

Cabinet

6 October 2020

Dinah's Hollow Slope Stabilisation

For Decision

Portfolio Holder: Cllr R Bryan, Highways, Travel and Environment

Local Councillor(s): Cllr Jane Somper, Beacon Ward Inc. Dinah's Hollow

Executive Director: John Sellgren, Executive Director of Place

Report Author: John Burridge
Title: Team Leader, Bridges and Structures
Tel: 01305 225366
Email: John.Burridge@DorsetCouncil.Gov.UK

Report Status: Public

Recommendation:

1. Acquisition of the land and the drainage works on the east side of Dinah's Hollow, Melbury Abbas is progressed immediately at a total cost of £130k.
2. Cabinet notes the scale of additional resource required to stabilise slopes throughout the hollow and that the affordability of the scheme should be considered alongside other priorities as part of the 2021/22 budget setting process and MTFP.

Reason for Recommendation:

The impact of a major slope failure would be high in respect of health and safety and financial implications. Possible consequences are loss of life or major injury and legal action. There would also be reputational damage, impact on service delivery and disruption to the highway network affecting a key north-south route.

1. Executive Summary

- 1.1. On 02 December 2015 the predecessor County Council's Cabinet suspended the proposed Dinah's Hollow Slope Stabilisation scheme. The decision was made pending the outcome of bids for the funding of a north/south strategic link between the M4 and Poole Port following the collaborative work with Bath and North East Somerset and Wiltshire Councils and the respective LEPs. In the Budget 2020, delivered on 11 March 2020, the government announced that it would provide over £27 billion between 2020 and 2025 to boost regional connectivity through the Second Road Investment Strategy (RIS2). Exploring the case for improvements to the links between the M4 and the Dorset Coast was included in the list of named schemes. Meanwhile, the risk of a major landslip causing injury and closing the C13 remains. The Capital Strategy and Asset Management Group (CSAM) reviewed the risk on 1 June 2020 and confirmed the bid for corporate capital funds should progress.
- 1.2. Dorset Council now has the opportunity to acquire the land on the east side of Dinah's Hollow by agreement. Acquisition would enable one possible trigger for a landslip to be mitigated through drainage works. (Recommendation 1).
- 1.3. For full mitigation of the risk of landslip throughout the hollow, the suspension of the stabilisation scheme needs to be lifted and work completed on both east and west sides. This would require an additional easement over, or acquisition of, land on the west side. Negotiation with the current owner on the west side made no progress before the suspension and compulsory purchase may be necessary.
- 1.4. The cost of completing the full scheme to mitigate the risk on both sides, maintaining the existing traffic management arrangements of alternate single lane working, is estimated to be £4.5 million. (Recommendation 2).

2. Financial Implications

- 2.1. A budget of £520k, allocated prior to the suspension of the scheme, has been carried forward and is sufficient to allow drainage and land acquisition on the east side but not stabilisation (Recommendation 1).
- 2.2. A further capital investment of £3.98m is needed to fund the full slope stabilisation of Dinah's Hollow (Recommendation 2).

3. Climate implications

3.1. The projected increase in storms and periods of prolonged wet weather will be detrimental to slope stability and increase the risk of slippage.

4. Other Implications

4.1. The slopes either side of the C13 are in private ownership. Acquiring the slopes, by agreement or using compulsory powers, will allow the Council to have full control of the slopes and thus be in a position to undertake any appropriate works. It would though mean the Council, as landowner, would take on potential liability for any future landslip.

5. Risk Assessment

5.1. The existing mitigation works at Dinahs Hollow, restricting traffic to a single lane down the centre of the hollow constrained by concrete barriers, were always seen as interim measures to reduce the risk exposure. The possibility of a land slip is known to exist. The likelihood is unpredictable but considered low for a high impact event, such as a fatality or serious injury, resulting in a medium level of risk. Full slope stabilisation provides a long-term solution. The risk has been identified under the infrastructure section of the Corporate Risk Register:

Current Risk: Medium
Residual Risk: Low

6. Equalities Impact Assessment

6.1. There are no impacts that are specific to people with protected characteristics.

7. Appendices

Appendix A - Dinahs Hollow -Location, history of events, previous decisions, estimate, programme and risk assessment.

