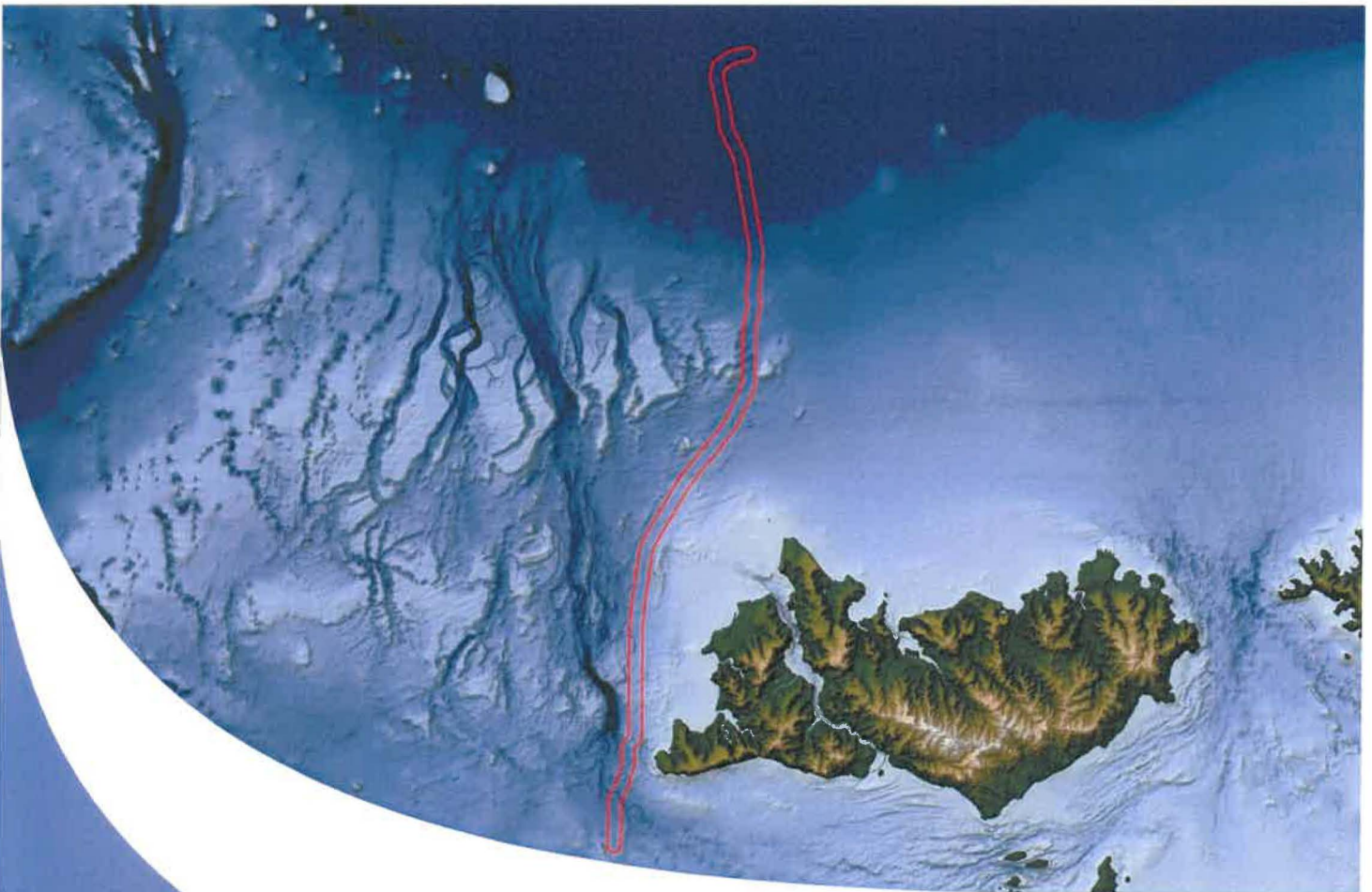




Barossa Gas Export Pipeline

Submerged Palaeolandscapes Archaeological Assessment

Recommendations



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wessexarchaeology



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Executive Summary

Wessex Archaeology Ltd and our subcontractor Extent Heritage were commissioned by Santos Australia Ltd, in response to NOPSEMA Direction 1898, to undertake a targeted scientific archaeological assessment of the proposed route of the Barossa GEP. This commission focusses upon the submerged and buried landforms of the seafloor that may have potential to retain Aboriginal cultural heritage dating to periods of lower sea level – the submerged palaeolandscape.

This report presents our recommendations, which arise from the results of our palaeogeographic assessment of the offshore study area, detailed in **REPORT 1**. This assessment, using available marine geophysical and geotechnical data, was contextualised by;

- Ethnohistorical review of Aboriginal communities within the terrestrial study area (adjacent to the proposed Barossa GEP);
- Archaeological assessment of known terrestrial sites within the terrestrial study area; and,
- Creation of a terrestrial predictive model of archaeological sensitivity and assessment and critique of this model for use with submerged palaeolandscapes.

In summary, the paleogeographic assessment identified 60 features of ‘high’ archaeological potential, thought to have formed during periods of low sea level when the offshore study area was dry land and during the period of human occupation of Australia. These included complex systems of palaeo-channels, former shorelines, and coastal dune systems. A further 103 features were assigned ‘medium’ archaeological potential, largely due to the uncertainty of their date of formation and/or their fill. In addition to palaeogeographic features, five distinct lithological units were assessed to be of medium archaeological potential. No deposits of high archaeological potential (such as organic-rich deposits) were identified from the data available.

The recommendations made in this report are focused on refining scientific understanding of the features and sediments identified within the palaeogeographic assessment, to more comprehensively understand their nature, date, extent, and therefore refine their archaeological potential.

The recommendations are centred around proactive consultation with the archaeological contractor ahead of or as part of future survey design, to include advice on the type, number and location of geotechnical samples (in order to ensure appropriate material is collected for archaeological purposes), the outlining of specific geophysical survey methodologies which may be beneficial, and ensuring the availability of future log data and samples.

No Archaeological Exclusion Zones (AEZ) have been recommended. We do recommend that a Protocol for Archaeological Discoveries is established prior to groundwork operations, in order that any archaeological material encountered during works is recorded by appropriate specialists, and to allow appropriate additional mitigation measures to be defined and put in place as required.

Report Authors

Complex archaeological research, such as that on submerged palaeolandscapes, is inherently interdisciplinary, and this is reflected in the number and range of specialists involved in the production of this report. No one specialist has made decisions or stated opinions without consultation and collaboration with members of the wider team. The following specialists have contributed to this report.

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Wessex Archaeology, Extent Heritage and the individual experts who prepared the report:

- are not advocates for the Company (Santos), being the party which is paying for the Contractor's expert report;
- are impartial on matters relevant to their area of expertise; and
- are prepared to change their opinion or make concessions when it is necessary or appropriate to do so, even if doing so would be contrary to any previously held or expressed view.



