Drainage and Wastewater Management Plans (DWMPs)

Workshop for the East Hampshire DWMP

Wednesday 28 April 2021

Agenda

- Welcome and Purpose of the workshop

- Presentation: Problem Characterisation

- Break Out Session 1: Understanding the risks and identifying our strategy

- **BREAK**

- Presentation: Options Development and Appraisal

- Break Out Session 2: Identifying generic options

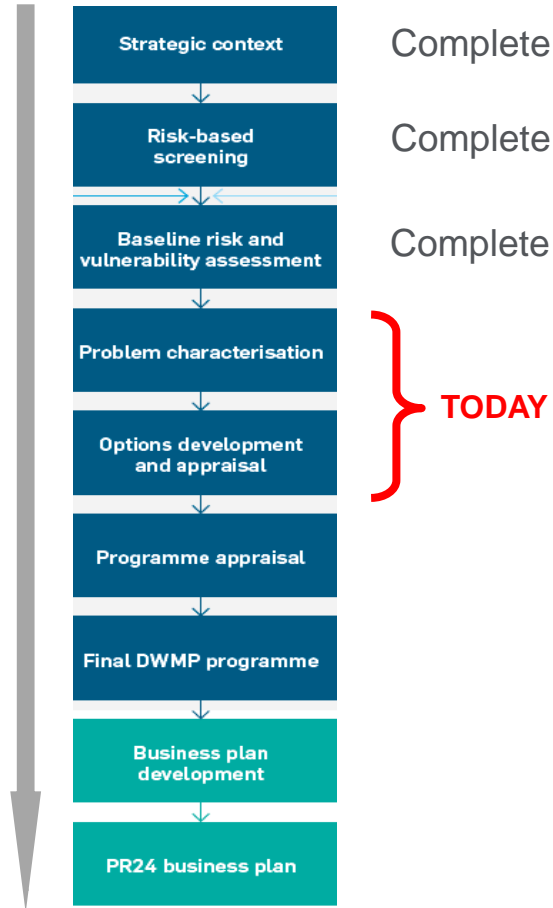- Prioritising Wastewater Catchments

- Next steps

Welcome and Purpose

Cigolene Nguyen

Head of Asset Systems and Processes

DWMP Process: Where are we now?

Process Step	Status
Strategic context	Complete
Risk-based screening	Complete
Baseline risk and vulnerability assessment	Complete
Problem characterisation	**TODAY**
Options development and appraisal	**TODAY**
Programme appraisal	
Final DWMP programme	
Business plan development	
PR24 business plan	

Our aim today is to:

- Understand the problem: risks, causes and drivers

- Start the Options Development and Appraisal process by selecting generic options

- Prioritise catchments for detailed planning

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Purpose of the Workshop

- Determine the investment strategy for all wastewater catchments within the East Hampshire river basin

- Start the options development and appraisal process by selecting generic options to progress to the detailed planning stage

- Prioritise wastewater catchments for the detailed planning stage; and

- Identify where we can work with partner organisations on the detailed (level 3) plans
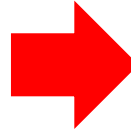
Presentation: Problem Characterisation

Problem Characterisation

3 parts:

1. Causes and drivers of risks

Drivers of Risks

<table>
<tr><td style="background-color:#8ECED4">   </td><td>Customer</td></tr>
<tr><td style="background-color:#6B7FC7">   </td><td>Hydraulics</td></tr>
<tr><td style="background-color:#A96DAE">   </td><td>Operational</td></tr>
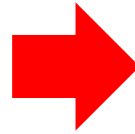<tr><td style="background-color:#E8D000">   </td><td>Quality</td></tr>
<tr><td style="background-color:#D9D9D9">   </td><td>Unknown</td></tr>
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Drivers

A ***Driver*** is "*a factor which causes a particular risk to happen or develop*". For the DWMP, it is the category associated with the cause of the risk, as set out below.