8. Background Papers

None

Footnote:

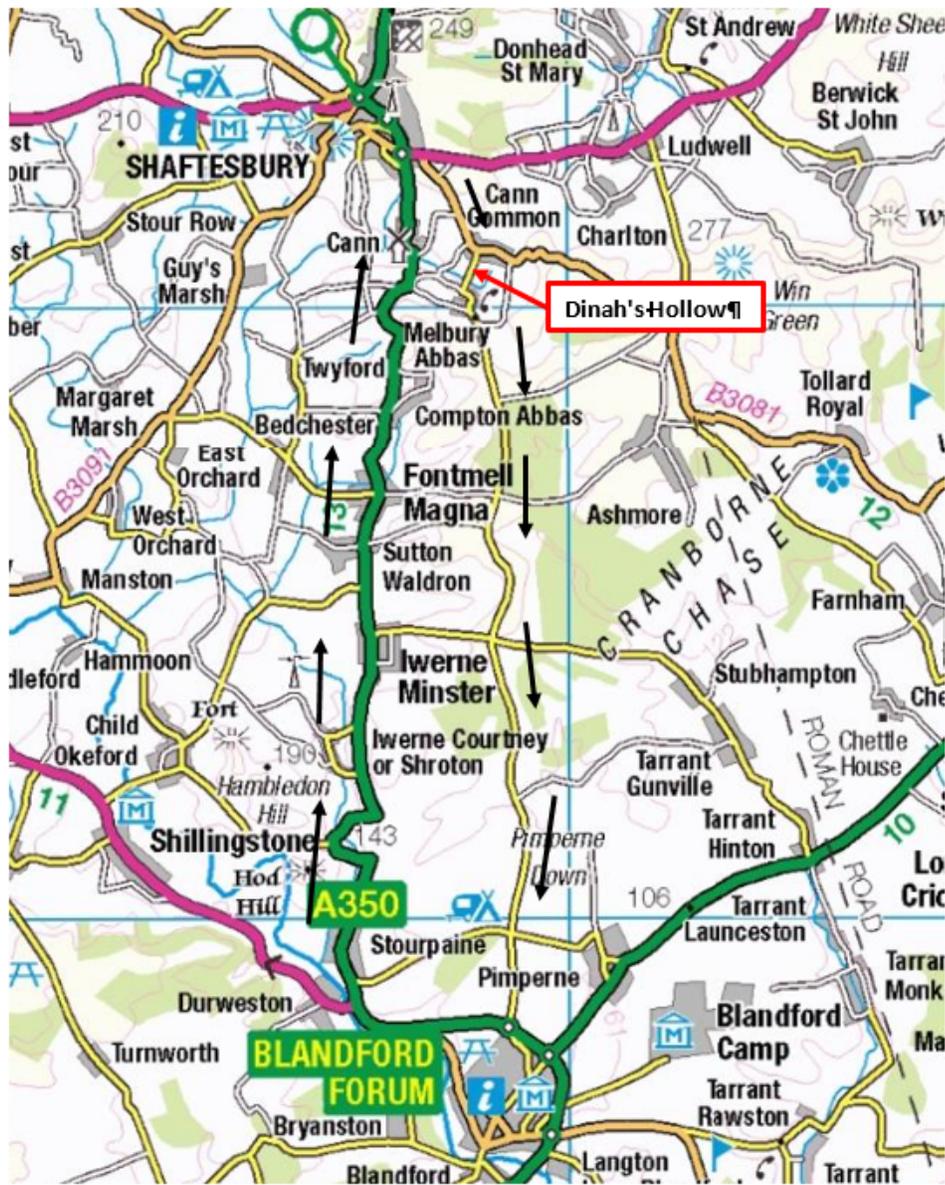
Issues relating to financial, legal, environmental, economic and equalities implications have been considered and any information relevant to the decision is included within the report.

