TECHNICAL NOTE

DATE:	13 February 2025	**CONFIDENTIALITY:**	Public
SUBJECT:	Site Monitoring Report – February 2025		
PROJECT:	Swanage Town Council – Shore Road	**AUTHOR:**	Sam Rhodes
REVIEWER:	Ben Ward	**APPROVER:**	David Roy

1 INTRODUCTION

1.1 WSP UK Ltd (WSP) was commissioned by Swanage Town Council (STC), 'the Client', to produce a supplementary technical note detailing the findings of a follow up defect walkover survey undertaken in February 2025. Areas of ground and retaining wall instability have been identified across the site over a number of years. It is not known when these defects were first identified by STC.

1.2 An initial defect survey was undertaken in June 2023, with a subsequent site monitoring report issued, providing a baseline list of defects identified across the site [1]. These risks were assigned a risk rating using a qualitative risk assessment methodology.

1.3 A description of the site locale and references to existing geotechnical information are presented within Section 1 of the Ground Stabilisation Feasibility Study [2].

1.4 References to supplementary information relating to buried services, UXO risk and topographical surveys are provided in Table 1 of the Ground Stabilisation Options Refinement Technical Note [3].

2 DEFECT WALKOVER SURVEY

SHORE ROAD AREA

2.1 The latest defect walkover survey was undertaken on the 5th February 2025, by a WSP Geotechnical Engineer. On the date of the inspection weather conditions were generally dry and overcast.

2.2 The purpose of the walkover was to record the updated condition of defects identified during the initial defect survey in June 2023 [1], interim inspections undertaken in October 2023 [4], February 2024 [5], May 2024 [6], October 2024 [7] and the latest survey in completed in February 2025.

2.3 Information on any new defects which may have developed in the interim period were also documented.

2.4 Photos and measurements of each defect were taken and compared to the previous survey in order to determine the rate of deterioration of assets across the site. This would inform the revised risk rating assigned to each defect within the defect schedule.

2.5 The walkover survey comprised inspection of the following areas:

- The Spa;
- The Spa Beach Huts;
- Weather Station Field; and
- Sandpit Field.

2.6 Defect areas were categorised by location with the Spa and Spa Beach Hut areas denoted "A", Weather Station Field denoted "B", and Sandpit Field denoted "C", in the defect schedule. The defect schedule is presented as Appendix A of this technical note.

2.7 A total of 45 no. defects were identified during the site walkover. These typically related to, but not limited to the following:

- Retaining walls with vertical and/or horizontal cracking, bulging or bowing, excessive settlement or leaning;
- Hummocky areas where surface distress was identified in grassed areas and footways;
- Tension cracking forming in over steep vegetated slopes;
- Footway and stairway distress in the form of tension cracking, structural cracking, pavement settlement and heave; and
- Dilapidated surface drainage and retaining wall weepholes, blocked or semi-blocked by debris and siltation.

2.8 Of the 45 no. defects observed during the walkover survey, 38 no. related to retaining walls, four related to pavements and footways, two related to earthwork slopes, and one related to drainage systems.

2.9 Where identified, a characteristic image of each defect has been included within the defect schedule.

2.10 A link to a repository of images captured during the inspection shall be made available on request.

2.11 An updated defect risk rating has been assigned to each of the defects based on the February 2025 site walkover, presented in the defect schedule (see Appendix A). These values have been assigned based on a qualitative risk assessment (QRA), to give an approximation of risk levels at the time of the survey.

2.12 The QRA methodology used to derive defect risk ratings is presented as Appendix B.

2.13 Further information on these defects is presented within the defect schedule. The risk level from the previous surveys has been presented within the Defect Schedule to highlight changes in asset condition over time.

2.14 Recommendations on defects which require additional intervention measures are detailed within Section 4.

LAND TO REAR OF SEA BREEZE RESTAURANT

2.15 A visual inspection of the land to the rear of the Sea Breeze Restaurant and Swanage Visitors Centre was undertaken on 5th February 2025, as part of the Shore Road inspection works.

2.16 Previous visual inspections of the area were undertaken in October 2023, and February, May 2024 and October 2024. Photographic record of observations collected, available on Client request.

2.17 From the period between October 2024 and February 2025, no significant change was observed in the condition of the slope, retaining wall and rear structure walls.

3 MONITORING DATA

PREVIOUS SURVEYS AND INTERPRETATION (JUNE 2021 – SEPTEMBER 2024)

3.1 Information regarding the geotechnical monitoring regime at the side is provided within the 2021 Geotechnical Assessment Report produced by South West Geotechnical (SWG) Ltd [8].

3.2 For information regarding previous survey data and interpretation for the period of June 2021 to May 2024, refer to the May 2024 Site Monitoring Report [6].

3.3 For information regarding the survey and monitoring period May to September 2024, refer to the October 2024 Site Monitoring Report [7].

SURVEY PERIOD (OCTOBER 2024 - JANUARY 2025)

3.4 No significant change was identified in the following inclinometers: BH01, BH06, BH07, and BH14.

3.5 Where Face A and Face B have been described below, the following definitions should be noted:

- Face A – Movement in the direction of the principal axis, with positive values relating to movements in the parallel to the direction of the downslope; and
- Face B – Movement perpendicular to the direction of the principal axis, with positive values relating to movements bearing 90 degrees to positive Face A readings, in the direction of perpendicular to the downslope.

3.6 The following points of note were observed in the latest round of inclinometer data:

BH03 – Inclinometer

3.7 In the Face A orientation, a significant movement of 5.5mm (12.5mm to 17mm) was observed at depth 0.5m bgl, between October to December 2024. This is likely associated with increased rainfall during this period. From December 2024 to January 2025, this movement recovered from 5.5mm within 1.0mm of the October 2024 reading.

3.8 A significant deflection in top 3.5m was observed in the Face B orientation from -2.5mm to -8.0mm, observed in the December 2024 readings. This is consistent with significant movements observed in the Face A orientation, as described above. Similarly to the Face A readings, these recovered to within the typical data range in the January 2025 results. The combination of the Face A and B movements would indicate a significant movement to the south-east on the upper Spa Fields. However, following the walkover survey undertaken in February 2025, no corresponding defects were identified based on this movement.

