from lower central parts of the Parrett's channel, the higher parts of the banks are accreting in places where Water Injection Dredging cannot reach. Over time this build-up will make it harder to maintain an acceptable cross-sectional river area.

A short trial of Enhanced Water Injection Dredging therefore began in January 2024. Enhanced because the trial was designed to see what would happen when an excavator moved material from upper bank sections and placed it in the path of the Water Injection Dredging vessel for washing out to sea on the outgoing tide. Using the river's own natural processes avoids the cost and effort of needing to dispose of material on land.

As the results of January's trial were encouraging, the SRA is now proposing to set aside funding for a further trial in 2024-25 or for a properly established programme of upper bank desilting works, possibly with an excavator mounted on a floating pontoon in the river, rather than one working from the land.

Enhanced Water Injection Dredging would only target the upper parts of banks where silt build-up makes it challenging to achieve an acceptable cross-sectional area. Enhanced Water Injection Dredging would be limited so that it:

- impacted only one bank in any reach of river
- impacted an acceptable proportion of the river, regardless of which bank was being worked
- would be a rolling programme over 5 years or so depending upon evidence and need

Water Injection Dredging on its own is expected to continue annually, as has been the case since this method was first used successfully on the Parrett in 2016.

## **River Sowy-King's Sedgemoor Drain (KSD) Enhancements Scheme (KSD Bank Raising)**

***SRA reference: LP GD2-b -25. Workstream 1***

In March 2023, Somerset Rivers Authority (SRA) Board members agreed that all SRA partner organisations should continue to work together on moves necessary to

complete Phase 1 of the River Sowy-King's Sedgemoor Drain (KSD) Enhancements Scheme. Providing more capacity in the Sowy-KSD system, so that it can be used more flexibly and effectively, is a key aim of Somerset's 20 Year Flood Action Plan, which is overseen by the SRA. Remaining Phase 1 works include up to 1.8km of bank raising on the left bank of the KSD. Options are being explored by SRA partners for getting this bank raising done.

It is therefore proposed to put money aside to help achieve this.

Works on the Sowy-KSD system are part of an ongoing SRA programme to reduce flood risks across 150 square miles, including moors upstream of Langport and moors west of the River Parrett. People, homes, farms, businesses, land and infrastructure will all benefit from a greater level of protection.

**Bridgwater Tidal Barrier (contribution)**  
***SRA reference: EA17-25. Workstream 1***

Bridgwater Tidal Barrier is a major project led by the Environment Agency and Somerset Council. Designed to help protect more than 11,300 homes and 1,500 businesses, it has three main elements: a tidal barrier on the River Parrett at Chilton Trinity, 2.67 miles (4.3km) of new flood defence banks and 1.74 miles (2.8km) of raised banks downstream at Chilton Trinity, Comwich and Pawlett, and fish and eel passage improvements at 12 sites upstream of the barrier, the furthest up being Bradford-on-Tone beyond Taunton, and Ham Weir between East Lambrook and Martock. Other planned enhancements include a new cycle and foot bridge over the Parrett, and the creation of up to four hectares of wetland habitat and up to eight hectares of open water in borrow pits (pits from which suitable material has been taken for bank-raising).

Most funding for this major project – which is one of the biggest in the country - will come from central government major project funding. However, some local match funding is required to secure the national funding. As in previous years, Somerset Rivers Authority is making a local contribution in recognition of the important role that Bridgwater Tidal Barrier will fulfil in protecting Somerset residents, homes and businesses. In total in previous years, the SRA has contributed £3.27million towards the Barrier project, including £2million of Growth Deal funding that came through the SRA from the Heart of the South West Local Enterprise Partnership.

## **Hills to Levels: Somerset Land Management and Natural Flood Management (NFM)**

### ***SRA reference: FWLM01-24. Workstream 2***

Somerset Rivers Authority (SRA) is proposing to keep funding a wide range of land management and natural flood management (NFM) activities, as part of the multiple award-winning Hills to Levels project. Works across Somerset would continue to have two main aims. Firstly, to reduce local flood risks for people, properties, businesses and roads in upper and middle catchment areas. Secondly, to help protect vulnerable lower areas from flooding, by slowing the flow of water down through the catchments of the Tone, Parrett, West Somerset Streams, Brue, Axe and Somerset Frome.