| Driver	Definition	Examples
Hydraulic	Risks dependent on the capacity of the sewer network to cope with current or future flows generated in the catchment	Rain water, surface water, highway run-off, and river flooding entering into combined or separate foul sewers. Infiltration from surface or groundwater.
Operational	Risks associated with our asset management and operational management activities	Asset failures such as sewer collapse, leaking sewers, pump breakdowns and power supply faults.
Customer	Risks dependent on the activities and behaviours of our customers.	Misconnections of surface water to foul sewers (or vice versa). Blockages caused by disposing of fats, oils and grease into sewer or flushing of baby wipes, nappies etc. Unconsented trade waste or chemicals being poured into drains.
Quality	Risks associated with the treatment capacity and flow and quality compliance of our wastewater treatment works	Unable to achieve permits specified by the Environment Agency, lack of adequate treatment capacity for the flow arriving at the treatment works.

Problem Characterisation

3 parts:

1. Causes and drivers of risk

2. Identifying Catchment Strategy

Do Nothing
Maintain
Sustain
Enhance
Prepare
Defer
Improve
Change

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Problem Characterisation

3 parts:

1. Causes and drivers of risks

2. Identifying Catchment Strategy

3. Strategic Needs and Complexity Assessment
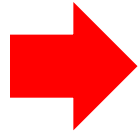
		Strategic needs score ("How big is the problem?")			
		Negligible	Small	Medium	Large
		1-2	3-4	5-6	7-8
Complexity factors score ("How difficult is it to solve")	High (8+)				
	Medium (5-7)				
	Low (<4)				

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Purpose of Catchment Strategies

- Moves us to longer term thinking (25 year plan)

- Provides a clear statement of intent for our customers

- Align our whole business to get behind it and deliver

- Provides a focus for where investment is needed, and when

- Supports our investment planning

Catchment Investment Strategies

| Strategy	Description
Do Nothing	• No investment. • Baseline upon which to judge the cost effectiveness of doing 'something'
Maintain	• Current performance within acceptable limits and no major concerns for future. • Continue to maintain. Replace assets like for like when needing replacement. • Accept that climate change and growth may cause slight deterioration in levels of performance
Sustain	• Current performance acceptable, but risks will increase in the future. • Continue to maintain, but as assets need replacing look to increase capacity to keep pace with climate change, development and asset condition to sustain the existing level of performance into the future
Enhance	• Current performance is unacceptable. The causes are mostly operational. • Enhance current maintenance programmes (opex with some capital maintenance) to improve performance e.g. asset replacement/upgrades to improve reliability. No significant new assets or infrastructure required.
Prepare	• Current risks and performance are acceptable at the current time. • Maintain existing system and performance levels, but actively invest now to *plan and prepare* for future risks and performance issues (e.g. where significant growth planned, or future tightening of permits). Invest in data collection, surveys, model build and feasibility studies (not design).
Defer	• Current performance acceptable at current time, but concerns about future risks in longer term. Risks expected to be easy to resolve. • Continue to maintain, but defer decision and our consideration of options for capital investment for future rounds of the DWMP
Improve	• Current performance unacceptable. Need to reduce the current risks • Actively look to invest capital funding in the short term to address current performance issues (and allow for future changes when implementing improvements)
Change	• Current or future risk are/will be unacceptable, and the causes mean that the current system is not sustainable • Changes to the wastewater system needed i.e. new technology, discharge to alternative water body / transfer, additional treatment, re-use. Potential requirement for WINEP investment.