3.9 The general trend of movement within the Face A orientation is still present between 1.5m and 2.0m bgl, first developing during the winter period of 2021. However, it should be noted that the displacement at this depth has remained relatively constant since the beginning of 2024. It should also be noted that there is no observable change at surface level associated with this movement.

3.10 As both the Face A and B values returned to a typical range within the following month of monitoring, there is the potential for this to be attributed to erroneous readings, or issues associated within the monitoring installation. As such, it is recommended this is checked during the next round of monitoring.

BH07 – Inclinometer

3.11 During the October 2024 walkover survey, a defect was identified with the cover of the inclinometer installed at the BH07 location. This was since observed to have been rectified during the February 2025 walkover.

3.12 No significant change was observed in the Face A or Face B values during the October 2024 to January 2025 monitoring period.

3.13 This is consistent with site observations, which concluded no significant change in asset condition for the defects in the vicinity of BH07, namely B2, B3, and B4).

BH10 – Inclinometer

3.14 From September to October 2024, movement in the Face A orientation tended from 5mm to an all-time maximum of 7.5mm, where it remained in subsequent readings from November 2024 to January 2025. This maximum is within the range observed in each of the previous four years of monitoring, therefore this is not considered significant.

3.15 Face B deflection has reduced from 9mm to 7mm from September 2024 through January 2025. This is consistent with the lack of significant change in asset condition was observed in the latest defect survey.

BH12 – Inclinometer

3.16 Face A deflection increased from 1mm to 7.5mm between September and October, where it remained stable at 7.5mm through January 2025. This deflection is below the all-time maximum of 9mm observed in June 2024. This could likely be attributed to the increased rainfall and thus groundwater level observed experienced over the winter period (September – January). This hypothesis is corroborated by the groundwater monitoring data for the adjacent BH11.

3.17 No significant change was observed in the Face B orientation for this monitoring location, during the specified monitoring period.

3.18 It should be noted that no significant change in slope deformation was observed in the area adjacent to BH12 monitoring location. However, should further deflections be observed through the next monitoring period, additional inspections of the slope should be undertaken to assess the risk of potential slope movement/failure.

BH016 - Inclinometer

3.19 No significant change was observed in Face A measurements within the specified monitoring period.

3.20 As previous identified in the October 2024 monitoring report, deflections in the Face B orientation were observed to oscillate month to month by approximately 2mm, with a similar deflection pattern within the data. This pattern is not likely to be a result of slope movement, but more likely to be due to erroneous measurement taking or incorrect zeroing of instrumentation. It is recommended that this is checked during the next round of monitoring.

RECOMMENDATIONS

3.21 It is recommended that groundwater and inclinometer monitoring is continued alongside periodic site walkovers to ensure that site defects are appropriately risk managed, and areas cordoned off as necessary.

4 RECOMMENDATIONS

SHORE ROAD AREA

4.1 Following review of the latest defect survey and the monitoring information, the following general recommendations are given:

- Ongoing walkover surveys should be undertaken at regular intervals (i.e. three to four monthly), to assess the condition of defects identified, and any new defects which have since developed;
- After periods of heavy and prolonged rainfall, an inspection of listed defects should be undertaken by a suitability qualified person on behalf of the Client, to ensure all areas are still sufficiently safe to be opened to members of the public; and
- Areas identified as having high risk (risk rating equal to or greater than 9), should be visually inspected weekly, or after periods of heavy and prolonged rainfall, to ensure no rapid deterioration in the asset has occurred.

4.2 Based on the revised defect risk ratings, recommendations for defect specific mitigation measures are presented in Table 1. It should be noted that the mitigation measures recommended below should be considered supplementary to those stated in previous reports.

Defect A18 – Additional Commentary

4.3 At the Client's request, WSP undertook an inspection of wall running north-south at the boundary between De Moulham Road to the west, and the Spa Beach Hut area to the east. Based on the February 2025 walkover survey, the following observations were made:

- The defect comprised an approximately 18m long section of masonry retaining wall, which was observed to be overturning to the east;

- The wall is approximately 1.8m to 2.0m in height, retaining around 1.0m of highway pavement construction on the west side. There is approximately 0.4m of soft loamy topsoil abutting the down side of the wall, however this was not considered likely to provide any lateral support to the structure;
- Longitudinal cracking of the pavement was witnessed, typically running parallel to the wall defect, set back approximately 1m from the wall face. There was evidence of multiple repair attempts to this section of footway, indicating this defect has been present for a prolonged period;
- In addition to the cracking, settlement of the pavement in the order of 20-30mm was observed in the surface material immediately adjacent (i.e. within 1m) from the retained side of the wall. This observation is consistent with the overturning mechanism, as voids behind the wall would develop as the structure rotates away from the footpath alignment; and
- Vertical cracking in the masonry wall were found to occur at the locations where pavement cracking intersected the wall, consistent with the hypothesis that the issues observed are linked.

4.4 From the information available, the likely cause of the defect is one of, or a combination of the following:

- Poor or variable founding stratum/material, resulting in differential settlement of the wall over time;
- Seepage of surface water or leakage from adjacent drainage systems, resulting in strength reduction of foundation soil causing progressive bearing capacity failure of the structure.

4.5 The PAS 128 survey undertaken by Twenty 20 Surveys Ltd in January 2023, identify a combined drainage system running north south through the centreline of De Moulham Road. From the latest walkover survey, surface scarring was observed relating to a chamber on this network, adjacent to the defect. Should defects be present in this stormwater network affecting its performance or water-tightness, this may be impacting the groundwater regime in the surrounding locale, impacting the stability of the retaining wall.