For 2024-25 there are four main strands, all to be delivered for the SRA by the Farming and Wildlife Advisory Group SouthWest (FWAG SW).

1. Design and/or implement up to 25 natural flood management schemes to retain water in upper and mid catchments and reduce peak flows of water down to vulnerable areas. Examples of places expected to feature are:

- Manor Farm, Lufton, downstream of major developments on the west and north-west side of Yeovil in the Wellhams Brook catchment between Yeovil and Martock: outfall improvements are being planned to increase the capacity of an important water storage pond. The SRA has previously funded extensive NFM works in this area.
- Wellhams Mill, also in the Wellhams Brook catchment between Yeovil and Martock: some initial works are planned here following the completion of an SRA-funded study into the feasibility of creating a 4-acre storage pond, along with a series of upstream scrapes and small wetland areas, plus the partial re-instatement of the old Mill leat. Wellhams Brook flows under the A303 and down into the River Parrett.
- The Old Water Works and Huish Barn, Somerton: two sets of attenuation ponds are being planned near the River Cary.
- Middle Stone Farm, Brompton Ralph: ponds with a pipe, four bunds, scrapes, debris clearance and tree planting, to complement other nearby NFM schemes previously funded by the SRA.

2. Increase the use on up to 25 farms of soil management techniques and cropping changes which improve the infiltration of water and reduce run-off.

3. Funding for responding to 25 referrals of cases from Somerset Council's Highways Department or its Flood and Water Management team. Experts from FWAG SW

advisers may be called in to advise on cases where better land management could help to fix problems such as roads flooding because of run-off from fields. In such cases it makes sense to address causes as well as symptoms. Extra SRA funding enables this to happen with partners working together to tackle issues beyond their usual limited remits.

4. Modelling and/or monitoring at sub-catchment scale to demonstrate the effectiveness of NFM measures that have already been installed. Special attention will continue to be paid to the Merriott Stream de-culverting project to assess its value in reducing flood risks. The effectiveness of NFM measures taken in previous years to reduce road flooding will also be evaluated.

### **Chard reservoir improvements**

#### ***SRA reference: SCSouth01. Workstream 3***

Somerset Council has asked Somerset Rivers Authority to give additional funding for works at Chard Reservoir, which is owned by the council. The council is planning to fund two schemes to preserve the reservoir's safety, firstly to raise a low spot in an auxiliary overflow chute sidewall, and secondly to reinforce the downstream toe of the reservoir's dam near the stilling basin by using a concrete block system or gabion mattresses, with a watertight layer or membrane below.

SRA funding would allow for a concrete wall to be built along the upstream embankment crest of the reservoir next to Chaffcombe Lane. The main purpose of this wall - up to 1.1metres high - would be to reduce the risks of water overflowing from the reservoir during periods of heavy rain.

The council's Flood and Water Management team also hope to secure funding from transport sources for a path behind the wall, which could be used by walkers, cyclists and anglers.

Chard Reservoir is popular with many visitors as an 88-acre Local Nature Reserve. The works outlined here would all help to maintain its value for people and wildlife, while reducing flood risks predicted to get worse because of climate change.

### **Local flood risk management measures across Somerset**

#### ***SRA reference: SCWW01. Workstream 3***

A three-phase project to reduce local flood risks led by Somerset Council and Wessex Water as partners in Somerset Rivers Authority (SRA). Phase 1 would consist of an initial assessment of various complex flooding issues, relating to the interaction of groundwater, surface water, road drainage systems, sewer networks,

rivers and other watercourses and in some cases the sea, and the effects of climate change. Phase 2 would consist of more detailed investigations and the development of detailed designs. Phase 3, of carrying out works. Places proposed for inclusion are:

- Bridgwater, Camden Road, Haygrove School, Penarth Road, Showground Road, and Stockmoor Road-Stockmoor Drive
- Frome, Lower Keyford
- Watchet
- Wookey
- Wellington, Payton Road and Burrough Way

The SRA has been asked to part-fund this project (along with Wessex Water and Somerset Council) because the issues needing to be dealt with do not fall under the remit of any other single organisation. In such situations, there is a danger of a piecemeal approach being taken to flood risk, drainage and land management problems. SRA funding would enable a range of partners to work together on local priorities, and produce better, more integrated results for local people and local environments. A further aim would be to increase local people's understanding of flood-related catchment and climate change factors, so they could become more resilient and better prepared.

