



Options for Tipner West bridge

High-level risk assessment
against the tests of the
Habitats Regulations

For
Portsmouth City Council

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1.0 Introduction

Background

- 1.1 Policy PLP3 of Portsmouth City Council's Pre-Submission Local Plan (2024) included elements that were likely to have adverse effects on the integrity of both the Portsmouth Harbour SPA/Ramsar Site and the Solent and Dorset Coast SPA. Those elements included proposed land take from the Portsmouth Harbour SPA, proposals to develop on land south of the firing range and proposals to insert bridge piers into the SPA for the purposes of building a bridge linking Tipner West to Horsea Island.
- 1.2 In accordance with a decision taken by Portsmouth City Council in April 2025, the Pre-Submission Local Plan Addendum (2025) removed each of those elements from the Local Plan. The HRA of the Pre-Submission Local Plan Composite (November 2025) ("the Revised Plan"), carried out in February 2026, concluded that the adoption of the Local Plan, with those elements removed, would not have adverse effects on the integrity of nature conservation sites.
- 1.3 The Revised Plan no longer allocates a bridge between Tipner West and Horsea Island and does not commit to its delivery. Accordingly, the adoption of the Revised Plan will not have adverse effects on SPA integrity by reason of any effects of the bridge. However, the Revised Plan continues to express in-principle support for the future construction of such a bridge and safeguards land for landfall on each side of Tipner Lake. Such a bridge is still considered important for future growth and is identified as critical infrastructure in the Infrastructure Development Plan.¹
- 1.4 With this in mind, Portsmouth City Council has been exploring whether a bridge could be delivered in future without the need for a derogation from the Habitats Regulations. In 2025, Portsmouth City Council engaged WSP to explore, at a high level, a range of possible bridge designs that might avoid adverse impacts on the integrity of the relevant nature conservation sites. The evaluation was reported in a Technical Note², from which Portsmouth City Council identified three alternative bridge options for further review by Holbury Consultancy Services Ltd (Holbury):
 - a beam bridge;
 - a post tensioned concrete box ("PTCB") girder bridge; and,
 - an asymmetric cable tied bridge.

¹ <https://www.portsmouth.gov.uk/wp-content/uploads/2026/02/FINAL-IDP-2025-submission-version-Feb-2026-.pdf>

² WSP, September 2025. Technical Note: Tipner Regeneration Project - Tipner Bridge Feasibility Study

- 1.5 Indicative designs of the beam bridge and PTCB girder bridge are appended to this report at Appendix 2 and 3, respectively.
- 1.6 If any of these options were to come forward, the new bridge would be constructed in an ecologically sensitive location and would need to be designed to minimise ecological impact on a series of sites protected under the Conservation of Habitats & Species Regulations 2017 (as amended) (the Habitats Regulations) that lie in close proximity (see Figure 1).



- 1.7 Portsmouth City Council has therefore instructed Holbury to consider:
- the potential for each of the three bridge options to have a likely significant effect on relevant Habitats Sites
 - the likelihood that any likely significant effect identified can be mitigated, and;
 - whether there is a realistic prospect of a design receiving a positive appropriate assessment (i.e. a conclusion that one or more options would not have adverse effects on site integrity).
- 1.8 This document responds to the brief through preparation of a high-level assessment of the relationship of each bridge option to the nearby Habitats Sites and Ramsar sites, from which the risk of adverse effects on the integrity of the designated sites can be better understood. The assessment is founded on conceptual designs of the three

bridge options with limited available detailed design work and is presented as a high-level screening exercise to guide direction of the selection process for the future bridge option. It should not be viewed as a formal Habitats Regulations Assessment.

Relevant Habitats Sites and Ramsar Sites

1.9 Four Habitats Sites and three Ramsar sites are located within 10km of the proposed bridge structure (see Figure 1). These are:

- Portsmouth Harbour SPA
- Portsmouth Harbour Ramsar
- Solent and Dorset Coast SPA
- Chichester and Langstone Harbours SPA
- Chichester and Langstone Harbours Ramsar
- Solent and Southampton Water SPA; and
- Solent and Southampton Water Ramsar

1.10 The qualifying features for each Habitats Site are appended to this document at Appendix 1, along with threats and pressures to each listed in the Site Improvement Plan for the Solent³.

1.11 The conservation objectives for the Habitats Sites are defined in terms of the qualifying features for each and require that the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive⁴ or Habitats Directive⁵, by maintaining or restoring;

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features, and,
- the distribution of the qualifying features within the site.

1.12 These objectives provide a framework of positive conservation intent for each of the qualifying features, whilst the threats and pressures listed in Appendix 1 work in the opposite direction, against their active conservation. Assessment of whether the impacts deriving from each of the bridge options contribute to a listed threat or pressure provides a good indication of their potential to undermine the conservation objectives of each Habitats Site and provides the basis for this report.

³ Natural England, 2014. Improvement Programme for England's Natura 2000 Sites (IPENS). Site Improvement Plan. Solent

⁴ Council Directive 2009/147/EC on the conservation of wild birds

⁵ Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora

- 1.13 A decision has been made by Defra and Natural England not to produce Conservation Advice packages for Ramsar sites, focusing instead on the production of High Level Conservation Objectives. Instead, conservation advice available for overlapping European Marine Sites is considered sufficient to support the management of Ramsar interests⁶. European Marine Sites (EMSs) are those areas below mean high water designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

Functionally linked land

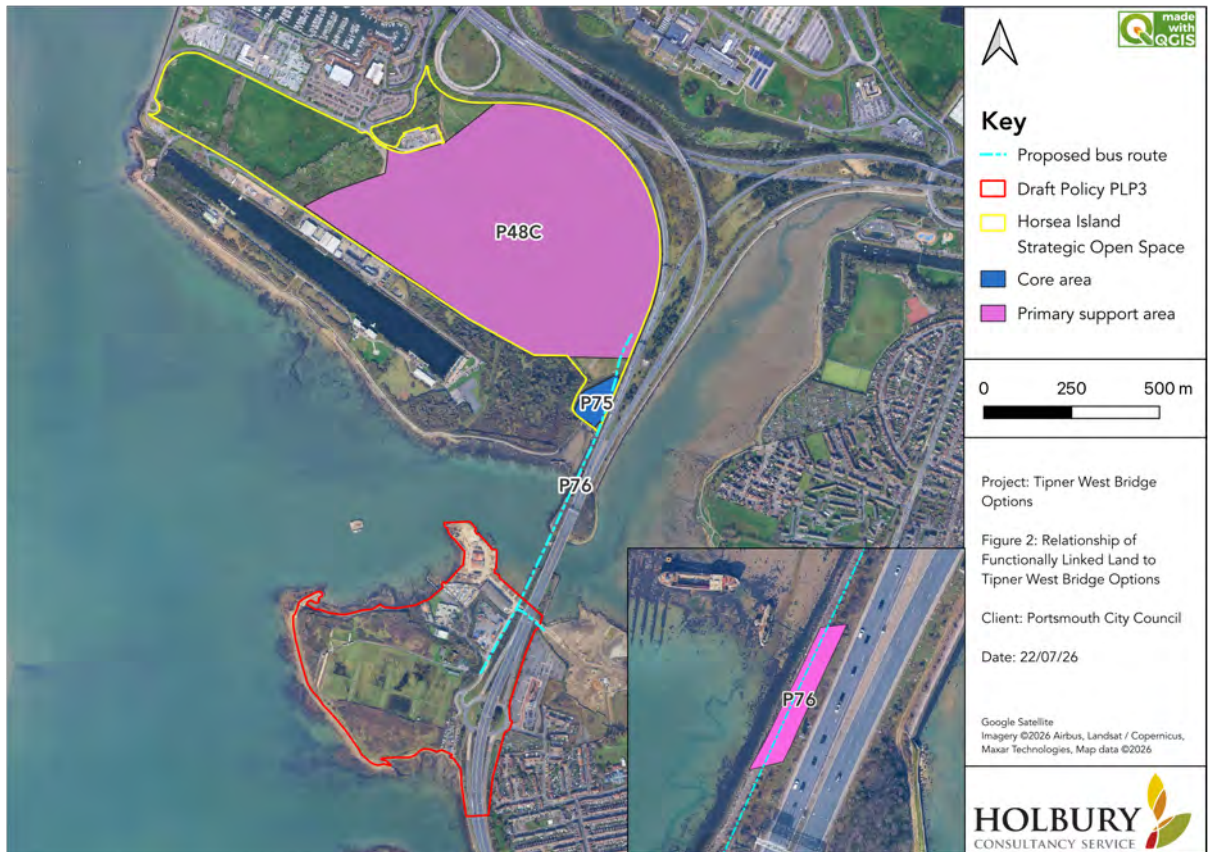
- 1.14 This report also considers the impact of the three bridge options on functionally linked land (FLL). FLL comprises areas of land or sea that occur outside a designated site but are critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Areas of Conservation (SAC)/ Special Protection Area (SPA)/ Ramsar site has been designated⁷.
- 1.15 FLL is frequently used by qualifying species and supports the functionality and integrity of the designated sites for these features.
- 1.16 The Solent Waders & Brent Goose Strategy⁸ (SWBGS) identifies the network of areas that are regularly used and which are of fundamental importance to over-wintering waterfowl across the Solent but that lie outside of the designated sites. These areas can reasonably be considered FLL for the internationally important brent goose and wading bird populations within and around the Special Protection Areas and Ramsar wetlands of the Solent Coast (Hampshire, Isle of Wight and West Sussex) and form the basis for consideration of the impacts of each bridge option on FLL.
- 1.17 The SWBGS identifies a series of land parcels close to the location of the proposed bridge that are considered FLL, referred to as P75, P76 and P48C⁹ (see Figure 2, on the following page).
- 1.18 P75 is identified as a Core Area, whilst P76 and P48C are identified as Primary Support Areas. The definitions of each are complex and are set out in full within the SWBGS.

⁶ <https://www.gov.uk/government/publications/conservation-advice-for-marine-protected-areas-project-background/marine-conservation-advice-project-summary>

⁷ Bowland Ecology 2021. Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England. NERC361. Natural England

⁸ Whitfield, D. and Marceau, T., 2024. Solent Waders and Brent Goose Strategy. Curdrige: Hampshire and Isle of Wight Wildlife Trust.