Appendix A

Dinahs Hollow - Location, history of events, previous decisions, estimate, programme and risk assessment

1. Location

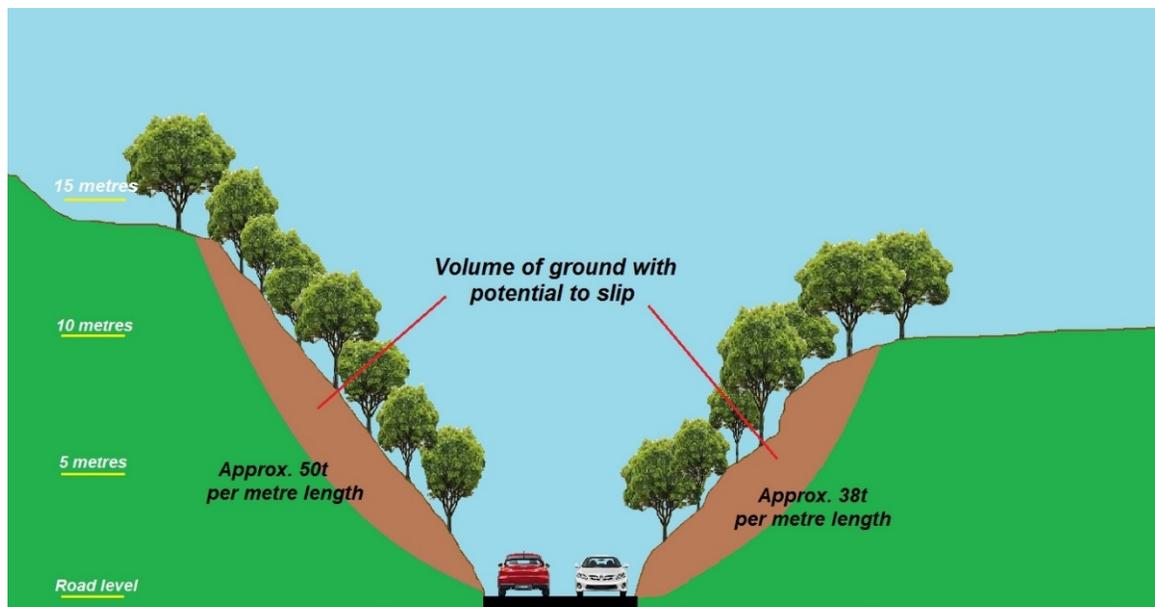
- 1.1. Dinahs Hollow is located just north of Melbury Abbas on the C13. The C13 provides the only suitable alternative north-south link to the A350 through Dorset. It now operates as part of an advisory HGV route taking HGV traffic northbound along the A350 and southbound along the C13.



2. Technical Background to 2012 Closure of C13 Dinah's Hollow

2.1. July 2012 – A landslip at Beaminster Tunnel overwhelmed the head wall depositing a large quantity of soil on to the highway. The tragedy engulfed a car and killed 2 people. Dorset Highways were prompted to examine other slopes perceived to be at high risk of failure.

2.2. Brody Forbes, local geotechnical consultant, placed Dinah's Hollow on high risk alert. This assessment was confirmed by national consultant Parsons Brinckerhoff (now WSP). Slope analysis calculations demonstrated the possibility of burying a small vehicle.



Cross section through Dinah's Hollow

2.3. April 2014 – Dinah's hollow was closed to traffic removing all risk and eliminating the only practical alternative route to the A350 running north-south through Dorset.

2.4. The geotechnical consultant designed a soil nailing solution similar to Beaminster Tunnel for full mitigation of the risk. The cost was established in collaboration with the contractor from Beaminster Tunnel. Estimated at £4m in 2014.



Soil nails at Beaminster Tunnel

2.5. The slopes on both sides of the hollow are privately owned. Landowners and local residents were opposed to the project and no progress was made in negotiations to transfer ownership or to reach any form of agreement that would permit the installation of soil nails.

3. Cabinet Decision to Re-open C13 Dinah's Hollow

3.1. On 13 May 2015 Dorset County Council (DCC) Cabinet considered a paper, ['C13 Road Closure Risk Comparison Analysis'](#) .