### **Enhanced Maintenance across Somerset: Gully cleansing** ***SRA reference: LHA03-25. Workstream 4***

Gullies in places most at risk of flooding across Somerset are currently cleansed once a year by Somerset Council's Highways Department. Extra SRA funding would mean that around 25,000 gullies could be emptied twice a year.

In common with the other proposal for Somerset Enhanced Maintenance detailed below (Proactive drain jetting), the aim would be to help keep roads open in places highly susceptible to flooding, make them safer, preserve access for communities, and safeguard properties from flooding, all in line with the objectives of Somerset's 20 Year Flood Action Plan and the SRA's new draft Strategy for 2024-34. These works would benefit residents, businesses and visitors. Where possible, particularly as regards proactive drain jetting, which can be arranged more flexibly, works would be dovetailed with the Hills to Levels system of highway referrals to reduce run-off from land onto roads.

## **Enhanced Maintenance across Somerset: Proactive drain jetting**

***SRA reference: LHA03-25. Workstream 4***

Extra SRA-funded drain jetting targets places across Somerset at high risk of flooding. Drains are usually only jetted by Somerset's Highways Department on a reactive basis: that is, once they have become blocked. Proactive jetting is designed to stop drains from getting blocked in the first place, by removing silt and debris.

Between 100 and 125 places would be expected to benefit from SRA funding in 2024-25, depending on various unpredictable factors such as the weather.

## **Adapting Somerset**

***SRA reference: SWT01. Workstream 5***

The main aim of this project would be to help adapt and increase resilience to flooding and other risks linked to climate change in Somerset. It has been proposed to Somerset Rivers Authority (SRA) by Somerset Wildlife Trust. It would follow on from the Adapting the Levels project, jointly funded by the EU and the SRA between 2019 and 2023, and the SRA-funded project called Adaptations and Associations on the Somerset Levels & Moors in 2023-24. It would make use of previously developed resources - especially the well-received Climate Adaptation Toolkit - and of tried-and-tested formats, for example, for training sessions. As these earlier projects have progressed, other places have expressed an interest in getting involved, so there is pent-up demand.

The Adapting Somerset project would have two main strands, firstly for communities, secondly for councillors and organisations that engage with communities.

1. Somerset Wildlife Trust would help three communities - selected in consultation with the SRA and partners - to develop and start implementing bespoke local climate adaptation plans (along with - if they do not already exist - community emergency plans). The process would include reviewing climate change projections for Somerset, identifying local risks (particularly flood risks), discussing and choosing opportunities for local action, consulting residents, producing a plan and implementing one or more parts of the plan in a high-profile way to prove that adaptation can happen and to inspire continued implementation of initiatives from the plan.

After this engagement, case studies would be produced about all three communities. These case studies would describe communities' adaptation plans and how they were created, and give details of actions taken. Through Somerset's Local Community Networks and other routes, these case studies would then be used to



show other places what it is possible to achieve and hopefully thereby inspire more places to work together on local priorities, including flood risks.

2. Somerset Wildlife Trust would also organise and deliver two climate adaptation training sessions for councillors from Somerset Council and town and parish councils, and for other organisations that work closely with communities, such as the Community Council for Somerset with its village agents. The Trust hopes to increase awareness, understanding and ambition around adaptation and resilience approaches across Somerset, encouraging more action to be taken on (and in) the ground.

### **Community flood warning systems**

***SRA reference: WS5-3-25. Workstream 5***

Somerset Rivers Authority (SRA) wants to expand a project working with communities on very localised early flood warning systems. The new area proposed for inclusion is the River Cam valley in the east of Somerset. Places here were badly affected by a Major Incident of flooding in May 2023. Around 180 properties were flooded inside, in 16 villages and hamlets.

This project began in West Somerset in 2019 and was then widened out to include South Somerset and Mendip. Progress was delayed by the coronavirus pandemic, but with valuable technical support from the Environment Agency, places now involved include Comberow and Roadwater, Monksilver, Sampford Brett and Croscombe.

