Mid-project Review Report of Brighton ChaMP for Water

The project

- *What was the main project outcome, the change that it hoped to bring about?*

The principal aim of the project is to protect and improve the quality of groundwater in the Brighton Chalk, to ensure it remains a sustainable resource for public water supply.

- *How was the need for this project identified?*

A principal conclusion from the NIA South Downs Collaborative Nitrate Modelling Project was the need to address rising nitrate levels in the Brighton Chalk Block. In 2015 at the project outset the aquifer was at poor status under the Water Framework Directive (WFD) due to rising trends of nitrate. The Brighton Chalk Block provides public water supplies for Brighton & Hove and beyond on the urbanised coastal strip, to some 365,000 people, as well as base flow to rivers and the marine environment. It represents 17% of all the chalk within the South Downs National Park (SDNP), yet was the only chalk aquifer in the National Park that does not already benefit from an initiative to address the risks to water quality.

- *What were the key interventions (activities and or strategies)?*

To achieve this, actions identified and agreed collaboratively in the Environment Agency's Safeguard Zone (SGZ) action plans, the South East River Basin Management Plan, Southern Water's Water Resources Management Plan (Draft) and National Environment Programme, and the Adur and Ouse Catchment Plan (groundwater chapter) will be prioritised and delivered. This puts into practice the concept of integrated catchment management.

Delivery will employ collaborative techniques such as engagement and consensus building, to influence behaviour and agree specific mitigation/ intervention measures to be put in place. Delivery will be undertaken by a Catchment Sensitive Farming Officer (CSFO) hosted by Natural England and an Urban Officer/Project Manager hosted by SDNPA.

There are three specific objectives of the project:

1. Provide practical advice and improvements to land management in the urban and rural area
2. Raise public and land-manager awareness of groundwater protection
3. Inform the evidence base & undertake success monitoring

In the rural setting this includes one to one advice from a ChaMP CSFO, specialist advice visits, land manager events, rural interventions such as cover crops, manure management and precision farming trials. In the urban setting the project will deliver advice to land managers on groundwater protection and pollution prevention interventions, urban stakeholder events and practical measures such as Sustainable Drainage Systems.

- *What were the key outcome indicators and measures that you used to tell you how well the project progressed?*

We are measuring the following outputs:

1. Catchment walkovers completed
2. Visits to provide advice/identify interventions
3. Land manager events (including number of attendees)
4. Specialist advice visits in the rural setting
5. Interventions implemented
6. Reports/research/publications as a result of the project
7. Additional funding generated
8. Publicity/awareness raising outputs
9. Additional stakeholders engaged with project

With regard to outcomes we will measure:

1. Area of land covered by interventions
2. Reduction in amount of nitrate applied to land
3. Reduction of nitrate losses
4. Volume of water improved by project
5. Southern Water will continue to monitor nitrates at their boreholes but it is unlikely we will see a reduction of the rising trend during the lifetime of ChaMP Phase 1 (to March 2019).

What are the project successes?

- *How have you celebrated and shared your project successes?*

The project staff began work on ChaMP in August 2016 (Rural) and October 2016 (Urban) therefore the project has mostly been in an establishment phase. We are beginning to see some outputs achieved and those thus far have been shared between the partner organisations. As the project begins to see more success in terms of the measureable outcomes we will begin to disseminate these to wider stakeholders and the public through publicity channels.

- *What factors have helped in the achievement of this success?*

This project is undertaken by a strong partnership with enthusiastic and skilled individuals from a range of organisations, which will undoubtedly contribute to project successes.

- *What evidence have you gathered that tells you that this is a success?*

We are gathering evidence on the outputs and outcomes as described in the section above. Furthermore we will be commissioning and facilitating a number of research projects throughout ChaMP which we hope will provide further evidence of project impact and success.

What are the concerns and why?