3.2. The paper discussed: the problems caused by vehicles using unsuitable routes to circumnavigate the closure; local pressure to reopen due to the length of time the road had been closed; anecdotal reports of increased collisions on alternative routes; damage to vehicles and property; and damage to the fabric of the highways.

3.3. The Dorset County Council Risk Management template was used to quantify the risk associated with five significant areas of risk: Financial; Strategic; Health & Safety; Reputation; and Service Delivery.

- 3.4. Four scenarios were considered: Re-opening the C13 to all traffic on a temporary basis; Re-opening the C13 to HGVs only on a temporary basis; Retaining the C13 road closure for another 8 months and retaining the road closure for another 27 months. The continued closures were assessed as presenting the highest risk, opening to HGVs the lowest risk and opening to all traffic slightly higher.
- 3.5. The [minutes](#) 178-180 and Annexures 1 and 2 record the discussion, including public representations, the resolution and the reasons for the decision. Cabinet resolved to re-open the road with temporary traffic management restricting traffic to alternate single lane running between barriers directing vehicles down the centre of the carriageway.
- 3.6. On 10 June 2015 [Audit and Scrutiny Committee](#) confirmed the cabinet resolution and the C13 was re-opened in July 2015
- 3.7. Officers continued to work towards obtaining planning consent, landowner approval, LVIA reports, ecological reports and woodland tree preservation orders consent. The geotechnical consultant continued to refine the design of the slope stabilisation.

4. Cabinet decision to suspend work on stabilisation project

- 4.1. On 02 December 2015 Cabinet considered a paper, '[Dorset's North-South Highway Infrastructure \(A350/C13 and A37/A354\)](#)'.
- 4.2. The paper contained detailed discussion of the economic assessment of improvements to the North-South corridors. It notes that Government funding for transport is closely aligned to delivering economic growth and development. The improvements considered were shown to have a poor Benefit Cost Ratio.
- 4.3. More positively it reports, 'Dorset County Council have recently been approached by Bath and North East Somerset, and Wiltshire Councils to work collaboratively, together with our respective LEPs, to compile an evidence based prospectus to assist in any future funding bid for a strategic infrastructure improvement between the M4 and the ports of Poole and Portland.'
- 4.4. The [minutes](#) 399.3 and 399.4 record the resolution that the proposed Dinah's Hollow Slope Stabilisation scheme be suspended until a definitive decision has been reached regarding the funding of a north/south

strategic link between the M4 and Poole Port following the collaborative work with Bath and North East Somerset and Wiltshire Councils. The suspension was conditional on the plastic barriers directing traffic to the centre of the carriageway being replaced with more robust concrete barriers. This mitigation work was completed, and the road has remained open apart from a short period following a landslip (see below).

4.5. Subsequently, the Road Improvement Strategy (RIS2) consultation occurred Dec 2017 - Feb 2018. As part of the consultation response in Feb 2018, DCC made a request to DfT for a strategic study of routes north-south through Dorset in the next Road Investment Strategy (RIS2) period 2020-25. The Budget 2020 confirmed that funding for the study to explore the case for improvements to links between the M4 and the Dorset Coast will be provided. Nationally competitive funding bids could then be made for works from 2025 onwards, but with no guarantee of success. North-south route improvements are supported by BANES, Wiltshire, BCP Councils, the LEPs and the Western Gateway Sub-National Transport Body. However, the A350 has not been included in the Major Road Network (MRN) and is not on the Strategic Road Network (SRN).

5. Cabinet Response to Landslip from East Bank

5.1. On 9 March 2016 approximately 50 tonnes of soil slipped from the east bank into the hollow and displaced the concrete barriers closing the road.



5.2. This was reported to the cabinet meeting on 16 March 2016 under the item for the Quarterly Asset Management Report (QAMR) and recorded in [minute 55](#). The cabinet was supportive of actions to be taken by officers, either to reopen the road, or, to keep it closed. The decision would be dependent on assessment of future risk. Audit and Scrutiny Committee considered the QAMR on 22 March 2016 but did not comment on Dinah's Hollow.