Acknowledgements

Wessex Archaeology and Extent Heritage acknowledges the Tiwi people, Traditional Custodians of the land and seas of the Tiwi Islands, which are the focus of this research, and we pay our respects to Tiwi Elders past and present. We extend our acknowledgement to the Traditional Custodians of Country throughout Australia and their connections to land, sea, and community. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

We acknowledge Santos's role in providing all available legacy geophysical and geotechnical data for the offshore study area from the Santos and ConocoPhillips archives and for facilitating the acquisition of additional geophysical data within the offshore study area specifically for this report. Santos provided all the information requested by Wessex Archaeology and Extent Heritage and, to our knowledge, no data or information has been withheld. We also acknowledge the work of the team at Fugro who carried out the 2023 geophysical survey and provided the raw data to Wessex Archaeology.

Barossa Gas Export Pipeline

Archaeological Assessment of Submerged Palaeolandscapes: Recommendations

1 INTRODUCTION

1.1 Project background

1.1.1 In January 2023 NOPSEMA, Australia's Offshore Energy Regulator, issued Direction 1898 under General Direction – s 574 in relation to works associated with the Barossa Gas Export Pipeline. That direction included the following requirements:

Direction 2

The registered holders must undertake and complete an assessment to identify any underwater cultural heritage places along the Barossa pipeline route (Pipeline Route) to which people, in accordance with Indigenous tradition, may have spiritual and cultural connections that may be affected by the future activities covered by the EP (the assessment), as follows:

a) The assessment is to be undertaken by suitably qualified and independent experts with relevant experience and research credentials (experts).

b) In undertaking the assessment, the experts must:

i. obtain information from people and /or organisations who have, in accordance with Indigenous tradition, spiritual and cultural connections to any underwater cultural heritage places along the Pipeline route that may be affected by the activities; and

ii. record and have regard to the information obtained.

c) The assessment must be recorded in a report that is to be provided on completion to:

i. people and/or organisations who provided information under paragraph (b)(i) above; and

ii. NOPSEMA.

Direction 3

Following the completion of the assessment required by Direction 2, if any underwater cultural heritage places along the Pipeline Route to which people, in accordance with Indigenous tradition, may have spiritual and cultural connections are identified that may be affected by future activities covered by the EP, the

registered holders must update the EP. This must include relevant content as required under regulation 13 and regulation 14 of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Environment Regulations), including details and evaluation of impacts and risks (the evaluation) of future activities, including:

a. the methods and results of the evaluation on any identified underwater cultural heritage places along the Pipeline Route to which people, in accordance with Indigenous tradition, may have spiritual and cultural connections identified in undertaking Direction 2;

b. details of the control measures (if any) adopted to demonstrate that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (ALARP) and be of acceptable levels;

c. a description of any other legislative requirements that apply to the activity and a demonstration of how those will be met; and

d. how any information obtained from people and / or organisations who provided information under paragraph 2(b)(i) above, has been taken into account in the evaluation, and in determining control measures.

1.1.2 It is within the context of this Direction that Wessex Archaeology and our subcontractor Extent Heritage were requested to act as independent experts by Santos Limited (Ltd) to assess the potential for submerged palaeolandscapes that could retain remains of Aboriginal cultural heritage deposited during periods of lower sea level, which may be impacted by the construction of the proposed Barossa gas export pipeline (GEP).

1.1.3 The proposed pipeline is located on the north-western Australian continental shelf and slope in the Northern Territory, to the west of the Tiwi Islands. The proposed GEP is approximately 260 km long and runs south from the Barossa gas field to a tie-in point into the existing Bayu-Undan to Darwin pipeline. The offshore study area is defined as a 2 km buffer around the proposed GEP route (as provided by Santos Ltd 13 January 2023).

1.2 Scope of document

1.2.1 Wessex Archaeology and our subcontractor Extent Heritage have worked collaboratively to produce two reports; Report 1: The archaeological assessment relating to the potential for archaeological remains in the shallow water environment impact area of the Barossa GEP project and Report 2: Recommendations.

1.2.2 The aim of this report, Report 2, is to present recommendations for archaeological mitigation and further work associated with the scientific archaeological interpretation of the submerged palaeolandscape as presented in Report 1.

2 ARCHAEOLOGICAL BASELINE SUMMARY

2.1 Context

- 2.1.1 Sea levels have changed dramatically over the last 100,000 years and, as a result, large areas of what is now seabed were once habitable lands. As sea levels rose, these landscapes were inundated and gradually became submerged.
- 2.1.2 Western scientific discourse estimates that the first humans arrived on the Sahul continent sometime between 70-65,000 year ago (Morrison *et al.* 2023). At this time, sea level was around between -100 m and -68 m lower than at present, and the Sahul Banks and Van Diemen Rise areas were dry land. The wider Bonaparte Basin has been the focus of archaeological interest since the 1980s (Flemming 1982) when it was identified as one of the likely arrival points of the first Australians, via what is known as the ‘southern route’ (Bird *et al.* 2019, Kuijjer *et al.* 2022). Arrival on the Sahul continent at this time would have included a sea crossing (Balme 2013), and the presence of archaeological sites in northern Australia dating to around 65-50,000 years ago (Clarkson *et al.* 2017) represents the earliest known open sea crossing by humans (Bird *et al.* 2019).
- 2.1.3 These changes in landscape/seascape are familiar to the Aboriginal and Torres Strait Islander peoples of Australia who maintain strong connections to Country that was inundated by rising sea levels after the last Ice Age. However, the scientific study of submerged coastal and terrestrial landscapes around the Australian coast is at a relatively early stage in comparison to parts of Europe and the USA. As such, our scientific understanding of the distribution, chronology, preservation, and archaeological potential of submerged landscapes offshore, as a complement to Aboriginal peoples’ understanding of their cultural significance, remains very limited.
- 2.1.4 As one of the possible locations for first landings in Sahul, and one of the first extensive offshore submerged palaeolandscapes to be investigated in Australia, the submerged palaeolandscape of the offshore study area is of scientific interest to the archaeological community nationally and internationally. Any deposits within this landscape that have the potential to contain archaeological remains – either anthropogenic or palaeo-environmental – will be of national and international significance.

2.2 Identified palaeogeographic features.

- 2.2.1 The assessment of the geophysical data within the study area resulted in a total of 163 palaeogeographic features of archaeological potential. These are summarised as follows:
- a total of 60 features were assigned high archaeological potential.
 - a total of 103 features were assigned medium archaeological potential.
- 2.2.2 The 60 features identified as of high archaeological potential are terrestrial features interpreted as being formed between MIS 4 (c. 70,000 – 57,000 years ago when it is thought the first humans arrived in Australia) and final inundation around 8,000 years ago.