4.6 In addition to the above, significant cracking was observed between the edge of the carriageway surfacing and the southbound kerb line, particularly in the area adjacent to the retaining wall defect. The carriageway drainage system appears to camber to the west, therefore stormwater should not be directed into this void. If sufficient water has is being channelled into this void, due to direct rainfall, or adverse cambering of the road, this could significantly weaken the subgrade material underlying the road, pavement and retaining wall. This would cause defects to present in a similar manner to those observed during the site walkover.

4.7 Further detail is provided within the Defect Schedule, presented as Appendix A.

4.8 Further details on the recommended mitigation measures for this asset are provided in Table 1.

LAND TO REAR OF SEA BREEZE RESTAURANT

4.9 No significant change in condition of slope, wall or building structures was observed in the latest walkover survey.

4.10 It is recommended that monitoring and continued visual inspection of this area is undertaken as part of the wider Shore Road works, to assess the condition of the associated assets over time.

Table 1 – Recommended Defect Mitigation Measures

Defect Ref.	Defect Location	Defect Photo	Recommended Mitigation Measure
A18	Spa Beach Huts	  	• Continue to monitor regularly (weekly), or after significant rainfall events. • Consider closing off green area on the east face of the wall, to prevent access to the at risk area, in the event of wall collapse. • Repair carriageway longitudinal surface cracking adjacent to kerbing, to reduce ingress of surface water into underlying formation material. • If further movement or signs of deterioration present moving following repair works, the following measures should be considered: - Consider isolating/closing the affected width of footpath, to mitigate risk of persons in the vicinity of potential wall collapse. The sections of uneven footway also present a trip hazard to pedestrians. - If further movement or signs of deterioration present moving following repair works, consider restricting car parking on the south bound section of road, adjacent to the asset.

Defect Ref.	Defect Location	Defect Photo	Recommended Mitigation Measure
B11	Weather Station Field	 	• Maintain exclusion zone around defect. • Continue to monitor regularly (weekly), or after significant rainfall events. • If the defect is observed to propagate further laterally (outwards east or west along Walrond Road), extend the exclusion zone to capture any further at risk areas.
C12	Sandpit Field		• Continue to monitor propagation of tension cracks to the rear of recently planted area (previous bench locations).

REFERENCES

[1] WSP UK Ltd, “Site Monitoring Report - Shore Road (June 2023),” WSP, Bristol, UK, 2023.

[2] WSP UK Ltd, “Swanage Seafront - Ground Stabilisation Feasibility Study (Report No. 70094760-GEO-REV001),” WSP UK Ltd, Bristol, UK, 2022.

[3] WSP UK Ltd, “Swanage TC - Shore Road - Ground Stabilisation Options Refinement Technical Note – Hybrid Option,” WSP, Bristol, UK, 2023.

[4] WSP UK Ltd, “Site Monitoring Report - Shore Road (October 2023),” WSP, Bristol, UK, 2023.

[5] WSP UK Ltd, “Site Monitoring Report - Shore Road (February 2024),” WSP, Bristol, UK, 2024.

[6] WSP UK Ltd, “Site Monitoring Report - Shore Road (May 2024),” WSP, Bristol, UK, 2024.

[7] WSP UK Ltd, “Site Monitoring Report - Shore Road (October 2024),” WSP, Bristol, UK, 2024.

[8] South West Geotechnical Ltd, “Swanage Seafront - Geotechnical Assessment (Report No. 12660),” South West Geotechnical, Devon, UK, 2021.

APPENDIX A – DEFECTS SCHEDULE (FEBRUARY 2025)

Swanage Town Council - Shore Road - Asset Defect Schedule (February 2025)												October 2024 Risk Rating	Februrary 2025 Risk Rating					
Defect Ref.	Defect Location	Easting (m)	Northing (m)	Sample Photo of Defect	Initial Defect Description (June 2023)	Defect Description (Oct 2023)	Defect Description (Feb 2024)	Defect Description (May 2024)	Defect Description (October 2024)	Defect Description (February 2025)	Risk Level	Likelihood (Number)	Likelihood	Effect (Number)	Effect	Risk Level (Number)	Risk Level
A1	The Spa	403068	79415		Vertical and horizontal cracking, bulging/horizontal sliding of failing wall section. Crack width 10 - 20mm. Bowing of wall face, up to 40mm. Loose blockwork, missing masonry, loss of mortar between blockwork. Crack length 1.2m wall height 1.2m Retained height 3.0m+.	Crack width increased to 25mm. Bowing of wall face up to 50mm. North facing wall completely sheared from east facing return. Additional bowing/shearing of masonary at bench level adjacent to return wall, with up to 70mm movement. Recommended that area is fenced/closed off. Return wall supports 3-5m of backfill. In the event of total failure, potential to cause significant harm to members of the public.	No significant change Note heras fencing present to separate area from public	No significant change	No significant change	No significant change	High	3	Likely	3	High	9	High
A2	The Spa	403068	79423		Retaining wall height: 1.3m Retained height: 1.3m Horizontal cracking, crack width up to 10mm. Cracking along failed mortar joint.	Max crack width increased 15mm. Otherwise no significant change (NSC) observed.	No significant change	Slight increase increase in crack width observed. Otherwise, no significant change.	Max crack width increased from 15mm to approx. 17mm. Otherwise no significant change.	No significant change	Low	2	Unlikely	1	Very Low	2	Low
A3	The Spa	403061	79407		Retaining wall height: 0.8m Retained height: 0.8m Vertical cracking and horizontal displacement of wall. Crack width, 40 - 60mm with loose and missing masonry. Evidence of previous repair attempt with cement mix.	Max crack width 80mm. Max translational movement of masonary (left and right hand side) 50mm. Otherwise no significant change, and low risk.	No significant change	No significant change	Loose masonry to the touch observed. No significant change.	No significant change	Low	2	Unlikely	1	Very Low	2	Low