⁹ <https://hiwwt.maps.arcgis.com/apps/instant/minimalist/index.html?appid=f4bbd6fe517647cba8bf0f3b8cfb7c1b>



2.0 Site description

Introduction

- 2.1 The area of potential impact arising from the construction of a new bridge within Portsmouth Harbour SPA & Ramsar encompasses seabed permanently covered by seawater and small areas of inter-tidal habitat on both the northern and southern sides of the channel, which link Tipner Lake East to the main basin of Portsmouth Harbour to the west. The narrow channel separates Portsea Island from the mainland.
- 2.2 Revetments around the existing bridge abutments are faced with boulders to prevent erosion – this is known as ‘rock armour’. The intertidal habitat ends around the toe of the revetments on both the northern and southern side of the bridge at the mean high-water mark. The abutments support the M275 with some peripheral scrub present around the margins of the southern abutment and a more extensive area of scrubby woodland on the eastern side of the northern abutment.
- 2.3 Within Portsmouth Harbour SPA, on the south side of Horsea Island, there are a series of World War II slipways (Scheduled Monument) that are known to be used by roosting waders including SPA species.
- 2.4 The SWBGS identifies two areas of land close to the existing M275 bridge that have a role in supporting wader and brent goose populations associated with the protected sites along the Solent (see para’s 1.11-13 and Figure 2 above).
- 2.5 Site P76 is identified as a primary support area and is located along the western revetment of the northern abutment of the current bridge. Given the location of the area it is most likely to function as a high tide roost. SWBGS data gives a maximum count of 30 dunlin using this location.
- 2.6 Site P75 is located immediately north of the SPA boundary and west of the M275 bridge. P75 is identified as a core area and appears to be a balancing pond taking water from either (or from both), the former landfill on Horsea Island and the M275 carriageway. SWBGS data gives a maximum count of 5 dunlin and 3 black-tailed godwit using this location.
- 2.7 No SPA species have been recorded using P48C. SWBGS data records use by 5 non-Portsmouth Harbour SPA wader species only.

Ornithological baseline (SPA/Ramsar interest features only).

- 2.8 A number of bird surveys were commissioned between 2009 and 2022 to assess the number and range of species recorded in and around the area covered by the Tipner

West allocation. Whilst this data is now dated, it is the only detailed information available for the site and is recorded in a series of reports produced by WSP^{10,11,12,13,14,15}. This data has been reviewed and analysed to determine baseline levels of waterfowl use of the existing bridge structure, surrounding habitats (within and outside of Portsmouth Harbour SPA & Ramsar) and flight activity above and below the existing bridge.

- 2.9 To assess impacts on the interest features of Portsmouth Harbour SPA & Ramsar, data relating to brent goose, black-tailed godwit, dunlin and red-breasted merganser was reviewed. Information on tern species (during the breeding season) was also collated as the location for the proposed bridges lies within the Solent and Dorset Coast SPA.
- 2.10 The information from the WSP Technical Note forms the basis for the assessment of likely significant effects.

Brent geese

- 2.11 The main finding of the wintering bird surveys with respect to brent geese identifies regular movements across the M275 between Tipner Lake East and the wider Portsmouth Harbour to the west. Flights crossing over the M275 bridge were recorded during surveys. The majority of flights crossing the M275 are at height (over 10m above the road surface). Flights by brent geese beneath the road bridge appear to be very rare within only one recorded flight noted in the reports, when a group of 9 birds flew through.
- 2.12 During periods of low water brent geese have been recorded using the inter-tidal areas either side of the M275 bridge. Tipner Lake East is also used by brent geese as a roosting site. There is a record of 100 brent geese using the World War II slipways west of the M275 road bridge (data underpinning the SWBGS site allocation – P77) but no details are provided on whether these birds were roosting or feeding. The slipways are located within Portsmouth Harbour SPA.

Red-breasted merganser

- 2.13 Wintering bird surveys have highlighted the regular presence of red-breasted merganser in the channel connecting Tipner Lake East to the wider Portsmouth

¹⁰ WSP, December 2022. Preliminary Ecological Assessment (Table 3-4) – SBGWS site

¹¹ WSP, November 2020. Tipner West Regeneration. Wintering Bird Report 2019/2020.

¹² WSP, November 2022. Tipner West Regeneration Wintering Bird Report 2021/2022

¹³ WSP, December 2022. Tipner West Regeneration Foraging Tern Survey 2022

¹⁴ WSP, December 2022. Tipner West Regeneration Foraging Tern Survey 2022

¹⁵ WSP, December 2022. Tipner West Regeneration Nocturnal Wintering Bird Report

Harbour to the west. Red-breasted merganser has been recorded using both Tipner Lake east and areas of the Porchester Lake area of Portsmouth Harbour most winters. Given the regular sightings of red-breasted merganser swimming and flying beneath the M275 bridge it is reasonable to assume that birds will also use this area for foraging.

- 2.14 The area of habitat available to red-breasted merganser will vary depending on the tide state. Whilst it will be restricted to the deep-water channel beneath the bridge during periods of low water, it will extend across the whole channel at high water.
- 2.15 The winter bird reports detail a single sighting of red-breasted merganser on the attenuation basin that forms the core area P75. The SWBGS data does not include any records of red-breasted merganser using this area. The results of the bird surveys do not suggest any regular use of this area by red-breasted merganser during the winter period.

Dunlin

- 2.16 There is limited evidence for regular movements of dunlin across the M275 between Tipner Lake East and the wider Portsmouth Harbour to the west. Surveys have recorded a flock of 54 dunlin passing over the M275 and a single bird passing under the M275 road bridge. In 2021/22 over 60% of recorded dunlin flights were over the M275 bridge, with the remaining flights to the north (c15%) and to the south (c25%). All flights recorded in 2021/22 were above the M275. A total of 162 dunlin were recorded flying over the bridge, with 37 birds recorded flying over the M275 north of the bridge and 50 birds south of the M275 bridge. The field surveys indicate the vast majority of dunlin movements across the M275 are over the M275 rather than under the M275 road bridge.
- 2.17 Dunlin have been recorded using the inter-tidal areas either side of the M275 road bridge for feeding at low water. Dunlin have also been recorded roosting on the World War II slipways on the southern side of Horsea Island west of the M275 road bridge. The slipways appear to be regularly used by a number of wader species but use by dunlin appears to be sporadic and typically in small numbers. Data used by the SWBGS to classify sites has a maximum count of 40 dunlin for site P77.
- 2.18 The revetments of the M275 bridge have been noted as occasionally supporting roosting dunlin 'in small numbers' during the winter of 2019/20. A count of 123 dunlin was recorded during one survey. Although not confirmed, it was considered these birds had flown from a roost on the revetment. SWBGS data includes a maximum count of 30 dunlin using P76.

Black-tailed godwit

- 2.19 Records of black-tailed godwit using the area in and around the M275 road bridge are limited to the winter of 2021/22. During that winter black-tailed godwit were recorded flying over the M275 road bridge typically at lamp post height (c10m above road surface). A total of nine birds were recorded flying over the M275 bridge (it is not clear if this relates to a single flock, or a number of flights by small numbers of birds).
- 2.20 Black-tailed godwit were also recorded feeding on the inter-tidal area of Tipner Lake East during the winter of 2021/22. There is no evidence of black-tailed godwit regularly feeding on the inter-tidal areas in the immediate vicinity of the M275 road bridge.
- 2.21 No black-tailed godwit roosts were recorded close to the M275 road bridge during any of the wintering bird surveys. SWBGS data shows a peak count of 3 black-tailed godwit using P75, although it is not clear if these birds were feeding or roosting. Field surveys suggest no regular roosting sites for black-tailed godwit are present around the M275 road bridge.

Common and sandwich tern

- 2.22 Foraging tern surveys conducted in 2021 and 2022 recorded five common tern flights over the M275 bridge (one in 2021 and four in 2022). Four sandwich tern were recorded flying over the M275 bridge, all records were made in 2022. The surveys did not record any tern species flying beneath the M275 road bridge. The foraging tern surveys show that both Tipner Lake East and the wider Portsmouth Harbour are used by foraging common and sandwich terns with birds moving between the two areas at height, over the M275 road bridge.

Summary of movements of SPA species between under/through the current bridge.

Flight movements

- 2.23 The wintering bird data shows that almost all flights by brent geese and dunlin that cross the M275 road bridge are undertaken at height. Very few movements under the bridge have been recorded. All documented movements of black-tailed godwit have been at height over the M275 road bridge. Although very few black-tailed godwit flights have been recorded they do show a similar pattern to the movements of

similar sized waders such as curlew that largely move at height over the M275 and the bridge.

- 2.24 Red-breasted merganser is the only species which undertakes regular movements beneath bridge with birds recorded flying beneath the bridge and also using tidal waters under and around the bridge.
- 2.25 All recorded common tern and sandwich tern flights over the M275 bridge have been at height.

Feeding

- 2.26 Bird surveys have shown limited use of the intertidal areas immediately adjacent to the current M275 road bridge. Brent geese and dunlin have been recorded using the mudflats east and west of the existing bridge structure and black-tailed godwit have been recorded using the mudflats in Tipner Lake East for feeding. Common and sandwich tern have not been recorded regularly foraging around the current bridge structures.
- 2.27 Red-breasted merganser has been recorded using the channel beneath the bridge and it is reasonable to assume at least some of the time is spent feeding.

Roosting

- 2.28 The available data highlights the occasional use of the revetments of the existing bridge as a roost site for dunlin. Dunlin also occasionally use the World War II slipways to the west of the bridge for roosting. Brent geese have been recorded using Tipner Lake East as a roost site and may occasionally roost on the World War II slipways.

3.0 Bridge designs

Introduction

3.1 Portsmouth City Council has identified three non-exhaustive, high-level bridge designs as potential structures to link Tipner West to Horsea Island, as follows:

- a **Beam Bridge**, comprising a conventional bridge structure with engineered ramps up to a main bridge deck spanning the gap to be bridged. Bridge piers provide a vertical support to the main bridge deck.
- a **Post Tensioned Concrete Box Girder Bridge** uses hollow, closed-cell girders made of concrete or steel to provide the necessary span. Three continuous spans would be required to construct a viaduct crossing.
- An **Asymmetric Cable-stayed Bridge** is designed around a deck supported by angled cables strung between one or more vertical towers.

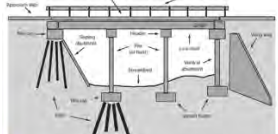
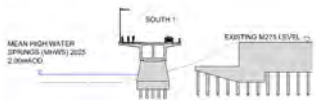
3.2 The bridge would be constructed alongside the existing M275 bridge to the east, regardless of design. However, construction of the three bridges will differ, as will the relationship of the bridge to the existing M275 structures and the amount and location of land take.