- 2.2.3 The 103 features of medium archaeological potential are identified as possible terrestrial features but have been assessed as medium potential due to uncertainty about the age of formation and the nature of their fill.
- 2.2.4 The distance from the proposed development or potential impact is not taken into consideration when designating the archaeological potential. The palaeogeographic features mentioned above represent all the features identified within the offshore study area considered to be of potential archaeological or palaeoenvironmental interest, which includes those which are likely to be too far away, or too deep, to be physically impacted by the proposed development.
- 2.2.5 No lithological units of high archaeological potential were identified in the assessment of geotechnical logs. In the Northern Hemisphere, where the vast majority of submerged landscape research has taken place, sediments identified as high archaeological potential generally comprise fine-grained, bedded, organic-rich sediments such as coastal peats, estuarine silts, and mixed palaeo-channel fills. These deposits in the Northern Hemisphere have preserved a wide variety of *in situ* material culture, including organic material such as wooden, bone/antler, and fabric artefacts, along with a rich palaeo-environmental remains and stone tools. Nicholas *et al.* (2015) identified organic rich sediments from core samples within the Bonaparte Basin, west of the offshore study area, containing wood and mangrove plant matter dated to c.16,000 years ago (ibid: 40) demonstrating the potential for these kinds of sediments to survive within the region of the Barossa GEP.
- 2.2.6 A total of five lithological units were assigned medium archaeological potential: alluvium, non-marine sand, carbonate sands and gravels, marine to shallow marine sands and fluvial gravel. These units are thought to have been deposited during periods of low sea level and likely human occupation of the offshore study area. Unlike the high potential, organic rich deposits, these deposits are less likely to preserve such a wide range of material types *in situ* but have the potential to contain material culture such as stone tools, shell middens/mounds, and stone structures. These deposits have been assigned medium archaeological potential due to uncertainties around their age of formation.
- 2.2.7 It should be noted that the designation of archaeological potential is based on limited geotechnical information, combined with experience of working in the Northern Hemisphere. Detailed geoarchaeological assessment of stratigraphy related to palaeoenvironments is at an early stage offshore Australia, and it is possible that the different environment, climate, and geochemistry of the Northern Territory has resulted in different sediment preservation and, as such, the lithological units may have different potential in an Australian context.



3 POTENTIAL IMPACTS

3.1 Impact Assessment

3.1.1 Santos have provided the following information regarding the potential impacts associated with the Barossa GEP:

- The pipeline is around 65 centimetres in diameter.
- No installation activities are being performed that actively remove sediment or material from the seabed during the installation of the Pipeline (i.e. no trenching or dredging).
- Seabed disturbance is limited to local effects where structures contact the seabed such as deployment of concrete mattresses, terminal foundations, the pipeline itself and post-installed grout bags, all of which are deployed to the seabed in a controlled manner resulting in minimal disturbance of sediment.
- Based on the information provided by Santos in their draft scope of work document (dated January 2023), seabed disturbance is estimated to be:

Subsea Infrastructure	Seabed Footprint
Installation of supporting structures	0.3 ha
Gas export pipeline installation	21.6 ha
Span rectification and stabilisation works	0.6 ha
Contingency of 5%	1.1 ha
Estimated footprint	23.6 ha

- This equates to a footprint of 0.08 hectares per kilometre of pipeline laid.
- In areas of soft sediment, the pipeline and associated structures are expected to sink or become partially buried. There may also be sediment accumulation in some areas around the pipeline; this is expected to be highly localised and of low relief (i.e. no higher than the diameter of the pipeline) and will assist in stabilisation of the pipeline.
- While the pipeline may cause localised scouring, the design of the pipeline and associated structures is intended to prevent this occurring due to the risk it may pose to structural integrity of the pipeline.
- All vessels will be dynamically positioned rather than anchored, thus avoiding impacts to the seabed.

3.1.2 Direct impacts to archaeologically significant features and deposits resulting from the construction, operation and maintenance phases of the Barossa GEP may be caused by activities that involve direct contact with the seabed or the removal of seabed sediments.

The primary impacts will be the physical placement and removal of infrastructure on the seabed, and any localised repair and maintenance works.

- 3.1.3 In order to estimate potential direct physical impacts to features identified along the proposed route, a value of less than 0.7 m below seabed (BSB) was chosen for the purposes of discussion. This is based on a scenario of the pipeline embedding to its full diameter; however, settling depths may vary and the value of 0.7 m BSB is used solely for the purposes of illustrating potential physical impacts as provided by Santos in section 3.1.1.
- 3.1.4 All palaeogeographic features of archaeological potential within the study area are individually described in gazetteer format in Appendix I, with any features which directly intersect the proposed development and are either directly at the seabed or within 0.7 m BSB, colour coded in blue.
- 3.1.5 It should be noted that the highlighted features represent those which are considered likely to be directly physically impacted by the development. The actual settling depth of the pipeline may vary along the route and therefore the resultant zone of direct physical impacts may differ from the 0.7 m BSB scenario illustrated.
- 3.1.6 Furthermore, the features highlighted do not take into consideration indirect physical impacts. Indirect impacts to archaeological significant features and deposits resulting from the construction, operation and maintenance phases of the Barossa GEP are most likely to be caused by changes to hydrodynamic and sedimentary patterns caused by the placement of infrastructure on the seabed.

4 RECOMMENDATIONS FOR MITIGATION

4.1 Context

- 4.1.1 The extent of the direct physical impact of the pipeline on the seabed across the entire submerged palaeolandscape of the Bonaparte Basin is reported to be localised to the construction and operation & maintenance footprint. Indirect physical impacts may develop in areas where changes to seabed hydrodynamics and sediment patterns occur. The landscape and any potential archaeological remains – palaeo-environmental, dateable deposits, and/or anthropogenic remains – are of high scientific archaeological significance, and of national and international interest.
- 4.1.2 The following mitigation measures are recommended, as with our interpretations, within the context of western scientific, archaeological praxis and approach to the assessment of cultural heritage value, significance, and archaeological potential of palaeogeographic features and deposits identified.
- 4.1.3 Our recommendations for mitigation do not account for any cultural significance or values that Tiwi may have in relation to places or features within Sea Country, and we recognise that Tiwi may have additional, varying, or conflicting values and priorities to those identified within this report.
- 4.1.4 As identified within Report 1, there were several caveats and limitations associated with the interpretation of the geotechnical and geophysical data, associated with the nature and extent of the data provided, which resulted in uncertainties about the depositional history of the identified lithological units.
- 4.1.5 The primary nature of the recommendations made here are associated with refining our scientific understanding of the features and sediments identified within the palaeogeographic assessment to more comprehensively understand their nature, date, extent, and therefore archaeological potential.

4.2 Recommendations

- 4.2.1 We recommend that:
- any future geotechnical logs from within the offshore study area be made available for geoarchaeological assessment.
- 4.2.2 We recommend that if additional geotechnical samples are acquired from the offshore study area:
- the archaeological contractor be consulted to advise on the location of potential geotechnical samples to be acquired for archaeological purposes.
 - a representative selection of targeted core samples are taken for palaeo-environmental analysis and scientific dating in order to develop a chronostratigraphic framework.

- the archaeological contractor be consulted specifically with regard to any geotechnical samples taken for scientific dating purposes to ensure that they are not contaminated.
- core samples should be taken from those features showing evidence of causing acoustic blanking (7115, 7126 and 7135).
- the units identified as of archaeological potential should be targeted for core sampling.
- any geotechnical samples acquired found to contain material of archaeological potential, particularly those within the interpreted Pleistocene/early Holocene features, be made available for geoarchaeological assessment and dating.

4.2.3 We recommend that if additional geophysical surveys are carried out over the offshore study area, that:

- 3D ultra-high resolution seismic (UHRS) data are acquired. This would allow for palaeogeographic features be identified across multiple lines and for a 3D surface model to be created.
- An alternative to 3D UHRS would be the acquisition of adjacent SBP wing lines along the route that would allow features to be tracked across multiple lines, which would aid in refining the interpretation.

4.2.4 We recommend that a Protocol for Archaeological Discoveries is established prior to groundwork operations and that any objects of possible anthropogenic origin recovered or encountered are reported using the Protocol, as per the recommendations by Cosmos Archaeology (2022). This process ensures that any archaeological material encountered is recorded by appropriate specialists and appropriate mitigation measures are enacted.

