Drainage Resilience PI and mitigations PRP targets

Introductory webinar

Quentin Dawson & Tim Spink

February 2021

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Agenda

- Introduction (Quentin Dawson)
- Webinar procedure
- Why we need a metric
- Metric definition
- Delivery mechanisms
- Metric performance plan
- Mitigations reporting
- Mitigations technical assurance
- Training materials and guidance
- Webinar dates and topics
- Q&A

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Webinar procedure

Open Q&A side panel

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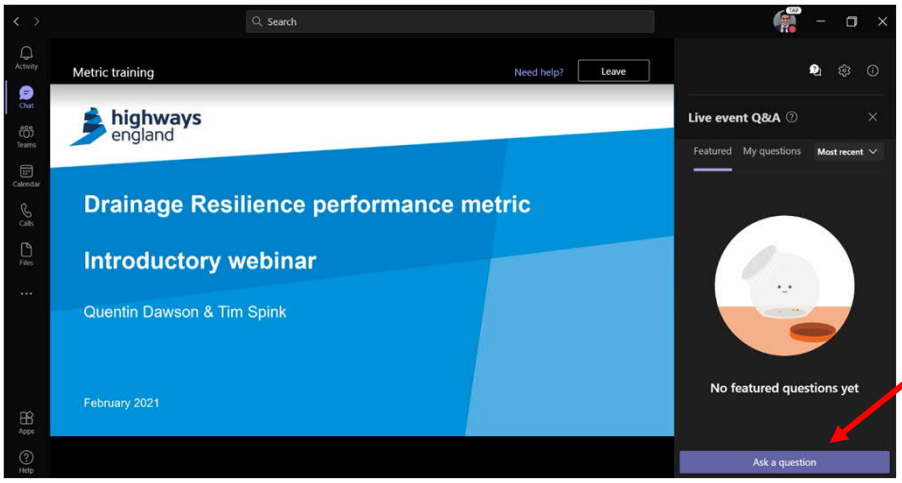
Webinar procedure



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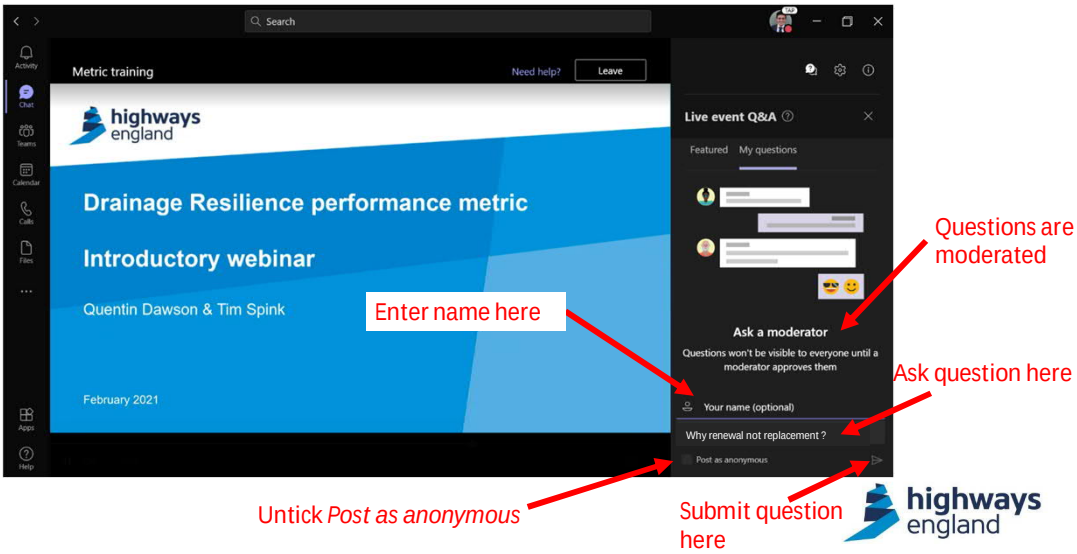

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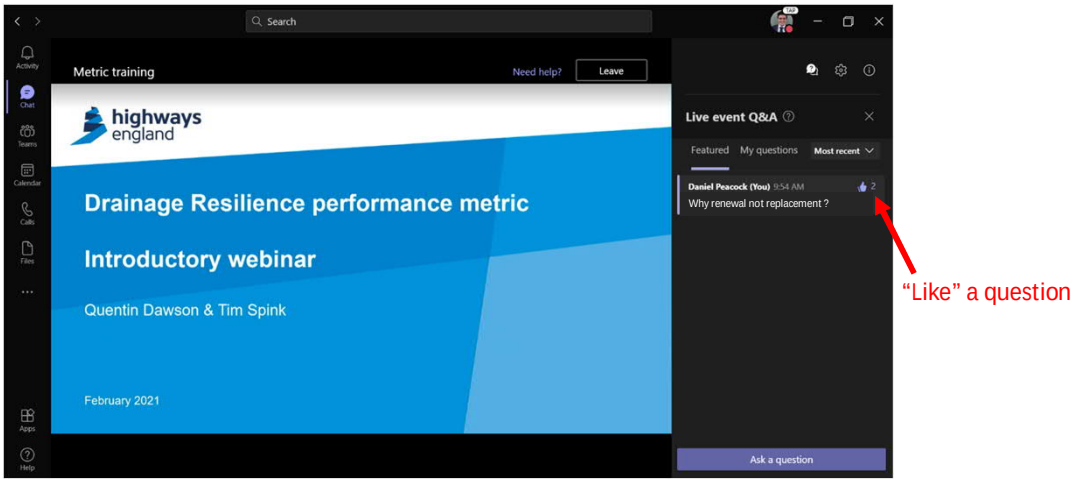
Webinar procedure



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Why is the Drainage Resilience metric important?

- The Drainage Resilience metric measures flooding on or near the SRN
- Flooding on the SRN causes:
  - Delays to the travelling public
  - Accidents, and potentially claims
  - Reputation damage
  - Damage and accelerated deterioration of HE's assets
- Flooding adjacent to the SRN causes:
  - Damage to neighbouring buildings, infrastructure and land
  - Health & safety risks to our neighbours
  - Potential claims
  - Potential environmental damage
  - Reputation damage

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Why did we need a new metric?

- The RP1 Performance Specification required:
  - Condition metrics for all main asset types
- The RP1 Delivery Plan committed to:
  - Improving resilience to flooding and reducing flood risk to communities adjacent to the network
- The ORR and DfT were unhappy with the drainage metric used in RP1
- Agreed with the ORR and DfT that the RP2 drainage metric would be the Drainage Resilience metric reported from the start of RP2

What will the metric achieve?

- The new metric allows us to understand and articulate the impact of drainage asset management on the road network and the travelling public as measured by the amount of flooding

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The Drainage Resilience performance indicator

- Drainage Resilience PI:
  - **% length of carriageway that does not have an observed significant susceptibility to flooding**
  - Currently 73% nationally
  - ie 27% of network susceptible to flooding
  - Not (currently) targeted
- Internal mitigations PRP target:
  - **Mitigate 30 verified priority flooding hotspots per annum**
  - Flooding hotspot: An extent of carriageway at risk of repeated flooding
  - Priority flooding hotspots: Risk status A1, A or B
  - Verified: Risk status checked
  - Priority culvert: A culvert that presents a risk of flooding
  - PRP target internal only

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Flooding hotspot mitigation criteria

- Mitigation works must reduce the risk of flooding:
  - At a verified flooding hotspot
  - Of risk status A1, A or B (Priority Flooding Hotspots)

	Overall flooding hotspot risk status (Defined by the most severe of that determined by the carriageway impacts or third party impacts)			
	Number of floods within the hotspot in the last 5 years			
	>5	2 to 5	1	0
Most severe carriageway flooding impact (highest Flood Severity Index)				
7 to 10	A1 (Highest)	A (Very High)	B (High)	N/A
5 to 6	A (Very High)	B (High)	C (Moderate)	N/A
0 to 4	B (High)	C (Moderate)	D (Low)	N/A
No history of flooding	N/A	N/A	N/A	D (Low)
Most severe third party impact				
Residential or critical infrastructure	A (Very High)	A (Very High)	A (Very High)	N/A
Commercial	B (High)	B (High)	B (High)	N/A
Agricultural	C (Moderate)	C (Moderate)	C (Moderate)	N/A
None	D (Low)	D (Low)	D (Low)	D (Low)

Risk status matrix from DMRB CD 535 "Drainage asset data and risk management" England NAA

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Priority culvert mitigation criteria

- Mitigation works must reduce the risk of flooding:
  - At a verified priority culvert
  - Of risk status A or B (Priority Culverts)
  - That is within a verified flooding hotspot

	Overall culvert flood risk status (Defined by the most severe of that determined by the carriageway impacts or third party impacts)			
	Number of floods related to the culvert in the last 10 years			
	>5	2 to 5	1	0
Most severe carriageway flooding impact (highest Flood Severity Index)				
7 to 10	A (Very High)	A (Very High)	B (High)	N/A
3 to 6	A (Very High)	B (High)	C (Moderate)	N/A
0 to 2	B (High)	C (Moderate)	D (Low)	N/A
No history of flooding	N/A	N/A	N/A	D (Low)
Most severe third party impact				
Residential or critical infrastructure	A (Very High)	A (Very High)	B (High)	N/A
Commercial	A (Very High)	B (High)	C (Moderate)	N/A
Agricultural	B (High)	C (Moderate)	D (Low)	N/A
None	D (Low)	D (Low)	D (Low)	D (Low)

Risk status matrix from DMRB CD 535 "Drainage asset data and risk management" England NAA

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Risk status verification

- Risk status may be:
  - Not yet assessed
  - An automatically assessed baseline
  - Engineer assessed, but out of date
- Verification checks:
  - Frequency and severity of historic flooding (on HADDMS)
  - Completeness of the HADDMS record
  - On and off carriageway
  - Location and extent of hotspot (on HADDMS)
  - Overall risk status
- Verification process
  - Desk study
  - Field study
  - Details in *Guidance on flooding hotspots (2021)*, on HADDMS and SHARE
- Verification may change:
  - Location and extent of hotspot
  - Overall risk status (up or down)
  - Verification status
  - Update on HADDMS

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Third party representation criteria

- The works must address a formal third part representation:
  - From a Risk Management Authority (as defined in the Flood & Water Management Act) eg:
    - Environment Agency
    - Lead Local Flood Authority
    - Internal Drainage Board
    - Water Company
    - etc
  - Identified flood risk associated with the SRN
  - Investigate
  - Create flooding hotspot and verify risk status (if appropriate)
  - Where necessary, plan and implement mitigations

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Flooding mitigation hierarchy

Approach	Flood frequency	Flooding impacts	Operations	Major Projects	Mitigation claimed
Do nothing	Deteriorates	Deteriorates	N/A	N/A	No
Reactive maintenance	Stable	Stable	Maintenance	N/A	No
Routine maintenance	Stable	Stable	Maintenance	N/A	Maybe
Proactive maintenance	Improves	Improves	Enhanced maintenance	N/A	Yes
Renewal/ Improvement	Improves	Improves	Renewal	Improvement	Yes
Enhancement	Improves – long term sustainability of the engineered solution		EWF enhancement	EWF enhancement	Yes

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Maintenance

- Any maintenance activity defined in the requirements of GM 701 *Asset delivery asset maintenance requirements*
  - At the default frequency defined in GM 701
  - Or at a frequency less than the default defined in GM 701
- Any reactive maintenance activity
  - To get the road open
    - Temporary pumping
    - Gully cleaning
    - Trash screen cleaning
  - To implement a quick, temporary repair
  - Not a claimable mitigation if reactive
- A claimable mitigation if a substantial routine maintenance activity effects a solution
  - Jetting
  - Root cutting
  - Ditch clearing
  - Installing grips
  - Not a claimable mitigation if repeat of previous maintenance activity that failed to prevent re-flooding

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Enhanced maintenance

- Any maintenance activity that **exceeds the requirements of GM 701** *Asset delivery asset maintenance requirements*
- Cleansing plan
  - A plan identifying a programme of regular inspections, cleaning out or jetting of the relevant assets
  - At a frequency in excess of GM 701 default frequency
- Monitoring & response plan
  - Implementation of intelligence lead instrumented monitoring and proactive response plans eg
    - Installation of instrumented gullies
    - Installation of monitoring on culverts
- A claimable mitigation

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Renewal / improvement

- Any construction activity involving:
  - Local or full scale repair or refurbishment
  - Like for like replacement
  - Like for like relocation
  - Replacement with capacity upgrade to achieve current DMRB requirements
  - Replacement to satisfy current DMRB requirements
- All in accordance with DMRB design requirements
  - Or an approved Departure from Standards
- A claimable mitigation

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Enhancement

- Flooding mitigations which deliver a long term sustainability **over and above the basic DMRB engineering requirements** needed to mitigate the flooding
  - Further reduction in road user flooding incident impact
  - Further reduction in 3rd party properties and adjacent land impact
  - Associated water quality improvements
  - Associated biodiversity/cultural heritage/landscape improvements
  - Monetised cost benefit in EWF Fund Appraisal spreadsheet
- Beyond business as usual
- Capacity upgrade over and above DMRB design requirements
  - Climate change enhancement over and above DMRB current requirements
- Additional attenuation/water quality improvement
  - SuDS installation
  - Detention pond installation
- A claimable mitigation

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Works that do not contribute to the mitigations PRP target

- Reactive maintenance
- Recurring routine maintenance activity that does not solve the flooding problem
- Any works that do not satisfy the requirements of the PRP mitigations targets
  - Works on priority culverts that are not within a flooding hotspot
    - Create flooding hotspot if appropriate
  - Works on Risk Category C or D flooding hotspots or priority culverts

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Drainage Data Management System (HADDMS)

- HADDMS contains:
  - All know drainage assets
  - Flood events register
  - Flooding hotspot register
  - Priority asset registers (culverts, outfalls and soakaways)
  - Useful reference maps
- Flooding hotspots and priority culverts
  - Current risk status (and possible historic baseline status)
  - Risk verification status
  - Mitigation status

https://www.haddms.co.uk/

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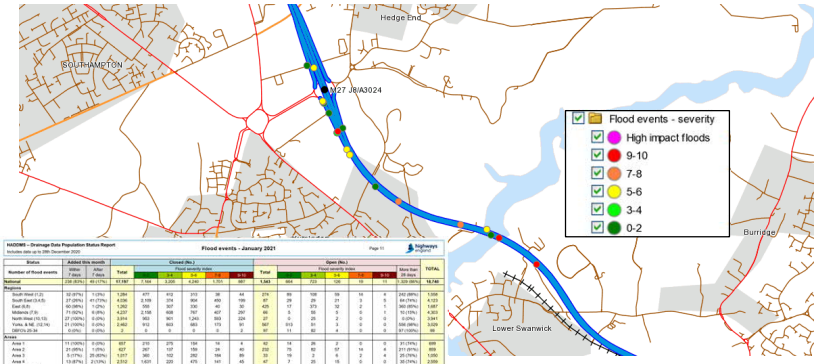
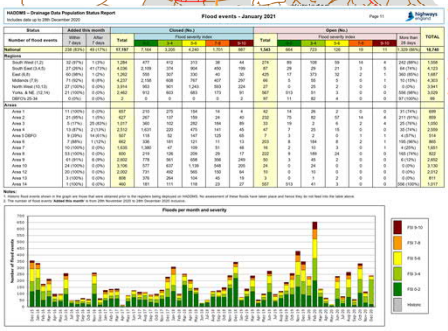
Drainage Data Management System (HADDMS)