There are a number of potential barriers/risks to success:

1. Lack of landowner buy-in/engagement.
   We are already building good relationships with landowners/managers across the chalk block. 20 people attended our first rural land managers event which is a positive sign that there will be appetite to engage with the project.
2. Lack of awareness of groundwater protection.
   The project team has been struck by the very low level of awareness of groundwater protection in highly relevant organisations such as local authorities, Highways England, and even the SDNPA. ChaMP has a goal to change this, but we need to be mindful that we are beginning from a very low baseline, and a change in organisational culture to accommodate groundwater protection issues will take many years, so we may not see the results as quickly as we would hope.
3. Staff changes.
   Two staff members jointly manage this project (urban and rural), which reduces the risks of overall project failure if one should leave. Additionally the partnership is fully active and well appraised of the project so could help to steer it if necessary. New staff would be recruited, and in the meantime partner organisations could carry out some of the functions of the absent role.
4. Restrictions to rural interventions due to existing agreements with Rural Payments Agency (RPA) or Countryside Stewardship (CS).
   The AMEC report 'South Downs Collaborative Nitrate Modelling', August 2014, identified a range of cost-effective interventions in the rural setting. We are prioritising those options ranked highly in cost-effectiveness. However there is much scope to implement other measures should the preferred interventions be precluded by RPA or CS.
5. Weather.
   One thing over which we have no control! But as we have identified a range of interventions that we would seek to apply to each farm, it reduces the risk of project failure due to one intervention being delayed or aborted due to issues with extreme weather.
6. Sustainable Drainage Systems (SuDS) concerns/barriers.
   It is common to experience some reticence with SuDS projects due to concerns about maintenance and lack of familiarity. This may mean that the delivery of SuDS takes longer than anticipated. We are working to combat this by designing workshops for local authorities so they have a good introduction to the concepts, benefits and management of SuDS at this stage before any specific SuDS are proposed. We are will also be mindful of sustainability, particularly with regard to maintenance, from the outset of any SuDS projects.

What changes are required and why?

The overall goals stated on project monitoring documents are:

1. Groundwater quality in the Brighton Chalk is improved with reducing trends of nitrates allowing Southern Water to defer construction of nitrate removal plants
2. Urban and rural pollution in the Brighton Chalk is reduced compared to that at the start of the project

Discussions with Southern Water have confirmed that the project will not be judged on this basis. This confirmation was needed as such changes will take far longer than the lifetime of the ChaMP project (to 2019). Wessex Water have been undertaking catchment management for nitrates for 12 years and are just beginning to see rising trend of nitrate plateau in one catchment. The outputs and outcomes described above will be a more appropriate measure of success.

We have reviewed the project organisation with regard to meetings and reduced the number due to pressure on staff time. Instead of having scheduled sub-group meetings we will meet in reaction to need.

The project will require additional technical input with regard to SuDS design. We have secured a specialist consultant to help deliver workshops to local authorities and others. When SuDS are to be delivered we will ensure we invite high quality companies to tender.

It is evident that better mapping of the chalk is required to establish key areas of vulnerability (in locations of karst features). Some information has been sourced through Southern Water. In addition we are establishing a good working relationship with the British Geological Survey and are exploring the possibility of a joint studentship to look into this issue.

The project will require additional funds to achieve all the objectives set out in the original project plan and additional aspirations emerging through evolution. There are a number of possible avenues which we are investigating through the partnership and with the SDNPA Marketing and Income Generation team.

Assess the current financial status of the project.

The total project expenditure to March 2019 is due to be £438,966. To £166,750 has been spent and the project is on track in terms of expenditure.

Southern Water are the lead partner and hold the budget funds, some project funds are passing straight from Southern Water to Natural England to fund the CSFO. Money has already been drawn down from the ChaMP account held by Southern Water to SDNPA to fund the Project Manager for the duration of their contract. Therefore we have approximately £86,500 cash to spend on the project to March 2017. We are exploring opportunities for additional fundraising.