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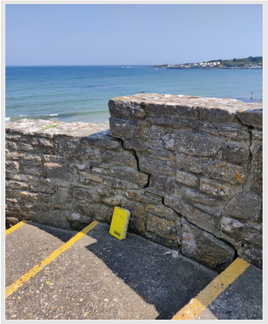
Defect Ref.	Defect Location	Easting (m)	Northing (m)	Sample Photo of Defect	Initial Defect Description (June 2023)	Defect Description (Oct 2023)	Defect Description (Feb 2024)	Defect Description (May 2024)	Defect Description (October 2024)	Defect Description (February 2025)	Risk Level	Likelihood (Number)	Likelihood	Effect (Number)	Effect	Risk Level (Number)	Risk Level
A4	The Spa	403060	79395		Retaining wall height: 1.0m Retained height: 1.0m Vertical cracking, width up to 30mm. No bowing/bulging of wall face observed. Pavement cracking at base of retaining wall mirroring cracking in retaining wall face.	Surveyed - No significant change.	Vertical cracking, width 40mm	No significant change	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low
A5	The Spa	403051	79400		Retaining wall height: 0.9m Retained height: 0.2m Vertical and horizontal cracking, crack width up to 30mm. Appears lower section of wall has settled/rotated away from top section, causing failure of mortar joint and cracking in wall.	Surveyed - No significant change.	No significant change	No significant change	Repair to the mortar joints has been made since the last inspection. Risk of failure significantly reduced, however recommended to monitor asset condition in future surveys to ensure repair remains serviceable.	No significant change. Repair has held.	Low	1	Negligible	1	Very Low	1	Low
A6	The Spa	403060	79402		Retaining wall height: 0.9m Retained height: 0.9m Vertical cracking, crack width up to 20mm. Horizontal displacement of right side of wall 10mm from left side. Evidence of previous mortar joint repair, which has since re-failed.	Horizontal displacement of right side of wall increased to 15mm. Otherwise, no significant change, and low risk.	No significant change	No significant change	Horizontal displacement has increased in areas to a max. of 60mm. No significant change in risk profile for asset.	No signficant change	Low	2	Unlikely	1	Very Low	2	Low
A7	The Spa	403058	79400		Pavement cracking and uneven ground. Differential settlement/transverse cracking in pavement with height up to 10mm. Longitudinal cracking, with width up to 2mm.	Surveyed - No significant change.	No significant change	Differential settlement/transverse cracking in pavement increased from 10mm to 30mm. No significant change to risk rating.	Differential settlement in pavement at maximum, increased from 30mm to 35mm. No significant change in asset risk. *Note: Extreme south sloping of pavement in this area, consider risk to pedestrians if this becomes more pronounced.*	No significant change	Low	2	Unlikely	1	Very Low	2	Low

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Defect Ref.	Defect Location	Easting (m)	Northing (m)	Sample Photo of Defect	Initial Defect Description (June 2023)	Defect Description (Oct 2023)	Defect Description (Feb 2024)	Defect Description (May 2024)	Defect Description (October 2024)	Defect Description (February 2025)	Risk Level	Likelihood (Number)	Likelihood	Effect (Number)	Effect	Risk Level (Number)	Risk Level
A8	The Spa	403052	79390		Retaining wall height: 1.0m Retained height: 1.0m Vertical and horizontal cracking, cracking width 30 - 60mm. Length of defect 0.7m. Evidence of minor previous patch repairs with cement mix.	No bowing observed. Surveyed - No significant change.	No significant change At end of wall vertical cracking noted 10-20mm in width	No significant change	Length of defect increased from 0.7m to 0.95m. No significant change in asset condition or risk rating.	No significant change	Low	2	Unlikely	1	Very Low	2	Low
A9	Spa Beach Huts	403028	79367		Retaining wall height: 0.9m Retained height: 0.9m Minor vertical cracking, missing masonry blocks and silted up and damaged back of wall drainage. Damage potentially due to running services through wall, post wall construction.	Surveyed - No significant change.	No significant change	No significant change	No significant change	No significant change	Low	2	Unlikely	1	Very Low	2	Low
A10	Spa Beach Huts	403054	79358		Retaining wall height: 1.25m Retained height: 1.25m Vertical cracking, crack height 0.9m, crack width up to 30mm. Damaged weephole / void at the base of the wall (see left of survey book).	Surveyed - No significant change.	No significant change	No significant change	No significant change	No significant change	Low	2	Unlikely	2	Low	4	Low
A11	Spa Beach Huts	403042	79361		Retaining wall height: 2.15m Retained height 2.15m Hairline vertical cracking full height of the wall, crack width ~1mm. Weephole silted up and 2/3 blocked by additional concrete pours, potentiall from previous remedial works.	Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	No significant change	No significant change Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	Low	1	Negligible	3	High	3	Low

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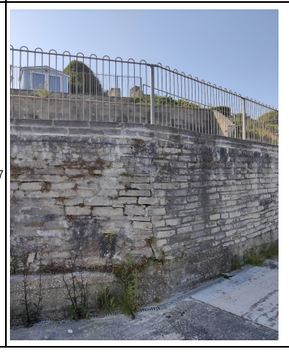
A12	Spa Beach Huts	403050	79369		Delapidated aco surface water drainage system. Drainage gratings broken, and invert fully silted up for the full length of the retaining wall.	Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	No significant change	No significant change Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	Low	3	Likely	1	Very Low	3	Low
A13	Spa Beach Huts	403055	79380		Retaining wall height: 2.15m Retained height: 2.5m Horizontal hairline cracking, crack width 1mm. Cracking located 1.85m from existing ground level. Slight bulging/bowing at the mid span/mid height of retaining wall. Defect length: 8m.	Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	No significant change	No significant change. Could not survey due to lack of access to mid-terrace. From visual inspection in accessible location, no significant change observed.	Evidence of water ingress through the mortar joints, indicating perch groundwater behind wall could be present. No significant change in risk rating.	No significant change	Low	2	Unlikely	1	Very Low	2	Low
A14	Spa Beach Huts	403062	79353		Retaining wall height: 1.2m Retained height: 0m Vertical and horizontal cracking. Crack length 1.1m, crack width up to 3mm. No loose masonry or missing blockwork. No bulging or bowing of the wall structure.	Surveyed - No significant change.	No significant change	No significant change. Vegetation (flowers) observed to be growing through the cracks in the masonry.	Slight bulging of <10mm observed. Vegetation previously observed has died back. No significant change in risk profile.	Bulging approx. 10mm observed. No significant change	Low	2	Unlikely	1	Very Low	2	Low
A15	Spa Beach Huts	403060	79377		Retaining wall height: 2.55m Retained height: 2.55m Vertical cracking, crack length 1.3m, typical crack width between 3 - 10mm. Bulging/bowing at corner section of masonry wall. Loss of mortar between blockwork.	Horizontal crack width 20mm max. Vertical crack width 20mm max. Otherwise no significant change.	No significant change	No significant change. Water egress / pooling at base of the wall, however origin of this was unconfirmed. No immediate signs of water expelling from the wall face.	Visual evidence of water egress from behind the wall in the upper sections. Lower sections of the wall are dry, therefore assumed to not be due to rainfall. Pooling of water at the base of the walll believed to be due to delapidated drainage at toe of wall.	October 2024 observation still valid re: water egress from behind the wall, and pooling of water at the base of the wall. Evidence of continued spalling of bottom layer of exposed masonry above concrete render at base. Recommend to continue monitoring for further signs of wall distress. No immediate preventative measures recommend as area is already isolated from the public.	Medium	3	Likely	2	Low	6	Medium