- Map viewer of flooding with location and risk status on HADDMS
- HADDMS Monthly report of flooding, drainage assets and condition
- Webinar Wednesday 3rd March 11:30 – 13:00
  - Getting access
  - Flooding, priority asset & drainage data
  - Recording verifications & mitigations
  - Understanding monthly report





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RP2 Priorities

- Priority in Road Period 2 will be on mitigating flooding on & off network.
  - Support a small number of enhancements to improve sustainability (through EWF)
- Operations
  - Reporting of flood events via HADDMS or CONFIRM
  - Identification of new flooding hotspots on HADDMS
  - Verification of all flooding hotspots and priority culverts on HADDMS
  - Mitigation of verified risk status A1, A or B priority flooding hotspots, in risk sequence
  - Mitigation of verified risk status A or B priority culverts, in risk sequence
  - Addressing any 3rd party representations
- Major Projects
  - Verification of all flooding hotspots and priority culverts within scheme boundary, not yet verified, on HADDMS
  - Mitigation of all verified risk status A1, A and B priority flooding hotspots within scheme boundary, and risk status C where opportunity presents
  - Mitigation of all verified risk status A and B priority culverts within scheme boundary, and risk status C where opportunity presents

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Mitigations delivery mechanisms (Operations)

- 3D scheme management (BAU)
  - (Some) maintenance activities
  - Renewal schemes
    - Surveys for scheme development
  - Enhanced maintenance schemes
- Environment & Wellbeing Fund (EWF)
  - Flooding mitigation schemes which deliver a long term sustainability over and above the basic DMRB engineering requirements needed to mitigate the flooding

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Mitigations delivery mechanisms (Major Projects)

- Major Project improvement scheme budget (BAU)
  - Mitigation all verified A1, A, B priority flooding hotspots
  - Mitigation all verified A and B priority culverts
- Environment & Wellbeing Fund (EWF)
  - Potentially, verified risk status C flooding hotspots and priority culverts
  - Flooding mitigations which deliver a long term sustainability over and above the basic DMRB engineering requirements needed to mitigate the flooding

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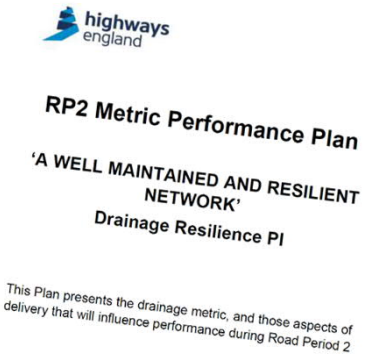
Metric Performance Plan

- MPP summarises the flooding mitigation targets
- Targets & workbank
  - Forecast expected and potential contributions from Operations and Major Projects
- Operations forecast
  - Area/Regional plan
  - Average assumption (no plan)
  - EWF approved schemes
- Major Projects forecast
  - All A1, A, B priority flooding hotspots within scheme boundary
- MPP is a live document that will be updated regularly
  - Feed updates to Sufian Sufian in SES



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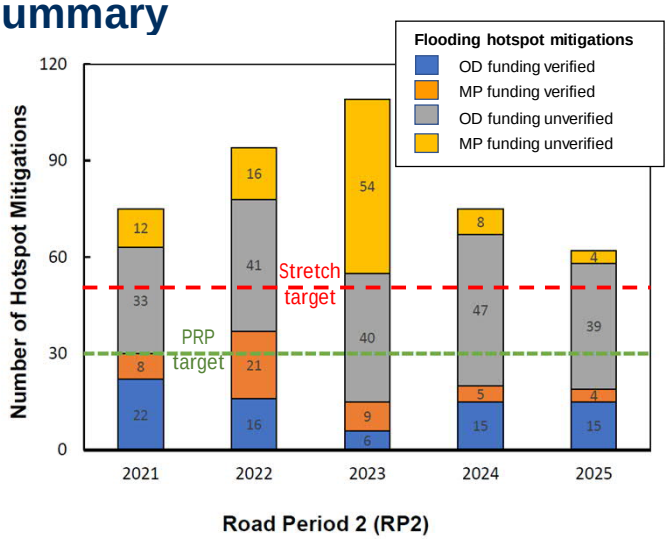
Metric Performance Plan Summary

- PRP target: 30 flooding hotspots a year over 5 years: 150 flooding hotspots overall
- Total 415 flooding hotspots in plan
- Only 121 (29%) funding verified
- Years 2023, 2024 and 2025 require funding verification if target is to be met.
- Similar situation for risk status verification
- Stretch target: 229 flooding hotspots + 37 priority culverts: 266 total (53 per year average)
- PRP targets for future years set annually. Indicative target shown.



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Reporting mitigations

- Evidence that the priority flooding hotspot or priority culvert has had its risk status verified
  - Update the record on HADDMS
- Evidence the scheme location and design
  - As-built drawings, photographs and associated design documentation
- Confirm scheme design is DMRB compliant
  - Through self-certification in accordance with CG 502
  - Or evidence that a Departure from Standards has been issued by SES
- Flooding hotspot Completion Certificate
  - Confirms construction in accordance with the design
- For Major Projects handover of the above to Operations at verification and upon completion
  - CPF metric 5.1c of the PCF for Major Projects
- For Operation completion of the 3D project management stage-gate documentation
- Upload the completion evidence to the flooding hotspot or priority culvert record on HADDMS
  - Carried out by Operations on Major Project handover
- Update the drainage inventory & condition record on HADDMS
  - Carried out by Operations on Major Project handover
- Further details in webinars 3 and 4

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Technical Assurance

- Operations delivery teams update HADDMS records post mitigation
- HADDMS monthly report picks up all changes to:
  - Flooding hotspots A1, A, B or C
  - Priority culvert A, B or C
  - Flooding hotspots and priority culverts reported as X - risk addressed
- Mitigations are assured by SES to check satisfactory evidence
  - Operations submit missing evidence where required
- SES report and claim outputs against the mitigations PRP target
- HE Audit validate the assurance process

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2020/21 performance to date

	Number
PRP target	30
Claimed on HADDMS (up to 28/01/2021)	23
Assured by SES	16
% assured	70%
Projected to year end (all)	28
Projected to year end (assured only)	19

- Projected that PRP target will be missed
- Level of assurance needs to improve
- 28th March cut-off date for evidenced submissions on HADDMS
- Webinar on 3rd March will cover HADDMS processes
- Webinars on 24th and 31st March will cover mitigation delivery, reporting and assurance

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Training materials, guidance, templates & information

Documents & videos	HE YouTube channel	HADDMS downloads	SHARE
Flooding hotspot guidance (2021)		X	http://share/share/llisapi.dll?func=ll&objaction=overview&objid=90996340
Introduction to drainage and water environment performance indicators – Training webinar	X	X	
Mitigating flooding hotspots - Training webinar	X	X	
RIS2 Drainage Resilience metric		X	http://share/share/llisapi.dll?func=ll&objaction=overview&objid=84045466
RP2 metric performance plan Drainage Resilience PI			http://share/share/livelink.exe?func=ll&objId=88199629&objAction=browse
Drainage Resilience mitigation targets			http://share/share/llisapi.dll?func=ll&objId=84833720&objAction=browse
Flooding hotspot task completion certificate			http://share/share/livelink.exe?func=ll&objaction=overview&objid=82344767

- HADDMS: https://www.haddms.co.uk
- Training webinars:
  - Introduction: https://youtu.be/zZZRJ8YObb0
  - Flooding hotspots: https://youtu.be/Ck4TZkg3UwU

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Webinar dates

Series of webinars over the next 3 months to provide information, opportunity to raise queries and share experience.

- Today – Drainage Resilience & mitigations PRP targets introduction
- Wednesday 3rd March 11:30 – 13:00 Using HADDMS for metric mitigations assessment and reporting (joint with Water Quality metric)
- Wednesday 24th March 14:00 – 15:30 Mitigation delivery, reporting and assurance. Part 1
- Wednesday 31st March 11:30 – 13:00 Mitigation delivery, reporting and assurance. Part 2
- Wednesday 14th April 14:00 – 15:30 - TBC
- Wednesday 28th April 14:00 – 15:30 - TBC

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Q & A

Quentin Dawson (SES Drainage Lead)

Tim Spink (Mott MacDonald Drainage Advisor)

Mike Whitehead (SES S&E Environment Team Leader)

Sufian Sufian (SES Drainage Advisor)

Matt Tandy (AECOM Drainage Advisor)

Matt Lane (Mott MacDonald HADDMS Manager)

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Drainage Resilience performance metric webinars

Webinar 2 covered HADDMS-specific information and is no longer applicable as of October 2024.

Refer to https://help.gdms.assetia.cloud for access to GDMS documentation and online training material.

Drainage Resilience performance metric

Business processes to deliver mitigations and reporting

Quentin Dawson & Tim Spink

24th March 2021

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Agenda

- Introduction (Quentin Dawson)
- Webinar procedure
- Recap on webinar 1 and 2
- Business processes to deliver mitigations and reporting
  - Overview
  - Operations maintenance
  - Operations 3D schemes
  - Major Projects PCF schemes
- Reporting & assurance
- Current situation
- Webinar dates
- Q&A

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Webinar procedure

Open Q&A side panel

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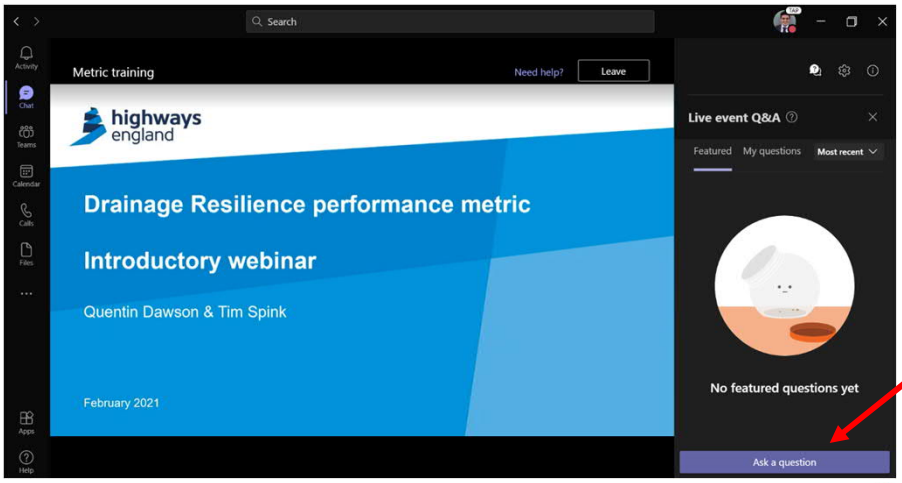
Webinar procedure



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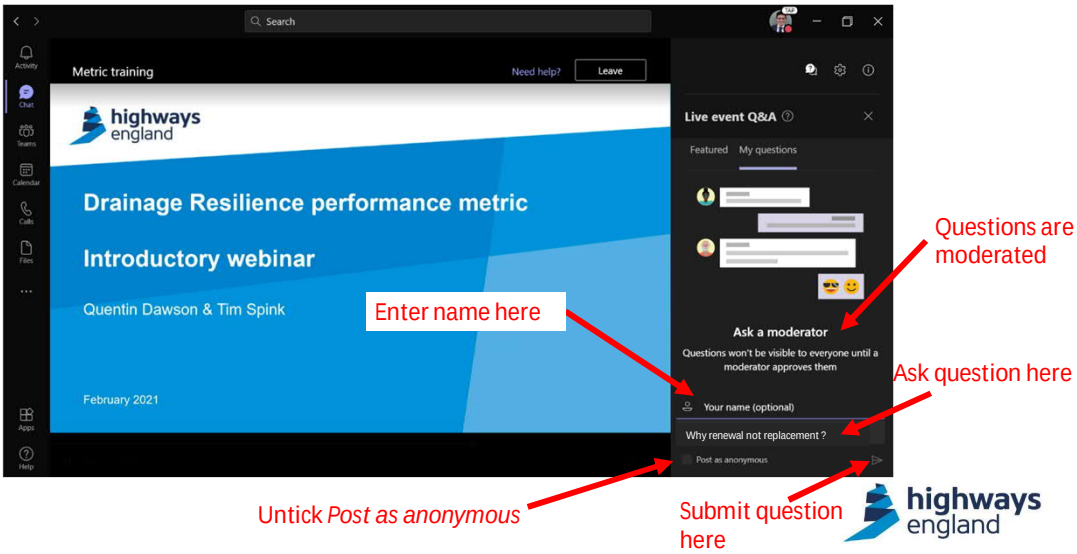

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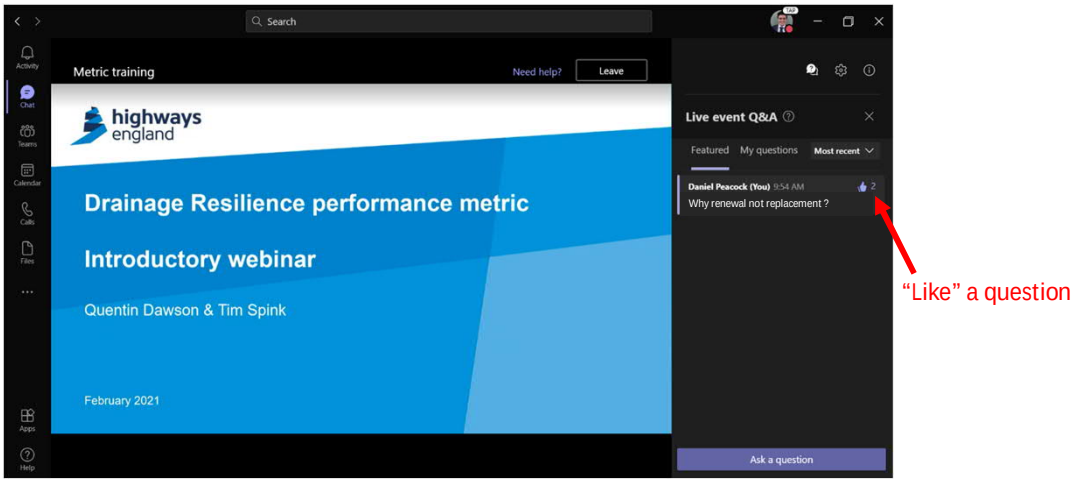