4.2.5 Based on the current level of understanding of the submerged palaeolandscape within the offshore study area, we do not recommend the establishment of any Archaeological Exclusion Zones (AEZ) at this time.

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Appendix I: Palaeogeographic features of archaeological potential.

ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7000	Ridge	P2	-	-	A potential coastal ridge identified in the MBES data as a linear ridge, orientated approximately WSW - ENE, on shallow slope. May represent an offshore bar or beach ridge.	66	MBES (2018 Fugro)
7001	Ridge	P2	-	-	Linear ridge on shallow slope. Potential offshore bar, barrier, or beach ridge.	66	MBES (2018 Fugro)
7002	Ridge	P2	-	-	Linear ridge on shallow slope. Potential offshore bar, barrier, or beach ridge.	66	MBES (2018 Fugro)
7003	Channel	P1	-	-	A possible palaeochannel identified as a deeply incised channel segment. Corresponds with features 7004 and 7005 identified in the SBP data, suggesting some infilling of sediments at the base.	87	MBES (2018 Fugro)
7004	Channel	P1	4.8	15.9	A channel identified in the SBP data, possibly cutting into the interpreted Unit 1, beneath a thin layer of possible marine sands. Feature has a poorly defined basal reflector and acoustically quiet fill which appears acoustically similar to overlying sediment. Feature is seen to correspond with the base of with a larger channel feature identified in the MBES data (7003). May represent the base of channel 7003 infilled with modern sediments, or possibly an older phase of channelling.	86-87	Boomer (2015, 2023 Fugro)
7005	Channel	P1	0.5	8.8	A possible channel identified in the SBP data interpreted as cutting into the interpreted Unit 1, beneath a thin layer of possible marine sands. Feature has a distinct basal reflector and acoustically quiet fill which appears acoustically similar to overlying sediment. Feature is seen to correspond with the base of with a larger channel feature identified in the MBES data (7003). May represent the base of channel 7003 infilled with modern sediments, or possibly an older phase of channelling.	86-87	Boomer (2018, 2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7006	Channel	P1	0.9	11.2	A channel identified in the SBP data interpreted as cutting into Unit 1. Feature is identified beneath a thin layer of possible marine sands and has a distinct basal reflector, which has two troughs. Unit fill is generally acoustically quiet with occasional draping reflectors. Feature is seen to correspond with a larger channel feature identified in the MBES data (7003). May represent the base of channel 7003 infilled with modern sediments, or possibly an older phase of channelling. EP-12-VC and EP-12_CPT suggest infill material of alluvium.	87	Boomer (2018, 2023 Fugro)
7007	Infilled depression	P2	0.5	3.7	Sediment infilling base of a depression identified on the MBES data. In the SBP data, the feature is seen to have a faint, poorly defined basal reflector overlain by acoustically quiet fill. Feature is seen to correspond with a larger channel feature identified in the MBES data (7003). Similarly positioned to features 7004-06, but less convincing in form and therefore interpreted as an infilled depression and considered of lower archaeological potential. May represent the base of channel 7003 infilled with modern sediments.	88	Boomer (2018, 2023 Fugro)
7008	Cut and fill	P2	1.3	12.2	A possible multiphase cut and fill identified cutting into an acoustically unstructured unit, possibly Unit 1. Feature has a distinct basal reflector and at least two phases of fill which is generally acoustically quiet. Possibly identified beneath an upper unit of sediment which is acoustically similar to the second phase of fill. Close to another similar feature (7009). Possible remnant fluvial feature.	92	Boomer (2018, 2023 Fugro)
7009	Cut and fill	P2	1.4	8.6	A possible multiphase cut and fill identified cutting into an acoustically unstructured unit, possibly Unit 1. Feature has a distinct basal reflector and at least two phases of fill which is generally acoustically quiet, although the lower fill appears to be characterised by faint, dipping reflectors. Possibly identified beneath an upper unit of sediment which is acoustically similar to the second phase of fill. Close to another similar feature (7008). Possible remnant fluvial feature.	93	Boomer (2018, 2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7010	Infilled depression	P2	0.9	4.6	Possible infilled depression identified BSB/below a veneer of marine sediment. Feature has a distinct basal reflector and acoustically quiet fill. Identified in the base of a depression identified in the 2018 Fugro MBES data. May represent an infilled depression or the cut of an underfilled channel feature, partially filled with marine sediments. Likely continues further to the west as infilled depression 7011 ; however, due to the distance between the lines, the features have not been grouped together.	103	Boomer (2018, 2023 Fugro)
7011	Infilled depression	P2	1.3	4.9	Possible channel identified BSB/below a veneer of marine sediment. Feature has a distinct basal reflector and acoustically quiet fill, although this is partially obscured by the seabed pulse. May represent an infilled depression or the cut of an underfilled channel feature or a partially filled with marine sediments. Likely continues further to the east as infilled depression 7010 ; however, due to the distance between the lines, the features have not been grouped together.	103	Boomer (2015 Fugro)
7012	Infilled depression	P2	0.8	6.4	Possible infilled depression identified BSB/below a veneer of marine sediment. Feature has a distinct basal reflector and acoustically quiet fill. Identified in the base of a broad depression identified in the 2018 Fugro MBES data. May represent an infilled depression infilled with sand or the cut of an underfilled channel feature, partially filled with marine sediments.	110	Boomer (2018, 2023 Fugro)
7013	Cut and fill	P2	1.8	13.6	Possible cut and fill identified below a thin unit of possible marine sediment. Feature has a distinct basal reflector and possibly multiple phases of fill, the lower of which is acoustically unstructured and the upper of which is acoustically quiet, although this may represent marine sediments infilling an underfilled feature. Identified in the base of a broad depression identified in the 2018 Fugro MBES data. May represent an infilled depression or the cut of an underfilled channel feature, partially filled with marine sediments. Close to, and similar in for to 7014 .	112	Boomer (2018, 2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7014	Cut and fill	P2	2.1	9.4	Possible cut and fill identified below a thin unit of possible marine sediment. Feature has a distinct basal reflector and possibly multiple phases of fill, the lower of which is unstructured and the upper of which is acoustically quiet, although this may represent marine sediments infilling an underfilled feature. Identified in the base of a broad depression identified in the 2018 Fugro MBES data. May represent an infilled depression or the cut of an underfilled channel feature, partially filled with marine sediments. Close to, and similar in for to 7013 .	112-113	Boomer (2018, 2023 Fugro), Sparker (2018 DOF)
7015	Channel	P1	3.9	14.3	A possible channel identified below an upper unit of sediment, cutting into the interpreted Unit 1. Feature has a relatively distinct basal reflector and fill characterised by numerous horizontal reflectors indicating layered fill which may have been deposited in a low-energy environment.	118	Boomer (2018, 2023 Fugro)
7016	Complex channel	P1	1.3	16.4	Possible complex channel identified below a veneer of sediment, cutting into the interpreted Unit 1. Feature appears to have multiples phases of acoustically chaotic fill, with a faint basal reflector which shows several troughs. Possible remnant fluvial feature. EP-21-CPT suggests alluvium overlying dense sand.	133 - 134	Boomer (2018, 2023 Fugro)
7017	Cut and fill	P2	1	5	A small cut and fill identified BSB/below veneer of seabed sediment. Feature has a distinct basal reflector and acoustically quiet fill. Possible infilled depression of the remnants of a relict fluvial feature.	135	Boomer (2018 Fugro)
7018	Infilled depression	P2	1	4.5	An infilled depression with a distinct basal reflector and acoustically quiet fill. Identified BSB or beneath a veneer of sediment. Possibly an infilled depression infilled with sand or may be remnants of a fluvial feature.	143	Boomer (2023 Fugro)
7019	Ridge	P2	-	-	Potential beach ridge segment	144	MBES (Opensource)
7020	Complex cut and fill	P2	0.3	10	Possible channel identified BSB/below a veneer or seabed sediments, cutting into the top of the interpreted Unit 1. Feature has a poorly defined basal reflector and possibly multiple phases of fill with a lower chaotic fill and upper fill characterised by numerous dipping horizons.	145	Boomer (2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7021	Complex cut and fill	P2	0.4	9.1	A complex unit identified BSB with numerous cuts, fills and cross-cutting reflectors. Feature may represent a broad, shallow channel complex or may be an area of reworked sediments. Origin uncertain but, as it has the potential to be a fluvial feature, it has been retained as a precaution.	148	Boomer (2023 Fugro)