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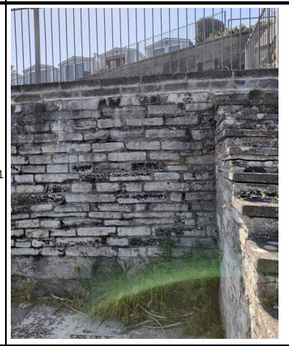
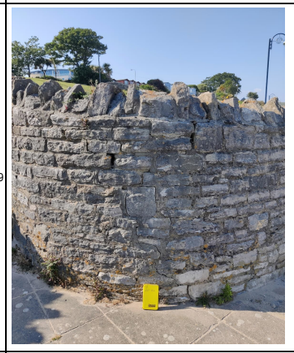
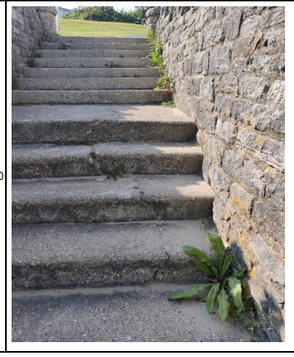
A16	Spa Beach Huts	403060	79381		Retaining wall height: 2.55m Retained height: 2.55m Horizontal and vertical cracking. Crack length 1.6m. Typical crack width 3 - 10mm. Bulging/bowing at the mid span of masonry wall.	Surveyed - No significant change.	No significant change	No significant change	No significant change	No significant change	Low	1	Negligible	2	Low	2	Low
A17	Spa Beach Huts	403062	79383		Retaining wall height: up to 2.2m Retained height: up to 2.5m. Horizontal cracking. Crack length 1.8m. Crack width 3 - 12mm. Horizontal movement of return wall causing cracking, potentially due to bulging/bowing from the main span.	Surveyed - No significant change.	No significant change	No significant change	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low
A18	Spa Beach Huts	403026	79380		N/A	N/A	N/A	N/A	N/A	De Moulham Road Retaining Wall Observations: Approx. Defect Length = 18m - Overturning wall - Longitudinal tension cracking in pavement - Multiple tarmac repairs obeserved in the area. - Settlement of material adjacent to the retained side of the wall (underlying tarmac repair) - approx. 20-30mm. - Settlement consistent with theory of wall overturning, resulting in void developing behind wall, for subbase/subgrade material to settle into. - Cracking in masonry wall consistent with location of cracks in the pavement, indicating cause/effect of wall on pavement construction. Likely cause of issue: - Poor foundation material, causing differential settlements - Leakage of drainage system in locale causing reduction in strength of the wall formation material.	N/A	3	Likely	2	Low	6	Medium
B1	Weather Station Field	403050	79339		Pavement tension cracking, surface deformation and partial collapse. 2no. continuous cracks observed, 3.6m and 11m in length respectively. Multiple patch repairs with asphalt and cement/concrete mix. Ground uneven and with numerous cracks. Crack depths ranging between 5 - 10mm where repairs have not been completed.	Surveyed - No significant change. Slip/trip/fall hazard for members of the public (similar to defect ref. C7). Consider closing off access to footpath, or removing entirely.	Footpath now removed and replaced with grass	No significant change.	No significant change.	No signficant change Repair still intact.	Low	1	Negligible	1	Very Low	1	Low