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Bandwidth issues

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Recap on webinars 1 and 2

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Recap: The Drainage Resilience performance indicator

- Drainage Resilience PI:
  - % length of carriageway that does not have an observed significant susceptibility to flooding
- Internal mitigations PRP target:
  - Mitigate 30 verified priority flooding hotspots per annum
- Mitigation works must reduce the risk of flooding:
  - At verified A1, A or B flooding hotspot
  - At verified risk status A or B priority culverts within flooding hotspot
- Definitions:
  - Risk status
  - Verification
  - Claimable mitigations

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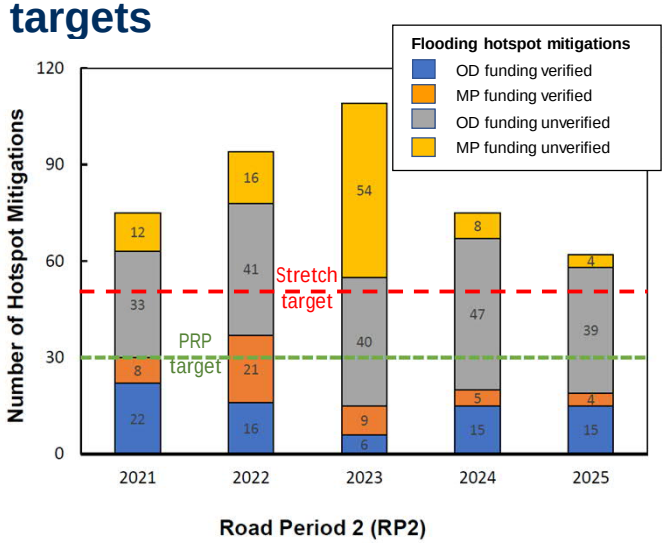
Recap: The RP2 mitigation targets

- Metric Performance Plan
  - Scheme by scheme workbank
- Workbank shortfall on:
  - Verifications
  - Funding provision
- 2020 to date shortfall on:
  - Mitigations
  - Assurance of mitigations



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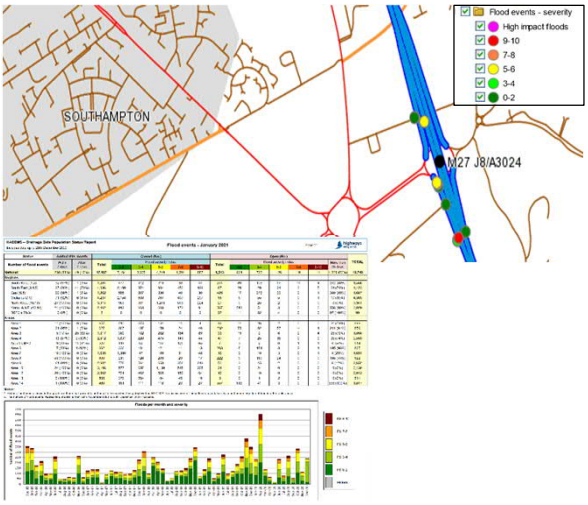
Recap: Drainage Data Management System (HADDMS)

- HADDMS
  - Getting access
  - Key information for identifying flooding hotspots, planning and reporting their mitigation
- HADDMS Monthly report
  - Where to get it
  - How to read it



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Recap: Issued to date

Documents & videos	HADDMS downloads	SHARE
Webinar 1 – recording, presentation & FAQ	X	http://share/share/llisapi.dll?func=ll&objId=91370095&objAction=browse
Webinar 2 – recording, presentation & FAQ	X	http://share/share/llisapi.dll?func=ll&objId=91363534&objAction=browse
Flooding hotspot guidance (2021)	X	http://share/share/llisapi.dll?func=ll&objaction=overview&objid=90996340

- HADDMS: https://www.haddms.co.uk

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Business processes to deliver mitigations and reporting - overview

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Mitigations delivery mechanisms (Operations)

- Non-renewal (BAU)
  - Maintenance activities
    - Some claimable as mitigations
  - Enhanced maintenance activities
- 3D scheme management (BAU)
  - Renewal schemes
    - Surveys for scheme development
  - Enhanced maintenance schemes (limited application)
- Environment & Wellbeing Designated Fund (EWDF)
  - Flooding mitigation schemes which deliver a long term sustainability over and above the basic DMRB engineering requirements needed to mitigate the flooding

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Mitigations delivery mechanisms (Major Projects)

- Major Project improvement scheme budget (BAU)
  - Mitigation all verified A1, A, B priority flooding hotspots
  - Mitigation all verified A and B priority culverts
- Environment & Wellbeing Designated Fund (EWDF)
  - Potentially, verified risk status C flooding hotspots and priority culverts
  - Flooding mitigations which deliver a long term sustainability over and above the basic DMRB engineering requirements needed to mitigate the flooding

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Key HADDMS business processes – 1 to 5

1. Review HADDMS record of flooding
   - Create hotspot
   - Record priority culvert
2. Verify risk status of flooding hotspot / priority culvert
   - Desk study
   - Field study
   - Update risk status on HADDMS
   - Identification of need
3. Round-trip survey data to HADDMS (if survey required)
4. Mitigation options study
   - Record proposed solution and proposed cost on HADDMS
   - Identification of enhancement opportunities
5. Undertake mitigation works

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Key HADDMS business processes – 5 to 9

5. Undertake mitigation works
6. Completion data collated
   - Major Projects handover completion data to Operations
7. Operations record data on HADDMS
   - Actual solution
   - Actual cost
   - Overall status recorded as X (risk addressed)
   - Upload evidence of mitigation
     - Completion certificate
     - As-built records
   - Update inventory and condition of the drainage assets on HADDMS, if necessary
8. HADDMS monthly reporting process identifies changes in risk status
   - Triggers mitigations assurance procedure
9. Flooding hotspot or priority culvert refloods
   - Update hotspot or culvert register on HADDMS to reinstate risk level
   - Repeat above processes

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Business processes to deliver mitigations and reporting - Operations maintenance

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Routine maintenance (high level, details & terminology vary)

- Intelligence-led maintenance approach (GM 701)
  - Maintenance Requirements Plan (MRP)
  - Documents variance from the requirements of GM 701
- Each section of the network has Required Level of Service (RLOS) and maintained accordingly:
  - Low = reactive only
    - Not claimable mitigation
  - Medium = as per GM 701
    - Sometimes claimable mitigation if a substantial routine maintenance activity effects a solution
    - Not a claimable mitigation if repeat of previous maintenance activity that failed to prevent re-flooding
  - High = Enhanced frequency, typically double the standard
    - Claimable mitigation
- MRP informs the annual cyclic maintenance plan carried out by the M&R contractor.
- Submission of maintenance works data to HADDMS to evidence contribution to the mitigations target
  - Verification
  - Survey data round-tripping
  - Mitigation identification and reporting
  - Mitigation evidencing to support assurance

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Enhanced maintenance

- Any maintenance activity that exceeds the requirements of GM 701
  - Inspection, cleansing, jetting plan at frequency in excess of GM 701 (High RLOS)
  - Monitoring & response plan
- 3D process may be applied
  - Not mandatory
  - For maintenance interventions that are beyond the scope of the M&R contract but not worthy of the full scheme development approach
  - Some stages (design) are skipped or modified to suit smaller scope
  - Helpful in keeping track of the evidence trail for mitigations

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Business processes to deliver mitigations and reporting - Operations 3D schemes

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3D develop | design | deliver

Operations 3D: Overview of process

	Stage Gate 1 Scheme identification	Stage Gate 2 Option Approval	Stage Gate 3 Preliminary Design Approval	Stage Gate 4 Detailed Design Approval	Stage Gate 5 Approval for Construction	Stage Gate 6 Construction completion	Stage Gate 7 Approval for scheme close-out
	Stage 0: Scheme identification	Stage 1: Options assessment	Stage 2: Preliminary design	Stage 3: Detailed design	Stage 4: Commercial pricing	Stage 5: Scheme construction	Stage 6: Scheme close-out
Milestones	Need identified and entered in the needs register	Survey pack ready	Preliminary design complete	Task order issued to DSC	Programme finalised (engaging Supply Chain)	Task Order awarded	Asset data updated and handover to maintenance
	Decision taken to address the need through a scheme	Surveys complete	L2 cost estimate developed	Draft design programme and design quote received from DSC	Request for pricing sent to Supply Chain	Mobilisation completed	Financial accounts closed
	Scheme outline scope, cost and time defined	Options proposed	Preliminary design documentation complete	Detail design completed	Target Cost completed	Construction completed	Post project review
		Options selected				Testing and completion certificates completed	Scheme formally closed in Programme Viewer

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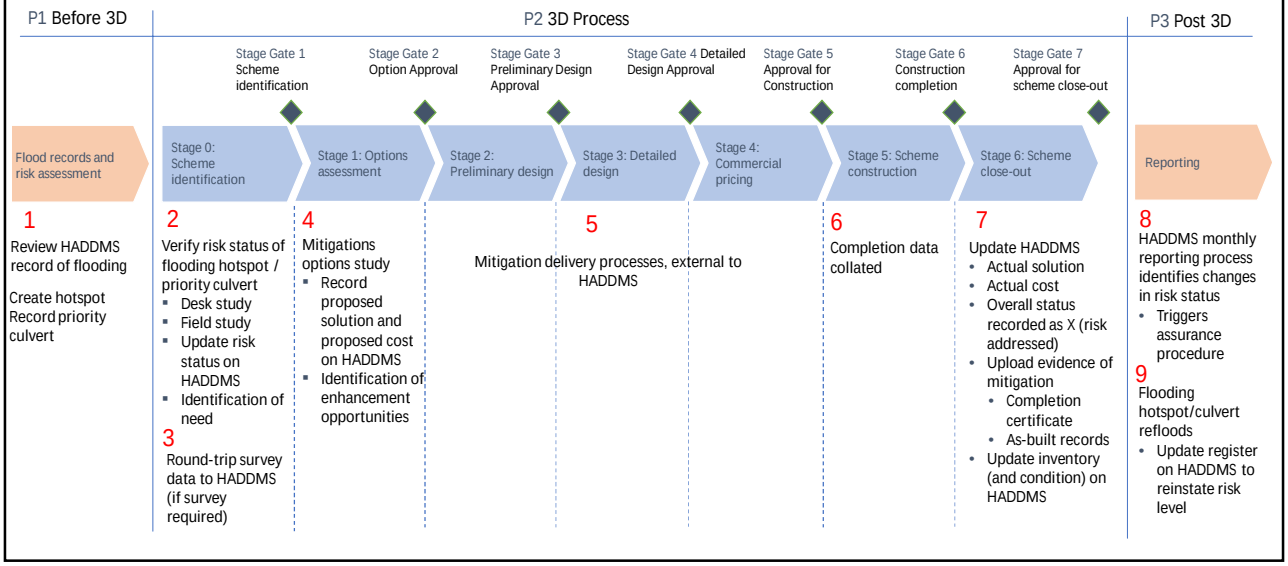
HADDMS Business Processes mapped to 3D



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Operations 3D: Scheme Passport and HADDMS

Definition

- File which is created for identified scheme in Stage 1 and grows with the scheme throughout stages. Contains:
  - key information about the scheme
  - risk register
  - process checklist for each stage gate
  - Stage gate sign-offs

Users

- For asset data owners and DLEs:
  - Provides one place to find information on a given scheme

Purpose

- The central repository of scheme documentation throughout its lifecycle
- Data source for HADDMS key business processes

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Operations 3D: SES liaison

- Is 3D the right delivery route for the works? Engage with SES early

Scheme stage		SES liaison
Stage 0	Asset need entry	Assure needs prioritisation process • Does the 5yr plan need to be re-prioritised
Stage 1	Options assessment	Provide technical input and assurance • Surveys & Mitigations option selection
Stage 2	Preliminary design	Manage departures from standards
Stage 3	Detailed design	Manage departures from standards
Stage 4	Commercial pricing	
Stage 5	Scheme construction	Seek technical advice, as required
Stage 6	Scheme close-out	Assurance of claimed mitigation (and audit)

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Business processes to deliver mitigations and reporting - Major Projects PCF

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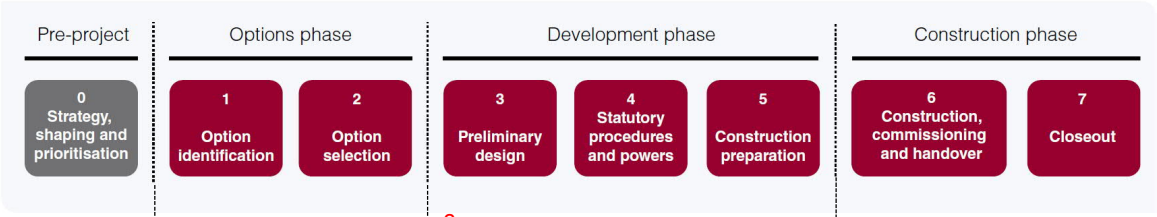
Major Projects PCF lifecycle



- Identify flooding hotspots & priority drainage assets for all scheme options in Drainage Workbook
- Compare with the SES forecast

2
- Verify risk status of all flooding hotspots & priority drainage assets within Preferred Route Announcement scheme boundary both known (HADDMS) and unknown
- Pass verification data to Ops
- Risk status updated in HADDMS by Ops

3
- Surveys (if required)
- Round-tripping of data by Ops

5
- Undertake mitigation works

6
- Collation of completion data & handover to Ops

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Major Projects: CPF Metric 5.1c

- Collaborative Performance Framework (CPF) Metric 5.1c
  - Reporting water quality and flooding works
  - Ensure that Highways England and their Suppliers possess a comprehensive understanding of the scheme's interaction with the water environment
  - Mechanism to ensure compliance with business requirements
  - Intended to drive contribution to the corporate metrics for water quality and flooding
- Assessment
  - Self-assessment scoring against clear criteria for each PCF Stage.
  - Should score >=6 at each PCF stage
- Evidence to support self assessment
  - Scheme Drainage Workbook
    - Score 0 if not provided
  - Drainage design drawings & calculations
    - Evidencing proposed mitigations
  - Register of Environmental Enhancements
    - Enhancement opportunities
    - Within Drainage Workbook

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Major Projects: CPF metric 5.1c scoring

Score	Assessment	PCF Stages 1 - 2	PCF Stages 3 - 5	PCF Stages 6 - 7
Score 6	DMRB compliant (BAU)	Identified all assets and hotspots in Workbook	• All risks identified in Workbook and HADDMS updated • Scheme forecast and PI contribution updated • Confirm scheme addresses all water environment risks • Metric information passed on to Operations	All mitigations delivered and reported on HADDMS
Score 8	Enhancement (beyond BAU)	Enhancement opportunities recorded	• Decreases the peak flood level of the 1% Annual Exceedance Probability event by 50 mm or more **. • 20% to 50% of the scheme's impermeable catchment area treated and/or attenuated using vegetated SuDS *.	Delivered at least one of enhancement opportunities
Score 10	Enhancement (beyond BAU)	Enhancements opportunities & contributions agreed with stakeholders	• Wider water environment enhancement beyond highway boundary • Decreases the peak flood level of the 1% Annual Exceedance Probability event by 100 mm or more **. • More than 50% of the scheme's impermeable catchment area treated and/or attenuated using vegetated SuDS *.	Delivered at least one of enhancement opportunities