3.3 Holbury Consultancy has used these three high-level designs to consider the potential habitats implications of each. Whilst detailed designs for the three options are not available and would be required to carry out any proper appropriate assessment of their impacts, it is possible to distil some of the likely key characteristics of each. Table 1 on the following page uses a description of each bridge type with an illustration to compare the three options with reference to the area and location of possible habitat loss where known, likely construction techniques, height, depth and width, and location relative to the existing M275 bridge.

3.4 In addition, the following general assumptions have been made, relevant to all three options:

- construction is likely to span more than a year of time, with potential implications for both wintering and breeding bird populations.
- a site compound will be located outside of the intertidal and away from FLL.
- lighting will be required for working during the winter months.
- piling will be undertaken using augured piles
- mitigations during construction will be secured through a Construction Environmental Management Plan.

Table 1 Comparison of the key features of x3 bridge options to link Tipner West to Horsea Island

Bridge option	Description	Construction techniques	Dimensions	Habitat loss	Relationship to existing M275 bridge	Commentary
Beam Bridge	 A beam bridge requires a pre-cast beam structure supporting a three-span deck. Beyond the bridge the road continues on embankment along the western side of the M275.	x3 piers will be piled along with embankments supporting the road either side of the bridge. Substantial earthworks required to form and stabilise the embankments.	Total span length of approx 105m. Bridge deck lower than existing M275 bridge for road safety reasons. Crest height set at 5.66m AOD, 3m below existing M275 bridge.	The three piers will sit in the channel leading to Tipner Lake to the east. The supporting embankments and bridge abutments will also affect designated habitats.	Bridge piers will be located in alignment with existing M275 bridge piers.	Habitat loss will occur within the Portsmouth Harbour SPA & Ramsar and the Solent & Dorset Coast SPA from both bridge piers and embankment features.
Post Tensioned Concrete Box (PTCB) Girder Bridge	 A PTCB bridge relies on hollow, closed-cell concrete or steel beams, strengthened by tensioned high-strength steel tendons. The bridge comprises a three-span continuous viaduct comprising a variable	The vertical support structures of the bridge are located at existing ground levels either side of the Tipner Channel, avoiding the need for bridge piers within the	The bridge deck will sit 4m above Highest Astronomical Tide levels	Pier 14 is the only pier to sit within the Portsmouth Harbour SPA/Ramsar. Piers 7-13 require below ground foundations within the SPA.	The main bridge deck will sit to the west and at a similar level to the existing M275 bridge.	Requirement for permanent land take arises from the footprint of Pier 14 only. Piers 7-13 require buried foundations within the SPA that will result in temporary loss of rock armour during construction, but which will be replaced on completion of works. Any scour from piers remains unknown at present.

4.0 The process of Habitats Regulations Assessment

Introduction

- 4.1 Whilst only high-level and/or conceptual designs for each bridge option are available at present, they allow review of the key principles against the tests of the Habitats Regulations. This is an appropriate level of review for a concept that whilst identified as critical infrastructure, is not allocated in the Revised Plan. Detailed design and engineering plans for the bridge will be required to allow a project level appropriate assessment when a planning application is submitted.
- 4.2 The first test of an HRA is to consider whether a project could result in a likely significant effect on a Habitats Site or a Ramsar site either alone or in combination with other plans or projects. A likely significant impact is any effect whose occurrence cannot be excluded on the basis of objective information and which would undermine the conservation objectives for a Habitats Site. A likely significant effect may include physical loss and/or damage of a habitat, disturbance effects, changes to water availability, deposition of contaminants through changes in air quality etc.
- 4.3 Guidance states that HRA judgments handed down by the European Court, and by domestic courts prior to 31 December 2020, remain relevant when interpreting the Conservation of Habitats and Species Regulations 2017 (as amended)¹⁶. The European Court judgement known as *People Over Wind and Sweetman v Coillte Teoranta (C-323/17)* therefore remains applicable. This states that, *'measures intended to avoid or reduce impacts on a European site cannot at the same time be regarded as part of the "project"'*¹⁷. From this it follows that mitigation measures aimed at reducing impacts, must be excluded from assessing whether a project is likely to have a significant effect, either alone or in combination with other plans and projects. However, it is reasonable to consider that bridge construction would come forward having been designed to minimise impact on the Portsmouth Harbour SPA & Ramsar site and that mitigation measures will be secured through a detailed Construction Environmental Management Plan (CEMP) to minimise impacts and risk of impact.
- 4.4 At this stage, little information is available to fully characterise the likely significant effects of each of the bridge options. However, the key characteristics and principles around the build of each allow a high-level risk assessment to establish which is likely to have least impact on the Habitats Sites, associated Ramsar sites and nearby land that is functionally linked.

¹⁶ <https://www.freeths.co.uk/2020/10/22/the-habitats-regulations-assessment-regime-after-31-december-2020-how-will-it-look/>

¹⁷ <https://insideecology.com/2018/05/01/habitat-regulations-assessments-no-more-screening-out-with-mitigation-measures/>

- 4.5 The second test of the HRA is relevant to those plans or projects that are screened as likely to have a significant effect alone or in combination with other plans or projects and requires an appropriate assessment. The role of the appropriate assessment is to consider the implications of the plan or project for the conservation objectives of the European sites in question and determine whether they will have an adverse effect on the integrity of the site, defined in terms of structure and function.
- 4.6 In carrying out an appropriate assessment at the project stage, a local authority must have regard to the manner in which the project is proposed to be carried out, or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given. This allows mitigation measures to be considered where they can be included through design or secured through mitigation or a S106 Agreement.
- 4.7 Looking forward, new HRA Guidance is anticipated as part of the UK government's wider nature reform programme, which also includes initiatives such as Environmental Delivery Partnerships (EDPs) and the Nature Restoration Fund. This follows a consultation process that ran from April to May 2026¹⁸, which sought views on significant changes to DEFRA's guidance on how Habitats Regulations Assessments should be carried out. The outcome of this consultation remains awaited (as of September 2026) but is expected to introduce a greater degree of pragmatism to the HRA process, with new guidance on deciding whether an effect is both likely and significant and an expectation that assessments will be encouraged to be proportionate and based on real rather than hypothetical risks. It is expected that this will be followed by changes to the Habitats Regulations themselves.
- 4.8 The new arrangements are likely to be relevant to future HRA of the chosen bridge option and may enable derivation of a different balance of judgement than the current statutory framework, guidance and caselaw allow. However, the details of this are not yet known and the review of the bridge options within this document are based on the process of HRA as practised today.

Approach to review of bridge options

- 4.9 Threats and pressures identified for the UK National Site Network catalogue the positive and negative factors that impact on the site and are an important tool for guiding the identification of likely significant effects. Appendix 1 includes the threats and Pressures have been taken from the Site Improvement Plan¹⁹ (SIP) for the Portsmouth Harbour SPA, with the following of relevance to a new bridge link:
- Public Access/Disturbance
 - Water Pollution

¹⁸ https://consult.defra.gov.uk/protected-sites/8c7b61c8/user_uploads/draft-hra-guidance-text.pdf

¹⁹ Natural England, 2014. Improvement Programme for England's Natura 2000 Sites (IPENS)
Site Improvement Plan: Solent (covering Portsmouth Harbour Site Improvement Plan)

- Changes in species distributions
- Change to site conditions
- Direct land take from development

4.10 These have been distilled into four criteria against which a high-level assessment of the likely significant effects of each bridge option can be carried out as follows:

- permanent and temporary loss of intertidal habitat
- permanent and temporary noise and visual disturbance (operation & construction)
- permanent impacts to flight paths and bird movement
- air and water quality changes

4.11 From this, the risks associated with whether an appropriate assessment would be able to conclude no adverse effect on integrity can be considered for each of the three bridge options and set out in Tables 2 to 4, which follow.

Table 2 Bridge option 1: Beam Bridge (see Appendix 2)

	Permanent and temporary loss of SPA habitat	Permanent and temporary noise and visual disturbance (operation & construction)	Permanent impacts to flight paths and bird movement	Air and Water Quality Change
Portsmouth Harbour SPA & Ramsar	Permanent loss of sub-tidal and inter-tidal habitat due to installation of bridge piers and supporting embankments. Most potential for loss of habitat within SPA of the three options.	Potential construction disturbance to feeding brent geese, red-breasted merganser, dunlin and black-tailed godwit at low tide. Potential construction disturbance to red-breasted merganser and roosting dunlin at high water. Operational impacts consistent with existing impacts of M275 bridge and not likely to introduce additional impact on SPA species.	Bridge expected to be 3m lower than current road bridge. Potential impact on red-breasted merganser moving under new bridge. Design would not introduce significant new obstructions above bridge deck so no risk to bird movements above completed bridge.	Localised changes in air quality from operation of plant during construction unlikely to have significant impacts on SPA habitats. Risk of changes in water quality unknown at this stage. There is a potential for oil spillage and other pollution events to the water environment during both construction and operation. This option also has a material risk of mobilising contaminants in inter-tidal/sub-tidal sediments due to design. Impacts of scouring and deposition on inter-tidal and sub-tidal habitats unknown at this stage.