Swanage Town Council - Shore Road - Asset Defect Schedule (February 2025)											October 2024 Risk Rating	Februrary 2025 Risk Rating					
Defect Ref.	Defect Location	Easting (m)	Northing (m)	Sample Photo of Defect	Initial Defect Description (June 2023)	Defect Description (Oct 2023)	Defect Description (Feb 2024)	Defect Description (May 2024)	Defect Description (October 2024)	Defect Description (February 2025)	Risk Level	Likelihood (Number)	Likelihood	Effect (Number)	Effect	Risk Level (Number)	Risk Level
B2	Weather Station Field	403042	79330		In the field area to the east of weather station, hummocky ground observed, with tension cracking in slope, bulging of surface.	Surveyed - No significant change.	No significant change	No significant change	At south east corner of field, a BH / inclinometer cap missing, with open pipework exposed. This is likely to cause erroneous recordings with regards to groundwater measurements. Review of data to be undertaken. Bulging of surface slope material remains, and hummocky ground building up behind wall running to the south.	BH cap at south east corner has been replaced since last inspection. Rectified. Bulging slope surface shows no significant change. However, still presents a remedial risk. Regular topographical survey works would be required to assess minor slope movements. Risk of failure to the south reduced with the erection of an exclusion zone around southern wall section.	Medium	3	Likely	2	Low	6	Medium
B3	Weather Station Field	403059	79309		Retaining wall height: 1.8m Retained height: 1.8m Vertical and horizontal cracking, crack width between 2 - 20mm, occuring at apex of wall curvature. No bulging or bowing of the wall observed.	Unable to survey position of maximum crack width due to information signage location. Otherwise no significant change observed.	No significant change	No significant change	No significant change	No significant change	Low	2	Unlikely	2	Low	4	Low
B4	Weather Station Field	403055	79305		Retaining wall height: 1.8m Retained height: 1.8m Curved wall with 3no. sets of vertical cracking. From south face of retaining wall, cracks are at chainage CH 0, 2.0, and 5.5m. Total length of defect: 5.5m. CH 0m Defect: Vertical cracking, crack width typically 30 - 50mm. Missing blockwork at the head of the wall, with significant voids behind mid span of wall (potentially lost mortar or block work following movement). CH 2.0m Defect: Vertical cracking, max crack width typically 90 - 130mm, increasing with height of wall. Missing blockwork at top of wall. CH 5.5m Defect: Vertical cracking, crack width up to 10mm. Blockwork intact.	Survey of crack dimensions hampered by heras fencing panels, which could not be moved. Could not be surveyed accurately. No significant change in structure compared with previous survey. Maintain heras fencing panel around defect. Continue to monitor regularly.	Heras fencing forming exclusion zone. No direct measurements made, however general observations indicate further movement. Continue to monitor and maintain exclusion.	Heras fencing forming exclusion zone. No direct measurements made, due to presence of fencing panels. Continue to monitor and maintain exclusion.	No significant change. Continue to monitor and maintain exclusion zone.	No significant change. Continue to monitor and maintain exclusion zone.	High	3	Likely	3	High	9	High
B5	Weather Station Field	403054	79310		Vertical cracking on footpath/stepped access. Crack length 3m, typical crack width 1 - 2mm.	Additional cracking observed at bottom left stairs area. Crack widths similar to previous survey.	No significant change	Additional loss of material/concrete from steps, with voids/cracking up to 40-50mm observed. No significant change to risk level currently.	Additional cracking of pavement slabs observed. No significant change to risk profile.	Significant cracking of pavement slabs. Concrete pavers still stable (i.e. no rocking), however continued deterioration of the asset may give cause to a trip hazard. Recommend to continue monitoring. No significant change in geotechnical risk profile.	Low	2	Unlikely	1	Very Low	2	Low

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B6	Weather Station Field	403045	79304		Retaining wall height: 1.0m. Retained height: 1.5m Vertical and horizontal cracking, crack length 0.8m. Typical crack width 40 - 60mm. Minor bowing of the wall at mid height.	Previously identified "minor bowing" appears more akin to shearing of top row of finishing stones of wall span, from the wall below. No significant change in crack widths from previous survey.	No significant change in crack widths Noted to be very wet with water issuing from between cracks	No significant change. No water observed expelling from the wall face, however weather conditions were dry on date of inspection.	Max crack width increased from 60mm to 90mm. Top of wall has sheared further outwards from lower wall. No significant change in risk profile.	Max crack width 90mm - maintained. Top of wall has sheared further outwards from lower wall. Significant water egress from wall face at joint with flag stones. Increased geotechnical risk, however risk profile has been kept same, due to limited exposure risk following installation of exclusion zone at Walrond Road north.	Low	2	Unlikely	1	Very Low	2	Low
B7	Weather Station Field	403034	79304		Retaining wall height: 0.9m Retained height: 1.0m. Vertical cracking, from base to top of wall (i.e. 0.9m), crack width between 20 - 40mm.	Surveyed - No significant change.	No significant change	No significant change	No significant change	Significant water egress from wall face at joint with flag stones. Increased geotechnical risk, however risk profile has been kept same, due to limited exposure risk following installation of exclusion zone at Walrond Road north.	Low	1	Negligible	1	Very Low	1	Low
B8	Weather Station Field	403026	79304		Retaining wall height: 0.85m Retained height: 1m + Vertical and horizontal cracking, the full height of the wall (0.85m), with typical crack width of 20mm. Lower right side (east) of wall translational movement relative to rest of wall (<30mm).	Max crack width increased to up to 40mm. Otherwise no significant change - low risk.	No significant change	No significant change	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low
B9	Weather Station Field	403017	79304		Retaining wall height: 1.0m Retained height: 1.0m Vertical cracking, running full height of the wall. Right of the crack (east side of the wall), 30mm translational movement of the wall relative to the west side. Pavement cracking adjacent to retaining wall observed from base of retaining wall.	Surveyed - No significant change.	No significant change	Crack width observed up to 20mm. No significant change to translation movement or pavement cracking adjacent to the wall.	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low

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B10	Weather Station Field	403040	79304		N/A	Retaining wall height: 0.9m Retained height: 1.0m. Vertical cracking, from base to top of wall (i.e. 0.9m), crack width up to 10mm.	No significant change	No significant change	No significant change	No significant change Significant overhang of upper flag stone sections to lower wall. Risk covered under defect Ref. B11.	Low	2	Unlikely	1	Very Low	2	Low
B11	Weather Station Field	403040	79304		N/A	7.5m length of wall, between defect ref. B6 and B7: Shearing of top span of masonry from base of wall, up to 50mm. Movement in superficial material on retained side of weather station field seperating wall at weak/mortar joint location. Risk of collapse over time, and damage to pavement, members of the public, and cars parked on road adjacent to wall. Advise to continue monitoring regularly.	Shearing of top span of masonry from base of wall, increased to 70mm. Evidence of seepage through wall, along extents. Advise to continue monitoring regularly. Further deterioration may required foot path diversion.	Condition of asset as per February 2024 inspection. Lateral extents of the defect has increased from 7.5m to 9m. Advise to continue monitoring - should further degradation to asset condition be observed, a footpath diversion may be required.	Length of defect observed increased from 7.5m to 10m. Significant evidence of seepage egressing from behind the wall, between the upper and lower wall sections. Evidence of spalling of facing material in multiple locations. Continue to monitor, if further degradation occurs, or additional spalling of wall material, consider exclusion zone around affected section and footpath diversion.	Exlcusion zone has been erected since previous site walkover over (October 2024), in accordance with report recommendations. Longitudinal cracking + footpath bulge/heaving at locations of worst affected area + max slumping of material above wall. Recommend to maintain exclusion zone and regularly monitoring in accordance with main report recommendations.	High	3	Likely	3	High	9	High
C1	Sandpit Field	403000	79294		Retaining wall height: 1.0m. Retained height: 1.0m Vertical cracking, full height of wall, typical crack width 5 - 30mm. Large bushes overhanging back of retaining wall, likely the cause of distress observed in the structure.	Displacement of east side of wall relative to the west up to 30mm. Otherwise no significant change - low risk.	No significant change	No significant change	Typical crack width increased from 30mm to 40mm. No significant change in asset risk.	No significant change	Low	2	Unlikely	1	Very Low	2	Low
C2	Sandpit Field	403009	79294		Retaining wall height: 0.8m Retained height: 0.8m Vertical cracking full height of wall, typical crack width 5 - 20mm. Evidence of historic patch repair made previously.	Surveyed - No significant change.	No significant change	No significant change	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low