7022	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	149	MBES (2018 Fugro)
7023	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	149	MBES (2018 Fugro)
7024	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	149	MBES (2018 Fugro)
7025	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	150	MBES (2018 Fugro)
7026	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	150	MBES (2018 Fugro)
7027	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	150	MBES (2018 Fugro)
7028	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	150	MBES (2018 Fugro)
7029	Cut and fill	P2	0.8	8.9	Small cut and fill identified BSB/below a veneer of sediment, cutting into the interpreted Unit 1. Feature has a faint basal reflector and multiple phases of fill characterised by dipping reflectors. May represent remnants of a fluvial feature.	151-152	Boomer (2023 Fugro)
7030	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	151	MBES (2018 Fugro)
7031	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	152	MBES (2018 Fugro)
7032	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	152	MBES (2018 Fugro)
7033	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	152	MBES (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7034	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	152	MBES (2018 Fugro)
7035	Cut and fill	P2	1.1	5	A possible cut and fill identified below a veneer of seabed sediment. Feature has a distinct basal reflector and acoustically unstructured fill. May represent a shallow channel or possibly an infilled depression at the top of the interpreted Unit 1.	153	Boomer (2023 Fugro)
7036	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	153	MBES (2018 Fugro)
7037	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	154	MBES (2018 Fugro)
7038	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	154	MBES (2018 Fugro)
7039	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	154	MBES (2018 Fugro)
7040	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	154	MBES (2018 Fugro)
7041	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7042	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7043	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	154	MBES (2018 Fugro)
7044	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7045	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7046	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7047	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7048	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7049	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7050	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7051	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7052	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	155	MBES (2018 Fugro)
7053	Ridge	P2	-	-	Possible cusped beach ridge	156	MBES (2018 Fugro)
7054	Ridge	P2	-	-	Possible cusped beach ridge	156	MBES (2018 Fugro)
7055	Ridge	P2	-	-	Possible cusped beach ridge	156	MBES (2018 Fugro)
7056	Ridge	P2	-	-	Possible dune ridge or beach ridge with cusped end, ~1 km long	157	MBES (2018 Fugro)
7057	Ridge	P2	-	-	Possible cusped beach ridge	156	MBES (2018 Fugro)
7058	Ridge	P2	-	-	Possible cusped beach ridge	156	MBES (2018 Fugro)
7059	Ridge	P2	-	-	Possible cusped beach ridge	156	MBES (2018 Fugro)
7060	Ridge	P2	-	-	Possible cusped beach ridge	157	MBES (2018 Fugro)
7061	Ridge	P2	-	-	Possible cusped beach ridge	157	MBES (2018 Fugro)
7062	Ridge	P2	-	-	Possible cusped beach ridge	157	MBES (2018 Fugro)
7063	Ridge	P2	-	-	Possible cusped beach ridge	157	MBES (2018 Fugro)
7064	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	157	MBES (2018 Fugro)
7065	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	158	MBES (2018 Fugro)
7066	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	161	MBES (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7067	Cut and fill	P2	0.8	4.8	A small possible cut and fill identified BSB/below a veneer of sediment, cutting into a unit characterised with numerous sub-horizontal reflectors which may represent estuarine or lacustrine sediments (Unit 5), or may be part of the interpreted Unit 1. Feature appears faint and poorly defined. May be a small, infilled depression or remnants of a fluvial feature.	162	Boomer (2023 Fugro)
7068	Complex cut and fill	P2	1.4	12	A possible complex cut and fill identified below a veneer of sediment cutting into the interpreted Unit 1. Feature has a distinct basal reflector and multiple phases of cutting and fill which is generally acoustically unstructured. May represent relict fluvial feature	164-166	Boomer (2023 Fugro)
7069	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	164	MBES (2018 Fugro)
7070	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	165	MBES (2018 Fugro)
7071	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	165	MBES (2018 Fugro)
7072	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	167	MBES (2018 Fugro)
7073	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	167	MBES (2018 Fugro)
7074	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	168	MBES (2018 Fugro)
7075	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	168	MBES (2018 Fugro)
7076	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	168	MBES (2018 Fugro)
7077	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	168	MBES (2018 Fugro)
7078	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	169	MBES (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7079	Complex cut and fill	P2	1.6	16.8	A distinct cut and fill identified below a veneer of seabed sediment cutting into a layered unit which may be part of the interpreted Unit 1. May be seen to continue to the north-west outside of the development area, although due to the distance between lines they have not definitively been grouped together. Feature has a faint basal reflector and multiple phases of acoustically quiet fill. Possible remnants of a fluvial feature.	168-169	Boomer (2018 Fugro)
7080	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	170	MBES (2018 Fugro)
7081	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	170	MBES (2018 Fugro)
7082	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	170	MBES (2018 Fugro)
7083	Cut and fill	P2	5.4	29.4	A broad cut and fill with a faint basal reflector identified below an upper layer of sediments characterised by numerous, faint horizontal reflectors (possibly Unit 4), cutting into the interpreted Unit 1. Unit fill is generally acoustically unstructured, possibly with multiple phases of cut and fill. Possible remnants of a fluvial feature.	16-170	Boomer (2023 Fugro)
7084	Channel	P1	-	-	Channel segment	173	MBES (2018 Fugro)
7085	Cut and fill	P2	2.4	9.9	A broad cut and fill identified below a thin, upper layer of sediments, cutting into the interpreted Unit 1. Unit fill is generally acoustically unstructured, possibly with multiple phases of cutting and filling. Possible remnants of a fluvial feature. May form part of a larger feature with 7086 -7092 ; however, due to the distance between the SBP lines, these have not definitively been grouped together	171	Boomer (2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7086	Channel	P1	1.2	23.5	A possible channel identified BSB/below a veneer of sediment, cutting into a unit characterised with numerous sub-horizontal reflectors which may represent estuarine or lacustrine sediments (Unit 5), or may be part of the interpreted Unit 1 (Unit 1). Feature has a faint basal reflector and multiple phases of fill which are generally acoustically unstructured, occasionally chaotic. Feature corresponds with an underfilled palaeochannel identified on the 2018 Fugro MBES data (7084) and may represent the partially filled base of this feature, or an earlier phase of cut and fill. May form part of a larger feature with 7085 -7092; however, due to the distance between the SBP lines, these have not definitively been grouped together	171	Boomer (2015, 2018 Fugro)
7087	Channel	P1	1.5	13.5	A possible channel identified BSB/below a veneer of sediment, cutting into a Unit characterised with numerous sub-horizontal reflectors which may represent estuarine or lacustrine sediments, or may be part of the interpreted Unit 1. Feature has a faint basal reflector and multiple phases of fill which are generally acoustically unstructured, occasionally chaotic. Feature corresponds with an underfilled palaeochannel identified on the 2018 Fugro MBES data (7084) and may represent the partially filled base of this feature, or an earlier phase of cut and fill. May form part of a larger feature with 7085 -7092; however, due to the distance between the SBP lines, these have not definitively been grouped together	171	Boomer (2015, 2018 Fugro)
7088	Cut and fill	P2	2.5	18	A possible cut and fill identified BSB/below a veneer of sediment, cutting into the interpreted Unit 1. Feature has a faint basal reflector and generally acoustically unstructured fill, of which there is possibly more than one phase. Identified along the northern edge of a bathymetric high seen in the 2018 Fugro MBES data. May form part of a larger feature with 7085 -7092; however, due to the distance between the SBP lines, these have not definitively been grouped together. Feature appears less convincing compared to others in the area and, as such as been classified as a cut and fill and is considered of lower archaeological potential.	171-172	Sparker (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7089	Cut and fill	P2	2	10.1	A possible cut and fill identified a thin unit of sediment, cutting into a unit characterised with numerous sub-horizontal reflectors which may represent estuarine or lacustrine sediments (Unit 5), or may be part of the interpreted Unit 1. Feature has a faint basal reflector and acoustically unstructured fill. May be a remnant fluvial feature or may represent overbank deposits related to channel feature 7084 . May form part of a larger feature with 7085 -7092 ; however, due to the distance between the SBP lines, these have not definitively been grouped together.	172	Boomer (2023 Fugro)
