




ABP South Wales Marine Licence Monitoring - LU115

Document Information

Document History and Authorisation		
Title	ABP South Wales Marine Licence Monitoring - LU115	
	Maintenance Dredge Disposal	
Commissioned by	ABP South Wales	
Issue date	May 2026	
Document ref	R.5191	
Project no	R/5743/01	
Date	Version	Revision Details
29/04/2026	1	Issued for client review
05/05/2026		Accepted as issued for client use

Prepared (PM)	Approved (QM)	Authorised (PD)
Adelle Wigley	Adam Fulford	Natalie Frost
		

Introduction

LU115 has been open since 1993 and is presently licensed for dredge disposal. Among other users, ABP South Wales utilise the site for material extracted from Barry Docks and approach channel.

As part of the ongoing site operation and monitoring, repeat bathymetric surveys of the LU115 (Mercur Buoy) site are regularly carried out by (and on behalf of) ABP South Wales. These monitoring surveys include coverage of the disposal site itself, as well as two extended cross-section transect profiles, running across the site from southwest to northeast (Transect 1) and from west to east (Transect 2) (see Figure 1 for locations and extents).

To support the ongoing monitoring, the bathymetric monitoring survey data has been analysed and comparisons undertaken between successive survey datasets. This analysis includes a difference plot of the disposal site bathymetry between August 2022 and August 2025, as well as comparison of the two transect profiles since 2020.