Chichester and Langstone Harbours SPA & Ramsar	None, all works outside site and tidal patterns highly unlikely to be altered.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar	None expected as design does not include any new vertical structures.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar
Solent and Southampton Water SPA & Ramsar	None, all works outside site and tidal patterns highly unlikely to be altered.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar	None expected as design does not include any new vertical structures.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar
Functionally Linked Land	Potential impacts on P76, a high tide roost sporadically used by dunlin. Potential impacts on P75, a core area although field surveys have shown virtually no use by SPA birds.	Disturbance of dunlin roosting on revetments that form P76. Disturbance of SPA species using P75.	None expected.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Unknown risk of changes in water quality if works undertaken within P75.
Solent and Dorset Coast SPA	Loss of sub-tidal and/or inter-tidal habitat due to installation of bridge piers and for embankment. Most potential for loss of habitat within SPA of the three options.	Potential disruption to foraging terns during construction period through localised avoidance of works area.	None expected as design does not include any new vertical structures.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Risk of changes in water quality unknown at this stage with potential for oil spillage and other pollution events during both construction and operation. This option has material risk of mobilising contaminants in inter-

				tidal/sub-tidal sediments due to design. Impacts of scouring and deposition on inter-tidal and sub-tidal habitats unknown at this stage.
Conclusion • An HRA of bridge option 1 will identify a series of likely significant effects triggering the need for detailed appropriate assessment. • High risk of habitat loss from Portsmouth Harbour SPA & Ramsar site and the Solent & Dorset Coast SPA from which it follows that there is a high risk that an appropriate assessment will conclude adverse effect on integrity. • High risk of new bridge structure implicating passage of red breasted merganser below the structure. Detailed studies will be necessary to establish whether this would constitute an adverse effect on the integrity of the Portsmouth Harbour SPA & Ramsar site. • High risk of direct impact on FLL identified as supporting the internationally important brent goose and wading bird populations within and around the Special Protection Areas and Ramsar wetlands of the Solent Coast. Up to date data will be needed to understand the likely impact of the habitat loss given current waterfowl use of this habitat. Note that the habitat value of P75 & P76 may have degraded over time and the implications of this will need to be considered as part of the appropriate assessment. However, the risk remains that an appropriate assessment will conclude adverse effect on integrity. • High risk of likely significant effects deriving from construction activities (noise, disturbance, air & water quality, lighting, blockage of flight movements, bird avoidance behaviours) on the Portsmouth Harbour SPA & Ramsar site and the Solent & Dorset Coast SPA. These impacts will be temporary and relatively short-term in nature. It is reasonable to assume that many of these impacts can be effectively mitigated through a comprehensive CEMP, but residual impact is likely. Detailed proposals will be needed for an appropriate assessment to consider whether residual impacts constitute an adverse effect on integrity.				

Table 3 Bridge option 2: Post tensioned concrete box (PTCB) girder bridge (see Appendix 3)

	Permanent and temporary loss of SPA habitat	Permanent and temporary noise and visual disturbance (operation & construction)	Permanent impacts to flight paths and bird movement	Air and Water Quality Change
Portsmouth Harbour SPA & Ramsar	Temporary loss of localised areas of sub-tidal habitat, intertidal habitat and rock armour to allow for placement of buried foundations and construction of piers 7-14. Design uses existing ground levels for supports to be formed and no additional embankment is required. The conceptual design (Appendix 3) locates Pier 14 within the SPA, with permanent impacts on rock armour. This is the only pier to permanently impact habitat within the SPA.	Potential construction disturbance to feeding brent geese, red-breasted merganser, dunlin and black-tailed godwit at low tide. Potential construction disturbance to red-breasted merganser and roosting dunlin at high water. Operational impacts consistent with existing impacts of M275 bridge and not likely to introduce additional impact on SPA species.	Main bridge deck at similar height to existing bridge structure. Design would not introduce significant new obstructions above bridge deck so no risk to birds moving above or below completed bridge.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Risk of changes in water quality unknown at this stage. Potential for oil spillage and other pollution events during both construction and operation is relevant. Impacts of scouring and deposition on inter-tidal and sub-tidal habitats unknown at this stage.
Chichester and Langstone Harbours SPA & Ramsar	None, all works outside site and tidal patterns highly unlikely to be altered.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar	None expected as design does not include any new vertical structures.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar

Solent and Southampton Water SPA & Ramsar	None, all works outside site and tidal patterns highly unlikely to be altered.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar	None expected as design does not include any new vertical structures.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar
Functionally Linked Land	Potential impacts on P76, a high tide roost sporadically used by dunlin. Potential impacts on P75, a core area although surveys have shown virtually no use by SPA birds.	Disturbance of dunlin roosting on revetments that form P76. Disturbance of SPA species using P75.	None expected.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Unknown risk of changes in water quality if works undertaken within P75.
Solent and Dorset Coast SPA	Temporary loss of localised areas of sub-tidal habitat, intertidal habitat & rock armour to allow for placement of buried foundations and construction of piers 7-14. Design uses existing ground levels for supports to be formed and no additional embankment is required. The conceptual design (Appendix 3) locates Pier 14 within the SPA, with permanent impacts on rock armour and open water habitat. This is the only pier to permanently impact habitat within the SPA.	Potential disruption to foraging terns during construction period through localised avoidance of works area.	None expected as design does not include any new vertical structures.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Risk of changes in water quality unknown at this stage. Risk of changes in water quality unknown at this stage. Impacts of scouring and deposition on inter-tidal and sub-tidal habitats unknown at this stage.

Conclusion

- As for option 1, an HRA of bridge option 2 will identify a series of likely significant effects triggering the need for detailed appropriate assessment.
- **High risk** of small, permanent habitat loss from Portsmouth Harbour SPA & Ramsar site and the Solent & Dorset Coast SPA as a result of the location of pier 14 within the SPA. Although the smallest direct impact of the three bridge options, any direct impact generates a risk that an appropriate assessment will conclude adverse effect on integrity. However, in this instance, it is reasonable to consider that a conclusion to the contrary should be possible. This will require demonstration that the habitat loss will not affect the functionality of either the Portsmouth Harbour SPA & Ramsar site or the Solent & Dorset Coast SPA.

The conceptual design (Appendix 3) shows that the permanent habitat loss from both SPA's is associated with a single pier and falls almost entirely within the rock armour of the existing embankment. It is reasonable to expect that this can be shown to be a *de minimis* impact because of the very small scale of the impact relative to the total areas of roosting and sub-tidal habitats that are relevant to the Portsmouth Harbour SPA, and the open water habitat relevant to the Solent & Dorset Coast SPA. It is also reasonable to assume that an eventual design will be able to include alternative, equivalent artificial habitat in close proximity to the point at which the loss of rock armour occurs. From this it follows that the PTCB bridge design should be able to avoid changes to:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the populations of each of the qualifying features
- the distribution of qualifying features within the site

If change with regard to each can be avoided, it is reasonable to assume that an appropriate assessment will be able to conclude positively, on the basis that the bridge design will not affect the structure and function of either SPA.

- **High risk** of direct impact on FLL identified as supporting the internationally important brent goose and wading bird populations within and around the Special Protection Areas and Ramsar wetlands of the Solent Coast. Up to date data will be needed to understand the likely impact of the habitat loss given current waterfowl use of this habitat, with some suggestion that the habitat value of P75 & P76 may have degraded over time. It is reasonable to assume that design of a new bridge will come forward with mitigation, with opportunity for the creation of new high tide roosts and new balancing ponds.
- **High risk** of likely significant impacts deriving from construction activities (noise, disturbance, lighting, blockage of flight movements) on the Portsmouth Harbour SPA & Ramsar site and the Solent & Dorset Coast SPA. These impacts will be temporary and relatively short-term in nature. It is reasonable to assume that many of these impacts can be effectively mitigated through a comprehensive CEMP, but residual short-term impact is likely e.g. on foraging terns. Detailed proposals will be needed for an appropriate assessment to consider whether residual short-term impacts constitute an adverse effect on integrity.

Table 4 Bridge option 3: Asymmetric cable-stayed bridge

	Permanent and temporary loss of SPA habitat	Permanent and temporary noise and visual disturbance (operation & construction)	Permanent impacts to flight paths and bird movement	Air and Water Quality Change
Portsmouth Harbour SPA & Ramsar	Not known. Potential to locate bridge piers outside SPA but no detail available.	Potential construction disturbance to feeding brent geese, red-breasted merganser, dunlin and black-tailed godwit at low tide. Potential construction disturbance to red-breasted merganser and roosting dunlin at high water. Operational impacts consistent with existing impacts of M275 bridge and not likely to introduce additional impact on SPA species.	Design would require vertical towers and installation of cables in area 0-50m above the level of the bridge deck. Potential increased risk of collision for brent geese, dunlin and black-tailed godwit.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Risk of changes in water quality unknown at this stage with potential for oil spillage and other pollution events during both construction and operation. This option requires installation of foundations for bridge piers in inter-tidal/sub-tidal sediments with associated risk of mobilising contaminants. Impacts of scouring and deposition on inter-tidal and sub-tidal habitats unknown at this stage.

Chichester and Langstone Harbours SPA & Ramsar	None, all works outside site and tidal patterns highly unlikely to be altered.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar	Degree of interchange between bird populations of Chichester and Langstone Harbours SPA & Ramsar and Portsmouth Harbour SPA and Ramsar unknown. New vertical structures and cabling may present increased risk of collision.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar
Solent and Southampton Water SPA & Ramsar	None, all works outside site and tidal patterns highly unlikely to be altered.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar	Degree of interchange between bird populations of Solent and Southampton Water SPA & Ramsar and Portsmouth Harbour SPA and Ramsar unknown. New vertical structures and cabling may present increased risk of collision.	None anticipated as over 2km between M275 and boundary of SPA/Ramsar
Functionally Linked Land	Potential impacts on P76, a high tide roost sporadically used by dunlin. Potential impacts on P75, a core area although field surveys have shown virtually no use by SPA birds.	Disturbance of dunlin roosting on revetments that form P76. Disturbance of SPA species using P75.	None expected.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Unknown risk of changes in water quality if works undertaken within P75, with risk deriving from oil

				and other pollution events during construction and operation.
Solent and Dorset Coast SPA	Not known. Potential to locate bridge piers outside SPA but no detail available.	Potential disruption to foraging terns during construction period through localised avoidance of works area.	Design would require vertical towers and installation of cables in area 0-50m above the level of the bridge deck. Potential increased risk of collision for common tern and sandwich tern.	Localised changes in air quality during construction unlikely to have significant impacts on SPA habitats. Risk of changes in water quality unknown at this stage. The risk of oil spillage and other pollution events during both construction and operation is relevant. This option requires installation of foundations for bridge piers in inter-tidal/sub-tidal sediments with associated risk of mobilising contaminants. Impacts of scouring and deposition on inter-tidal and sub-tidal habitats unknown at this stage.

Conclusion

- As for options 1 & 2, HRA of bridge option 3 will identify a series of likely significant effects triggering the need for detailed appropriate assessment.
- The extent of habitat loss from Portsmouth Harbour SPA & Ramsar site and the Solent & Dorset Coast SPA is not known. **Uncertain** whether it will be possible to design such that an appropriate assessment could conclude adverse effect on integrity.
- **High risk** of new bridge structure implicating movement of waterfowl above and below the structure. Detailed studies will be necessary to establish whether the risk of collision would constitute an adverse effect on the integrity of the Portsmouth Harbour SPA & Ramsar site, and the Solent & Dorset Coast SPA. The risk of collision also extends to Chichester and Langstone Harbours SPA & Ramsar populations and Solent and Southampton Water SPA and Ramsar as well, with the level of interchange of bird populations across all sites requiring identification and characterisation.
- The extent of direct impact on FLL identified as supporting the internationally important brent goose and wading bird populations within and around the Special Protection Areas and Ramsar wetlands of the Solent Coast is **Uncertain**. Avoidance through design may be possible but no information is available to assess likelihood.
- Collision risk for Chichester & Langstone Harbours. Interchange movements between the SPAs are unknown generating a theoretical risk of adverse effect on integrity.
- **High risk** of likely significant impacts deriving from construction activities (noise, disturbance, air & water quality, lighting, blockage of flight movements, avoidance behaviours) on the Portsmouth Harbour SPA & Ramsar site and the Solent & Dorset Coast SPA. These impacts will be temporary and relatively short-term in nature. It is reasonable to assume that many of these impacts can be effectively mitigated through a comprehensive CEMP, but residual impact is likely. Detailed proposals will be needed for an appropriate assessment to consider whether residual impacts constitute an adverse effect on integrity.