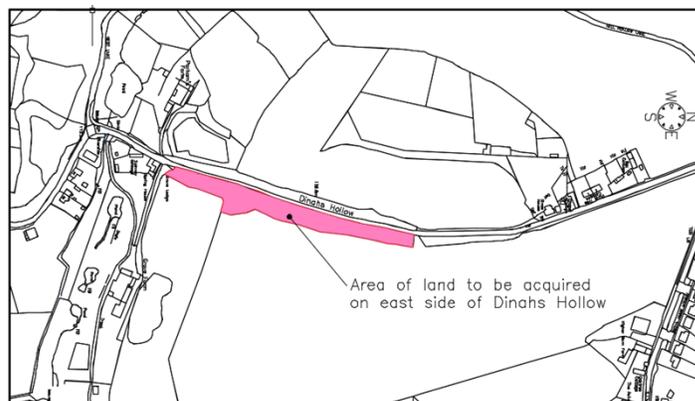
5.3. Investigation by geotechnical consultant WSP identified the probable trigger for the landslip as water running off the adjacent land over the face of the slope. The investigation recommended drainage works at the top of the slope to intercept the water to remove this as a possible trigger for future landslips.

5.4. On reassessment, the balance of risk to all highway users across all the five significant areas was not affected by the landslip and the road was re-opened with the intention of undertaking the east bank drainage works to mitigate risk.

6. East Bank Land Acquisition

6.1. Negotiations to acquire the land for the drainage works commenced in 2016 and continued until 2019.

6.2. During the negotiation the position of the landowner with respect to the sale of the east bank slopes changed from one of opposition to one of positively supporting the sale. The negotiations have concluded. The agreement to be signed now includes for acquisition of both east bank slopes and the strip of land along the top of the slope to enable the drainage works.



7. Slope Stabilisation Scheme - Lifting of Suspension - Work Required, Cost, Programme

7.1. Due to the time elapsed since the suspension of the scheme the following reports and consent applications would need to be reviewed and updated:

Ecological studies (protected species including badgers)
Landscape Visual Impact Assessment (LVIA)
Tree surveys (trees protected by woodland tree preservation order)
Tree Preservation Order (previous [consent](#) to fell protected trees granted on 02 February 2016 has expired)
Geotechnical design (review previous work against current best practice for soil nailing and current site conditions)
Land purchase of West Bank (by agreement or compulsory purchase)
Planning requirements (planning consent not required by previous planning authority)

7.2. Full cost estimates are in Appendix 1. The summary costs are:

East Bank purchase and drainage works	£130,000
Slope stabilisation both sides	£4,370,000
Total project cost	£4,500,000
Less Corporate Capital funds currently allocated	£520,000
Additional funding required	£3,980,000

7.3. If funding is approved the start date for works on site would be dependent on ecological constraints and the progress of land negotiations. It is estimated that the road would need to be closed for 7 months. An outline programme is included in Appendix 2.

Appendix 1

DINAH'S HOLLOW STABILISATION BUDGET ESTIMATE					01/10/2015	07/11/2019		2020/21	2021/22	2022/23
							(Adjust for future inflation 2.5%/yr)			
Construction estimate										
Construction Estimate (submitted 10/15, includes some allowance for drainage works)					£1,968,222	2224090.86	2,335,295	46,146	2,101,766	187,384
Risk money Contractor					£124,000	140120	147,126		132,413	14,713
Risk money DC					£307,000	346910	364,256		327,830	36,426
DC Set up and maintain road closure for 30 weeks					£60,000	67800	71,190		64,071	7,119
Site Compound allowance						50000	52,500		47,250	5,250
Removal temporary barriers						10000	10,500		10,500	
Advance drainage works (Over and above construction allowance in construction estimate)					£75,000	84750	86,869	86,869		
Possible localised repairs to roads around Dinahs Hollow following closure						100000	105,000			105,000
Miscellaneous Fees						75000	76,875	76,875		
Consultant Fees										
Misc additional input - Design Stage						40000	41,000	41,000		
Additional Input Site Supervision stage						35000	36,750		33,075	3,675
LVIA Review						5000	5,125	5,125		
DC Fees										
To progress and coordinate scheme, CPO, Woodland TPO, coordinate ecological, arboricultural, consultation etc						60000	61,500	61,500		
Site supervision fees						30000	31,500		28,350	3,150
Ecological Survey, Badger Survey and Closure Setts						18000	18,450	12,288	6,144	
Arboricultural (Tree Survey+input to Woodland TPO)						12000	12,300	12,300		
Total						£3,298,671	£3,456,236	£342,102	£2,751,399	£362,716
Optimism Bias (30%)						£989,601	£1,036,871	£102,631	£825,420	£108,815
Grand Total						£4,288,272	£4,493,106	£444,733	£3,576,819	£471,530