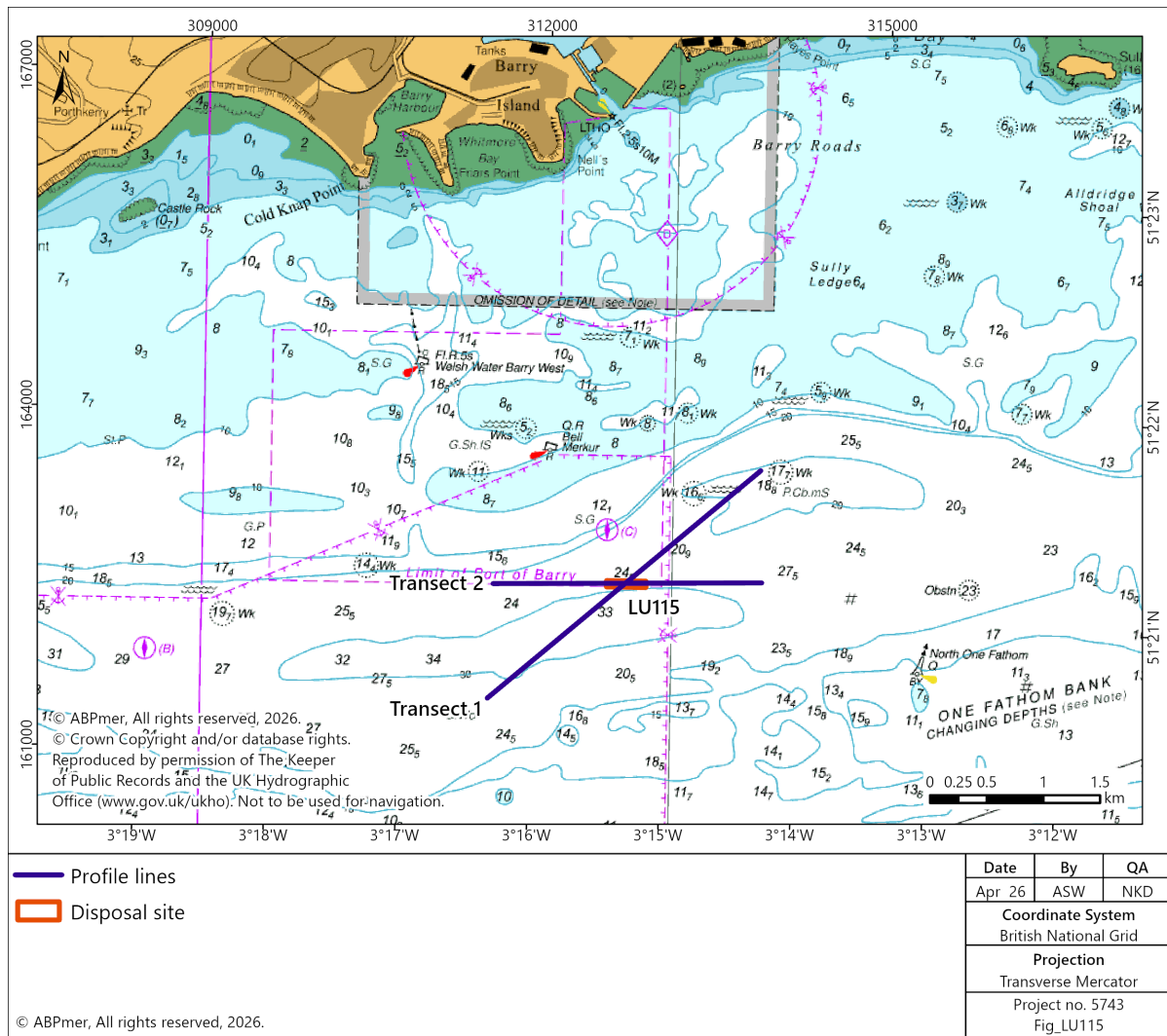


Figure 1. Location of LU115 area of interest

This Note provides the summary findings of the analysis of the monitoring data, which is discussed within the following sections.

Comparison of bathymetric data

To assess the range of variability in bed elevation across (and over the wider area of) the LU115 disposal site, repeat bathymetric survey data has been analysed. Table 1 provides a summary of the bathymetric data assessed as part of the present analysis, in support of the ongoing monitoring. These data are sourced from a combination of singlebeam echo-sounder (SBES) and multibeam echo-sounder (MBES) surveys of the site.

Table 1. Bathymetric datasets used in assessment

Date	Source and date
2020	SBES bathymetric surveys collected on behalf of ABP South Wales August 2020
2022	MBES bathymetric surveys collected on behalf of ABP South Wales August 2022
2025	MBES bathymetric surveys collected on behalf of ABP South Wales August 2025

Each survey dataset covers the LU115 disposal site itself (repeat east-west survey lines at approximately 50 m line spacing and north-south survey lines at lines spacing of around 250 m) as well as the two transect profiles shown in Figure 1 (Transect 1 is around 3,100 m in length, whilst Transect 2 is around 2,300 m).

The analysis considers the difference in bed elevation, between the August 2022 and August 2025 surveys, across the LU115 disposal site itself. The bed level change is shown in Figure 2, whereby a negative difference in elevation indicates that the bed is shallower in the 2025 survey than in the 2022 survey, whilst a positive difference indicates the bed has deepened between surveys.

As shown in Figure 2, the analysis of the successive bathymetric datasets indicates a maximum shallowing of the LU115 disposal site in the three years between surveys of around 0.3 m, this is generally concentrated in the north-western corner of the site. Whereas a slight deepening can be observed across most of the remainder of the site, of up to 0.1 m. Taken across the whole site, the average magnitude of variation is around ± 0.05 m.