7090	Channel	P1	3.1	25.3	A possible channel identified a thin unit of sediment, cutting into a unit characterised by numerous sub-horizontal reflectors which may represent estuarine or lacustrine sediments (Unit 5), or may be part of the interpreted Unit 1. Feature has a faint basal reflector and fill characterised by numerous draping reflectors. Possible channel. May form part of a larger feature with 7085 -7092 ; however, due to the distance between the SBP lines, these have not definitively been grouped together.	172	Boomer (2023 Fugro)
7091	Channel	P1	2.8	12.8	A possible cut and fill identified BSB/below a veneer of sediment, cutting into the interpreted Unit 1. Feature has a faint basal reflector and generally acoustically unstructured fill, of which there is possibly more than one phase. Identified along the northern edge of a bathymetric high seen in the 2018 Fugro MBES data. Feature corresponds with an underfilled palaeochannel identified on the 2018 Fugro MBES data (6586) and may represent the partially filled base of this feature, or an earlier phase of cut and fill. May form part of a larger feature with 7085 -7092 ; however, due to the distance between the SBP lines, these have not definitively been grouped together.	173	Sparker (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7092	Complex channel	P1	3.5	16.1	A possible complex channel identified below a shallow Unit of sediment, cutting into a Unit characterised with numerous sub-horizontal reflectors which may represent estuarine or lacustrine sediments, or may be part of the interpreted Unit 1. Feature has a faint basal reflector and multiple phases of fill which are generally acoustically unstructured, occasionally chaotic. Feature corresponds with an underfilled palaeochannel identified on the 2018 Fugro MBES data (7084) and may represent the partially filled base of this feature, or an earlier phase of cut and fill. May form part of a larger feature with 7085 -7092; however, due to the distinct between the SBP lines, these have not definitively been grouped together	173	Boomer (2023 Fugro)
7093	Cut and fill	P2	1.3	21.2	A possible cut and fill identified beneath a veneer of marine sediment, cutting into the interpreted Unit 1. Feature has a poorly defined basal reflector and a acoustically quiet fill. Possibly represents a remnant fluvial feature.	174-175	Boomer (2015 Fugro)
7094	Complex cut and fill	P2	4.6	22.4	A broad, complex feature identified beneath a thin Unit of sediment, cutting into the interpreted Unit 1. Characterised by numerous cross-cutting cut and fill features, that generally have a relatively well defined basal reflector and acoustically transparent/unstructured fill (although the characteristics of these features can vary). Possible remnant of a complex fluvial feature, although may be internal reflectors within Unit 1. EP-28-CPTA suggests Alluvium between 0-0.7 m, overlying dense sand, which may suggest internal reflectors within Unit 1, although this is not definite.	178-181	Boomer (2018, 2023 Fugro)
7095	Channel complex	P1	0.6	25.3	A possible broad channel complex identified beneath a thin unit of sediment, cutting into the interpreted Unit 1. Characterised by numerous cross-cutting cut and fill features, that generally have a relatively well defined basal reflector and acoustically transparent/unstructured fill, although some fill is characterised by numerous dipping horizons.	183	Boomer (2018, 2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7096	Channel	P1	6.8	23.8	A possible channel with a distinct basal reflector and acoustically quiet fill. Feature is identified below an upper unit of sediment (possible Unit 5) which is seen to be cut into by channel feature 7097 , suggesting a different depositional phase between this phase of channelling and that associated with 7097 . Identified cutting into the interpreted Unit 1. May form part of a larger feature with 7098 , however this has been truncated by 7097 and therefore it is not possible to tell.	187	Boomer (2018, 2023 Fugro)
7097	Channel	P1	8.8	119	A channel feature identified below a unit of marine sands, cutting through a lower unit characterised with numerous sub-horizontal reflectors indicating fine-drained deposits (possible Unit 5), and cutting through into lower channels 7096 and 7098 . Feature has a distinct basal reflector and acoustically unstructured/quiet fill.	188	Boomer (2023 Fugro)
7098	Channel	P1	8.5	24.4	A possible channel with a distinct basal reflector and acoustically quiet fill. Feature is identified below an upper unit of sediment (possible Unit 5) which is seen to be cut into by channel feature 7097 , suggesting a different depositional phase between this phase of channelling and that associated with 7097 . Identified cutting into the interpreted Unit 1. May form part of a larger feature with 7096 , however this has been truncated by 7097 and therefore it is not possible to tell.	189	Boomer (2018, 2023 Fugro)
7099	Channel complex	P1	3.5	30.1	A broad channel complex identified beneath a unit of sediment, cutting into the interpreted Unit 1. Characterised by numerous cross-cutting cut and fill features, that generally have a relatively clear, although occasionally hard to define basal reflectors, and acoustically transparent/unstructured fill (although the characteristics of these features can vary). May be related to nearby palaeochannel 7108 identified on the MBES data, and may form part of a larger feature with 7101 and 7105 .	191-193	Boomer (2018, 2023 Fugro) Sparker (2018 Fugro)
7100	Ridge	P2	-	-	Possible beach ridge	193	MBES (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7101	Cut and fill	P2	4.6	15.3	A possible cut and fill identified beneath an upper unit of sediment, interpreted as cutting into a unit with numerous reflectors; possible part of the interpreted Unit 1 although may be part of a larger channel complex (Unit 4). Feature has a distinct basal reflector and acoustically quiet fill. May form part of a larger feature with 7099 and 7105 . May be a remnant fluvial feature.	192-193	Boomer (2018 Fugro)
7102	Ridge	P2	-	-	Possible beach ridge	193	MBES (2018 Fugro)
7103	Ridge	P2	-	-	Possible beach ridge	193	MBES (2018 Fugro)
7104	Ridge	P2	-	-	Possible beach ridge	193	MBES (2018 Fugro)
7105	Cut and fill	P2	6.5	22.6	A possible cut and fill identified beneath an upper unit of sediment, interpreted as cutting into a unit with numerous reflectors; possibly part of the interpreted Unit 1 although may be part of a larger channel complex (Unit 4). Feature has a distinct basal reflector and acoustically quiet fill. May form part of a larger feature with 7099 and 7101 . May be a remnant fluvial feature.	193	Boomer (2018 Fugro) Sparker (2018 Fugro)
7106	Ridge	P2	-	-	Possible beach ridge	194	MBES (2018 Fugro)
7107	Ridge	P2	-	-	Possible beach ridge	194	MBES (2018 Fugro)
7108	Channel	P1	-	-	Large, wide (~1 km) channel that becomes hard to track northwards in data. May continue as buried channel complex 7099 , identified in the SBP data, although this is not definite.	202-197	MBES (2018 Fugro and Opensource)
7109	Ridge	P2	-	-	Possible beach ridge	195	MBES (2018 Fugro)
7110	Ridge	P2	-	-	Possible beach ridge	195	MBES (2018 Fugro)
7111	Ridge	P2	-	-	Potential parabolic or transverse dune formed on strandplain behind coastal barrier	195	MBES (2018 Fugro)
7112	Channel	P1	11.2	24.6	A possible lower cut of a channel identified below an upper unit characterised by numerous horizontal reflectors indicating sediments deposited in a low-energy environment (Unit 5). May be estuarine or lacustrine sediments. Feature has a distinct basal reflector and acoustically unstructured fill. Possible earlier phase of channelling.	195	Boomer (2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7113	Channel	P1	0.8	10	An upper channel identified BSB/below a veneer of sediment, cutting through a unit characterised by numerous horizontal reflectors indicating sediments deposited in a low-energy environment, possibly estuarine or lacustrine sediments (Unit 5). Feature has a distinct basal reflector and acoustically quiet fill. Possible later fluvial feature.	169	Boomer (2023 Fugro)
7114	Channel	P1	6.5	22.7	A possible lower cut of a channel identified below an upper unit characterised by numerous horizontal reflectors indicating sediments deposited in a low-energy environment (Unit 5). May be estuarine or lacustrine sediments. Feature has a distinct basal reflector and acoustically unstructured fill. Feature raises into a bank in the centre, possibly just a high point within the channel base. Feature corresponds with the edge of channel 7108 identified in the MBES data. This may represent a previous generation of channelling, although this is not certain.	197	Boomer (2023 Fugro)