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Defect Ref.	Defect Location	Easting (m)	Northing (m)	Sample Photo of Defect	Initial Defect Description (June 2023)	Defect Description (Oct 2023)	Defect Description (Feb 2024)	Defect Description (May 2024)	Defect Description (October 2024)	Defect Description (February 2025)	Risk Level	Likelihood (Number)	Likelihood	Effect (Number)	Effect	Risk Level (Number)	Risk Level
C3	Sandpit Field	403024	79295		Retaining wall height: 0.95m Retained height 1.0m Vertical cracking, full height of wall, crack width between 1 - 3mm.	Surveyed - No significant change.	No significant change	No significant change	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low
C4	Sandpit Field	403035	79295		Retaining wall height: 1.0m Retained height: 1.2m Vertical cracking, full height of wall. Crack width 20 - 40mm.	Small void at base of wall due to loss of mortar/masonry. Likely lost from translational movement of the wall. Otherwise no significant change.	No significant change	No significant change	Masonry appears to have been lost / fallen off of wall face in section surrounding the crack (see latest images for comparison). Slight increase in asset risk, however still low due to general condition and retained height.	No significant change	Low	2	Unlikely	2	Low	4	Low
C5	Sandpit Field	403058	79290		Retaining wall height: 1.25m Retained height 1.25m Vertical and horizontal cracking, typical crack width 20 - 30mm. Transverse movement of the wall, mortar joint failure from masonry blockwork moving apart.	Vertical and horizontal cracking increased from 20-30mm to 40-50mm. Otherwise health of asset unchanged. Low risk.	No significant change	No significant change	No significant change	No significant change	Low	2	Unlikely	2	Low	4	Low
C6	Sandpit Field	403054	79280		Retaining wall height: 0.6m Retained height: 1.5m+ Vertical cracking full height of the wall. Typical crack width between 10 - 15mm. Overgrown bushes and vegetation acting on the back of the wall the likely cause of deterioration of the retaining structure.	Typical crack width increased to 15-25mm. Otherwise no significant change - low risk.	No significant change	No significant change	No significant change. Asset partially obscured by vegetation.	No significant change. Asset partially obscured by vegetation.	Low	2	Unlikely	2	Low	4	Low

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C7	Sandpit Field	403057	79248		Multiple areas of pavement cracking and surface deformation (one example shown face left). Distress in asphalt behind lower slope retaining walls observed where rotation of lower wall was seen (see defect C13). Additional areas of distress in pavement seen where up slope area is oversteepened and not effectively restrained by retaining structure or otherwise, see defect C12.	Defect has been repaired, asphalt has been re-laid in area following slip/trip/fall incident. Bench removed from area. Area to be checked in follow up surveys to ensure defect does not reoccur.	No significant change	No significant change	No significant change Current pavement repair has held.	No significant change. Pavement repair in good condition.	Low	1	Negligible	1	Very Low	1	Low
C8	Sandpit Field	403056	79252		Retaining wall height: 1.3m Retained height 3.0m + 6 l.m of terraced masonry blocks which were observed to be overturning with over steepened slope behind. Blocks likely installed to prevent shallow slip failure of material above, however global stability of slope borderline.	Blocks further overturned. Further ravelling of slope material. A 1 m section of toe has a paving stone/blockwork missing. Unsupported toe area has an increased risk of slip/localised slope failure. Regular inspection of area recommended to inspect condition. Consider replacing stone/blockwork to provide support to the face.	No significant change	2no. Replacement blockwork paving slabs installed on the base row. Southern one has already overturned with voiding behind the rear face of panel observed. Advise to continue monitoring these slabs. If these significantly overturn or come loose they could present a trip hazard to pedestrians.	Southern paving slab referred to within May 2024 defect schedule has been repaired/reinstated. Continue to monitor, however risk profile remains same from May 2024 inspection.	No significant change. Asset partially obscured by vegetation.	Medium	2	Unlikely	3	High	6	Medium
C9	Sandpit Field	403056	79246		Retaining wall height: 0.6m Retained height: 3m + 7.5 l.m of retaining wall blocks partially overturned at toe of retaining wall. Insufficient embedment of blocks at toe, and oversteepened slope behind overloading wall.	Surveyed - No significant change.	Slabs appear to have rotated further outward, consider removal or replacement	Further overturning of southern most slab and newly replaced slab observed. Consider removal and reinstatement with greater toe embedment.	Southern most slab has been repaired/replaced and levelled. Continue to monitor. No significant change in risk profile.	No significant change. Continue to monitor pavers for movement/displacement.	Medium	2	Unlikely	2	Low	4	Low
C10	Sandpit Field	403052	79239		3 l.m of tension cracking observed in oversteep section of slope. Width of tension crack approx 200mm, and 250mm depth in areas.	Tension crack width Otherwise no significant change. Continue to monitor on ongoing basis.	No significant change	No significant change.	No significant change. Due to heavy vegetation, quantifying the crack width of asset difficult. From general visual inspection, asset condition has not changed since previous inspection.	Area de-vegetated following previous inspection circa October 2024. Hummocky ground and tension crack on embankment toe observed, resulting in 200-300mm vertical face of material. Recommend to continue monitoring for further degradation.	Medium	3	Likely	2	Low	6	Medium