The project is considered good value as the involvement of Southern Water as lead partner means that we can trial interventions on a chalk aquifer for the first time, using a payments for ecosystem services approach whereby the water company invests in catchment interventions and saves money in water treatment and investing in expensive plant. Overall this is also better for the environment and has multiple benefits for the National Park. We can then replicate these interventions elsewhere in the National Park. Southern Water have already committed to 20 more catchment schemes in their next business plan cycle.

Comment upon the progress made towards the sustainability of the project outcomes in the long term.

ChaMP will be seeking all opportunities to place groundwater protection high on the agenda for relevant organisations and land managers working across the area. It will increase colleagues' skills and knowledge where possible, for example with the SuDS workshops for local authorities and others. Research outcomes will increase the knowledge base and these will be shared widely within the

partnership and across other organisations in relevant sectors. We will seek to present at conferences and to disseminate both best practice and lessons learned to encourage similar approaches across the country.

An aim is to raise awareness amongst all stakeholders and the public, and encourage behavioural change alongside this.

By nature the interventions proposed will involve more sustainable land management which will benefit natural capital and ecosystems services beyond groundwater protection.

Appendix 1

Overall Goal: Groundwater quality in the Brighton Chalk is fit for human consumption without needing additional treatment at point of supply

Project Purpose: Urban and Rural pollution in the Brighton Chalk is reduced compared to that at the start of the project

Urban walkovers (no specific target)

Catchment	Date complete
Shoreham SGZ	22.02.17
Mile Oak SGZ	22.02.17
Lewes Rd SGZ	04.04.17
Goldstone SGZ	12.04.17

Urban site visits to provide advice and identify interventions (multiple)

Site	Date	Summary of findings

Urban interventions (3 SuDS schemes)

Site	Date	Summary of intervention

Land manager event (1)

Event	Date	Speakers	Summary of content	No. attendees

Public engagement activities (no specific targets)

Event	Date	Summary of content	Outcomes	No. attendees
Transistion Town Lewes (TTL)	10.01.17	Presentation (ChaMP intro and raingardens)	To conduct site visits for possible raingardens	15
Patcham and Hollingbury Conservation Association	16.01.17	Intro to ChaMP	To continue two way info exchange	7
Transistion Town Lewes (TTL)	12.03.17	Walk to assess possible raingarden sites	2 sites to assess further - Nevill Rec and Bell Lane Rec	13

Other stakeholder/land manager engagement (no specific targets)

Event	Date	Summary of content	Outcomes	No. attendees
Lewes District Council (Tim Bartlett)	09.01.17	Intro to ChaMP/LDC	Continue communication, join up to assess sites for	3

			raingardens (to be suggested by TTL)	
BHCC SCAPE project team (Paula Gonglaves and others)	17.01.17	Intro to SCAPE project for raingardens in Carden Ave (Patcham) and Hove	SCAPE would welcome workshop on SuDS for groundwater protection/flooding. Chance to influence project	16
BHCC Parks Dept (Robert Walker and Rich Howarth)	30.01.17	Intro to ChaMP/BHCC chemical use	Contacts passed on, to continue info exchange	2
SDNPA Infrastructure and Environment Lead (Veronica Craddock)	06.02.17	Intro to ChaMP/green infrastructure project plans	Continue info exchange, set HE mtg	2
SDNPA Senior Development Management Officer Eastern Region (Luke Smith)	15.02.17	Intro to ChaMP/development control, importance of SGZs and SuDS	AF to give presentation to Development Control team meeting	2
Highways England Route Sponsor A27/A23 (Peter Phillips, also SDNPA Veronica Craddock and Andy Beattie)	20.02.17	Intro to ChaMP, discussion on groundwater protection, further discussion of possibility of access to sampling ponds, pssible funding via Designated Funds	Contacts and Designated Fund info to be passed on	4
SDNPA Woodlands - Landscape and Biodiversity Lead (Andy Player)	20.02.17	Intro to ChaMP, discussion on Woodland planting, grants available and farmer engagement	Possible economic gain to landowners for woodland planting to be calculated	2
SDNPA Head of Marketing and Income Generation (James Winkworth)	27.02.17	Intro to ChaMP, possibility of accessing funds through new charitable arm of SDNPA	Continue communication	2
ESCC Team Manager (Flood Risk Management) (Nick Claxton)	08.03.17	Intro to ChaMP, ESCC flood risk priorities, drainage systems, discussion of raingarden locations	Update following TTL Raingarden walk, possible SuDS workshop for ESCC, possible presentation to	2