5.0 Overall conclusion

Habitat loss

- 5.1 Although the intertidal and subtidal areas around and under the current M275 bridge do not support significant numbers of SPA species, they form part of the Portsmouth Harbour SPA & Ramsar site and the Solent & Dorset Coast SPA. The high-level assessment of the three bridge options show that at this early stage of design, all have a risk that an appropriate assessment will conclude an adverse effect on integrity. This is because each option will, or has the potential to result in permanent loss of intertidal and subtidal habitats within the designated area and associated FLL. The extent of loss varies across the three options.
- 5.2 Separately, the cable stay bridge may also impact on interest features of Chichester and Langstone Harbours SPA & Ramsar and Solent and Southampton Water SPA & Ramsar. Characterisation of the level of interchange of waterfowl populations across the designated areas and full and proper identification of the risks of bird collision with the elevated bridge structure will establish whether this risk constitutes an adverse effect on the integrity of these sites.
- 5.3 Of the three options, the PTCB girder bridge (Option 2) seems likely to have the smallest direct impact and therefore provides the greatest opportunity to demonstrate that the loss will not result in an adverse effect on the structure and function of the Portsmouth Harbour SPA & Ramsar site, or the Solent & Dorset Coast SPA. Any such case would need to be supported at the project level by up-to-date ecological data, detailed analysis of impacts in relation to structure and function of the designated sites and a careful and through suite of mitigation measures. In particular:
- review of the opportunity to ensure that Pier 14 is located as far out of the SPAs as possible. Where there is no alternative to locating it within the SPAs, the pier should be designed to affect areas of existing rock armour, which can be easily reprovided to maintain overall structure and function. Unavoidable losses of SPA rock armour should be designed to be as small as possible, of 'de minimis' impact.
 - the collection of new bird data may provide opportunity for an 'evidence-based' approach to assessing the nature of harm caused, potentially allowing demonstration that the areas of impact are of little significance to the function of the designated sites.
- 5.4 Additionally, it may be possible to engineer out the impact through careful design. Detailed engineering designs have not been completed for the 3 options and new and original construction techniques may well be available at the time of design able to reduce LSE further. The scope that this is helpful will become apparent at the point

when the detailed engineering design begins and design objectives are set to reflect engineering and technological innovation relevant at that time.

- 5.5 Finally, given the timescales involved, it is likely that guidance around the application of the Habitats Regulations will have changed, as well as the statutory process itself. Given the direction of travel indicated by DEFRA in the recent consultation document (see para 4.8 & 4.9) guidance around the tests of the Habitats Regulations is likely to change, such that it may be easier for the PTCB girder bridge to demonstrate compliance with the statutory tests.

Habitat loss in relation for FLL

- 5.6 Loss of functionally linked land outside the SPA is difficult to quantify without a detailed bridge design. Although wintering bird surveys do not show any regular use of P75 by SPA species, the SWBGS identifies the attenuation pond as a core site. Ideally, bridge design should avoid direct impact on this habitat to avoid the need for compensatory habitat provision. Currently, all three bridge options will implicate this area of FLL and as such, robust mitigation will be required.
- 5.7 In addition, field surveys have shown that dunlin use the current revetments of the existing bridge as a high-water roost (P76). Any new bridge design should continue to provide roosting opportunities (at least equal in size and nature) for this SPA species to avoid impact. It is reasonable to expect that a new bridge structure will provide funding for this type of mitigation initiative.

Impacts on SPA species

- 5.8 The evidence available from a number of wintering bird surveys of the area (now dated) show that five SPA species (brent goose, black-tailed godwit, dunlin, common tern and sandwich tern) move at height over the M275 road bridge. Although there is limited evidence available to quantify the risk of collision with stays, guide wires and other infrastructure associated with suspension bridges there is potential risk of increased collision risk to SPA species from a bridge design that increases the amount and extent of vertical structures on the bridge compared to the current baseline. Option 3 is highest risk in this regard.
- 5.9 One SPA species, red-breasted merganser, makes regular use of the channel beneath the existing bridge both on the water and flying. Any bridge design that reduces the available space beneath the existing bridge may impact on the movement of red-breasted merganser through this channel. These impacts need to be considered throughout the tidal cycle and are relevant to the beam bridge (option 1) and

asymmetric cable-stayed bridge (option 3). In contrast, the post tensioned concrete box girder bridge is unlikely to affect movements of red-breasted merganser.

- 5.10 Impacts such as changes in scour and deposition rates and the impacts these may have on inter-tidal and sub-tidal areas within the SPA cannot be quantified at this stage. As a general principle there should be minimal change to current patterns of scour and deposition, which is likely to equate to a design with the least hard engineering within or on the edge of the designated site.
- 5.11 Impacts such as disturbance to SPA species during construction will be common to all bridge options. Most impacts will be managed through appropriate mitigation but at a high level, a design with a shorter build time, would be considered more favourable than a more complex scheme if all other impacts were similar.

Conclusion

- 5.12 Of the three bridge options, the second option detailing the PTCB girder bridge is likely to result in the smallest ecological impact. With careful thought and design, it has a reasonable prospect of securing a positive appropriate assessment at the point a planning application is submitted to Portsmouth City Council.
- 5.13 Analysis of the concept has shown that it is reasonable to assume that a detailed design exercise for a PTCB girder bridge could avoid or reduce direct impacts on the Portsmouth Harbour and Solent & Dorset Coast SPAs to an extent that any residual loss can be considered 'de minimis'.
- 5.14 The scheme may result in the direct loss of FLL and the significance of any such loss will need to be assessed against up to date survey data to establish the extent to which SPA species rely on this habitat. It is reasonable to assume that alternative habitat could be created as part of a bridge scheme were it required.
- 5.15 The sensitivity of the bridge location and the scale of the engineering project combine to mean that construction is not without risk and is likely to have significant effects on the wider National Network of Habitats Sites. Mitigation of temporary impacts arising from construction will be required and careful controls established through a CEMP.
- 5.16 Once built, the PTCB girder bridge is unlikely to have any permanent, operational impacts on either the Portsmouth Harbour or Solent & Dorset Coast SPAs.
- 5.17 Changes to both DEFRA guidance and the statutory framework of the Habitats Regulations expected in the short to medium term are also pertinent, because the future set of tests against which the eventual bridge design will be assessed may be less onerous than is currently the case.

Appendix 1
Conservation objectives, threats and pressures
for all relevant Habitats Sites and associated Ramsar sites

Appendix 1

Conservation objectives, threats and pressures for all relevant Habitats Sites and associated Ramsar sites

Habitats sites, Qualifying Features, and Threats and Pressures.

Site	Detail	Supporting Information
Portsmouth Harbour SPA	Reasons for designation	Portsmouth Harbour SPA is a large, industrialised estuary and includes one of the four largest expanses of mudflats and tidal creeks on the south coast of Britain. It qualifies under Article 4.2 of the Birds Directive by supporting internationally and nationally important wintering populations of the following bird species, which form the sites qualifying features: - A046a <i>Branta bernicla bernicla</i>; Dark-bellied brent goose (Non-breeding) - A069 <i>Mergus serrator</i>; Red-breasted merganser (Non-breeding) - A149 <i>Calidris alpina alpina</i>; Dunlin (Non-breeding) - A156 <i>Limosa limosa islandica</i>; Black-tailed godwit (Non-breeding)
	Threats and Pressures	Threats and Pressures have been taken from the Site Improvement Plan (SIP) for the Portsmouth Harbour SPA. - Public Access/Disturbance - Coastal squeeze - Fisheries: Commercial marine and estuarine - Water Pollution - Changes in species distributions - Climate change - Change to site conditions - Invasive species - Direct land take from development - Biological Resource Use - Change in land management - Inappropriate pest control - Air Pollution: impact of atmospheric nitrogen deposition - Hydrological changes - Direct impact from 3rd parties - Extraction: non-living resources
	Conservation Objectives	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - The extent and distribution of the habitats of the qualifying features

Site	Detail	Supporting Information
		- The structure and function of the habitats of the qualifying features - The supporting processes on which the habitats of the qualifying features rely - The population of each of the qualifying features, and, - The distribution of the qualifying features within the site
Portsmouth Harbour Ramsar	Reasons for designation	The site qualifies under Criterion 3 because the intertidal habitats present - The mudflat areas possess extensive beds of eelgrass <i>Zostera angustifolia</i> and <i>Zostera noltei</i> which support the grazing dark-bellied brent geese populations. - The mud-snail <i>Hydrobia ulvae</i> is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass <i>Spartina anglica</i> dominates large areas of the saltmarsh and there are also extensive areas of green algae <i>Enteromorpha</i> spp. and sea lettuce <i>Ulva lactuca</i>. - More locally the saltmarsh is dominated by sea purslane <i>Halimione portulacoides</i> which gradates to more varied communities at the higher shore levels. - The site also includes a number of saline lagoons hosting nationally important species. The site also qualifies under Criterion 6 because of waterbird species/populations occurring at levels of international importance. - Wintering Dark-bellied brent goose, <i>Branta bernicla bernicla</i>, 2,105 individuals, representing an average of 2.1% of the GB population (5-year peak mean 1998/9-2002/3)
	Threats and Pressures	Disturbance and land-take pressures (on and off-site) from urban and industrial development. Coastal squeeze arising from coastal defences.
	Conservation Objectives	None listed in designation documentation but as the site coincides with Portsmouth Harbour SPA and as such conservation objectives applicable to these sites would extend to Portsmouth Harbour Ramsar
Solent and Dorset Coast SPA	Reasons for designation	The site contains important foraging areas at sea used by qualifying interest features from colonies within adjacent, already classified SPAs. These qualifying interest features are