Appendix 3 - Risk Register Entry

Risk Title	Failure to ensure safety and good traffic management within the C13/A350 Corridor at Melbury Abbas.
Management Update	<ul style="list-style-type: none">* On 2 December 2015 Cabinet approved the recommendation for DCC to work in partnership with other local authorities along the A350 north/south corridor to look at long term solutions and seek funding. This will include the Melbury Abbas area and guide how we manage Dinah's Hollow in the long term;* Continue to work with Wiltshire, Bath and North East Somerset councils to establish a longer term solution;* Advisory one way for HGV's to reduce conflict in Melbury Abbas, to continue as agreed by Cabinet in 2018;* National Productivity Investment Funding awarded from the DfT and used to improve the A350 / C13 routes. This includes looking at a North/South gyratory for HGV's, improve congestion at pinch points (i.e. vehicle activated PVMS), and various other measures such as carriageway resurfacing, village gateways and reviewing speed limits;* Detailed notes on the risks associated with each scenario are available on the shared Highways T Drive;* If the traffic signals put in place were to fail, possibly as a result of a mains power failure, then a risk would remain of two vehicles meeting. You cannot see one stop line from the other, therefore you cannot see other vehicles until it is too late;* A Judicial Review was submitted challenging the Cabinet's decision. The High Court has approved a consent order withdrawing the judicial review application, ending court proceedings;* Future junction improvements to be carried out on the C13 in 2019/20;
Risk Owner	Service Manager for Infrastructure & Assets
Link to Corporate Risk	Infrastructure
Service	Place - EGI - Highways
Team	Infrastructure & Assets
Impact	High
Impact Score	3
Likelihood	Low
Likelihood Score	1
Risk Rating	Medium
Status	
Is the Risk Acceptable at its Current Level?	No

Further Information / Comments

Cause: * Adverse weather conditions;
* Failure to maintain the highway;
* Failure of landowners to maintain the banks;
* Increase in HGV traffic nationally;

Consequences: * Serious injury;
* Death;
* Serious reputational damage;
* High financial costs;
* Potential legal action taken against DCC;
* Road network not fit for purpose;
* Negative publicity;
* Negative economic impact on the area;
* Customer dissatisfaction;

Escalate

No

Risk Contacts

John Burridge
 Kate Tunks

List of Existing Controls

It is now fully open with enhanced traffic management including traffic signal control, reduced road width to single lane, safety barrier, reduced speed limit, extra signs and lines, and variable message signs;
* Concrete barriers installed to replace the plastic water filled barrier in January 2016;
* Regular maintenance of the slopes to remove any loose or unstable ground/tree roots and weekly visual inspections;
* £2m improvement scheme largely complete. Variable message signs to be erected at both ends of the C13 during Autumn 2018/19;
* Regular liaison meetings with emergency services;

Risk Owner Assessment of Control Effectiveness Not Yet Evaluated

External Assessment of Control Effectiveness Not Yet Evaluated

Auditor / External Assessor Comments

Link to Corporate Risk:Risk Description

Failure to provide adequate provision of infrastructure leads to inability to deliver the Council's vision

Link to Corporate Risk:Accountable Officer

Executive Director for Place