In these places, local people using local knowledge have picked out hotspots for gathering vital pieces of information about what is happening in catchments during very wet times and what is therefore likely to ensue downstream. Hotspots have been kitted out with flood gauges and other equipment linked to online dashboards so that local people can monitor what is going on, get alerts and get prepared.

Around Porlock, Wadeford, and Forton and Tatworth, suitable sites are being investigated.

The project's two main new elements would be:

- 1) Developing a local telemetry system for River Cam valley communities by installing flood gauges and other equipment, working with local people and the Environment Agency.



2) Extending the subscription to an online dashboard system to three years for all the communities involved in this project across Somerset, again with technical support from the Environment Agency.

This project is pushing at the edges of what is now technologically possible at some very rural sites, especially in terms of transmitting data. A guide to help community groups develop their own local flood warning systems will be produced when more lessons have been learned about how different systems work, and about how the development and use of these systems can be tied in with other local flood resilience planning and community self-help and preparedness activities.

### **Equipment and training grants for Somerset community groups** ***SRA reference: SRALP16-25. Workstream 5***

Since 2016, Somerset Rivers Authority (SRA) has funded around 30 small grants to help places across Somerset get better prepared for any flooding that might occur and better able to recover from such flooding. The money allocated by the SRA for these grants back in 2016 came from what was then called the Department for Communities and Local Government (DCLG). The aim was to help people build up local resilience, as recommended in the 20 Year Flood Action Plan that was produced during the floods of 2013-14.

The original DCLG money has now nearly all been used. It is therefore proposed to provide some SRA top-up funding so that small grants for training and equipment can be given to communities across Somerset for another three years. The scheme is administered through the Somerset Prepared partnership, whose members include the SRA and the Environment Agency. Organisations and groups applying for grants are encouraged to focus on specific local needs - as one of the strengths of this scheme is having the flexibility to respond to such needs. Grants have previously been given for items such as pumps, hydrosnakes, portable sandbag fillers, storage sheds, protective clothing, torches and walkie-talkies. Applicants must contribute at least 20% towards the overall costs of equipment or training.

The SRA's two community engagement officers keep in touch with grant recipients to help the SRA understand what impacts grants have had, and to learn from successes and any failures, so that other places can benefit from people's experiences and knowledge and stronger, more expert networks can be created. All this supports one of the five objectives in the SRA's new draft Strategy for 2024-34, to "increase the resilience of people, places and the environment to flooding, while adapting to climate change".

## **RESERVED LIST OF POSSIBLE SCHEMES FOR 2024-25**

As explained in the main paper about the SRA 2024-24 Enhanced Programme and Budget (ITEM 7), a reserve list of proposals has been compiled for if money put aside for King's Sedgemoor Drain bank-raising is not needed over the coming year.

### **De-silting structures**

***SRA reference: LHA01-24. Workstream 1***

For several years Somerset Rivers Authority (SRA) has given grants for de-silting structures. The idea has been that de-silting bridges and culverts, and re-aligning channels close to highways structures, improves the flow of watercourses, and increases the volumes of water they can carry. This reduces the risks of flooding for roads, nearby homes and land. Whole systems can work more efficiently when watercourse "bottle necks" are removed.

SRA funding is again being requested by Somerset Council for 2024-25 as de-silting structures is not done as a routine operation by the council.

Sites that would benefit from de-silting are identified by Somerset Council's highways department through the use of records kept by local highways officers, or concerns raised by other authorities or members of the public.

The council is currently proposing to de-silt three structures in 2024-25:

- Fishponds culvert near Bishops Lydeard under the A358, between the A358-West Street junction and the A358-B3224 junction
- Church Bridge over the River Brue on Patwell Street in Bruton
- Little Bridge on Stoke Trister Road between Stoke Trister and Cucklington

### **River Parrett maintenance: Enhanced Water Injection Dredging**

***SRA reference: IDB19a-25. Workstream 1***

As described above on the main list of schemes. Re-appearing here because if funding currently set aside for the Sowey-KSD ends up being re-allocated, then it is proposed to put more money - another £100,000 - towards Enhanced Water Injection Dredging.