LEVEL OF EFFORT

Determining our Investment Strategies
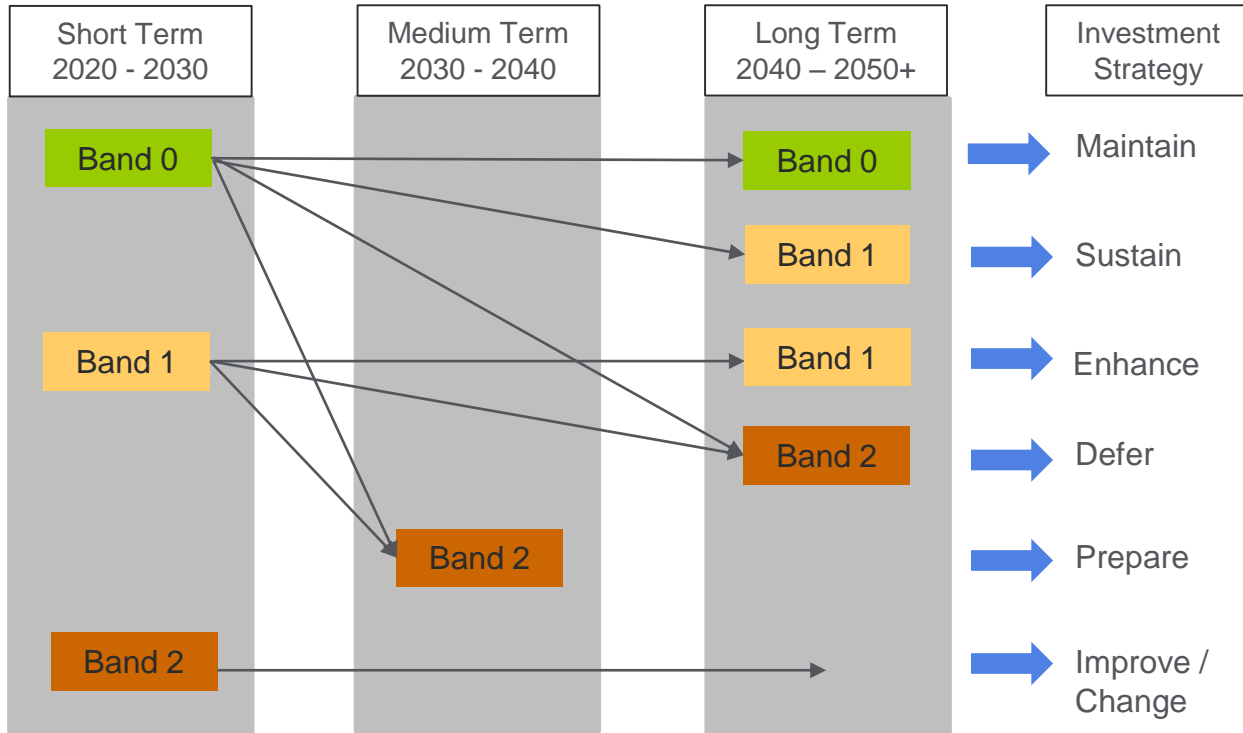
BRAVA Results: East Hampshire River Basin Catchment

Wastewater Catchment Reference	Wastewater Catchment Reference	Population Equivalent	Sewer Length (KM)	Planning Objective												
				Internal Sewer Flooding Risk	Pollution Risk	Sewer Collapse Risk	Risk of Sewer Flooding in a 1 in 50 year storm	Storm Overflow performance	Risk of WTW Compliance Failure	Risk of flooding due to Hydraulic Overload	Dry Weather Flow Compliance	Good Ecological Status / Potential	Surface Water Management	Nutrient Neutrality	Groundwater Pollution	Bathing Waters	Shellfish Waters
BISH	BISHOP'S WALTHAM	14,120	142.4	0	2	0	2		NF					0		NA	NA
BUDD	BUDDS FARM HAVANT	365,496	2,984.3	1	1	0	2	2	0	2	1	0	2	2	2	1	1
BROX	BROXFORD	78	2.4	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
EMEO	EAST MEON	742	6.7	0	0	0	0	0	0	0	0	0	0	1	0	NA	NA
PEEL	PEEL COMMON	256,119	2,664.6	1	2	0	1	2	2	0	1	1	1	2	0	1	2
SWIC	SOUTHWICK	450	3.4	0	0	0	0	2	0	0	0	0	0	1	0	NA	NA
WICK	WICKHAM	2,537	25.2	0	0	0	1	2	0	1	0	0	0	2	0	1	1

Key	
NF	Not Flagged *
NA	Not Applicable **
0	Not Significant
1	Moderately Significant
2	Very Significant

Results shown for 2020 only

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Suggested Catchment Strategies: East Hampshire