7115	Channel	P1	2	19.6	A possible channel identified below a thin unit of sediment. Feature has a faint, poorly defined basal reflector with acoustically quiet fill with occasional horizontal reflectors. At the base of the feature, an acoustically chaotic feature can be seen which appears to cause acoustic blanking of lower horizons. It is possible that this may be caused by biogenic gas caused by the microbial breakdown of organic matter, although it may also be caused by gravelly sediments at the base of the channel feature.		Boomer (2018 Fugro) Sparker (2018 Fugro)
7116	Channel	P1	-	-	Channel segment with tributaries	206	MBES (2018 Fugro)
7117	Channel	P1	-	-	Palaeochannel, possibly becoming estuarine.	211	MBES (2018 Fugro and opensource)
7118	Channel	P1	-	-	Channel segment with tributaries	209	MBES (2018 Fugro and opensource)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7119	Channel	P1	0.9	8	A possible channel identified within a feature identified in the MBES data (7117). Feature has a relatively distinct basal reflector and chaotic fill, possible with more than one phase of cutting and filling. May represent an earlier phase of channelling which has been truncated by a later phase, or may be the partially filled base of 7117.	211	Boomer (2018, 2023 Fugro) Sparker (2018 Fugro)
7120	Channel	P1	-	-	Tributary segment	212	MBES (2018 Fugro)
7121	Channel	P1	-	-	Tributary segment	212	MBES (2018 Fugro)
7122	Channel	P1	-	-	Narrow palaeochannel segment	214	MBES (2018 Fugro and opensource)
7123	Channel	P1	-	-	Blind channel segment - buried or eroded	217	MBES (2018 Fugro)
7124	Channel	P1	-	-	Blind channel segment - buried or eroded	217	MBES (2018 Fugro)
7125	Channel	P1	-	-	Small channel segment	217	MBES (2018 Fugro)
7126	Channel	P1	0.4	47.2	A possible channel feature identified below a veneer/thin unit of sediment, cutting into a unit characterised by numerous horizontal reflectors which display evidence of faulting indicating Unit 1. Feature has a distinct, occasionally chaotic basal reflector which shoals and deepens throughout the feature and is seen to cause some acoustic blanking of the horizons below. This may indicate shallow gas caused by the microbial breakdown of organic matter, although it may also indicate gravelly sediments at the base of the feature. Unit fill is generally characterised by draping reflectors, although it is seen to be acoustically quiet in some areas. Possibly multiple phases of cut and fill. EP-34-CPT suggests the fill includes non-marine sand.	217 - 222	Boomer (2018, 2023 Fugro)
7127	Cut and fill	P2	1.7	14	A possible lower phase of channelling identified below Channel feature 7126, cutting into the interpreted Unit 1. Feature has a faint basal reflector and acoustically quiet fill. May represent an earlier phase of channelling.	219-220	Boomer (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7128	Channel	P1	1	9.6	A possible channel identified BSB/below a veneer or marine sediment, cutting into the interpreted Unit 1. Feature has generally acoustically quiet fill with occasional higher amplitude horizontal reflectors. Possibly related to channel 7129 identified in the MBES data.	223	Boomer (2018 Fugro)
7129	Channel	P1	-	-	Main large river network draining into canyon	224	MBES (2018 Fugro and opensource)
7130	Channel	P1	1	8.4	Possible channel identified BSB/below a veneer of sediment. Feature has a faint, poorly defined basal reflector and acoustically chaotic fill. Feature appears to be cutting into a unit characterised by numerous horizontal reflectors interpreted as being part of Unit 1. Possibly a continuation of 7131 or part of 7129 identified on the MBES data.	225	Boomer (2023 Fugro)
7131	Channel	P1	-	-	Partially buried palaeochannel	228	MBES (2018 Fugro)
7132	Channel	P1	1.6	8.3	Possible channel identified SBSB/below a veneer of sediment. Feature has a faint basal reflector and acoustically quiet fill. Feature appears to be cutting into a unit characterised by numerous horizontal reflectors interpreted as being part of Unit 1. Possibly related to nearby feature 7131 identified in the MBES data.	226	Boomer (2023 Fugro)
7133	Escarpment	P1	-	-	Cliff band and promontory, up to 10 m relief	228	MBES (2018 Fugro)
7134	Channel	P1	-	-	Palaeochannels largely covered by marine sediments and difficult to interpret from bathymetry	230	MBES (2018 Fugro)
7135	Cut and fill	P2	0.7	5.3	A small cut and fill identified BSB/below a veneer of sediment, cutting into the interpreted Unit 1. Feature has a distinct basal reflector and acoustically chaotic fill. Feature appears particularly chaotic at the base and is possibly causing some slight acoustic blanking of lower horizons. This may be due to shallow gas although may be more likely due to gravelly sediments at the base of the feature. Identified below a channel feature identified in the MBES data (7134) and may represent an earlier phase of channelling or the base of the feature, partially infilled with sediment.	230	Boomer (2023 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7136	Channel	P1	-	-	Palaeochannel largely covered by marine sediments/sediment waves	231	MBES (2018 Fugro and opensource)
7137	Channel	P1	-	-	Steep-sided channels with plateaux interfluves joining into main anabranching river network	235	MBES (2018 Fugro and opensource)
7138	Channel	P1	-	-	Channel segment	237	MBES (2018 Fugro)
7139	Channel	P1	-	-	Large anabranching river complex	242	MBES (Opensource)
7140	Channel	P1	-	-	Channel segment with tributaries	239	MBES (2018 Fugro)
7141	Channel	P1	-	-	Channel segment	241	MBES (Opensource)
7142	Channel	P1	-	-	Channel segment	244	MBES (Opensource)
7143	Channel	P1	-	-	Channel segment with tributaries	245	MBES (2018 Fugro)
7144	Channel	P1	-	-	Main meandering river channel	246	MBES (2018 Fugro)
7145	Channel	P1	2	20	A possible channel segment identified below a Unit of sediment, interpreted as cutting into the interpreted Unit 1. In the 2023 boomer data, the feature is seen to have a faint, poorly defined basal reflector, although this is clearer in the 2015 data, with acoustically chaotic fill. Identified below a channel feature identified in the MBES data (7144) and may represent an earlier phase of channelling or the base of the feature, partially infilled with sediment.	246	Boomer (2015, 2023 Fugro)
7146	Cut and fill	P2	0.7	6.6	A possible channel segment identified BSB/below a veneer of sediment, interpreted as cutting into the interpreted Unit 1. The feature has a faint, poorly defined basal reflector with acoustically unstructured fill. Identified below a channel feature identified in the MBES data (7144) and may represent an earlier phase of channelling or the base of the feature, partially infilled with sediment. May be a continuation of 7145; however, due to the distance between lines, the features have not been grouped at this time.	246-247	Boomer (2018 Fugro)
7147	Channel	P1	-	-	Meandering channel complex segment	247	MBES (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7148	Cut and fill	P2	1.4	11.6	A cut and fill identified below a veneer of sediment. Feature has a faint but distinct basal reflector with acoustically chaotic fill. Cutting into an interpreted lower phase of channelling (7149).	249	Boomer (2015, 2023 Fugro)
7149	Cut and fill	P2	6.8	23.8	A cut and fill identified below an upper Unit of sediment, being cut into by a later phase of cut and fill (7148). Feature has a faint but distinct basal reflector with fill characterised by numerous horizontal reflectors, indicating layered fill which may have been deposited in a low-energy environment (possibly a unit of estuarine/lacustrine sediments (Unit 5)).	249	Boomer (2018, 2023 Fugro)
7150	Channel	P1	-	-	Small channel segment seen within larger anabranching river network	250	MBES (2018 Fugro)
7151	Cut and fill	P2	0.8	11	A possible channel identified below a veneer of sediment, with a faint basal reflector and acoustically unstructured fill. In the 2015 Boomer data it appears to be cutting into an acoustically quiet unit (possibly Unit 5) above the interpreted Unit 1, although this is less clear in the 2023 Boomer data. Possible remnant fluvial feature.	250-251	Boomer (2015, 2023 Fugro)
7152	Cut and fill	P2	3.5	27.2	A possible cut and fill identified beneath an acoustically quiet unit (possible Unit 5 although this is not certain) which is thinner in the west, thickening towards the east. Feature has a faint basal reflector and acoustically unstructured fill. Possible remnant fluvial feature from an earlier phase of channelling	251	Boomer (2015, 2023 Fugro)
7153	Channel	P1	-	-	Anabranching channel segments	254-252	MBES (2018 Fugro)
7154	Cut and fill	P2	9	19.1	A possible cut and fill feature identified beneath an upper unit of acoustically quiet sediment with a chaotic base, possibly indicating gravels, cutting into the interpreted Unit 1. Feature has a distinct, undulating basal reflector and fill characterised by faint, draping reflectors. Possible remnant fluvial feature or infilled depression	253	Boomer (2023 Fugro)
7155	Channel	P1	-	-	Small segment of palaeochannel seen on MBES	255-254	MBES (2018 Fugro)
7156	Channel	P1	-	-	Small segment of palaeochannel seen on MBES	255	MBES (2018 Fugro)
7157	Channel	P1	-	-	Large, wide (~1.5 km) palaeochannel segment showing anabranching	256	MBES (2018 Fugro)