			'Planners in Sussex' CPD group	
SDNPA Eastern Region Enforcement Officer (Jack Trevelyan)	15.03.17	Intro to ChaMP, enforcement actions in ChaMP area	Continue communication, possible investigation of land purchase	2
Highways England Network Steward Area 4 (Michael) and Aone+ rep (Philip Mayes)	21.03.17	Intro to ChaMP, discussion of available data, known/unknown assets, landownership and access for sampling	Continue communication, link with Environmental Manager and Inspector	4
Sussex Flow Initiative Project Manager (Sandra Manning-Jones)	27.03.17	Intro to ChaMP/SFI, sharing research info, SuDS	Continue communication, invite to manure meeting, possible collaboration on Lewes SuDS	3
WSCC Flood Risk Engineer - Sustainable Drainage (Ray Drabble) and WSCC Flood Risk Management Team Leader (Kevin McNay)	28.03.17	Intro to ChaMP, discussions of known/unknown drainage arrangements, potential SuDS sites	Continue communication, link with planning officers/developers, attend/facilitate LA SuDS workshops	3
MyTIme Active Golf Course Manager - Hollingbury and Waterhall (Neil Crittenden)	05.04.17	Intro to ChaMP, use of fertilisers/chemicals on golf courses	Can contact again if anything relevant arises	2
Adur and Worthing Councils Parks and Open Spaces Manager (Daniel Ross) and Head of Environment (Andy Edwards)	19.04.17	Intro to ChaMP, cemeteries, parks and allotments in Shoreham SGZ	Pass on contacts and continue communication if relevant	3

Research engagement (no specific targets)

Event	Date	Summary of content	Outcomes	No.

				attendees
BGS Karst NERC Fellowship mtg (Louise Maurice, Simon Deacon and Simon Cooke)	31.01.17	Intro to BGS and Karst Fellowship, intro to ChaMP, overview of known karst and review of research methods	Summary of Brighton Chalk Karst to be drawn up by BGS, ChaMP to provide collaborative research proposal	4
SDNPA Research and Evidence Officer (Adam Brown)	27.02.17	Intro to ChaMP, discussion of engaging more research institutions	To promote ChaMP research proposals to approx. 300 academics (50 institutions) on SDNPA list	2
Brighton University PhD student and supervisor (Musa Jato and Martin Smith)	28.02.17	Shadowing PhD student sampling boreholes	Learning opportunity for AF	3
JBA Consulting (Jenny Hill)	28.02.17	Intro to ChaMP and SuDS objectives, intro to JBA collating Lewes Surface Water Management Plan	JBA to consider groundwater protection in report, AF to be consulted on draft	3
University of Brighton Ecology Senior Lecturer (Maureen Berg)	01.03.17	Intro to ChaMP, intro to work on Parks Forum, discussion of including consideration of groundwater protection in Brighton Parks management plans and possible research collaborations	AF to provide research proposals , continue communication, linking project with Parks Forum when formed	2
University of Brighton Senior Research Fellow in Environmental Microbiology (Sarah Purnell)	05.04.17	Intro to ChaMP and microbiology dept, student placements/research projects	AF to provide research proposals , continue communication, link with Student Placement organiser	2