Catchment Ref	Wastewater Catchment	Population	Investment Strategy
BUDD	BUDDS FARM HAVANT	365,496	Improve
PEEL	PEEL COMMON	256,119	Improve
WICK	WICKHAM	2,537	Improve
BISH	BISHOPS WALTHAM	14,126	Improve
SWIC	SOUTHWICK	450	Prepare
EMEO	EAST MEON	742	Prepare
DROX	DROXFORD	73	Maintain

Suggested Catchment Strategies: East Hampshire

Catchment Strategy
- Maintain
- Sustain
- Enhance
- Defer
- Prepare
- Improve
- Change
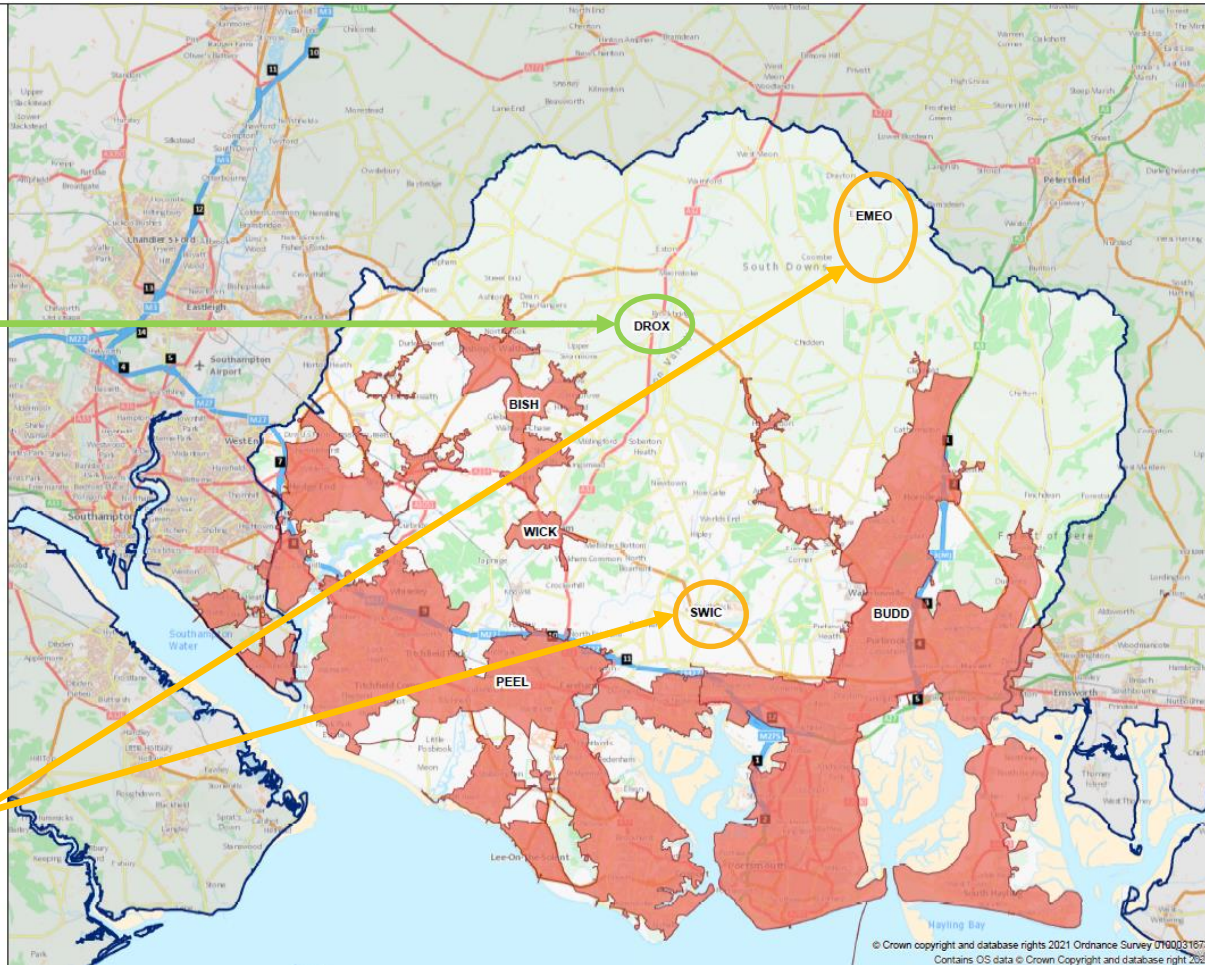
Prepare