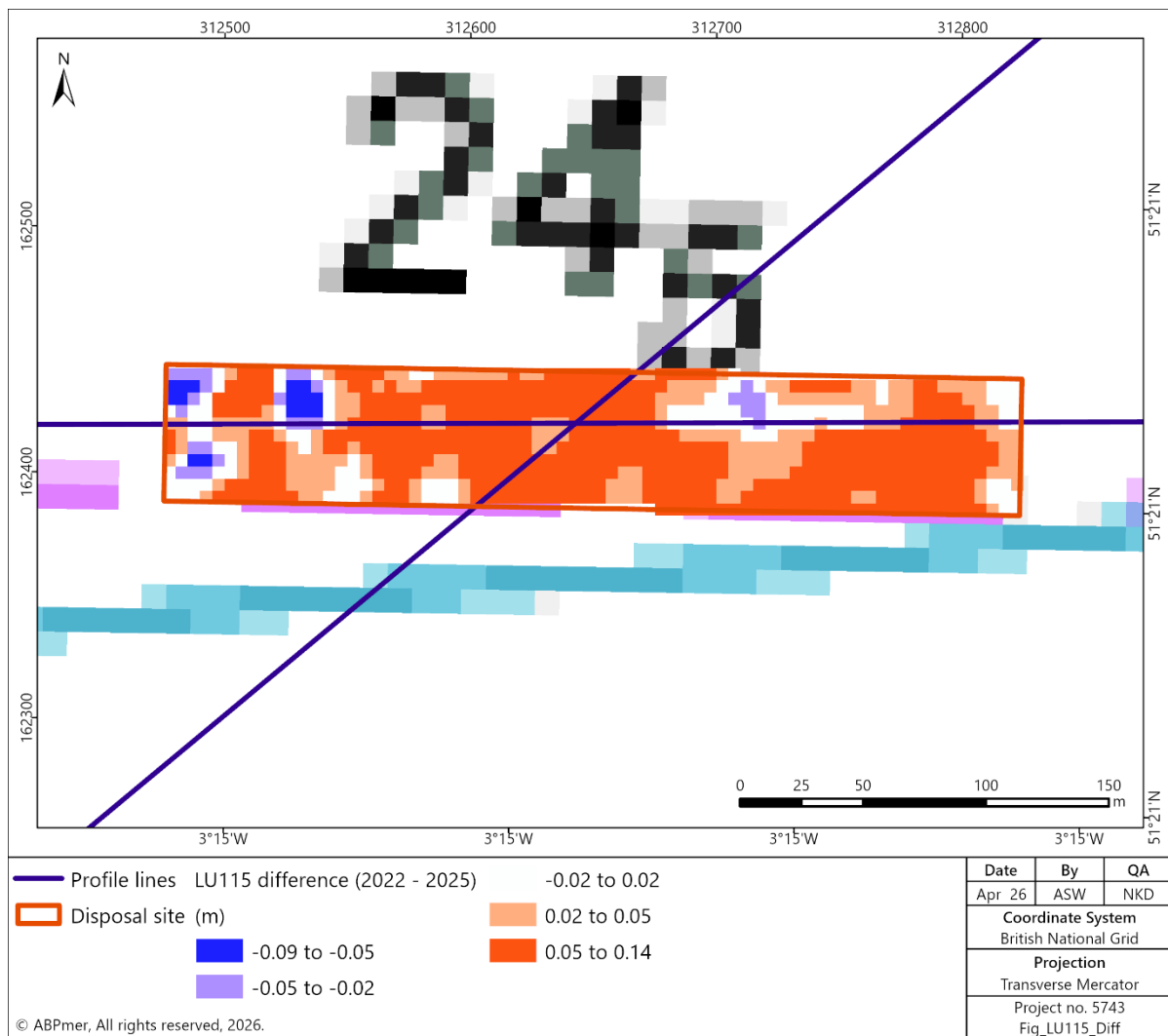


Figure 2. Difference in bed elevation across LU115 between August 2022 and August 2025

To further inform the ongoing monitoring, analysis of the repeat cross-section transect profile data has also been undertaken. The locations of these profiles are shown in Figure 1 and an example of the bathymetric bed elevations from the latest (August 2025) bathymetric survey is shown in Figure 3. This shows a variation in elevation along these transects, ranging from around -34 mCD to -20 mCD along Transect 1 and between around -31 mCD to -24 mCD along Transect 2.