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C11	Sandpit Field	403055	79235		Retaining wall height: 0.3m Retained height: 3m+ 2 Im section of retaining wall at the rear of benches, has overturned by 30 degrees from vertical. Large overgrown vegetation acting immediately behind the rear of wall, likely cause of issue.	Overturning of retaining wall increased to 45 degrees from vertical. Low risk, however continue to monitor. Risk of causing hazards related to slips/trip/falls, particularly adjacent to bench + pedestrian walkway.	Evidence of increased tilt - continue to monitor.	Evidence of increased tilt compared to Feb 2024	No significant change	Significant overturning of paving slabs observed, almost to the horizontal. Small risk of material and flagstone movement into the footway, causing slip / trip / fall hazard. Recommend overturned slabs are removed, area made good and slabs reinstated. Continue to monitor for further degradation between site walkover surveys.	Low	3	Likely	2	Low	6	Medium
C12	Sandpit Field	403055	79202		3no. Failed retaining wall which use to house benches. Retaining wall height: 0.6m Retained height 2.5 - 3.5m + Masonry wall fully overturned and collapse of the main wall span. Partial collapse of the return walls either side of each retaining wall. Bulging and hummocking of stone slab at ground level, and signs of distress in adjacent asphalt where retaining walls have failed, indicating greater/deeper global failure occuring.	2nd/Middle retaining wall: - Increased ravelling of shallow material observed. -Shallow slip developing above overturned masonry. Considering heras fencing, cordoning off. Retaining Walls 1 + 3: Surveyed - No significant change observed.	Infilled with sleepers and planting - tension cracking noted above this section and above adjacent retaining walls. Continue to monitor. It is advised that the remaining bench is removed in this section.	Remaining bench has been removed. In addition to Feb 2024 observations, footway adjacent to the bench area has been re-paved. Tension cracking in the slope above the bench areas still observed - advise to continue monitoring.	No significant change from May 2024 inspection. Continue to monitor top slope, as there is still significant signs of slope distress.	No significant change from October 2024 inspection. Continue to monitor top slope, as there is still significant signs of slope distress.	Medium	3	Likely	2	Low	6	Medium
C13	Sandpit Field	403057	79207		Retaining wall height: 1.0m Retained height: 0.3m Minor tilt/overturning observed in section of masonry wall. Area of overturning matches asphalt repairs and scarring work indicating link between the two. Defect length 22 Im.	Surveyed - No significant change.	No significant change. Footway resurfaced.	No significant change.	No significant change.	No significant change.	Low	2	Unlikely	2	Low	4	Low
C14	Sandpit Field	403039	79146		Retaining wall height: 1.25m Retained height: 1.25m Lack of mortar joints connecting this section of wall, therefore potential reconstruction of wall section with dry stone wall technique. Mid height bulging/bowing of the wall likely due to large bushes/trees directly overhanging the back of the wall. Defect length approx 6 Im.	Significant bow in the wall, due to large bushes/trees directly overhanging back of the wall. Bow/overturn measured as 7 degrees to the vertical. Recommended that trees are coppiced, to remove load from back of the wall, and limit damage to wall without killing tree. Killing or removing the tree would cause the decay/rotting of root system, which is likely providing some intergrity to the wall structure.	No significant change.	Tree behind affected area of wall has been coppiced, reducing load on the back of the wall. No change to the condition of the wall. Reduction in risk rating considered due to removal of tree/load from rear face of wall.	No significant change.	No significant change.	Low	1	Negligible	2	Low	2	Low

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C15	Sandpit Field	403041	79295		N/A	N/A	N/A	Retaining wall height: 0.9m Retained height 0.9m Vertical cracking, full height of wall, hairline cracking of width up to 2mm.	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low
C16	Sandpit Field	403053	79295		N/A	N/A	N/A	Retaining wall height: 1.0m Retained height 1.0m Vertical cracking, full height of wall, cracking up to 50mm.	No significant change	No significant change	Low	1	Negligible	1	Very Low	1	Low

APPENDIX B – QUALITATIVE RISK ASSESSMENT METHODOLOGY

QUALITATIVE RISK ASSESSMENT (QRA) METHODOLOGY

Qualitative risk assessments are a method of measuring relative risk, based on ranking or descriptive categories. It is an industry standard means of determining a level of risk and is therefore considered appropriate and sufficient for use at this site.

LIKELIHOOD OF FAILURE

The likelihood of failure for each defect shall be assessed with consideration to findings defect and walkover surveys, and results from any previous Ground Investigation Reports.

Table 1 – Qualitative Risk Assessment; Likelihood

Score	Likelihood	Chance of occurrence (%)
5	Almost certain	>70
4	Probable	50-70
3	Likely	30-50
2	Unlikely	10-30
1	Negligible	<10

EFFECT OF FAILURE

The effect should a failure occur within a defect has been considered with reference to:

- Wall or slope geometry;
- Volume of failed material;
- Proximity to roads and pedestrian footways; and
- Potential to cause damage to infrastructure or harm to members of the public, within the site boundary.

Effect is commonly categorised based on the impact to cost or time, including damage to property and personnel injury.

Table 2 - Risk Assessment; Effect

Score	Effect	Cost or Time
4	Very High	Multiple fatalities and/or unserviceable damage to property
3	High	Fatality or injury to people or major damage to property
2	Low	Minor injury to people or minor damage to property
1	Very Low	Negligible damage
0	None	No effect

RISK LEVEL

A Risk Rating can subsequently be calculated using the adopted principle of Risk = Likelihood x Effect. Each risk rating corresponds to the respective Risk Level, ranging from low to very high risk.

Table 3 - Risk Assessment; Risk Level

Score	Risk Level
13-20	Very High
9-12	High
5-8	Medium
0-4	Low