- 7 sewer catchments
- 7 WTWs
- 280 WPS
- 5,826km sewers
- 31% area
- 98% homes connected

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Questions

Break Out Session 1

Instructions for Break-Out Session 1

For each wastewater catchment:

1. Review the BRAVA results and decide the appropriate catchment investment strategy; and

2. Review the causes of the risks and decide the appropriate drivers

Time allowed: 30 minutes

Plenary: Feedback from Break-Outs

Poll 1

Options Development and Appraisal (ODA)

DWMPs: Identifying and Developing Options

Generic Options	Unconstrained Options	Constrained Options	Feasible Options

Generic Options

Screening Questions:

• Could this generic option be utilised to manage and/or reduce the risks identified in the BRAVA?

Unconstrained Options

Screening Questions:

• Is the option **technically feasible** given site, operational or option-specific circumstances?

• Is it **cost effective** (based on a simple high, medium, low cost assessment)?

• Does the option achieve the required **outcome**?

• Are there **environmental risks** that cannot be mitigated or benefits provided?

• Would the option likely be supported by **customers**?

• Risk and uncertainty – does the option provide **resilience** against future uncertainties?

Constrained Options

Screening Questions:

1. Feasibility and risk:
• Customer acceptability?
• Political acceptability?
• Timeline for implementation
• Dependencies
• 'Third parties'
• Planning and regulatory constraints

2. Engineering and cost:
• Engineering complexity
• Cost

3. Performance:
• Outcomes
• Flexibility to adapt
• Resilience

4. Operational

5. Environmental
• High Level Screening (SEA, HRA, WFD, Biodiversity Net Gain, Natural Capital)

Feasible Options

Provide for each Feasible Option:
• A description of the option
• A description of how the option being described differs from baseline activities
• Scale of the benefits to be achieved against single or multiple planning objectives
• An assessment of customers' likely support for the option.
• An estimate of the time needed to investigate and implement the option, including the earliest start date.
• An assessment of the risks and uncertainty associated with the option.
• An assessment of the flexibility of the option to adapt to future uncertainty.
• An explanation of whether the option depends on an existing scheme or a proposed option, or is mutually exclusive with another option.
• An assessment of factors or constraints specific to the option (e.g. planning risks).
• A description of how the option will be utilised and impact on costs.
• An assessment of the environmental impacts of the option
• A Habitats Regulations Assessment if an option could affect any designated European site.
• An assessment of the costs and benefits.

DWMPs: Generic Options

Type of Measures	Generic Option Categories	Icon	Examples of Generic Options
Source (Demand) Measures (to reduce likelihood)	Control / Reduce surface water run-off		Natural Flood Management; rural land management and catchment management; SuDS including blue and green infrastructure; storm management
	Reduce groundwater levels		Reduce leakage from water supply pipes; pump away schemes to locally lower groundwater near sewer network
	Improve **quality** of wastewater		Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
	Reduce the **quantity** / demand		Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
Pathway (Supply) Measures (to reduce likelihood)	Improve Sewer Network		Asset optimisation; additional network capacity; storage; separate flows; operational improvements; structural repairs; re-line sewer pipe and manholes; smart networks.
	Improve Treatment Quality		Increase treatment capacity; rationalisation of treatment works (centralisation / de-centralisation); install tertiary plant; UV plant or disinfection facilities; innovation; improve Technical Achievable Limits; new WTWs
	Wastewater Transfer to treatment elsewhere		Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		Carbon offsetting; noise suppression /filtering; odour control and treatments
	Improve Land and Soils		Sludge soil enhancement
	Mitigate impacts on receiving waters		River enhancement, aeration
	Reduce impact on properties		Property flood resilience; non-return valves; flood guards / doors; air brick covers
Other	Study / Investigation		Additional data required; hydraulic model development; WQ monitoring and modelling

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Break Out Session 2

Instructions for Break-Out Session

Task:

Based on your understanding of the risks, causes and the drivers from the first break-out session ….