Site	Detail	Supporting Information
		three species of tern: common tern, Sandwich tern and little tern. The site is located on the south coast within the English Channel. The site is approximately 255.2 nm² and extends from the Isle of Purbeck in the West to Bognor Regis in the East, following the coastline on either side to the Isle of Wight and into Southampton Water. The site qualifies under Article 4 of the Birds Directive (2009/147/EC) for the following species which form the sites qualifying features: - A191 <i>Sterna sandvicensis</i>; Sandwich tern (Breeding) - A193 <i>Sterna hirundo</i>; Common tern (Breeding) - A195 <i>Sternula albifrons</i>; Little tern (Breeding)
	Threats and Pressures	No site-specific supplementary advice is available detailing threats and pressures for Solent and Dorset Coast SPA. Where appropriate supplementary advice for issued for Solent and Dorset Coast SPA has been used to identify threats and pressures.
	Conservation Objectives	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - The extent and distribution of the habitats of the qualifying features - The structure and function of the habitats of the qualifying features - The supporting processes on which the habitats of the qualifying features rely - The population of each of the qualifying features, and, - The distribution of the qualifying features within the site
Chichester and Langstone Harbours SPA	Reasons for designation	The site is internationally important because it regularly supports more than 10,000 wintering wildfowl (average 25,000) and also by regularly supporting more than 20,000 wintering waders (average 77,000). It qualifies under Articles 4.1 and 4.2 of the Birds Directive by supporting internationally and nationally important breeding and wintering populations of the following bird species, which form the sites qualifying features: - A046a <i>Branta bernicla bernicla</i>; Dark-bellied brent goose (Non-breeding) - A048 <i>Tadorna tadorna</i>; Common shelduck (Non-breeding) - A050 <i>Anas penelope</i>; Eurasian wigeon (Non-breeding) - A052 <i>Anas crecca</i>; Eurasian teal (Non-breeding) - A054 <i>Anas acuta</i>; Northern pintail (Non-breeding) - A056 <i>Anas clypeata</i>; Northern shoveler (Non-breeding)

Site	Detail	Supporting Information
		- A069 <i>Mergus serrator</i>; Red-breasted merganser (Non-breeding) - A137 <i>Charadrius hiaticula</i>; Ringed plover (Non-breeding) - A141 <i>Pluvialis squatarola</i>; Grey plover (Non-breeding) - A144 <i>Calidris alba</i>; Sanderling (Non-breeding) - A149 <i>Calidris alpina alpina</i>; Dunlin (Non-breeding) - A157 <i>Limosa lapponica</i>; Bar-tailed godwit (Non-breeding) - A160 <i>Numenius arquata</i>; Eurasian curlew (Non-breeding) - A162 <i>Tringa totanus</i>; Common redshank (Non-breeding) - A169 <i>Arenaria interpres</i>; Ruddy turnstone (Non-breeding) - A191 <i>Sterna sandvicensis</i>; Sandwich tern (Breeding) - A193 <i>Sterna hirundo</i>; Common tern (Breeding) - A195 <i>Sterna albifrons</i>; Little tern (Breeding) - Waterbird assemblage
	Threats and Pressures	Threats and Pressures have been taken from the Site Improvement Plan (SIP) for the Chichester and Langstone Harbours SPA. - Public Access/Disturbance - Coastal squeeze - Fisheries: Commercial marine and estuarine - Water Pollution - Changes in species distributions - Climate change - Change to site conditions - Invasive species - Direct land take from development - Biological Resource Use - Change in land management - Inappropriate pest control - Air Pollution: impact of atmospheric nitrogen deposition - Hydrological changes - Direct impact from 3rd parties - Extraction: non-living resources
	Conservation Objectives	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - The extent and distribution of the habitats of the qualifying features - The structure and function of the habitats of the qualifying features

Site	Detail	Supporting Information
		- The supporting processes on which the habitats of the qualifying features rely - The population of each of the qualifying features, and, The distribution of the qualifying features within the site
Chichester and Langstone Harbours Ramsar	Reasons for designation	The site qualifies under Criterion 1 because of the coastal and intertidal habitats present - Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes. The site also qualifies under Criterion 5 because of an assemblage of internationally important waterfowl. - 76,480 waterfowl (5-year peak mean 1998/99-2002/2003) The site further qualifies under Criterion 6 because of species/populations occurring at levels of international importance. - Species with peak counts in spring/autumn: Ringed plover, <i>Charadrius hiaticula</i>, Europe/Northwest Africa 853 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9- 2002/3) Black-tailed godwit, <i>Limosa limosa islandica</i>, Iceland/W Europe 906 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9- 2002/3) Common redshank, <i>Tringa totanus totanus</i>, 2577 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3) - Species with peak counts in winter: Dark-bellied brent goose, <i>Branta bernicla bernicla</i>, 12987 individuals, representing an average of 6% of the population (5 year peak mean 1998/9- 2002/3) Common shelduck, <i>Tadorna tadorna</i>, NW Europe 1468 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3) Grey plover, <i>Pluvialis squatarola</i>, E Atlantic/W Africa -wintering 3043 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3) Dunlin, <i>Calidris alpina alpina</i>, W Siberia/W Europe 33436 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9-2002/3)

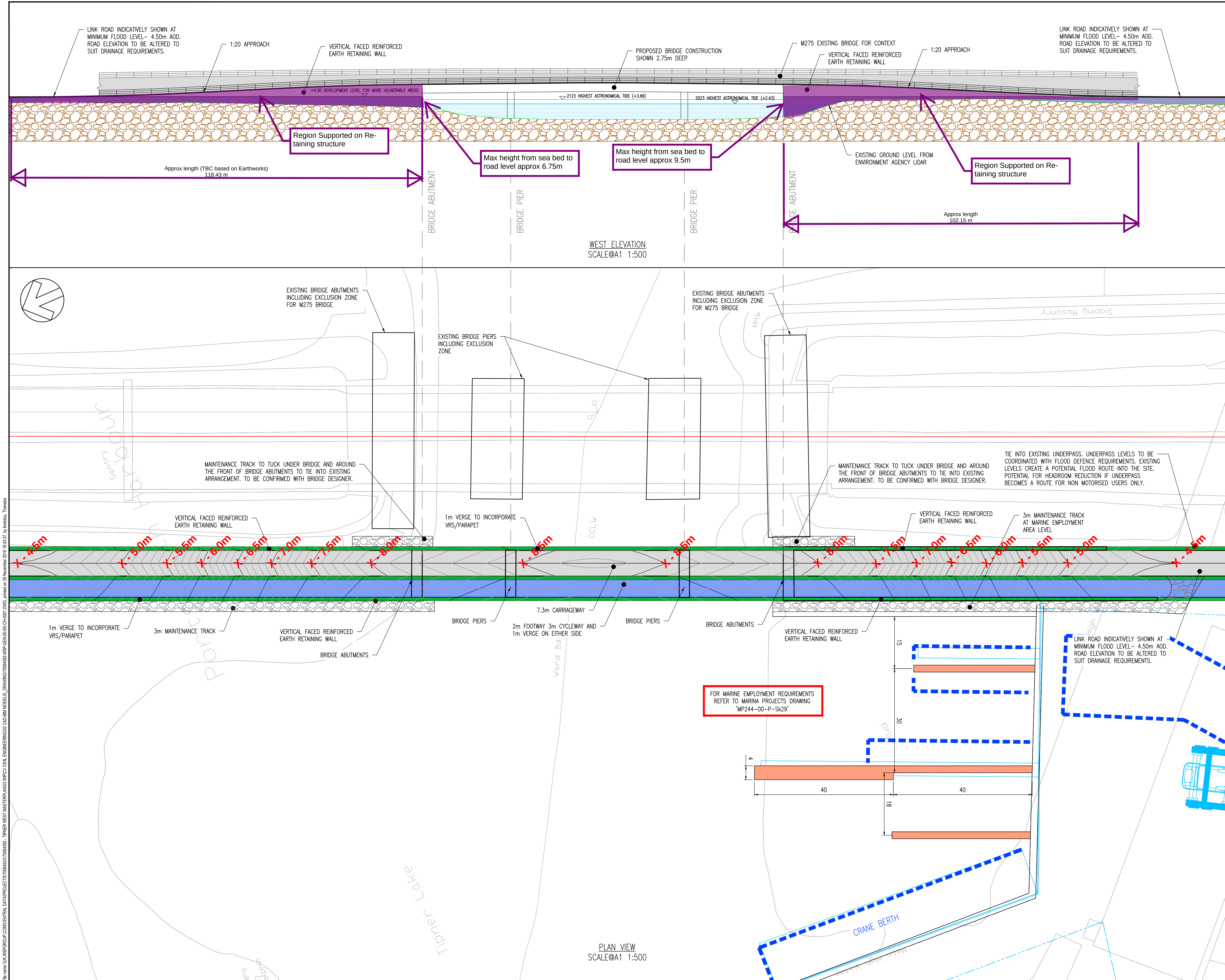
Site	Detail	Supporting Information
		- Species regularly supported during the breeding season: Little tern, <i>Sterna albifrons albifrons</i>, W Europe 130 apparently occupied nests, representing an average of 1.1% of the breeding population (Seabird 2000 Census)
	Threats and Pressures	Erosion, eutrophication and pollution from domestic sewage.
	Conservation Objectives	None listed in designation documentation but as the site coincides with Chichester and Langstone Harbours SPA and as such conservation objectives applicable to these sites would extend to Chichester and Langstone Harbours Ramsar.
Solent and Southampton Water SPA	Reasons for designation	The Solent and Southampton Water SPA site comprises a series of estuaries and adjacent coastal habitats important for breeding gulls and terns and wintering waterfowl. It qualifies under Articles 4.1 and 4.2 of the Birds Directive by supporting internationally and nationally important wintering populations of the following bird species, which form the sites qualifying features: - A046a <i>Branta bernicla bernicla</i>; Dark-bellied brent goose (Non-breeding) - A052 <i>Anas crecca</i>; Eurasian teal (Non-breeding) - A137 <i>Charadrius hiaticula</i>; Ringed plover (Non-breeding) - A156 <i>Limosa limosa islandica</i>; Black-tailed godwit (Non-breeding) - A176 <i>Larus melanocephalus</i>; Mediterranean gull (Breeding) - A191 <i>Sterna sandvicensis</i>; Sandwich tern (Breeding) - A192 <i>Sterna dougallii</i>; Roseate tern (Breeding) - A193 <i>Sterna hirundo</i>; Common tern (Breeding) - A195 <i>Sterna albifrons</i>; Little tern (Breeding)
	Threats and Pressures	Threats and Pressures have been taken from the Site Improvement Plan (SIP) for the Solent and Southampton Water SPA. - Public Access/Disturbance - Coastal squeeze - Fisheries: Commercial marine and estuarine - Water Pollution - Changes in species distributions - Climate change - Change to site conditions - Invasive species - Direct land take from development