Research/reports/publications (no specific targets)

Title	Date	Institute/company	Summary of content
Karst Hydrogeology of the Brighton Chalk Block	Due June TBC	British Geological Society	Review of current understanding of karst

Publicity (no specific targets)

Title	Date	Numbers reached	Summary of content
OART Newsletter	09.01.17	300 subscribers plus organisations	A ChaMP for the Chalk
SDNPA Newsletter	20.01.17		Championing our Water
SDNPA Website article	20.01.17		Championing our Water

Additional funding generated (no specific targets)

Fund	Date awarded	Amount	Purpose

Overall Goal: Groundwater quality in the Brighton Chalk is fit for human consumption without needing additional treatment at point of supply

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Rural walkovers (no specific target)

Catchment	Date
Housedean	17.08.16
Patcham	26.08.16
Mossybottom	09.09.16
Newmarket	22.09.16

Rural site visits to provide advice and identify interventions (75)

Site	Date	Summary of findings
Housedean Farm (David Taylor)	20.01.17	
Chris Allen	27.01.17	
Paythorne Farm (Annie Brown, David Alan (Farm Manager) & Antony Weston (Agent))	03.02.17	
Foxhole Farm (Gary Lee)	16.02.17	
Saddlescombe Farm (Roly and Nat. Trust Agent - Jake?)	27.02.17	

Martin Carr (management decisions on 3 holdings)	08.03.17	
Plumpton college (Infrastructure Audit Visit with Ian Clark)	17.03.17	
Stuart West – Bevendean Farm	29.03.17	
Jeremy West – Balmer Farm	03.04.17	
David Taylor – Housedean Farm	03.04.17	

Specialist advice visits (33)

Site	Date	Summary of advice given
Martin Carr (3 holdings)	20.04.17	Spreader calibration testing

Rural interventions/grant funding taken up (33)

Site	Date	Summary of intervention/grant

Land manager events (2)

Event/venue	Date	Speakers	Summary of content	No. attendees
Farmer's discussion event, White Horse, Ditchling	25.01.16	Shai Gilad, Tim Clarke, Tim Stephens	ChaMP intro, cover crops, Wessex Water's experience	20

Other partner/land manager engagement (no specific targets)

Event	Date	Summary of content	Outcomes	No. attendees
Hartfield C-L-M office	13.12.16	Intro to ChaMP	Cluster farms collaboration and strategy	2
SDNPA Farmers Breakfast	08.02.17	Intro to ChaMP (presentation)	Follow up with some farms	37
Bodel Bros. Agro Merchants	23.02.17			
Stephan Woodley	01.03.17	Soil sampling and local contacts		
Southern Water (Bio-solids team + Kate Price)	06.03.17			
Luke Everitt (Woodland Trust)	07.03.17	Intro to ChaMP, WT offers	Sharing evidence, information, working up a joint enhanced offer for hedgerow and woodland creation (minimum contribution of 60% of costs)	2
CFE Farm walk – Perching Manor Farm (FWAG SE, RSPB & King SEEDS & Bartholomeows agronomists and Annie Brown)	23.03.17			

Sandra Manning-Jones (Sussex Flow initiative)	27.03.17	Intro to ChaMP/SFI, sharing research info, SuDS	Continue communication, invite to manure meeting, link with Petra Billings re. Plumpton Management Plan	3
SDNPA Eastern team Rangers	27.03.17	Tour of farms around Mile Oak "challenging farms"		3

Research/reports/publications (no specific targets)

Title	Date	Institute/company	Summary of content
Nitrate Reduction in Brighton Chalk Project	Complete Mar 2017	Atkins	Literature Review and FARMSCOPER Modelling

Publicity (no specific targets)

Title	Date	Numbers reached	Summary of content
Farmers discussion event invitation	09.01.17	147	Invitation to event

Additional funding generated (no specific targets)

Fund	Date awarded	Amount	Purpose