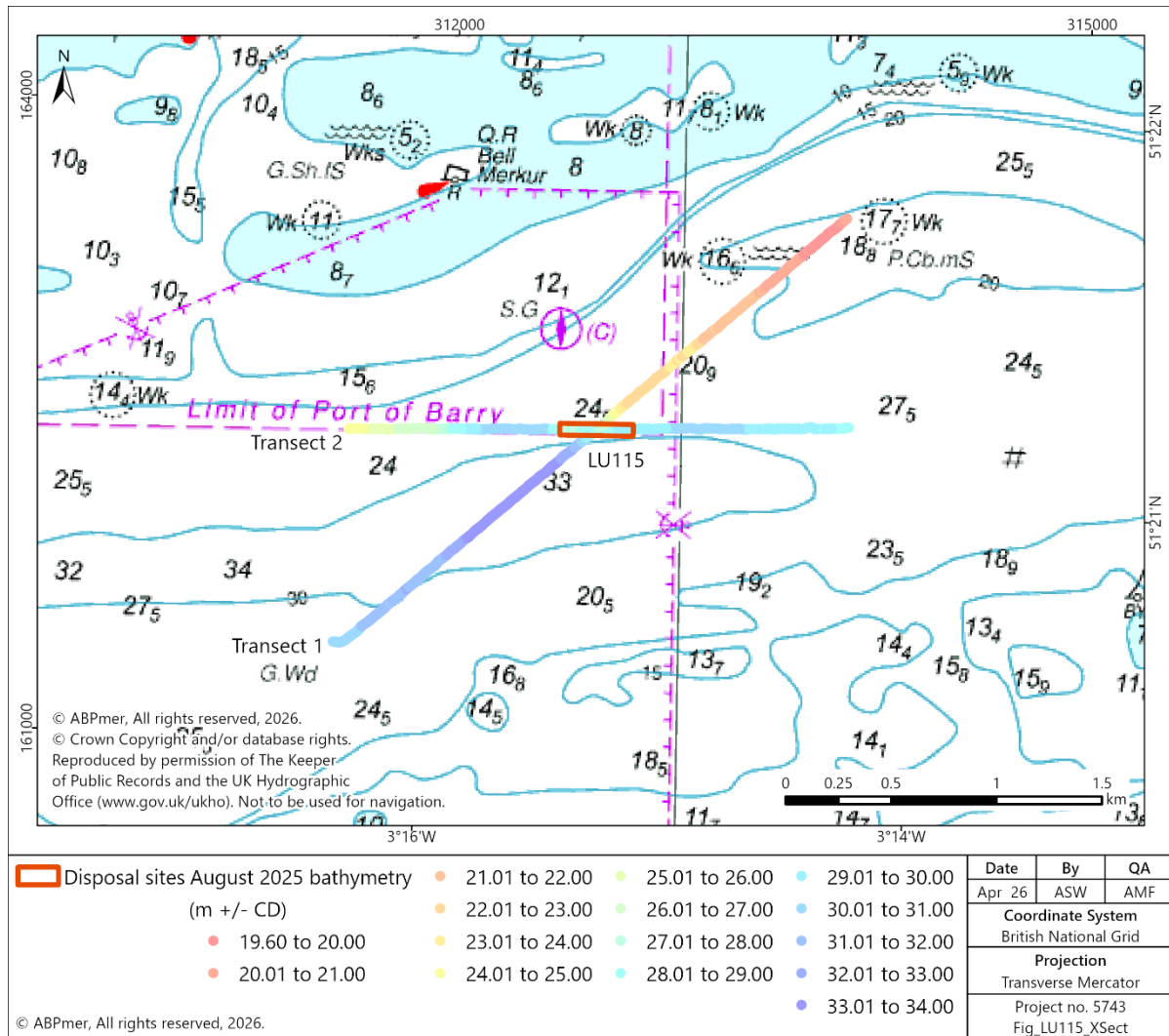


Figure 3. August 2025 bathymetric transect profiles across LU115

Comparison of the 2022 and 2025 bathymetry survey data has been carried out to assess the changes to bathymetry along the two surveyed profiles. The differences in bed elevation along Transects 1 and 2 are shown in Figure 4 and Figure 5, respectively. Generally, the profile comparison shows a variable pattern of change, with some parts of the profiles being shallower in 2025 than in 2022 and other parts being deeper. Overall, the two surveys show very little variation in bed level and indicate the same bed features at some locations and levels (e.g. bed slopes etc.). In both cases, the transect profiles are also very similar to the previous (2020) monitoring dataset.

In order to provide a more comparable set of metrics for assessing change along each profile, a statistical average of the profile elevation (along the comparable sections of each profile that have been covered in each of the two survey periods) has been calculated. Table 2 summarises the average elevation of each profile, and from each survey period.