### **Siphons appraisal**

***SRA reference: IDBEA01. Workstream 1***

Siphons are pipe structures which enable water to go underneath a river from one side to the other without entering the river itself. In some places they are crucial for the ongoing successful management of water levels on the Somerset Levels and Moors. Yet because they are below the beds of rivers, their condition is often unknown, and because they are often historic, it can be unclear who owns them and should maintain them.

Siphons failing to work properly (if, for example, they collapsed and large amounts of water then went where they were not engineered to go) could lead to widespread flooding in some areas and/or lack of water in others.

Given this uncertain situation, and the SRA's remit to enable works that would not otherwise happen, Somerset Drainage Boards Consortium (SDBC) is proposing to use SRA funding to investigate three of the 14 siphons known to exist in the Axe-Brue and Parrett catchments. These three siphons have been chosen because they are considered to have the highest risk. One goes under the River Brue about 1.5 miles north-west of Baltonsborough in the Watchwell Drove-Butt Moor area, one goes under the River Sheppey on the eastern edge of Lower Godney, one goes under the Old River Axe on the southern edge of Cross.

SDBC has four main aims. Firstly, to assess the siphons' condition through CCTV surveys and site inspections of inlet and outlet structures. Secondly, to produce costed plans for what needs to be done to reduce flood risks and ensure the siphons' longevity. Thirdly, to seek funding for carrying out those plans. Fourthly, to identify suitable future siphon custodians. Achieving these goals would benefit residents, businesses including farms, road users, and the special environments of the Levels and Moors and visitors to them.

### **Cobbs Leaze Clyce**

#### ***SRA reference: IDB33. Workstream 1***

SRA funding for this Parrett Internal Drainage Board (IDB) proposal would enable the IDB to assess and draw up improvement plans for two important water control structures close to the River Parrett on Pawlett Hams, between Dunball and the Parrett's mouth. One of the structures is an IDB-owned tilting weir which controls the penning levels for Pawlett Hams. About 70 metres downstream from this tilting weir is an Environment Agency-owned outlet into the Parrett estuary. Both structures have problems. The tilting weir's gears need repairing and the structure has a number of leaks. The Environment Agency's outlet has undercut concrete wing walls and a penstock on its upstream side that does not currently work. The Environment Agency has plans in hand to repair this structure but not to upgrade it. The IDB wants to ensure that water levels in Pawlett Hams can be reliably managed - and it

believes that the tilting weir could be operated more effectively in future if the Environment Agency's outlet could also be upgraded.

In line therefore with its remit of encouraging partnership working and enabling things to happen that would not otherwise happen, the SRA is being asked to fund a thorough assessment of both structures and the drawing-up of various costed options for improvements, such as combining the function of both structures into a single entity, and adding an eel pass.

Improvements would bring various local benefits, including reduced flood risks, better water level management and better protection for nearby freshwater habitats of international ecological significance.

### **Somerset Trees for Water Action Fund** ***SRA reference: FWLM03-25. Workstream 2***

A fifth year of SRA funding is being sought for the popular Trees for Water initiative, which helps communities across Somerset to reduce flood risks arising from surface water run-off flow pathways. The project is led by Reimagining the Levels (RtL), working in collaboration with the Farming & Wildlife Advisory Group SouthWest (FWAG SW). At the time of writing (29 February), more than 100 planting schemes have gone ahead since the Trees for Water Action Fund was set up in 2020.

Trees for Water is designed to suit strategically important sites not large enough for Countryside Stewardship grants and not special enough in conservation terms to concern Natural England. Landowners say they like it because it is bespoke, forward-thinking and un-bureaucratic.

In 2024-25, RtL and FWAG SW hope to be able to fund the planting of up to 20,000 trees or up to 30,000 hedge plants - though in practice schemes nearly always have a mix of both. As in previous years, it is anticipated that the Woodland Trust will provide free trees and shrubs (worth £20,000), while the value of the labour of over 100 RtL volunteers is judged to be £10,000. Planting is usually carried out by landowners and numerous volunteers.

The more trees, shrubs and hedges grow, the more they help to reduce water run-off. All sites are monitored by RtL's tree officer and RtL volunteers so that lessons can be learned and shared about successful times and techniques for planting and aftercare, and so the benefits arising from sites can be assessed over time.