Site	Detail	Supporting Information
		- Biological Resource Use - Change in land management - Inappropriate pest control - Air Pollution: impact of atmospheric nitrogen deposition - Hydrological changes - Direct impact from 3rd parties - Extraction: non-living resources
	Conservation Objectives	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - The extent and distribution of the habitats of the qualifying features - The structure and function of the habitats of the qualifying features - The supporting processes on which the habitats of the qualifying features rely - The population of each of the qualifying features, and, - The distribution of the qualifying features within the site
Solent and Southampton Water Ramsar	Reasons for designation	The site qualifies under Criterion 1 because of the coastal and intertidal habitats present - The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs. The site also qualifies under Criterion 2 because of an assemblage of important rare plants and invertebrates - At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. The site further qualifies under Criterion 6 because of species/populations occurring at levels of international importance. - Species with peak counts in spring/autumn: Ringed plover, <i>Charadrius hiaticula</i>, Europe/Northwest Africa 397 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9- 2002/3)

Site	Detail	Supporting Information
		- Species with peak counts in winter: Dark-bellied brent goose, <i>Branta bernicla bernicla</i>, 6456 individuals, representing an average of 3% of the population (5 year peak mean 1998/9- 2002/3) Eurasian teal, <i>Anas crecca</i>, NW Europe 5514 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/9- 2002/3) Black-tailed godwit, <i>Limosa limosa islandica</i>, Iceland/W Europe 1240 individuals, representing an average of 3.5% of the population (5 year peak mean 1998/9-2002/3)
	Threats and Pressures	Erosion
	Conservation Objectives	None listed in designation documentation but as the site coincides with Solent and Southampton SPA and as such conservation objectives applicable to these sites would extend to Solent and Southampton Ramsar.

Appendix 2

Conceptual design of a Beam Bridge



DO NOT SCALE

NOTES:

1. THIS IS A CONCEPT DRAWING TO SHOW THE SPATIAL RELATIONSHIP BETWEEN DESIGN ELEMENTS.

2. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.

3. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.

4. DESIGN SPEED BASED ON MANUAL FOR STREETS & MAX 30MPH VEHICLE SPEED LIMIT.

5. BRIDGE COMPONENTS ARE SHOWN SCHEMATICALLY ONLY.

6. BRIDGE FOUNDATIONS SCHEME TO BE DESIGNED. BASED ON ADJACENT BRIDGE IT IS ASSUMED A PILED FOUNDATION WILL BE REQUIRED.

P01	20/11/19	JT	FIRST ISSUE	CW	AA
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

Mountbatten House, Basing View, Basingstoke, RG21 4HJ, UK

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wsp.com

CLIENT: PCC

ARCHITECT:

SITE/PROJECT: TIPNER WEST MASTERPLAN

TITLE: HORSEA BRIDGE HIGHWAYS ALIGNMENT

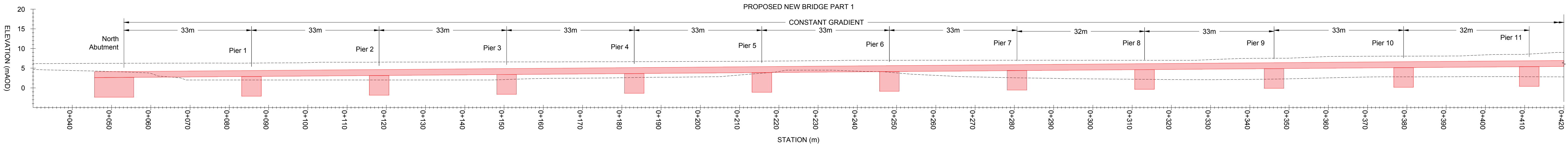
SCALE @ A1: 1:500	CHECKED: CW	APPROVED: AA
PROJECT NO: 70064592	DESIGNED: CW	DRAWN: JT
DRAWING NO: 70064592-WSP-GEN-00-SK-CH-0001		REV: P01

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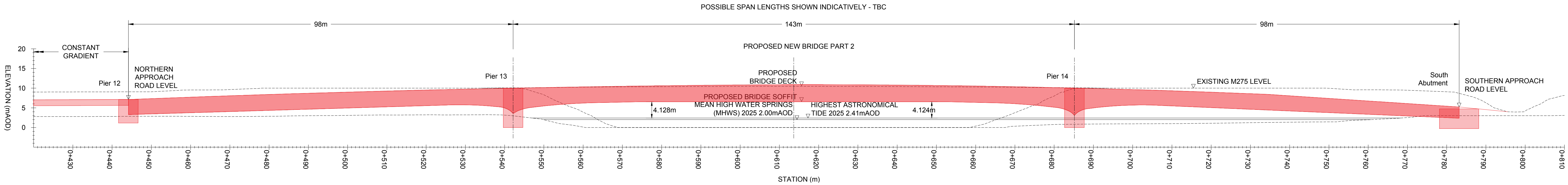
Appendix 3