** LA 113 Road drainage and the water environment. Table 3.71. Moderate benefit >50mm, Major benefit >100mm
* As an alternative to hard engineered storage solutions

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Major Projects: Drainage Workbook

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			Scheme Name	M1 J1	Supplier	XYZ Supplier		Drainage Engineer
	PCF Stage		Stage 1		Asset Location		PCF Stage 1-2	
Record Last Updated	Unique DDMS Asset Reference	Scheme ID (where relevant)	Asset Type	Asset Owner	OS Easting Co-ordinate	OS Northing Co-ordinate	Information received from HE	Drainage Asset Baseline Category
Culverts								
18/06/2020	SO9888_9727d		Culvert	HE	398977	288271	Yes	A
18/06/2020	SO9888_9419b		Culvert	HE	398946	288193	Yes	C
18/06/2020	SO9888_9522b		Culvert	HE	398959	288228	Yes	B
18/06/2020	SO9888_9828b		Culvert	HE	398980	288278	Yes	D
Flooding Hotspots								
18/06/2020	382		Hotspot	HE	398909	288306	Yes	A1
18/06/2020	138		Hotspot	HE	398978	288271	Yes	B
18/06/2020	973		Hotspot	HE	398827	288163	Yes	A
18/06/2020	653		Hotspot	HE	398816	288308	Yes	D
18/06/2020	208	XP12479	Hotspot	HE	398996	288191	Yes	X - Risk Addressed

The **Drainage Workbook** is a key document for recording the information required at each stage of CPF metric 5.1c reporting

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Major Projects: Drainage Workbook

PCF Stage 3-5				
Information received from Stage 1-2 Supplier	Drainage Asset Verification Status	Evidence of Verified Risk Status Updated on DDMS	Proposed Mitigation Solution	Proposed Mitigation Solution Supporting Documentation
Culverts				
Yes	A	Yes	Instrumentation, monitoring & enhanced maintenance	Submitted to MP Team and uploaded to SHARE
Yes	A	Yes	Reline culvert & river training works (enhancement)	Submitted to MP Team and uploaded to SHARE
Yes	C	Yes	Instrumentation, monitoring & enhanced maintenance	Submitted to MP Team and uploaded to SHARE
Yes	X - Risk Addressed	Yes	None	NA
Flooding Hotspots				
Yes	A1	Yes	Renew carriageway drainage	Submitted to MP Team and uploaded to SHARE
Yes	B	Yes	Refurbish ditches and channels	Submitted to MP Team and uploaded to SHARE
Yes	A1	Yes	Jet pipework, clean ditches. Install downstream wild detention basin (enhancement)	Submitted to MP Team and uploaded to SHARE
Yes	D	Yes	Jet pipework, clean ditches	Submitted to MP Team and uploaded to SHARE
No	X - Risk	No	None	NA

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Major Projects: Drainage Workbook

PCF Stage 6-7				Highways England Corporate Water Metric Contribution				
Information received from Stage 3-5 Supplier	Drainage Asset Residual Risk Status Post-Scheme	Actual Mitigation Solution	Evidence of Actual Mitigation Solution Submitted for Upload to DDMS	Contribution to Water Quality or Flooding Highways England PIs	Name of Waterbody Improved	Primary Improvement/ Enhancement	Length of Waterbody Improved (m)	Additional Notes/Commentary
Culverts								
Yes	X - Risk Addressed	Instrumentation, monitoring & enhanced maintenance	Yes	No				
Yes	X - Risk Addressed	Reline culvert & river training works	Yes	Yes	Smallwood stream	River Retraining	200	Works in association with Local Authority
Yes	X - Risk Addressed	Instrumentation, monitoring & enhanced maintenance	Yes	No				
Yes	X - Risk Addressed	None	No	No				
Flooding Hotspots								
Yes	X - Risk Addressed	Renew carriageway drainage	Yes	Yes				
Yes	X - Risk Addressed	Refurbish ditches and channels	Yes	Yes				
Yes	X - Risk Addressed	Install downstream detention pond	Yes	Yes	Bluewater Beck	Natural Flood Management Measures	50	Works part sponsored by Environment Agency
Yes	X - Risk Addressed	Jet pipework, clean ditches	Yes	Yes				
Yes	X - Risk Addressed	None	No	No				

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Reporting & assurance

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Reporting – prior to mitigation completion

- Evidence that the priority flooding hotspot or priority culvert has had its risk status verified
  - Update the record on HADDMS
  - MP handover data for Operations to update HADDMS
- Parallel scheme delivery reporting procedures
  - CPF metric 5.1c reporting requirements for Major Projects
  - 3D project management stage-gate documentation for Operations
  - EWDF stage-gate documentation for Major Projects and Operations
- Parallel maintenance reporting procedures
  - HADDMS key business processes

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Mitigation evidence requirements – on completion

Mitigation delivery	Mitigation evidence required		
	HADDMS updated to X-Risk Addressed	Completion Certificate	As-built drawings
Routine maintenance	Yes	Yes	No
Ops or MP scheme	Yes	Yes	Yes

- Update flooding hotspot record to X-Risk Addressed on HADDMS
  - All works
- Evidence completion
  - All works
  - Upload completion certificate to HADDMS
- Evidence the mitigation location and design
  - Operations and Major Projects schemes
  - As-built drawings uploaded to flooding hotspot on HADDMS
  - Meaningful photographs and associated design documentation useful but not evidence. Upload to drainage asset, not flooding hotspot
- Update the drainage inventory & condition record on HADDMS
  - All works
- Major Projects have read only access to HADDMS and all mitigation updates need to be handed over to Operations (Drainage Liaison Engineer) for upload/update

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Completion Certificates

- Task Completion Certificate
  - Flooding hotspot (or Priority Culvert) specific
  - Preferred, can be issued ahead of the Scheme Completion Certificate
  - Template on SHARE
- Scheme Completion Certificate
  - Must include:
    - HADDMS flooding hotspot or priority culvert number
    - A claimed output for a Flooding Hotspot (or Priority Culvert) mitigation
- To claim as complete:
  - Task Completion Certificate: mitigation in use and fully operational
  - OR Scheme Completion Certificate: mitigation in use and fully operational, road open to traffic
  - Each signatory must be satisfied of this
- Month of signature is the completion date for reporting
- Reporting must be within the same HE financial year as delivery for mitigation to be claimable against the target.
  - Delayed evidence must still be uploaded to HADDMS but the output will not be claimable against the following year's target

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Task Completion Certificate

Task Completion Certificate

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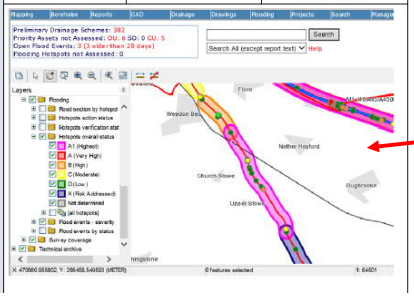
The signatories below certify that the following Flooding Hotspot has been mitigated:

Hotspot Number:	2203		
Project no. (PIN) (if applicable)	570207		
Project name / Road number	A5 Dodford to Old Stratford Flood Resilience Scheme - EDF Section 13		
Region/programme	Area 7		
Mitigation Method (add details of works completed)	Maintenance	Renewal	Improvement
			Installation of CKD, Ditch clearance, pipe lining, root cutting, excavate and replace, cleansing, new laterals, scour protection, new headwalls.
Location(s)			

HADDMS Flooding hotspot (or priority culvert number).
May be multiple if the mitigations are the same, but upload to each hotspot or culvert

Scheme details

Funding delivery route

Mitigation description.
For multiple outputs under the same PIN if the works completed differ for each output then complete a separate form for each hotspot or culvert

Location information.
Co-ordinates are acceptable but screenshot is best practice.
Supported by as-built drawings for schemes

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Hotspot refloods

- Flooding continues to occur within the hotspot
- Change hotspot risk status from X – Risk Addressed, to new overall risk status (A1, A, B, C or D)
  - Do not create a new flooding hotspot
  - Use the Suggested Data box on HADDMS to assess the new risk status
- Undo the previous mitigation record
  - Update the Verification Status to “Desk Study complete - field study required”.
  - Update the Action Status to “Required – not done or not completed”.
  - Update the Proposed Solution to “[Not yet designed]”.
  - Update the Actual Solution to “[Not yet built]”.
- Begin the field study and mitigation planning process
- The previously claimed mitigation still counts
  - Provided that a repeated maintenance mitigation was not carried out
- The mitigation is removed from the assessment of the Drainage Resilience metric

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Technical Assurance

- Operations delivery teams update HADDMS records post mitigation
- HADDMS monthly report picks up all changes to:
  - Flooding hotspots & priority culvert risk status
  - Flooding hotspots and priority culverts reported as X - risk addressed
  - Snapshot at 28th of the month
    - For end of year reporting also email support@HADDMS.com with hotspot reference number
- Mitigations are assured by SES to check satisfactory evidence
  - Operations submit missing evidence where required
- SES report and claim outputs against the mitigations PRP target
- HE Audit validate the assurance process

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Current situation

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Hotspot mitigations 2020/21 (at 23/3/2021)

	Operations	Major Projects	Total
Annual target			30
In programme	34	7	41
Delivered	28	7	35
Recorded on HADDMS	23	5	28
But re-flooded	2		2
But evidence not available	1		1
Assured & claimed against target	16	5	21
Delivered, but waiting evidence & assurance	9	2	11

- 6 not delivered
- 7 delivered but not recorded on HADDMS
- 9 short of target
- 11 delivered but not evidenced, and hence not yet assured
- End of March deadline

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Flooding hotspots/priority culverts requiring action

Ops/ MP	Region / Area	Scheme	Hotspot/ culvert	Action required
Ops	SW	566152 A36 Ower SB	2 hotspots	Evidence on HADDMS
Ops	Area 5		Hotspot 1783	Contact support@HADDMS.com to assist with upload
Ops	Mids	561817 A38 Shobnall	1 hotspot	Evidence on HADDMS
Ops	Area 9		Hotspot 2002	Evidence on HADDMS
Ops	Area 10		Hotspot 1199	Evidence on HADDMS
Ops	Area 12		Hotspot 2368	Update HADDMS due to reflooding
Ops	Area 12		Culvert 19093	Update HADDMS due to reflooding
Ops	Area 12	569046 M18J1 – M1J32	1 hotspot	Evidence on HADDMS
Ops	Area 12	562504 A64 Sherburn	1 hotspot	Upload Task Completion Certificate to HADDMS
Ops	Area 12	559982 A616 Uskers	1 hotspot	Evidence on HADDMS
Ops	Area 13		Hotspot 273	Evidence on HADDMS
MP	East	A14	1 hotspot	Provide evidence to Ops for upload/update on HADDMS
MP	Area 14	A19 Testos	1 hotspot	Provide evidence to Ops for upload/update on HADDMS

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Webinar dates

Series of webinar over the next 3 months to provide information, opportunity to raise queries and share experience.

- Wednesday 24th February – Drainage Resilience metric introduction
- Wednesday 3rd March - Using HADDMS for metric mitigations assessment and reporting (joint with Water Quality metric)
- **Today (24th March): Business processes to deliver mitigations and reporting**
- Wednesday 31st March 11:30 – 13:00 Flooding mitigations
- Wednesday 14th April 14:00 – 15:30 – Opportunity to view recording of 24th March webinar (or others)
- Wednesday 28th April 14:00 – 15:30 – Based on feedback to Quentin.Dawson1@highwaysengland.co.uk

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Q & A





Quentin Dawson (SES Drainage Lead)

Tim Spink (Mott MacDonald Drainage Advisor)

Mike Whitehead (SES S&E Environment Team Leader)

Matt Lane (Mott MacDonald HADDMS Manager)

David Funchall (IBI Drainage Advisor)

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Drainage Resilience performance metric

Flooding mitigations

Quentin Dawson & Tim Spink

31st March 2021

1

Agenda

- Introduction (Quentin Dawson)
- Webinar procedure
- Recap previous webinars
- Business processes to deliver mitigations and reporting
  - Operations & Major Projects EWDF
- Current situation
- Forward programme development
- Mitigations summary
- Case studies
- Training materials and guidance
- Webinar dates
- Q&A

2

Webinar procedure

Open Q&A side panel

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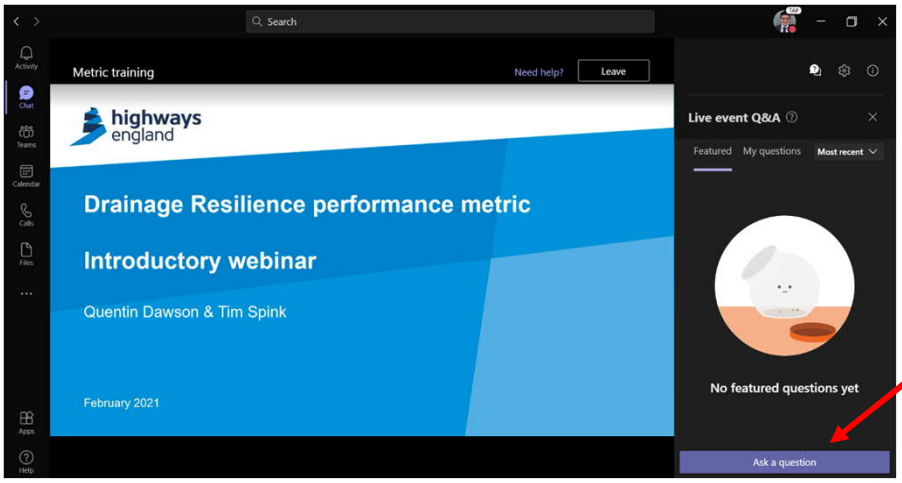
3