…… now identify the **generic options** to progress in the detailed planning for the wastewater catchment

Time allowed: 30 minutes

Break-out Groups: Template to complete

Planning Objectives		Driver	Type of Measures	Generic Option Categories	Icon	Take Forward?	Reasons	Examples of Generic Options
PO1	Pollution	Operational	Source (Demand) Measures (to reduce likelihood)	Control / Reduce surface water run-off		N		Natural Flood Management; rural land management and catchment management; SuDS including blue and green infrastructure; storm management
PO3	Sewer Collapse Risk	Operational		Reduce groundwater levels		N		Reduce leakage from water supply pipes; pump away schemes to locally lower groundwater near sewer network
PO4	1 in 50 year	Hydraulic		Improve **quality** of wastewater		N		Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
BP09	Good Ecological status	Quality		Reduce the **quantity** / demand		N		Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
BP10	Surface Water flooding	Hydraulic	Pathway (Supply) Measures (to reduce likelihood)	Improve Sewer Network		N		Asset optimisation; additional network capacity; storage; separate flows; operational improvements; structural repairs; re-line sewer pipe and manholes; smart networks.
BP12	Groundwater Pollution	Operational		Improve Treatment Quality		N		Increase treatment capacity; rationalisation of treatment works (centralisation / de-centralisation); install tertiary plant; UV plant or disinfection facilities; innovation; improve Technical Achievable Limits; new WTWs
BP13	Bathing Waters	Customer		Wastewater Transfer to treatment elsewhere		N		Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
			Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		N/A	Not included in first round of DWMPs	Carbon offsetting; noise suppression /filtering; odour control and treatments
				Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
				Mitigate impacts on receiving waters		N		River enhancement, aeration
				Reduce impact on properties		N		Property flood resilience; non-return valves; flood guards / doors; air brick covers
			Other	Study / Investigation		N		Additional data required; hydraulic model development; WQ monitoring and modelling

Plenary: Feedback from Break-Outs

Poll 2

Prioritising Wastewater Catchments

Prioritising Wastewater Catchments

- How to prioritise the wastewater catchments on the East Hampshire for next stage of the DWMP?

- Where do we start?

- Which catchments should we do first?