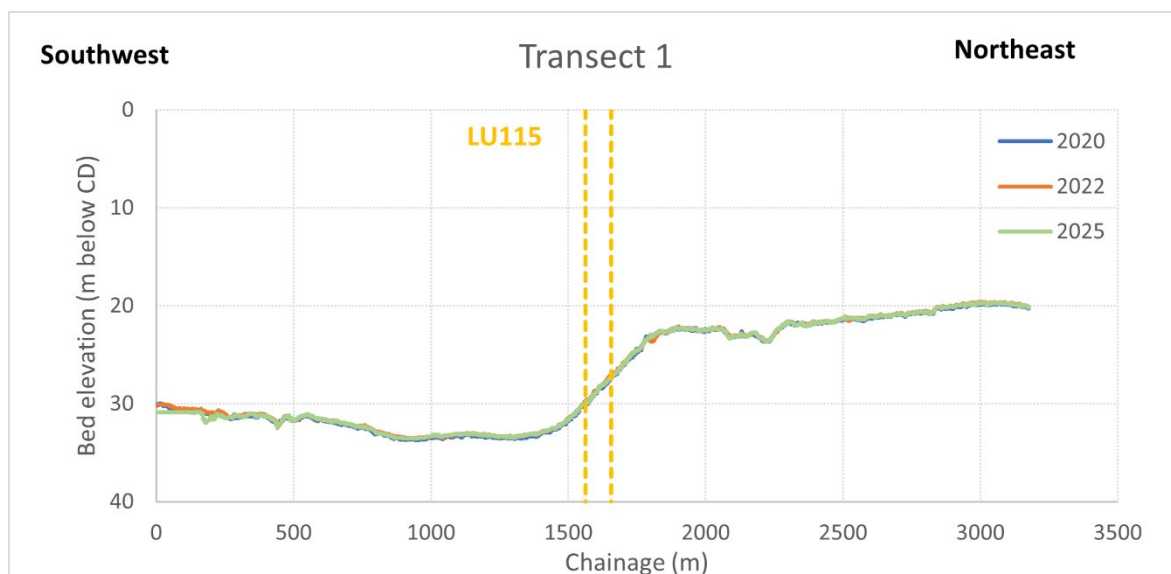


Figure 4. Comparison of bed elevation along Transect 1 between 2020 and 2025



Figure 5. Comparison of bed elevation along Transect 2 between 2020 and 2025

Table 2. Average bed elevation along LU115 Transects 1 and 2

Survey period	Average bed elevation (mCD)	
	Transect 1	Transect 2
2020	-28.86	-26.93
2022	-28.77	-26.83
2025	-28.83	-26.89

From the values in Table 2, it is apparent that the average profile elevation (for both Transects 1 and 2) remains generally similar between each of the survey periods. Along both transects, the average change varies by 0.06 to 0.1 m across all survey periods. When comparing the most recent data, it is shown that the average bed elevation in 2025 (for both Transects 1 and 2) is slightly lower (deeper) than that for the profile data extracted from the previous (2022) dataset and is very similar in elevation to that shown in the 2020 dataset.

Further analysis, considering the change in average elevation just within the disposal site and along the remainder of each Transect reveals similar findings. For Transect 1, the section within the LU115 site has deepened by 0.12 m between 2022 and 2025; by contrast, the remainder of Transect 1 (outside of the disposal site) has deepened, on average, by 0.06 m over the same period. For Transect 2, the section within LU115 has deepened by an average of 0.04 m; whilst the remainder of the profile has deepened by an average of 0.06 m.

The bathymetric comparisons detailed above indicate that the magnitude of variation within the LU115 site (and across the wider region) is generally small between the two survey periods. Bathymetry across the site has generally deepened by less than 0.1 m, whilst the relative variation along the Transect profiles (approximately 0.05 m, on average) is similar both within the LU115 site and along the extents of the profile outside of the disposal site (extending 1-1.5 km up- and down-estuary of the site).

Discussion and summary conclusions

The repeat bathymetric surveys of LU115 (and cross-section transect profiles covering the wider region) have been analysed to assess the changes in bed elevation between 2022 and 2025.

The results of these analyses are summarised below:

- SBES and MBES bathymetric data across the LU115 disposal site reveals a small change in bed elevation between the surveys, despite the collective volume of material (from multiple licences) that has been placed there over the intervening period.
- Within LU115, maximum bed level changes are less than 0.1 m and are restricted to the north-west edge of the spoil ground. Changes across the remainder of the site are typically less than 0.05 m. The average deepening across the whole site is calculated at 0.05 m between the two most recent survey periods.
- When comparing results from the two surveys across the wider region, bed elevations between 2022 and 2025 exhibit very little variation across both offshore and nearshore areas.
- Average bed level change across the two Transect profiles is less than 0.05 m overall, with similar levels of change within the LU115 disposal site for Transect 2 and across the remainder of the profiles (extending 1-1.5 km up- and down-estuary). A slightly greater change has been recorded along Transect 1 of -0.12 m, though the small magnitude of variation between surveys indicates that the LU115 disposal site (and the surrounding area) remains dispersive for the spoil material disposed there.

Overall, analysis of the repeat bathymetric survey data indicates very little variation in bed elevation, either within the LU115 disposal site, or across the wider transect profiles extending east-west and northeast-southwest of the site.

Prepared by ABPmer
05 May 2026

Notice

ABP Marine Environmental Research Ltd ("ABPmer") has prepared this document in accordance with the client's instructions, for the client's sole purpose and use. No third party may rely upon this document without the prior and express written agreement of ABPmer. ABPmer does not accept liability to any person other than the client. If the client discloses this document to a third party, it shall make them aware that ABPmer shall not be liable to them in relation to this document. The client shall indemnify ABPmer in the event that ABPmer suffers any loss or damage as a result of the client's failure to comply with this requirement.

Sections of this document may rely on information supplied by or drawn from third party sources. Unless otherwise expressly stated in this document, ABPmer has not independently checked or verified such information. ABPmer does not accept liability for any loss or damage suffered by any person, including the client, as a result of any error or inaccuracy in any third-party information or for any conclusions drawn by ABPmer which are based on such information.

All content in this document should be considered provisional and should not be relied upon.

ABPmer

Quayside Suite, Medina Chambers, Town Quay, Southampton, Hampshire SO14 2AQ
T: +44 (0) 2380 711844 W: www.abpmer.co.uk