Webinar procedure



Click to ask question

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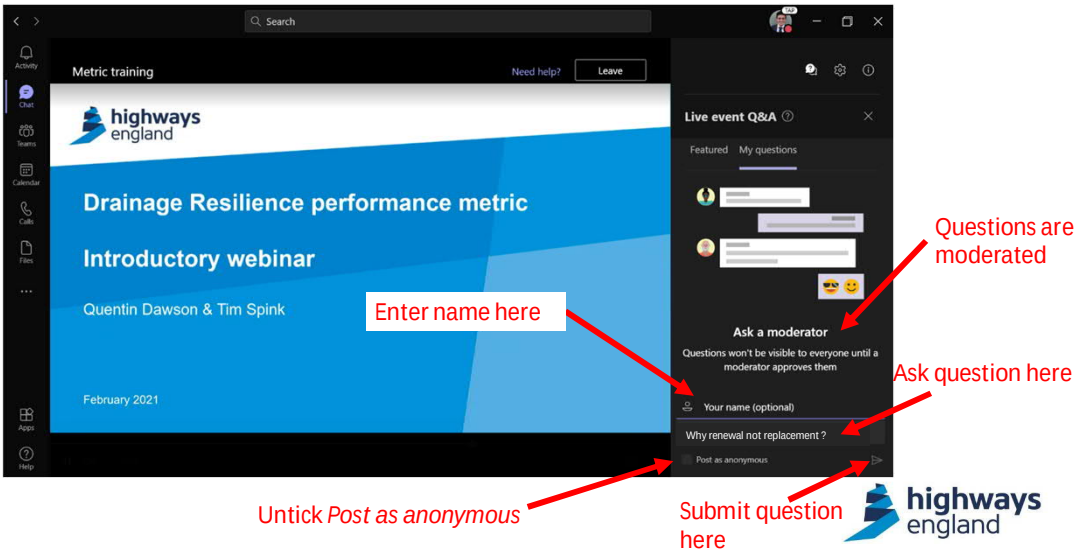
Webinar procedure



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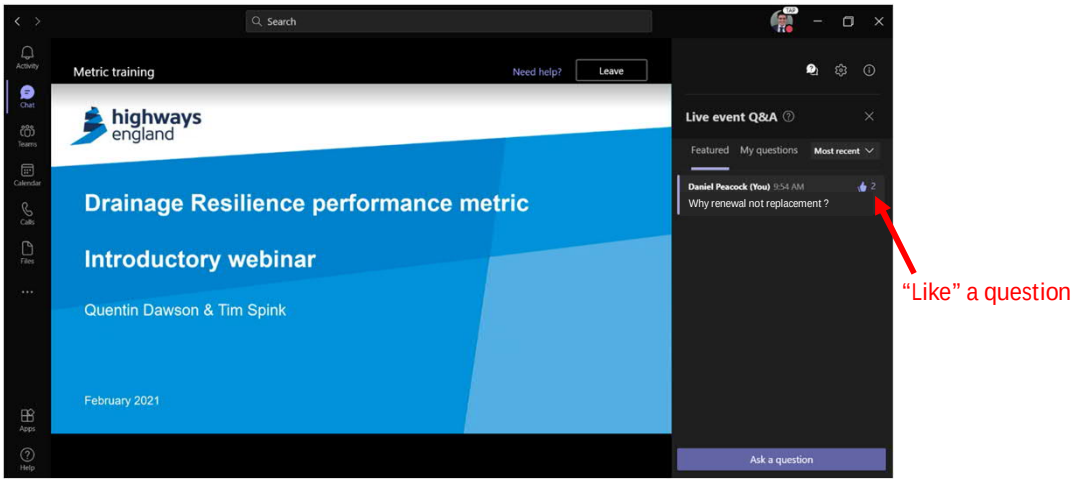
Webinar procedure



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Bandwidth issues

Pause webinar here

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Recap previous webinars

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Recap: webinar 3

- Business processes to deliver mitigations and reporting
  - Overview
    - 9 HADDMS key business processes
  - Operations maintenance
    - Routine maintenance
    - Enhanced maintenance
  - Operations 3D schemes
    - Scheme stage links to HADDMS key business processes
    - Scheme passport & SES liaison
  - Major Projects PCF schemes
    - Scheme stage links to HADDMS key business processes
    - CPF metric 5.1c scoring
    - Drainage Workbook
- Reporting & assurance
  - Reporting requirements
  - Task & Scheme completion certificates
  - Hotspot reflooding
  - Technical assurance

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Recap: webinar recordings

Documents & videos	HADDMS downloads	SHARE Links
Webinar 1 – recording, presentation & FAQ	X	http://share/share/Ilisapi.dll?func=ll&objId=91370095&objAction=browse
Webinar 2 – recording, presentation & FAQ	X	http://share/share/Ilisapi.dll?func=ll&objId=91363534&objAction=browse
Webinar 3 – recording & presentation	X	http://share/share/Ilisapi.dll?func=ll&objId=91811410&objAction=browse&viewType=1

- HADDMS: https://www.haddms.co.uk

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Business processes to deliver mitigations and reporting - Operations & Major Projects EWDF

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EWDF Enhancement

- For Operations and Major Projects flooding mitigations which deliver a long term sustainability **over and above the basic DMRB engineering requirements** needed to mitigate the flooding
  - Further reduction in road user flooding incident impact
  - Further reduction in 3rd party properties and adjacent land impact
  - Reduction in flood water level (see CPF metric 5.1c scoring)
  - Associated water quality improvements
  - Associated biodiversity/cultural heritage/landscape improvements
  - Monetised cost or qualitative benefit in EWDF Fund Appraisal spreadsheet
- Capacity upgrade over and above DMRB design requirements
  - Climate change enhancement over and above DMRB current requirements
- Additional attenuation/water quality improvement
  - SuDS installation (see CPF metric 5.1c scoring)
  - Detention pond installation
- Partnership arrangements (see CPF metric 5.1c scoring)
- <u>Beyond business as usual</u>
- A claimable mitigation of flooding hotspots / priority assets
  - Claimable against flooding mitigation target
  - Don't double count flooding hotspot and priority culvert mitigations
  - Potentially also claimable against water quality mitigation target, and PI

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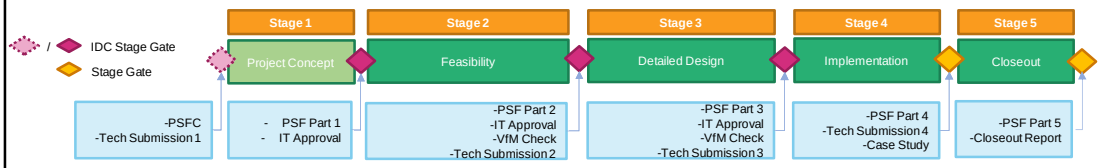
EWDF: What is required and when?



Tech submission 1	Concept Methodology Report
Tech submission 2	Signed EWDF Appraisal Tool, Technical Report Part 1, EIA Screening, HRA Screening, Establishing and Monitoring Form
Tech submission 3	Signed EWDF Appraisal Tool, Technical Report Part 2, Establishing and Monitoring Form
Tech submission 4	Establishing and Monitoring Form

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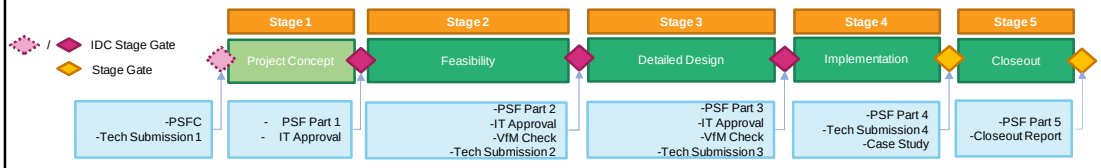
EWDF: What is required and when?



1
Review record of flooding
- HADDMS
- other sources

Create hotspot
Record priority culvert

2
Verify risk status of flooding hotspot / priority culvert
- Desk study
- Field study
- Update risk status on HADDMS
- Identification of need
- Confirmation of funding route

3
Round-trip survey data to HADDMS (if survey required)

4
Mitigations options study
- Record proposed solution and proposed cost on HADDMS
- Identification of enhancement opportunities

5
Mitigation delivery processes, external to HADDMS

6
Completion data collated

7
Update HADDMS
- Actual solution
- Actual cost
- Overall status recorded as X (risk addressed)
- Upload evidence of mitigation
  - Completion certificate
  - As-built records
- Update inventory (and condition) on HADDMS

8
HADDMS monthly reporting process identifies changes in risk status
- Triggers assurance procedure

9
Flooding hotspot/culvert refloods
- Update register on HADDMS to reinstate risk level

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EWDF: SES liaison

- Is EWDF the right delivery route for the works? Engage with SES early.

Scheme stage		SES liaison
Stage 1	Concept	Confirm EWDF criteria Explore proposed concept
Stage 2	Feasibility & Preliminary design	Provide technical input and assurance to option selection • Surveys & Option selection • Benefit/Cost review & contribution to PI • Assure EWDF criteria alignment • Confirm scheme is not BAU Manage departures from standards
Stage 3	Detailed design	Provide technical input and assurance Re-appraise BCR if cost escalation >10% Manage departures from standards
Stage 4	Implementation	Provide technical advice where requested
Stage 5	Close-out	Assurance of claimed mitigation

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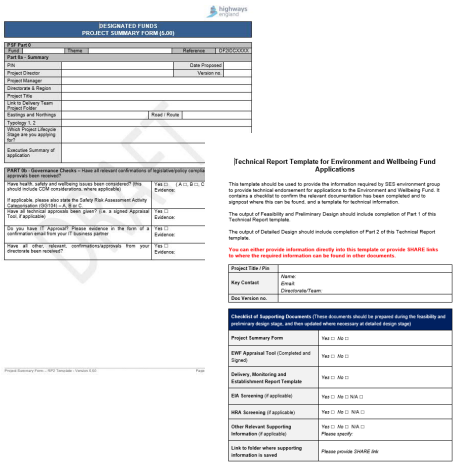
EWDF: What does a good Tech 2 submission look like?

A good submission at the end of feasibility stage should include:

- Project Summary Form (PSF)
  - Identify flood hotspots/priority asset IDs
  - Clear and concise summary of the project updated to reflect feasibility stage findings
  - Consistent with other documents submitted
  - Realistic delivery programme and costs
- Technical Report
  - Detailed description of the problem/opportunity including evidence
  - Identification of the preferred option and justification/evidence that it is feasible
  - Justification/evidence it aligns with the relevant environmental topic criteria in the EWDF Fund Plan
  - Maps, diagrams, plans, drawings and photographs
  - Template on SES Online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DESIGNATED FUNDS
PROJECT SUMMARY FORM (5.00)

PSF Part A:			
Fund:	Theme:	Reference:	DF20CCXXXX
Part 0a : Summary			
PIN:		Date Proposed:	
Project Director:		Version no:	
Project Manager:			
Directorate & Region:			
Project Title:			
Link to Delivery Team Project Delivery Plan:			
Eastings and Northings:		Road / Route:	
Typology: 1, 2:			
Which Project Lifecycle Stage are you applying for?			
Executive Summary of application :			

PART 0b : Governance Checks – Have all relevant confirmations of legislative/policy compliance approvals been received?		
Have health, safety and wellbeing issues been considered? (this should include CDM considerations, where applicable)	Yes ☐ (A ☐, B ☐, C ☐) Evidence:	
If applicable, please also state the Safety Risk Assessment Activity Categorisation (SD1/04) – A, B or C:		
Have all technical approvals been given? (i.e. a signed Appraisal Tool, if applicable)	Yes ☐ Evidence:	
Do you have IT Approval? Please evidence in the form of a confirmation email from your IT business partner	Yes ☐ Evidence:	
Have all other relevant confirmations/approvals from your directorate been received?	Yes ☐ Evidence:	

Project Summary Form – RPS Template – Version 5.00 Page

Technical Report Template for Environment and Wellbeing Fund Applications

This template should be used to provide the information required by SES environment group to provide technical endorsement for applications to the Environment and Wellbeing Fund. It contains a checklist to confirm the relevant documentation has been completed and to signpost where this can be found, and a template for technical information.

The output of Feasibility and Preliminary Design should include completion of Part 1 of this Technical Report template.

The output of Detailed Design should include completion of Part 2 of this Technical Report template.

You can either provide information directly into this template or provide SHARE links to where the required information can be found in other documents.

Project Title / Pin:	
Key Contact:	Name: Email: Directorate/Team:
Doc Version no.	

Checklist of Supporting Documents (These documents should be prepared during the feasibility and preliminary design stage, and then updated where necessary at detailed design stage)	
Project Summary Form	Yes ☐ No ☐
EWF Appraisal Tool (Completed and Signed)	Yes ☐ No ☐
Delivery, Monitoring and Establishment Report Template	Yes ☐ No ☐
EIA Screening (if applicable)	Yes ☐ No ☐ N/A ☐
HRA Screening (if applicable)	Yes ☐ No ☐ N/A ☐
Other Relevant Supporting Information (if applicable)	Yes ☐ No ☐ N/A ☐ Please specify:
Link to folder where supporting information is saved	Please provide SHARE link

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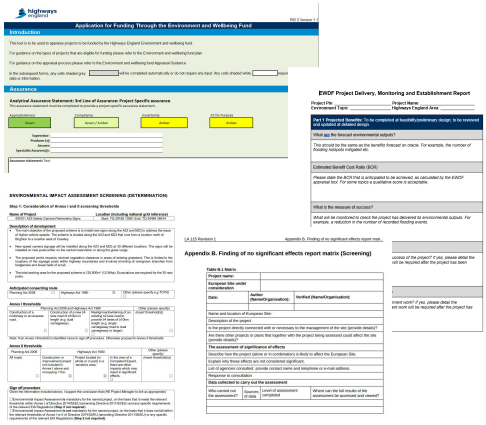
EWDF: What does a good Tech 2 submission look like?