Conceptual design of a PTCB Girder Bridge

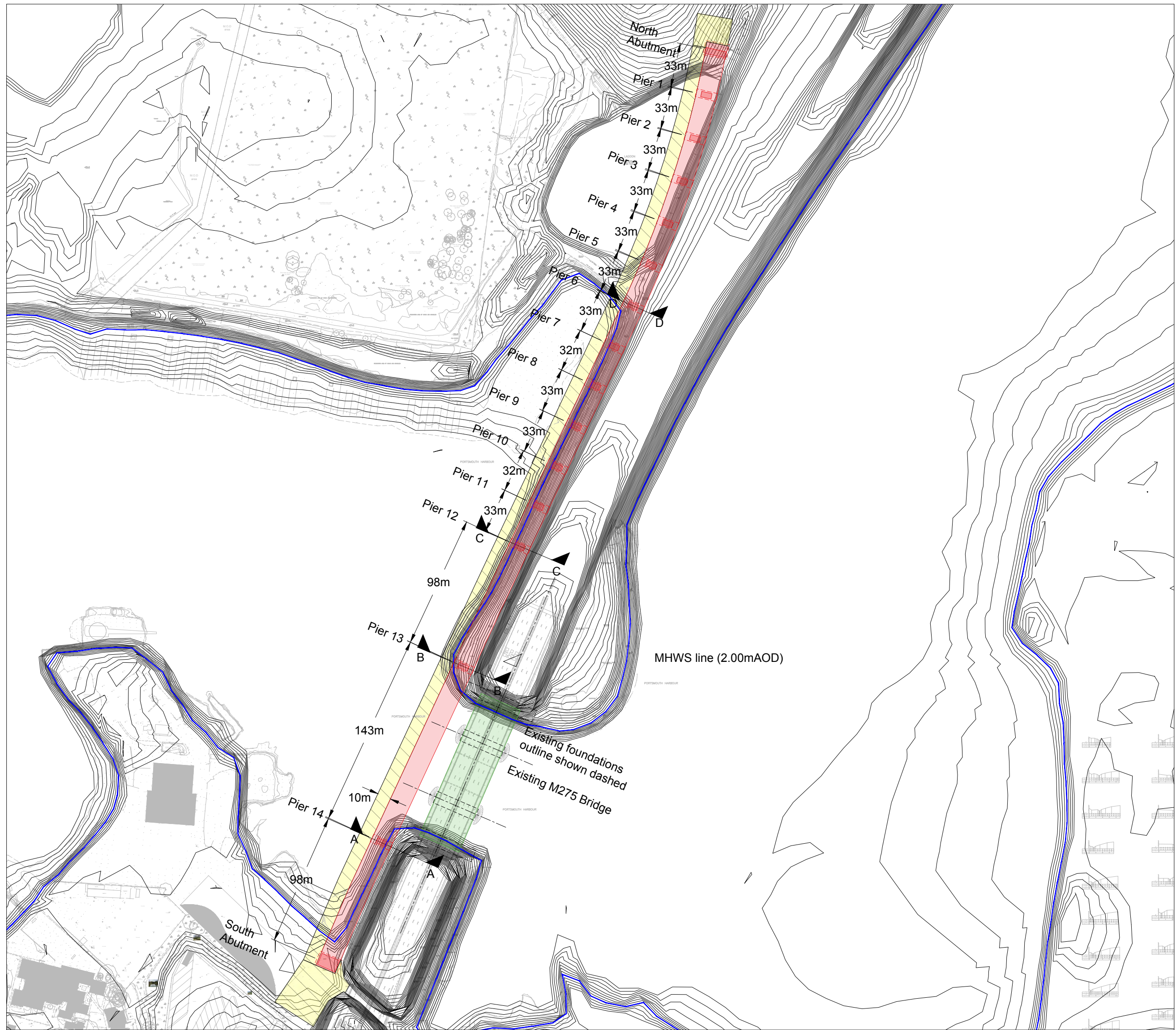
DO NOT SCALE



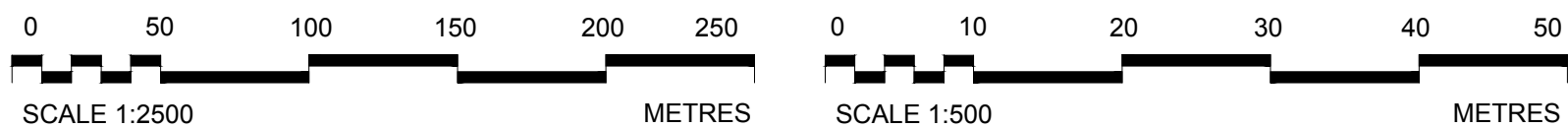
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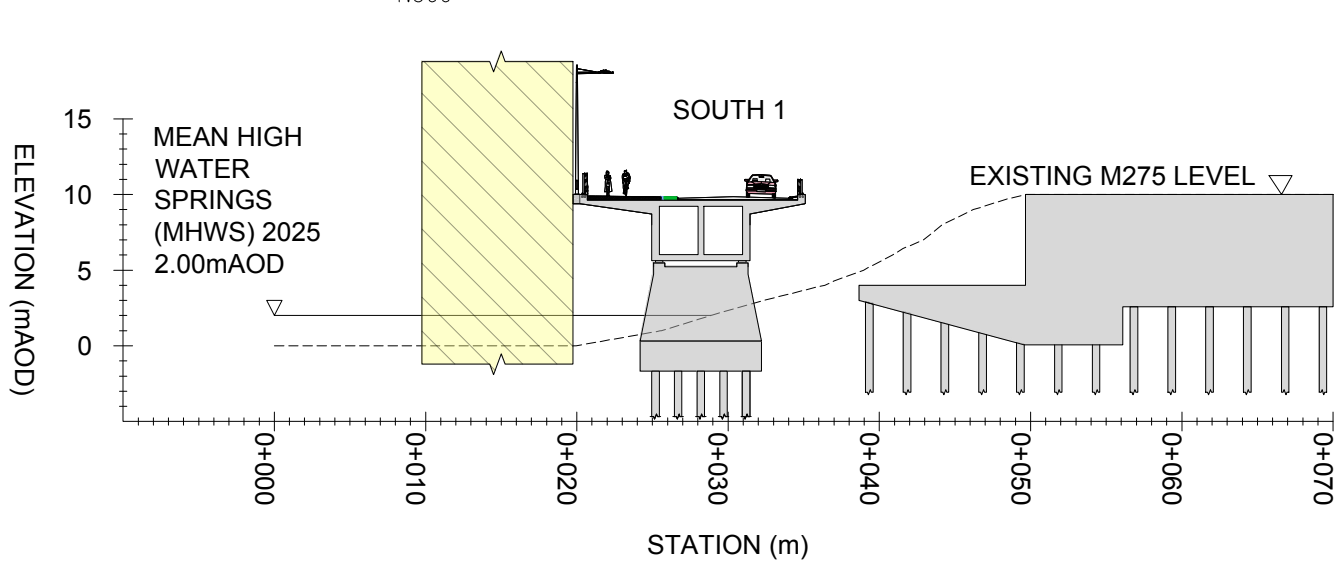
WEST ELEVATION PART 2
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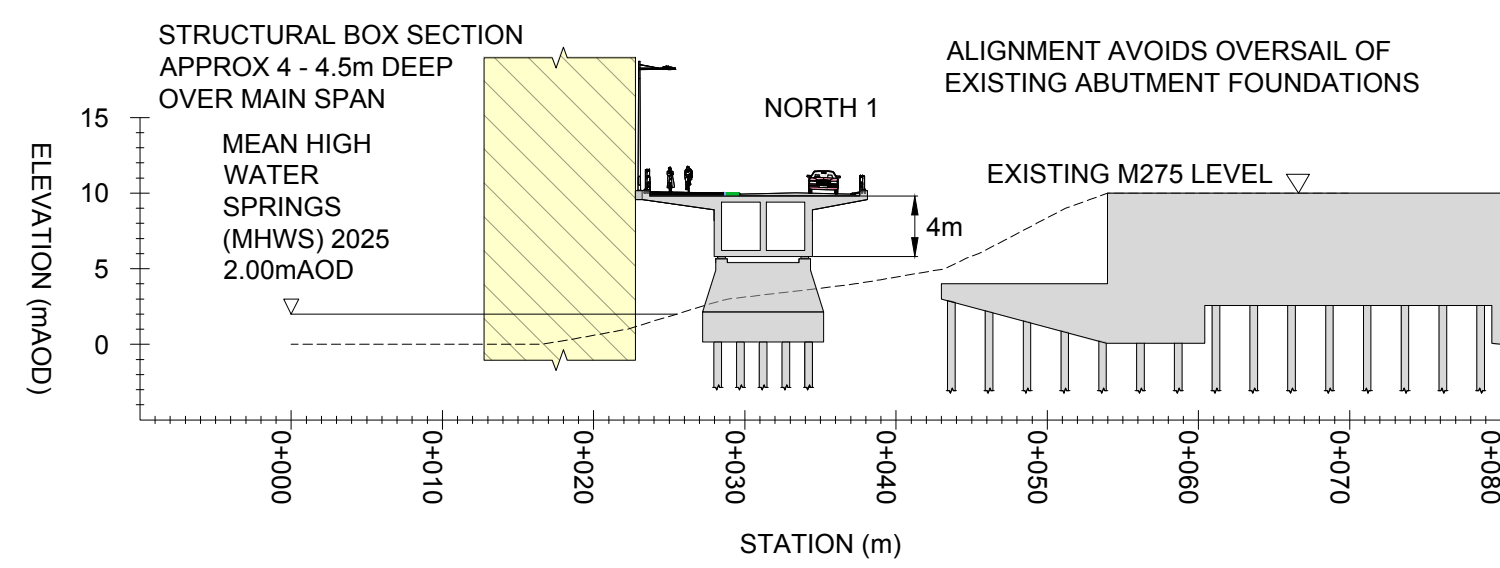
PLAN
1:2500



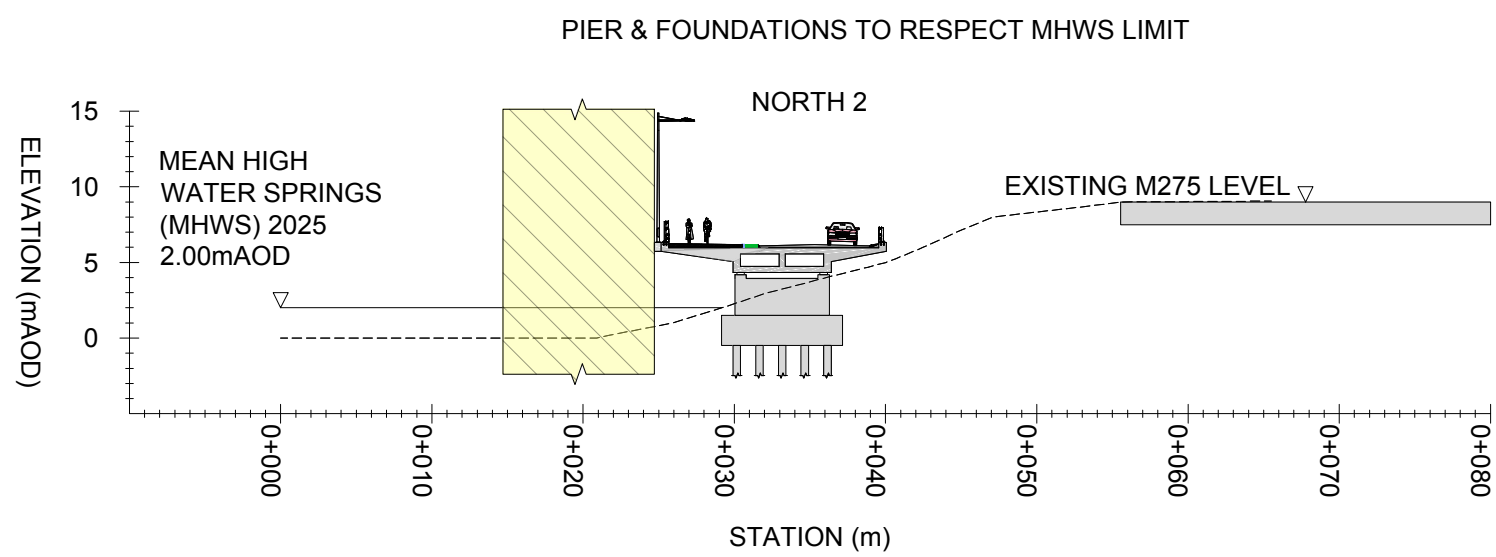
- KEY
- PROPOSED
 - EXISTING GROUND LEVEL
 - EXISTING M275 PROFILE
 - WATER LEVEL
 - LAND SAFEGUARDED FOR BRIDGE DELIVERY



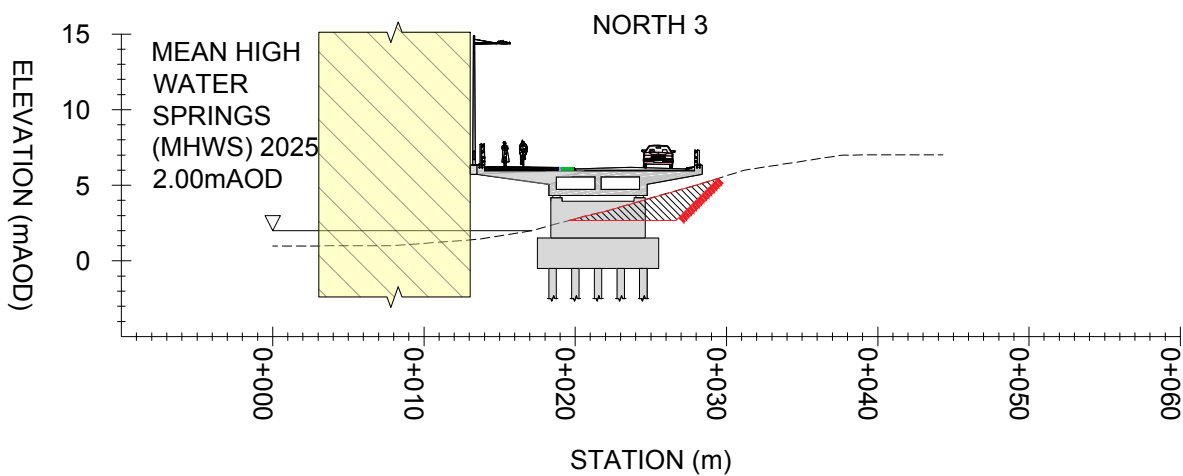
SECTION A-A
1:500



SECTION B-B
1:500



SECTION C-C
1:500



SECTION D-D
1:500

P04	26/08/2025	TR	ALIGNMENT UPDATED	DY	GS
P03	19/08/2025	TR	SPAN LENGTHS UPDATED	DY	GS
P02	13/08/2025	TR	MHWS LEVEL ADDED	DY	GS
P01	01/08/2025	TR	PROPOSED BRIDGE	DY	GS
REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:	DRAFT
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CLIENT:	PCC
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ARCHITECT:	
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PROJECT:

TIPNER REGENERATION PROJECT
STAGE 2

TITLE:

PROPOSED HORSEA ISLAND BRIDGE
LONG SECTION AND CROSS SECTIONS
CONCRETE BOX GIRDER VIADUCT

SCALE @ A1:	AS SHOWN	CHECKED:	DY	APPROVED:	GES
CAD FILE:	70098718-BR-SK-004	DESIGN-DRAWN:	TR-CC	DATE:	AUGUST 2025

PROJECT No:	70098718	DRAWING No:	70098718-BR-SK-004	REV:	P04
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