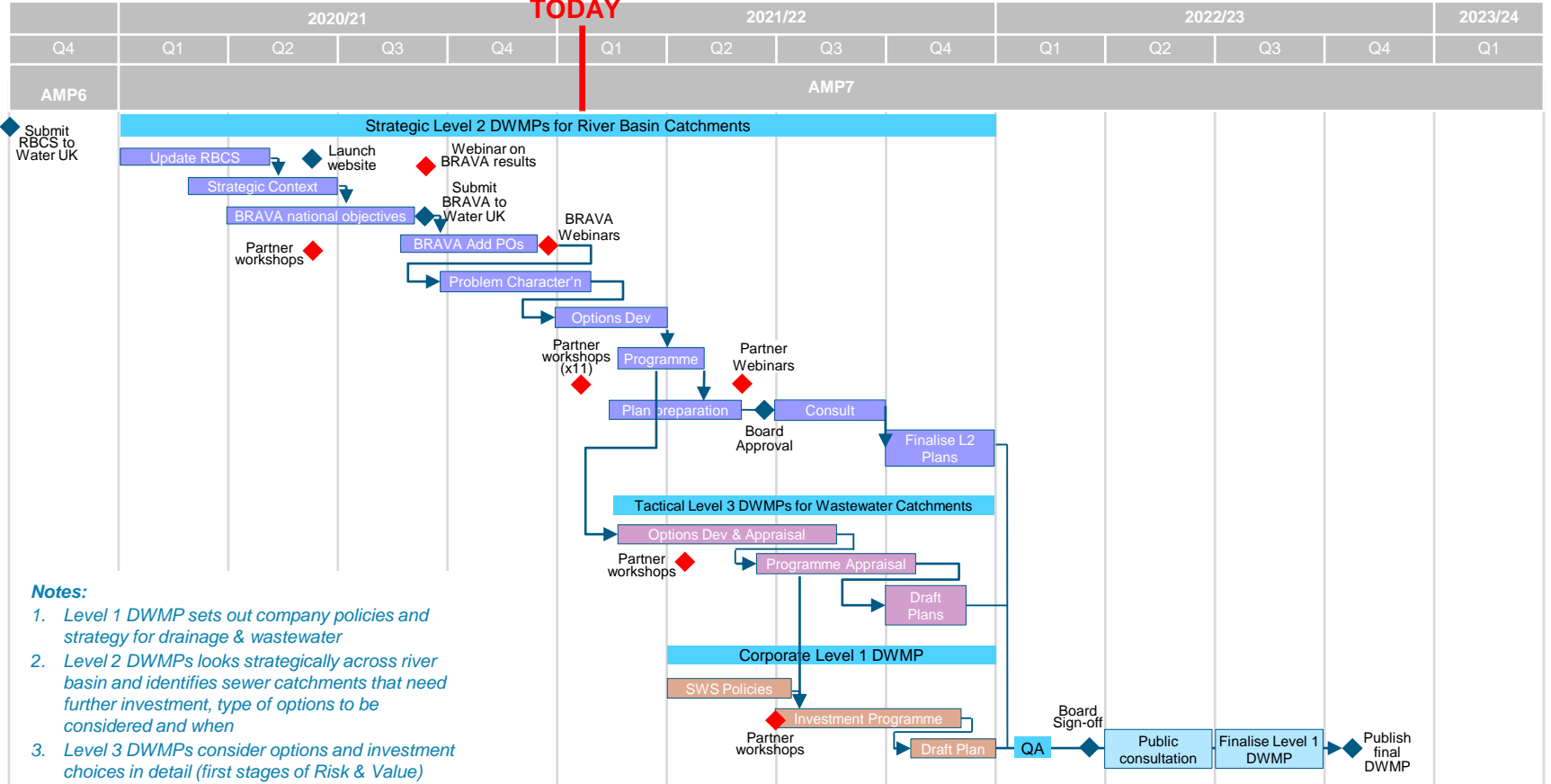- Would you like to work with us on any of these catchments?

Prioritising Wastewater Catchments in East Hampshire

Catchment Ref	Wastewater Catchment	Population	BRAVA Results 2020			Investment Strategy	PC Matrix
			0	1	2		
BUDD	BUDDS FARM HAVANT	365,496	3	5	6	Improve	Red
PEEL	PEEL COMMON	256,119	3	6	5	Improve	Red
WICK	WICKHAM	2,537	8	4	2	Improve	Green
BISH	BISHOPS WALTHAM	14,126	9	2	1	Improve	Green
SWIC	SOUTHWICK	450	10	1	1	Prepare	Green
EMEO	EAST MEON	742	11	1	0	Prepare	Green
DROX	DROXFORD	73	0	0	0	Maintain	Green

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Next Steps

DWMP High-Level Delivery Programme

Notes:

1. Level 1 DWMP sets out company policies and strategy for drainage & wastewater
2. Level 2 DWMPs looks strategically across river basin and identifies sewer catchments that need further investment, type of options to be considered and when
3. Level 3 DWMPs consider options and investment choices in detail (first stages of Risk & Value)

Questions

Summary

Summary of Workshop

What have we done today?

- Looked at causes and drivers of the risks

- Identified the catchment investment strategy for a wastewater catchment

- Determined the generic options to take forward and which to reject

- Prioritised the wastewater catchments in the East Hampshire river basin

- Started thinking about where we may be able to work together on plans for individual wastewater catchments

Poll 3

Thank you for participating today

Website: www.southernwater.co.uk/dwmp

Contact us: DWMP@southernwater.co.uk

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