A good submission at the end of feasibility stage should include:

- A completed **Appraisal Tool**
  - Check latest version
  - Water environment section completed
  - Relevant secondary benefit topic areas completed
    - Biodiversity, cultural heritage, landscape
  - Realistic identification of benefits and scheme outputs
  - Signed by Operations / Major Projects & SES Technical Advisor
  - >£150k signed by Transport Planning Group (TPG)
  - See EWDF Appraisal Guidance document
- Environmental Impact Assessment (EIA)
  - Screening report (if applicable)
- Habitat Regulation Assessment (HRA)
  - Screening and no significant effects report (if applicable)
- Monitoring and Establishment Report
- Templates on SES Online



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EWDF Appraisal Tool – Flooding on network

2	**Flooding Appraisal**				
2A	Please select which aspect of flooding your project covers	Both of the above	*Select from dropdown*		
		Complete Questions 2A - 2H			
	Flooding Affecting the Road Network				
2B	Which priority asset does your project involve? Also provide its Asset ID.	Flood Hotspot	*Select from dropdown*	**HADDMS Asset ID**	1234
2C	What is the current, verified, hotspot status? *Verification of the status of the hotspot must have been completed in advance.*	A (Very High)	*Select from dropdown*	The risk status must be verified	
2D	What is the predicted hotspot status of asset on completion of your project?	X (Risk Addressed)	*Select from dropdown*		
	Significance of effect	Very Large Beneficial			
2E	**Road User Delays as a Result of a Flood Incident in Your Project Location**				

Flooding Event Frequency:			
Without Scheme	1 in 2	Years	
With Scheme	1 in 20	Years	
Road Type:	Dual Carriageway	No. Lanes per carriageway	2
Impact of Flood on Road:	Partial Closure	Direction of Road Closed:	Two-Way
No of Lanes Closed (one way):	1	Approximate Flood Duration:	120 mins
Diversion Route Available:	Yes	Diversion Delay Estimate:	30
One-Way Capacity (veh per hour):	3652	Percentage HGV:	10 %
One-Way Vehicle Demand (flow per hour):	2082 *Should be lower than capacity*	Delay:	9 min/veh
Total Incident Cost:	£16,512 in £'s 2010 market price		
Total Incident Savings in Opening Year:	£7,430		
Total Incident Savings over Assessment Period:	£154,864 discounted to 2010		

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EWDF Appraisal Tool – Flooding adjacent to network

Flooding Affecting Properties and Land Adjacent to the Network

2F Does your project have any significant flood damage benefits to properties? Yes — If "Yes" Complete section below

2G Residential Damages

Existing Significance category: Very significant
Proposed Significance category: Significant
No. of residential properties affected: 8

Warning Level: > 8 hour Warning
Proposed Warning Level: > 8 hour Warning
Weighted Average Annual Damages (WAAD)/household: £1,088 £/Yr in 2010 prices
Intangible cost/household: £212 £/Yr in 2010 prices

2H Non residential Damages

No. of non residential properties (NRP) affected : 1
Type of non residential property affected : Retail
Existing Significance category: Very Significant
Proposed Significance category: Significant

NRP Annual Damages (WAAD)/property: £6,396 £/Yr in 2010 prices
Average related cost of damage for NRP: £192 £/Yr in 2010 prices

Total Estimated Benefits to properties in Opening Year: £16,990 £ in 2010 prices
Total Benefits over Assessment Period: £506,707 discounted to 2010

Category	Annual exceedance probability	Return period (1 in X years)
Very significant risk	>=5%	> 20 years
Significant risk	<5% to >1.3%	20 to 75 years
Moderate risk	1.3% to >0.5%	75 to 200 years
Low risk	<=0.5%	< 200 years

Table 3 of EWDF Appraisal Guidance document

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EWDF Appraisal Tool – Results summary

4 How much funding is required from the Designated Fund for your project?

Please provide a best estimate if exact amounts are unknown

Feasibility & Preliminary Design: £40,000.00
Detailed Design: £30,000.00
Delivery: £400,000.00
Total Estimated Project Costs: £470,000 *real prices in £ including appropriate risk/optimism bias*
Total Estimated Present Value Costs (PVC): £322,168 *in £ 2010 market prices, discounted to 2010*

RESULTS SUMMARY:

The table will auto-populated upon completion of the information above and the relevant topic worksheets

Topic Appraisal Results	PVB (Quantitative)	Quality for Money Score (Qualitative)	BCR (PVB ÷ PVC)
Biodiversity			
Carbon	£0		0.00
Cultural Heritage			
Flooding on Network	£154,864		0.48
Flooding Properties and Land	£506,707		1.57
Water Environment			
Noise	£0		0.00
Landscape	£0		0.00
Journey Time	-£10,543		-0.03
Accidents	£0		0.00

Road user tab must be completed for Journey Time & Accidents

Quantitative Results Summary and Quantitative Adjustment

Benefits from other sources e.g. lower maintenance costs etc.	*If applicable, provide an explanation of how any addtional benefits have been quantified. Methodology should be agreed with TPG and additional monetised benefit entered below in £.*		
	£0		
Scheme Total quantitative VfM and BCR	£651,029	High VfM	2.02

Overall BCR aim for >1.5

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EWDF: Common mistakes

General

- Not engaging with SES.
  - Engage early
  - Regular consultation is recommended
- Not providing all the required documents
- Not having sign off from TPG in the appraisal tool where required
- Not clearly articulating and evidencing the problem/benefit
- Not providing evidence the proposed project is feasible
- Projects which don't support:
  - The PIs
  - The designated funds plan funding principles
  - The topic specific aims

Flooding specific

- Priority assets in the vicinity not considered
- No evidence the project will contribute to PI
- Low confidence project will resolve the flooding problem
- Opportunities for water quality improvement not considered

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Current situation

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Hotspot mitigations 2020/21 (at 30/3/2021)

	Operations	Major Projects	Total
Annual target			30
In programme	34	7	41
Delivered	30	7	37
Recorded on HADDMS	24	6	30
Assured & claimed against target	18	5	23
Delivered, but awaiting required evidence	12	2	14

- 4 not delivered
- 7 delivered but not recorded on HADDMS
- 7 short of target
- 14 delivered but not evidenced or updated on HADDMS, and hence not yet assured

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Flooding hotspots/priority culverts requiring action

Ops/ MP	Region/ Area	Scheme	Hotspot/ culvert	Record on HADDMS	Update HADDMS to X Risk addressed & Action complete	Task Completion Certificate required	As-built drawing required
Ops	SW	566152 A36 Ower SB	2 hotspots	x	x	x	x
Ops	Area 5		Hotspot 1783			x	
Ops	Mids	561817 A38 Shobnall	1 hotspot	x	x	x	x
Ops	Area 9		Hotspot 2002			x (not scheme)	
Ops	Area 10		Hotspot 1199			x	
Ops	Area 12		Culvert 19093				x
Ops	Area 12	569046 M18J1 – M1J32	Hotspot 1170		x	x	x (not design)
Ops	Area 12	559982 A616 Uskers	Hotspot 1023			x	x
Ops	NW	606261 M6 Charnock	2 hotspots	x	x	x	x
Ops	Area 13		Hotspot 273		x	x	x
MP	East	A14	1 hotspot	x (handover to Ops)	x	x	x
MP	Area 14	A19 Testos	1 hotspot	x (handover to Ops)	x	x	x

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Required actions

- **Tuesday April 6th final deadline**
- Required actions:
  - Record details on relevant flooding hotspot record on HADDMS
    - Update **Action Status** to Required – complete
    - Record the **Actual Solution**
    - Record the **Actual Cost**
    - Update **Overall Status** to X – (Risk addressed)
  - Complete, sign and upload Task Completion Certificate
  - For all schemes, upload As-built drawing (or design drawing marked as As-built)
  - For Major Projects pass above to Operations Drainage Liaison Engineer for upload
- Contact support@HADDMS.com for help or guidance
- Email SESAssurance@highwaysengland.co.uk with hotspot reference number once complete
- Update drainage inventory and condition on HADDMS

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Forward programme development

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Forward programme

- Operations and Major Projects need to identify and deliver
  - 5 year forward rolling programme – RP2 years 2 to 5 & RP3 year 1
  - Verification and mitigation of flooding hotspots and priority culverts
- Year on year targets are detailed in the Drainage Resilience metric performance plan
  - Associated spreadsheet workbank
  - Live documents
  - Next update April 2021
  - Major Projects and Operations to review and feed updates to Sufian Sufian in SES
- Review and update
  - Changes in recent flooding
  - Changes to flooding hotspot & priority culvert register
  - Changes in risk status resulting from verification
  - Identify, review, confirm funding routes (maintenance BAU, 3D renewals, PCF improvements)
  - Review scheme delivery stage gates (3D, PCF, EWDF)
  - Identify opportunities for EWDF funding
  - Review scheme programme prioritisation (schemes brought forward or deferred)
  - Review maintenance programme (update Maintenance Requirements Plan)
  - Hence, update what is in workbank and adjust works delivery year
  - Determine verification programme
  - Feedback to SES
- Ensure forecast delivery on Oracle is up to date

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Operations forward programme

- Performance plan based on:
  - Detailed Area/Regional plan
    - Maintenance
    - Renewals schemes
  - Average assumption (no plan)
  - EWDF approved schemes
- Observations for programme update:
  - Only 22% funding identified
  - Similar % verified risk status
  - Good coverage across RP2 nationally
  - Sparse in some areas in some years
  - Nothing identified in RP3
  - Few culverts
  - Some items not detailed at Area level
  - Significant % flooding hotspot or priority culvert ID missing

Region/ Area	2021-22		2022-23		2023-24		2024-25	
	Funding identified	Funding uncertain	Funding identified	Funding uncertain	Funding identified	Funding uncertain	Funding identified	Funding uncertain
Culverts								
Midlands								
7								2
NW								
10		2		2		2		2
Regional EDF							2	
SE								
Regional EDF							1	
Hotspots								
East								
6		1		2		2		1
8		2		2		2		1
Regional EDF							2	
Midlands								
7		5		6		9		6
9		4		4		4		4
Regional EDF								
NE								
12		4		4		4		4
14		4		4		4		4
Regional EDF							2	
NW								
10		6		6		8		8
13		4		4		4		4
Regional EDF					10		8	
SE								
3		7		2		4		4
4	7		6		5		1	
5		4		4		4		4
Regional EDF	2						2	
SW								
1	2	1		2		2		
2	4	3		4		4		3
Regional EDF	1							
Totals	**16**	**47**	**6**	**46**	**15**	**53**	**18**	**47**
Annual totals	**63**		**52**		**68**		**65**	

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Major Projects forecast forward programme

- SES forecast based on:
  - GIS analysis from scheme boundary
  - Current stated delivery year of scheme
- Observations for programme update:
  - Only 26% verified
  - Sparse in 2023/24 & 2024/25
  - Useful quantity in RP3, need to be split by delivery year
  - Few culverts

Scheme completion year	Culverts - Unverified		Culverts - Verified		Hotspots - Unverified			Hotspots - Verified			Totals
	A	B	A	B	A1	A	B	A1	A	B	
2021-22	0	0	3	0	3	10	6	4	15	4	45
2022-23	1	1	0	0	10	17	8	3	3	3	46
2023-24	0	0	0	0	0	1	1	1	4	3	10
2024-25	0	0	0	0	1	9	4	3	1	0	18
RP2 Total	1	1	3	0	14	37	19	11	23	10	119
RP3 Total	3	0	0	0	12	37	32	6	0	1	91

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Major Projects missing from SES forecast

- 7 Major Project schemes added to RP2 delivery plan require Preferred Route Announcement scheme boundary
  - GIS shapefile preferred
  - CAD drawing(s) acceptable alternative
  - support@HADDMS.com can provide guidance
  - Submit either to support@HADDMS.com or direct to Sufian.Sufian@highwaysengland.co.uk

Scheme completion year	Scheme	Category
2021-22	A61 Westwood Roundabout	Named Schemes
2022-23	M6 Junctions 4 to 5	Smart Motorway
2023-24	M4 Junctions 19 to 20 and M5 Junctions 16 to 17	Smart Motorway
2024-25	A47 Great Yarmouth Junctions	Named Schemes
2024-25	M42 Junctions 4 to 7	Smart Motorway
2024-25	M6 Junctions 5 to 8	Smart Motorway
2024-25	M6 Junctions 8 to 10	Smart Motorway

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Mitigations summary

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Mitigations summary

Mitigation type	Not claimable		Claimable flooding mitigation					WQ
	Reactive maintenance	Routine maintenance	Enhanced maintenance		Renewal	Improvement	Enhancement	
	Maintenance			3D		PCF	EWDF	
Pumping, gully cleaning, trash screen cleaning	✘							
Channel sweeping, vegetation clearance		✘						
Jetting, root cutting, ditch clearing			✓					
Repeat jetting, root cutting, ditch clearing		✘						
Installing grips, filter drain media recycling			✓					
Enhanced cleansing plan (>GM 701)				✓				
Monitoring & response plan				✓				
Local or full scale repair or refurbishment					✓	✓		
Like for like replacement or relocation					✓	✓		
Replacement/additional drainage to meet DMRB – capacity, interception, storage					✓	✓		
Reduction in flood impact/level > DMRB/BAU							✓	✓
Water quality or environmental benefits							✓	✓
SuDS installation							✓	✓

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Case studies

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Case study: A47 Pentney Drainage

Problem

- Flooding hotspot 2394. Overall risk status A
- Surface water from the carriageway flooding adjacent property.
- CCTV survey identified gully tails were blocked with no outlet to the gullies.

Solution

- New drainage with a new outfall to the river
- Design carried out by Atkins (DSC supplier) and installed by Carnell (Sub Contractors to M&R Contractor) over a weekend closure.
- Carried out under licence for access to the garden to install the assets, with a legal agreement for future maintenance.
- Headwall design changed at an onsite meeting with the contractor and the land owner who wished for sandbags instead of concrete.

Cost

- £130k including survey, design, construction, traffic management and legal fees.

Flood Events

Flood ID	Status	Impact On Third Party	Severity Index	Reported Date
26460	Closed	Residential property / critical infrastructure	1.4	16/09/2018 12:12:00
26461	Closed	Residential property / critical infrastructure	0.42	12/12/2020 10:15:00
26462	Closed	Residential property / critical infrastructure	1.26	21/12/2018 12:24:00
26463	Closed	Residential property / critical infrastructure	1.4	11/06/2019 10:07:00
26464	Closed	[Not Determined]	1.4	06/08/2019 12:13:00
26465	Closed	Residential property / critical infrastructure	1.4	17/01/2020 02:20:00
26466	Closed	Residential property / critical infrastructure	1.4	28/02/2020 10:10:00
26467	Closed	Residential property / critical infrastructure	1.26	07/06/2020 10:05:00
26468	Closed	Residential property / critical infrastructure	1.4	16/08/2020 10:00:00
26469	Closed	Residential property / critical infrastructure	1.4	18/08/2020 10:10:00


Chamber mid-construction


Outfall mid-construction

Images and information courtesy of Jenni Stout Area 6

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A47 Pentney Drainage

Flooding Hotspot Register Details

Register ID	2394
Road(s)	A47 (EB)
Area	6
Baseline Risk Level	[Not determined]
EA flood risk area	No
Number Of Flood Events	>5
Year of first flood	2018
Flood severity	0-4
Maximum impact on third parties	Residential property / critical infrastructure
Verification Status	Field Study complete
Action Status	Required - complete
Overall Status	X (Risk Addressed)
Proposed Solution	New build - other drainage
Proposed Cost (£)	50000
Actual Solution	Gullies
Actual Cost (£)	130000
Last Update	20/02/2021
Comments	hotspot on westbound carria HADDMS will not snap to tha section. Works carried out by Carnell scheme, new drainage asse leading to a new headwall w residents garden - land regis to allow a right to maintain. V completed Jan/Feb 21

Mitigation assured

Task Completion Certificate

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The signatories below certify that the following Flooding Hotspot has been mitigated:

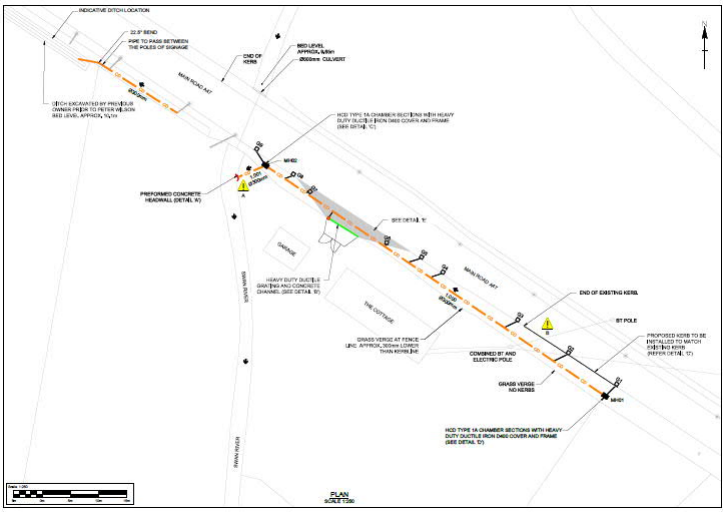
Hotspot Number:	2394
Project no. (PIN) (if applicable)	605556
Project name / Road number	A47
Region/programme	East Area 6
Mitigation Method (add details of works completed)	Maintenance: New pipe work
Location(s)	A47 (EB) Pentney market posts 2 Easting & Northing- 573645, 3144

For completion by service provider's / contractor's representati

Name	Wayne Saunders
Role	Supervisor
Signature	
Date	24/02/2021

For completion by Highways England countersigner:

Name	Daniel Palmer
Role	Service Delivery Manager
Signature	
Date	24/02/2021



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Case Study: A14 – filter media replacement

Problem

- Flooding hotspots 52 & 2052. Overall risk status A1 and B
- WB carriageway of the A14 between J13 and J20
- Congested filter media leading to flooding

Solution

- Originally two schemes but combined at design stage
- Recycling and reinstatement of filter media along 2,237m of A14
- Work carried out by Carnell

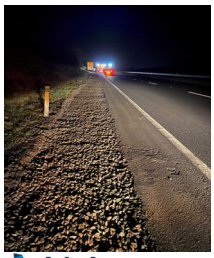
Cost

- £1.5m, split across the two hotspots

Flood Events

Flood ID	Status	Impact On Third Party	Severity Index	Reported Date
1103	Closed	None	7.2	26/08/2010 12:38:00
1180	Closed	None	6.48	11/11/2010 10:43:00
4633	Historic	None	7.2	28/02/2010 12:00:00
4636	Historic	None	7.2	02/05/2010 12:00:00
4641	Historic	None	7.2	06/06/2010 12:00:00
9690	Closed	None	7.2	04/03/2012 12:48:00
11602	Closed	[Not Determined]	6.48	20/12/2012 01:39:00
11756	Closed	None	6.48	05/08/2012 10:03:00
12307	Closed	None	6.48	20/06/2013 08:42:00
13218	Closed	None	6.48	07/01/2014 08:23:00
15260	Closed	None	7.2	14/11/2014 12:00:00
15453	Closed	None	1.68	25/07/2015 12:50:00
16387	Closed	None	7.2	30/12/2015 09:38:00
16621	Closed	None	5.04	11/01/2016 05:46:00
17912	Closed	None	7.2	11/05/2016 11:46:00
18363	Closed	None	5.76	10/09/2016 12:28:00
18732	Closed	None	5.76	10/12/2016 09:12:00
18733	Closed	None	1.68	10/12/2010 09:12:00
20155	Closed	None	5.76	27/12/2017 10:20:00
21186	Closed	None	5.18	16/08/2018 10:00:00
21340	Closed	None	3.46	20/09/2018 05:07:00
22912	Closed	None	5.6	02/03/2019 03:40:00
23282	Closed	None	4.48	07/06/2019 01:45:00
24280	Closed	None	5.6	14/11/2019 04:18:00

CR VRS view of flooded WB carriageway



Images and information courtesy of Jenni Stout Area 6

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A14 – filter media replacement

Flooding Hotspot Register Details

Register ID	52
Baseline Ref	804
Road(s)	A14 (WB)
Area	8
Baseline Risk Level	C (Moderate)
EA flood risk area	Yes
Number Of Flood Events	>5
Year of first flood	2010
Flood severity	7-10
Maximum impact on third parties	None
Verification Status	Field Study complete
Action Status	Required - complete
Overall Status	X (Risk Addressed)
Proposed Solution	Substitute - other drainage works
Proposed Cost (£)	1000000
Actual Solution	Combined methods (attach details as documents)
Actual Cost (£)	1000000
Last Update	23/03/2021
Comments	Filter media recycling scheme, full depth (800mm) recycling of all filter media.

Mitigation assured

Hotspot Completion Certificate

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The signatories below certify that the following Flooding Hotspot has been mitigated:

Hotspot Number:	52		
Project no. (PIN) (if applicable)	605715 / 605716		
Project name / Road number	A14		
Region/programme	East Area 8		
Mitigation Method (add details of works completed)	Maintenance	Renewal	Improvement
	Recycling of filter media	.	
Location(s)	A14 (WB) marker posts 58/1 – 65/3 511994, 273442		

For completion by service provider's / contractor's representative:

Name	Reece Tomlinson
Role	Delivery Manager
Signature	
Date	04/03/2021

For completion by Highways England countersigner:

Name	Steve Cox
Role	Project Manager
Signature	Steve Cox
Date	05/03/2021

Flooding Hotspot Details

Register ID 52 and baseline ref 804- Flooding Hotspot on the A14 between junction 16 and 21 Westbound.

URS Scott Wilson was tasked with verifying the Flood Hotspots Register in accordance with the Highways Agency 'Guidance note on the assessment of flooding hotspots' (Nov 2010) further referred to as 'guidance'. The Environment Agency (EA) flood maps, Surface water flooding maps and the Highways Agency Drainage Data Management System (HADDMS) were used to validate the existing baseline assessment. The guidance has categorises the area of risk into four categories: very high (A), high (B), moderate (C) and low (D). The existing baseline assessment for this flood hotspot was category C. Below are our findings:

1) The flood hotspot is within areas of fluvial flood risk according to the EA flood map (the area is at risk from a 1% per annum probability of fluvial flood without climate change. (the 1 in 100 year fluvial flood event)).
2) The flood hotspot is in an area with intermediate risk of surface water flooding according to the EA.
3) No third parties where flooded in these incidents.
4) The flood hotspot has 5 flood events according to the HADDMS database. Using the Flood Severity Index a severity score can be given to each flood event. The table below shows the flood severity for 5 flood events in the last five years:

Flood events	Reference 1103	Reference 1180	Reference 4633	Reference 4636	Reference 4641
Road Classification and size	0.8 (Dual carriageway)	0.8 (Dual carriageway)	0.8 (Dual carriageway)	0.8 (Dual carriageway)	0.8 (Dual carriageway)
AADT	0.8 (15000 – 25000)	0.8 (15000 – 25000)	0.8 (15000 – 25000)	0.8 (15000 – 25000)	0.8 (15000 – 25000)
Impact on Traffic	0.7 (congestion only)	0.9 (Partial closure)	0.7 (Not recorded)	0.7 (Not recorded)	0.7 (Not recorded)
Duration of impact	1.0 (> 2 hours)	0.9 (>1 hour)	0.8 (No cleared time recorded)	0.8 (No cleared time recorded)	0.8 (No cleared time recorded)
Critical time band affected	0.9 (12.48 – 15.20)	0.9 (10.43-11.55)	0.9 (No cleared time recorded)	0.9 (No cleared time recorded)	0.9 (No cleared time recorded)
Overall Index of Flood Severity	**4.03**	**4.07**	**3.23**	**3.23**	**3.23**
Conclusion	**Category upgrade to B and field study is required.**				

Table 1: Severity score using the Flood Severity Index as prescribed in the guidance.

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Training materials and guidance

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Training materials and guidance – flooding hotspots

Documents & videos	HE YouTube channel	HADDMS downloads	SHARE Links
Flooding hotspot guidance (2021)		X	http://share/share/llisapi.dll?func=ll&objaction=overview&objid=90996340
Introduction to drainage and water environment performance indicators – Training webinar	X	X	
Mitigating flooding hotspots - Training webinar	X	X	
RIS2 Drainage Resilience metric		X	http://share/share/llisapi.dll?func=ll&objaction=overview&objid=84045466
RP2 metric performance plan Drainage Resilience PI			http://share/share/livelink.exe?func=ll&objId=88199629&objAction=browse
Drainage Resilience mitigation targets			http://share/share/llisapi.dll?func=ll&objId=84833720&objAction=browse
Flooding hotspot task completion certificate			http://share/share/livelink.exe?func=ll&objaction=overview&objid=82344767

- HADDMS: https://www.haddms.co.uk
- Training webinars:
  - Introduction: https://youtu.be/zZZRJ8YObb0
  - Flooding hotspots: https://youtu.be/Ck4TZkg3UwU

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Training materials and guidance – Operations 3D

Training material and guidance documents	Links
Develop, Design and deliver (3D) home page	https://highways.sharepoint.com/sites/OPOP/SitePages/3D.aspx
3D User Guide for Scheme Management: Scheme passport and Stage Gates	https://highways.sharepoint.com/sites/intranet/WayWeWork/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2Fintranet%2FWayWeWork%2FShared%20Documents%2FOperations%20Quality%20Management%20System%2FLive%20System%20Processes%2C%20Procedures%20and%20Supporting%20Documentation%2F3D%2F3D%5FUser%5FGuide%5FFor%5FScheme%5FManagement%2Epdf&parent=%2Fsites%2Fintranet%2FWayWeWork%2FShared%20Documents%2FOperations%20Quality%20Management%20System%2FLive%20System%20Processes%2C%20Procedures%20and%20Supporting%20Documentation%2F3D
3D framework overview - presentation	https://highways.sharepoint.com/:p:/r/sites/Assurancemapping/_layouts/15/Doc.aspx?sourcedoc=%7B577FF083-41E1-415E-AC02-906521CBA8D7%7D&file=3D%20framework%20overview%2011-12-20%20CAD%20team.pptx&action=edit&mobileredirect=true
3D Scheme Passport – spreadsheet template	http://share/share/llisapi.dll?func=ll&objaction=overview&objid=96717120

- Supply chain portal:
  - **3D home page:** https://highways.sharepoint.com/sites/SupplyChainPortal/SitePages/Home.aspx

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Training materials and guidance – Major Projects

Training material and guidance documents	Supply chain portal	SES online	Links
HE Major Projects drainage asset forecast spreadsheet	X	X	https://highways.sharepoint.com/:x:/r/sites/SupplyChainPortal/commperf/_layouts/15/Doc.aspx?sourcedoc=%7BA6E8F2DF-7C16-4831-9196-6F7016FC33BA%7D&file=5.1c%20-%20HE%20Major%20Projects%20Drainage%20Asset%20Forecast%20-%20November%202019.xlsx&action=default&mobileredirect=true&DefaultItemOpen=1
CPF guidance	X		http://share/Share/llisapi.dll?func=ll&objId=38426120&objAction=browse
CPF metric 5.1c Drainage Workbook	X		http://share/share/llisapi.dll?func=ll&objaction=overview&objid=72969460
CPF metric 5.1c water environment additional guidance	X		http://share/Share/llisapi.dll?func=ll&objaction=overview&objid=80614328
CPF metric 5.1c briefing note flooding hotspots and priority culverts / outfalls / soakaways	X		https://highways-my.sharepoint.com/personal/sufian_sufian_highwaysengland_co_uk/Documents/Drainage/Documents/Drainage%20workbook/CPF%20METRIC%205.1c%20Water%20Environment%20Briefing%20Note.pdf#search=CPF%20metric%205%2E1c%20briefing%20note

- Supply chain portal:
  - **Major Projects PCF homepage:** https://highways.sharepoint.com/sites/SupplyChainPortal/Major-Projects-Project-Control-Framework/SitePages/PROJECT-CONTROL-FRAMEWORK.aspx

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Training materials and guidance – EWDF

Training material and guidance documents	SES online	HE website	Links
EWDF guidance	X		http://share/Share/llisapi.dll?func=ll&objId=86589218&objAction=browse
EWDF appraisal process guidance	X		http://share/Share/llisapi.dll?func=ll&objaction=overview&objid=86586194
EWDF appraisal tool	X		http://share/Share/llisapi.dll?func=ll&objaction=overview&objid=86589948
Flooding and water quality fund plan technical annex	X		http://share/Share/llisapi.dll?func=ll&objaction=overview&objid=86589947
Designated funds plan		X	https://highways.sharepoint.com/sites/Area5SDT/Shared%20Documents/Designated_funds_plan_2020-2025_24MB.pdf#search=Designated%20funds%20plan
Designated funds handbook	X		http://share/Share/llisapi.dll?func=ll&objaction=overview&objid=86740350

- Supply chain portal:
  - Designated Funds homepage: https://highways.sharepoint.com/sites/SupplyChainPortal/edf/SitePages/Home.aspx
  - Designated funds plan: https://highways.sharepoint.com/sites/SupplyChainPortal/edf/Shared%20Documents/BHM18_0331_PJW_DF-Environmental_Fund_Plan-v11.pdf#search=Designated%20funds%20plan
- SES online:
  - **Designated Funds homepage (all templates, guidance and appraisal tool):** https://highways.sharepoint.com/EmployeeResources/Pages/Performance-and-Change-ses-online.aspx
- SHARE:
  - Guidance documents: http://share/Share/llisapi.dll?func=ll&objId=86589218&objAction=browse&viewType=1
  - Templates: http://share/Share/llisapi.dll?func=ll&objId=84455934&objAction=browse&viewType=1

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Webinar dates

Series of webinar to provide information, opportunity to raise queries and share experience.