ID	Classification	Archaeological Discrimination	Depth Range (mBSB)		Description	KP	Data Source
			From	To			
7158	Complex channel	P1	18.5	37.9	A possible cut and fill identified beneath an upper unit characterised by numerous faint horizontal reflectors (possible Unit 5 but this is uncertain), possibly indicating fine-grained deposits, cutting into the interpreted Unit 1. Feature has a distinct basal reflector and acoustically unstructured fill, possibly multiple phases of cutting and filling. Identified close to similar feature 7159 , but separated by a distinct banked feature which may represent a high point between channel cuts, or possibly a calcarenite surface, although this is uncertain.	256-257	Boomer (2023 Fugro)
7159	Complex channel	P1	15.8	45.2	A complex cut and fill feature identified beneath an upper unit characterised by numerous faint horizontal reflectors (possible Unit 5 but this is uncertain), possibly indicating fine-grained deposits, cutting into the top of the interpreted Unit 1. Feature has a faint, poorly defined basal reflector and numerous phases of cutting and filling, with fill generally appearing acoustically unstructured, although it appears more chaotic in its later phase of fill. Identified close to similar feature 7158 , but separated by a distinct banked feature which may represent a high point between channel cuts, or possibly a calcarenite surface, although this is uncertain. Possible channel complex	2257	Boomer (2015, 2023 Fugro)
7160	Channel	P1	-	-	Large, wide (~1 km) braided river channel with undulating thalweg	259	MBES (2018 Fugro)
7161	Infilled depression	P2	6.1	31.8	A possible infilled depression identified below an upper unit of acoustically quiet sediment, infilling a depression at the top of the interpreted Unit 1. Fill is characterised by numerous faint, draping reflectors, indicating fine-grained deposits deposited in a low-energy environment. Fill is not clearly different to overlying sediment, although the draping reflectors appear slightly more distinct. Feature has a distinct basal reflector which appears acoustically chaotic where it shoals in the centre.	258-259	Boomer (2015, 2023 Fugro)
7162	Channel	P1	-	-	Small segment of palaeochannel seen on MBES	262	MBES (2018 Fugro)



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