- Wednesday 24th February – Drainage Resilience metric introduction
- Wednesday 3rd March - Using HADDMS for metric mitigations assessment and reporting (joint with Water Quality metric)
- Wednesday 24th March 14:00 – 15:30 Business processes to deliver mitigations and reporting
- Today (31st March): Flooding mitigations
- Wednesday 14th April 14:00 – 15:30 – Opportunity to view recording of 24th March webinar (or others)
- Wednesday 28th April 14:00 – 15:30 – Based on feedback to Quentin.Dawson1@highwaysengland.co.uk

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Q & A

Quentin Dawson (SES Drainage Lead)

Tim Spink (Mott MacDonald Drainage Advisor)

Mike Whitehead (SES S&E Environment Team Leader)

Sufian Sufian (SES Drainage Advisor)

Margarita Agriodima (SES Drainage Advisor)

Matt Lane (Mott MacDonald HADDMS Manager)

David Funchall (IBI Drainage Advisor)

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Drainage Resilience metric training webinars - Frequently Asked Questions
Rev 02 07/04/2021

Webinar	Topic	Question	Answer
1	Drainage Resilience metric	How does the Drainage Resilience metric record the % of the SRN with observed susceptibility to flooding?	The Drainage Resilience metric is the percentage length of carriageway that does not have an observed significant susceptibility to flooding. Further details can be found in the "RIS2 Drainage Resilience metric" document on the HADDMS downloads page.
1	Drainage Resilience	Is the Drainage Resilience metric displayed on HADDMS as a	No, but the PI is reported monthly in the HADDMS Drainage Monthly report and is broken down at National, Regional and Area level.
4	EWDF	When applying for EWDF, how do you obtain, compile and present evidence to justify the entries in the Appraisal Tool?	Details on how to use the Appraisal Tool can be found in the EWDF appraisal process guidance. See the link in the webinar 4 presentation.
4	EWDF	Can EWDF be used to improve culvert screens?	The EWDF submission would need to demonstrate that the specific intervention aligns with the priorties of the fund planning criteria. This improvement is likely to be a safety critical action rather than a mitigation of a flooding hotspot and therefore is unlikely to be funded through EWDF.
1	Flooding hotspots	Should a hotspot be created if there is zero or 1 flood in the last 5 years?	If there is no repeat flooding in a location within the last 5 years, then a hotspot should not be recorded on HADDMS. The only exception is if flooding at a culvert 6 to 10 years ago makes it a priority culvert that needs to be mitigated, then you may take the engineering decision to create a flooding hotspot at the location (so that flooding mitigations can be counted against the metric).
1	Flooding hotspots	Should a flooding hotspot be removed if no flooding within the last 5 year?	No. Once a hotspot has been assessed and added to the forward workbank, it should stay in the forward workbank, even if no further flooding has occurred in the last 5 years.
1	Flooding hotspots	What happens if a C or D hotspot sees an increase in flood events or flood severity?	Further assessment of the flooding hotspot should be carried out. If necessary, the hotspot should be re-rated to A1, A or B and added into the forward workbank.
1	Flooding hotspots	Will HADDMS be updated so we can create hotspots that aren't solely defined by HAPMS sections?	The current HADDMS system will not be updated and so flooding hotspots will continue to be delimited by HAPMS chart sections. The planned future system refresh will consider how hotspots can be defined. A catchment based definition is currently favoured.
1	Flooding hotspots	When is a hotspot considered "assessed"?	A hotspot is considered "verified" when either a desk or field study has been undertaken to verify it's risk status and the Verification Status for the hotspot has been updated on HADDMS.
1	Flooding hotspots	How do we deal with the situation where we carry out maintenance and it works so we claim the hotspot but then subsequently we have more flooding?	If re-flooding occurs post-mitigation, the hotspot on DDMS should be updated so it's risk status is reinstated. You should then go through the process again of working out what work needs doing this time round to ensure the hotspot is fully mitigated. More details on this can be found in the Flooding Hotspot Guidance on the HADDMS downloads page or on SHARE. See the link in the webinar 1 presentation.
1	Flooding hotspots	When there is re-flooding, should the risk assessment of the hotspot take into account the last 5 years of flooding or only the flooding since the initial mitigation?	When a hotspot is reactivated following re-flooding, the risk status should continue to be assessed using the last 5 years of flood events, not just the flood events that have occurred since the initial mitigation. The same applies to Culverts that re-flood except flood events in the last 10 years should be assessed.
1	Flooding hotspots	Is there any alignment to the hotspots to the vulnerable locations as recorded with the area Severe Weather Plans?	As hotspots are manually defined by the Areas, this is something that can be done but is not something that is built into HADDMS. However, there is a task currently underway to weather normalise the flood events on HADDMS to identify those that occurred within the 24 hour period after a rainfall event that would exceed the drainage design capacity.
1	Flooding hotspots	When and how are the flooding hotspots recorded?	Flooding hotspots are manually defined and recorded by the Area teams following identification of locations of repeat flooding. More details on this can be found in the Flooding Hotspot Guidance on the HADDMS downloads page or on SHARE. See the link in the webinar 1 presentation.
1	Flooding hotspots	Is a flooding hotspot completion certificate required if renewals are the only work carried out?	Yes. The Flooding Hotspot completion certificate contains options for Maintenance, Renewals and Improvements.
1	Flooding hotspots	Is a flooding hotspot completion certificate different to a scheme completion certificate?	They are similar, but the Flooding Hotspot completion certificate is specific to flooding mitigations and is the preferred version. The template is on SHARE. See the links in the webinar 1 presentation.
2	Flooding hotspots	Does the hotspot zone include for all catchments, the outfall and outfall priority?	The flooding hotspots are defined based on the historic record of flood events, and includes any floods originating from priority culverts within the footprint of the hotspot. Outfalls relate more to water quality rather than flooding, and therefore there is no relationship between flooding hotspots and outfalls. There is a catchment layer on HADDMS under Drainage > Catchments, which you can use to identify whether adjacent outfalls are in the same or different catchments.
1	Floods	How do we define flood condition?	There is no term defined as "flood condition". However the severity of flood events is reported as the Flood Severity Index (FSI) which is a score of 0 to 10 (0 = least severe, 10 = most severe) calculated by HADDMS when the flood is added to the system. The definition of the FSI calculation can be found on the HADDMS downloads page. Flooding hotspots have a defined risk status from A1 (Highest risk) to D (Low risk) based on the number, the severity and 3rd party impact of the flood within the hotspot. The matrix for calculating this risk score can be found in CD 535 England NAA and in the webinar 1 presentation.
1	Floods	How do we define what a flood is?	A flood definition document is available on the HADDMS downloads page that provides a flowchart for determining "what is a flood?". The document also contains photographic examples of "Flood" and "Not a flood". This will be added to the 2021 update of CD 535.
1	Floods	Can we record flooding of off network assets?	Yes. Flood events within 200m of the SRN can be recorded on DDMS and all of these floods are associated to the nearest HAPMS section. This means that both on and off carriageway flooding records are summarised as part of flooding hotspot investigations. If flooding occurs greater than 200m away from the SRN and it is believed to be related to HE or an HE asset, it can still be recorded on DDMS as per the instructions given in the Flood Definition document, or contact HADDMS support for guidance in this situation.
1	Floods	As the flooding events/hotspots recorded manually via area team, which depends heavily on the inspectors at the time to decide what is reported what is not. And few hotspot reported, fewer works need to be maintain/enhance. So do we need a more robust method to semi- automatically record the flooding condition, for example using dedicated camera attached to the inspection vehicles?	HE is investigating a number of technology based methods to improve flooding identification and reporting. Car mounted camera based systems are included in the trials.

Webinar	Topic	Question	Answer
1	HADDMS	Can 3rd parties add flooding information to HADDMS e.g. Local Authorities, EA etc.?	Every Area should have a named Drainage Liaison Engineer or Flood Champion who can nominate staff in their teams to add/edit flood events and flooding hotspots. However, this capability should not go outside the Area team and therefore no 3rd parties will be able to add flooding information. Third parties that are Risk Management Authorities (as defined in the Flood and Water Management Act) should report arising matters to the Area team through the existing protocols. The Area team should then investigate the report and record a flood event on HADDMS if confirmed, and if appropriate create a flooding hotspot and commence mitigation planning.
2	HADDMS	How does HADDMS align to IAMIS?	HADDMS and IAMIS are separate systems. HADDMS is the system of record for the drainage asset and flooding. Going forward there is an HE vision for data to be shared between systems, and the next version of DDMS will be built with this very much in mind - but this is a few years away. Currently key aspects of the HADDMS drainage and flooding data are periodically exported to other HE systems, such as BIF and DaaS.
2	HADDMS	Is there a list of contacts for each Area team to liaise with for updating data?	The key contact in each Area for updating the drainage, flooding or priority asset data is the Drainage Liaison Engineer (DLE) or equivalent role. You can find out who the DLE is for each Area by running a Contacts search (Search Categories > Contacts > Contacts By Role) and filtering on Area and Security Group = "MADLE".
2	HADDMS	What user rights do I need to access data for some initial analysis?	View only user rights will allow you to see, search and download the drainage, flooding and priority asset data to help with your initial analysis. View only user rights are available to all HE staff. See webinar 2 presentation for further details on how to get access to HADDMS or contact support@HADDMS.com
2	HADDMS	Why has the "auto remember" log in function been disabled?	This is an Internet Explorer setting (go Tools > Internet Options > Content >AutoComplete Settings). However some organisation's IT may have now disabled the ability to turn this on and therefore it wont be available for all users.
2	HADDMS	What is the difference between the red and blue lines on the map?	HADDMS uses the Ordnance Survey base mapping which distinguishes between motorways (blue), A roads (red), B roads (orange) and minor roads (brown). You will see these layers appearing in the Layers menu on the left under Base mapping > Ordnance Survey > Roads, as you progressively zoom in to greater detail on the map.
2	HADDMS	Can the export to CSV option be included for selected searches? It exists when using the search menu but not for those selected from the screen.	The export to CSV functionality is only available for the database searches. However you can still get the results of a map select into Excel by copying and pasting out of HADDMS.
2	HADDMS	When you select items in the map how do you know which are selected and which aren't?	When you select a group of items on the map using the Select mode arrow accessed either from the icon bar above the Layers menu, or from the right click menu, all the items you have selected are highlighted in blue. To get to a list of either the floods or flooding hotspots that you have selected use the Flooding menu and drill down to either Flooding > Events > For Selected > Flood Event(s), or Flooding > Hotspots > For Selected > Flooding Hotspot(s).
2	HADDMS	When you have multiple layers switched on, which one is shown on top in the map?	The drawing order in the map is determined by the order in which they sit in the Layers menu. The higher layer in the Layers menu will always draw on top of the lower layer when both are turned on together.
2	HADDMS	Does the system contain information on which hotspots or priority assets are part of the Major Project mitigation targets?	There is no direct linkage between the hotspot or priority asset data on HADDMS and the spreadsheet work bank listing associated with the Metric Performance Plan held on Share. However, the work bank spreadsheet contains the HADDMS ID of each hotspot and priority culvert (where known), and this can be used to search the flooding hotspot or priority culvert register on HADDMS using the filterable searches accessed from the main menu Search > Search Categories > Drainage and Flooding. From the Search outputs you can either get to the detailed record or Output to Map to show its location.
2	HADDMS	How do you find a Z1 outfall?	You can find the Z1 outfalls by running an Outfalls search (Search Categories > Drainage and Flooding > Outfalls Register). At the bottom of the search is an option to select Is Z1 status = "Yes" or "Not currently assessed as Z1".
2	HADDMS	How do we get coordinate information for hotspots?	The coordinates of a flooding hotspot are not recorded in HADDMS. The easiest way to obtain the coordinates is to use the Select mode pointer to hover over each end of the hotspot on the map and the coordinates are displayed in the status bar bottom left. Alternatively, the flood events within a hotspot are all coordinated, or you may be able to indirectly determine the coordinates from the HAPMS sections that make up the hotspot extents. If you require the marker post reference, switch on the Base mapping > Highways England > Marker post layer.
2	HADDMS	When reviewing hotspots there is nowhere on the system to record the review other than comments, is this to be improved in the future?	With the current system either record brief details in the Comments, or for more extensive comments upload a document and attach it to the hotspot. All such ideas will go into the wish list for the future system upgrade.
2	HADDMS	The 'catchment' drainage scheme shapefiles created during the data consolidation exercise do not match the catchment layer (red outline) now available. Is there a desire for Areas to merge the drainage catchments to match these new catchments in red?	The current vision is that in the future upgrade of HADDMS, drainage and flooding records will become more closely related to drainage catchments (as this is how the drainage functions). There is likely to be a progressive migration over time to this revised concept once the new system is operational, and at that time a consistent catchment model should be adopted across the network.
3	HADDMS	Are there representatives for each Area, responsible for updating drainage and flooding data on HADDMS?	Yes, this is the Drainage Liaison Engineer (DLE) or Flood Champion. Someone in each Area should have these roles, even if they do not have these job titles. The two roles are often performed by the same person. You can find out who the DLE is for each Area by running a Contacts search (Search Categories > Contacts > Contacts By Role) and filtering on Area and Security Group = "MADLE".
1	Mitigations	What is the process for linking the works from one system to another?	There is ongoing work being done within HE to understand how the business is recording and reporting flood events in multiple systems (HADDMS, Confirm etc.) to try and address the issue of duplication and double handling of flood event data. Already there is a link between Confirm and HADDMS. Any floods entered into Confirm are automatically transferred to HADDMS each night. Wider linkages between HE systems through a central hub are under development, in which the HADDMS team are involved.
1	Mitigations	RIS2 funding and resource do not match this aspirational approach. Has anyone assessed/asked if regions can meet the aspiration?	The RIS3 business case is being developed with the aim of securing drainage funding above the RIS2 level. The timely and comprehensive recording of flood events and flooding hotspots during RIS2 is crucial to evidencing a robust RIS3 business case. Routine maintenance requirements in GM 701 and the survey requirements in GS 801 are also currently under review by SES.
1	Mitigations	Do partial mitigations of a hotspot contribute towards the metric?	If the flooding hotspot spans two separate drainage catchments and work has only been done in one catchment, then the hotspot should be split into two by updating the hotspot definition on HADDMS. If the hotspot is entirely within one drainage catchment, then any mitigation work that reduces the flooding risk within that catchment will contribute to the mitigations targets.

Webinar	Topic	Question	Answer
1	Mitigations	If a mitigation only fixes one problem location in a flooding hotspot, does it still count towards the metric?	The objective of mitigations is to reduce the risk of repeated flooding. A mitigation may not fully remove the risk of re-flooding. So if a mitigation reduces the risk it is countable against the mitigation targets. However, if a maintenance activity is carried out that does not work, and the same maintenance activity is repeated at the same location following re-flooding, then it cannot be claimed a second time.
2	Mitigations	If there is no funding for Field Studies the process stalls. Where is funding for Field Studies expected to come from, Resource / Capital?	For each asset class, an amount of 'PDS' (Programme Development Support) funding should be set aside to cover the cost of all scheme development activities prior to detailed design. PDS is the term that was historically used in the MAC / ASC Contracts. The type of work described would expect to be funded from CapEx rather than OpEx resources, but such work would also need to be of a type that expects to lead to a scheme.
4	Mitigations	What happens to the PI where a claimed activitity turns out to have failed?	The claimed mitigation remains valid against the flooding mitigations target, however, the mitigation is no longer counted in the calculation of the Drainage Resilience metric.
1	PRP targets	Is the PRP target a National target? How does this break down to region level?	The PRP target of 30 mitigations per annum is set at National level, but the Metric Performance Plan sets Regional, Area and Major Project level targets, based on the submitted forward work plans.
1	PRP targets	Is the Metric Performance Plan available to staff?	Yes, it is available on SHARE with the associated work bank spreadsheet. See the link in the webinar 1 presentation.
1	PRP targets	Post webinar update.	The number of assured flood hotspot mitigation schemes is continually evolving as more schemes are completed. The number used in this presentation is sourced from the HADDMS monthly report as at the end of January 2021. The numbers were updated in webinars 3 and 4.
1	PRP targets	Post webinar update.	Schemes delivered in year will continue to be assured and updated for all outputs up to and including the end of March 2021. Any schemes with completion in the current financial year cannot be claimed against the target for the next financial year and so outputs would remain unreported corporately.