The Lake Lothing (Lowestoft) Third Crossing Order 201[*]

Impact of the Scheme on the Port of Lowestoft
Document SCC/LLTC/EX/59

Planning Act 2008

Infrastructure Planning

The Infrastructure Planning (Examination Procedure) Rules 2010

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Executive Summary

E.S.1. The purpose of this report is to bring together the Applicant's assessment of the impact of the Scheme on the Port of Lowestoft contained within its application documentation for the Scheme, alongside information that has been made available to the Applicant post-submission by Associated British Ports (ABP) and others, and in doing so to respond to a number of issues raised by ABP in its relevant and written representations on the Scheme.

E.S.2. It considers the effect of the Scheme in the context of the Port's present situation (alongside potential realistic future growth) and considers whether a serious detriment is caused to it, as is suggested by ABP.

E.S.3. Considering the effect of peak hour restrictions on Scheme bridge lifts in the AM and PM peak the consequence of the Scheme, based on current levels of activity, is a commercial vessel having to adjust a transit time on average every 44 weekdays. The effect of these restrictions on Scheme bridge lifts based on future levels of port activity is a commercial vessel having to adjust a transit time on average every 3 weekdays. This assessment assumes that vessels do not manage their movements to take account of the draft Scheme of Operation, though evidence from the operation of the A47 Bascule Bridge suggests this would be the case. There is an inseparable relationship between the level of vessel activity in the Inner Harbour and the frequency with which, currently, the A47 Bascule Bridge, and in the future, both bridges will need to lift. Consequently, growth in port activity in both cases needs to be considered alongside the associated traffic implications with and without the Scheme. This is discussed further in the accompanying note on the *Justification and Traffic Effects of the draft Scheme of Operation*.

Comment [MS1]: Are current levels of activity derived from the Applicant's vessel survey?. If so, these are not current as they do not, for example, reflect the very significant new business wins at the Port e.g. Petersons. This statement is therefore inaccurate as drafted.

E.S.4. The Applicant maintains that the length of quay which is no longer usable by ABP is 62m, and it is against this figure that the extent of detriment to the Port should be considered. It believes that ABP's suggestion that the entirety of berths No.4E, No.3 and No.2 totalling 165m should be considered a direct loss is not a reasonable assessment of the impacts of the Scheme. The 103m of additional quay that ABP considers a direct loss will remain usable for port operations. Berth No.4E will have reduced functionality insofar as it can no longer accommodate the full range of vessels for which it was designed, but it can accommodate the vast majority of vessels that frequent the Port, and critically it is large enough for CTVs, which ABP anticipates being increasingly common in the future. As noted above Berth No.2 is unaffected by the Scheme as such its functionality is retained.

Comment [MS2]: For the record ABP disagrees with this assertion. We will be submitted vessel mooring scenarios for this part of the Port that will demonstrate this to be not the case.

E.S.5. The Applicant has undertaken an initial assessment of risks, using a method in accordance with the Port Marine Safety Code, in consultation with a Navigation Working Group set up to contribute to the process. The inclusion of mitigation measures identified within the outcomes of this pNRA within the Scheme are secured through the DCO. An assessment of the effects of bridge failure has been undertaken using the method for the pNRA, this has determined that the risk level

for vessels would be classed as Low and can therefore be considered as low as reasonably practicable (ALARP).

Comment [MS3]: For the record, ABP has been advised that the pNRA is deficient. Further details will be provided in due course.

E.S.6. The Applicant recognises that there are potential implications for the Port Security Plan as a consequence of the Scheme, and thus potential implications for berthing certain classes of vessel on parts of berth immediately adjacent to the Scheme. The Applicant considers the physical extent of the fenders (which the Applicant has already assessed delineates the permanent direct loss of quay) mitigates the risk, though remains receptive to other security measures that would complement this in addition to CCTV. Notwithstanding the above, given the likely frequency with which the designation of such restricted areas is likely to occur and, as ABP notes, a significant amount of alternative locations to site such restricted areas, the Applicant considers the impact on port security cannot be considered significant.

E.S.7. The Applicant recognises the Scheme will introduce a head room restriction along Commercial Road, the minimum clearance will be no less than 5.3m, and that this would restrict the ready movement of harbour mobile cranes. It is understood that ABP does not currently utilise any such cranes west of the Scheme and it is unlikely such cranes would be required in association with the proposed CTV facility to the west of the Scheme. This matter remains under discussion with ABP.

E.S.8. The Applicant considers that the DCO provisions which interact with ABP's statutory undertaking are appropriate and ensure that ABP retains sufficient control of harbour operations to ensure it can carry out its statutory duties.

E.S.9. The Applicant disagrees with the wide and unprecedented scope of indemnity proposed by ABP. Whilst it has put forward small changes to reflect the asset protection role of protective provisions, the Applicant considers that the indemnity in the DCO, taken alongside ABP's remedies in civil law and the Compensation Code, is appropriate and sufficient.

E.S.10. The Applicant does not deny that the Scheme will bring change to the Port of Lowestoft, but this is a different question as to whether it causes a serious detriment. Through its design and proposals for operation, having regard to the current and potential future use of the Port, this paper has shown that no such serious detriment is caused; and that therefore the need for large scale mitigation interventions as proposed by ABP does not arise.

1 Introduction

1.1 Purpose of this report

1.1.1 The purpose of this report is to bring together the Applicant's assessment of the impact of the Scheme on the Port of Lowestoft contained within its application documentation for the Scheme, alongside information that has been made available to the Applicant post-submission by Associated British Ports (ABP) and others, and in doing so to respond to a number of issues raised by ABP in its relevant and written representations on the Scheme, demonstrating that the conclusions of the ES, Statement of Reasons ('SoR') and Case for the Scheme in respect of the effects on the Port and the level of detriment to the Port's statutory undertaking, are robust.

1.1.2 The principal issues of discussion between the parties, as reflected in the Statement of Common Ground and in ABP's Written Representation, have been used to inform the structure of this report:

- Scheme of Operation – in particular restrictions on openings in peak traffic hours;
- Impact on berthing – direct and indirect impact on berthing;
- Impact on navigation – including the impact on and assessment of navigation risk, necessity for an 'emergency berth' and the adequacy of vessel simulation undertaken to date;
- Impact on port security – the compatibility of the Scheme with Port security measures;
- Other impacts; and
- Development Consent Order, including indemnity

1.1.3 There is inevitably a degree of overlap between these points so cross referencing is used to avoid repetition wherever possible. The report considers both the current level of activity in the port, and a potential greater level of activity in the future.

1.1.4 The report concludes with a discussion on the necessity and nature of mitigation measures.

2 Serious detriment

2.1.1 ABP has, in parts 2, 8, 9 and 10 of its Written Representation, explained that it is concerned that the Scheme will cause a 'serious detriment' to the carrying on of its statutory undertaking as a result of the land take proposals for the Scheme, its operation and the potential inability for ABP to meet the various requirements placed on it by statute.

2.1.2 The Applicant does not disagree with the statutory provisions which are referenced by ABP.

2.1.3 The Applicant notes the other DCO decisions referenced by ABP, but considers that, as can be seen when the recommendation reports of those decisions are considered in detail, the question of the level of detriment that can be considered 'serious' must turn its own particular facts, having regard to the nature and circumstances of the affected statutory undertaking, and the nature and extent of the particular effects of the scheme in question on that undertaking[1].

2.1.4 The Applicant agrees with ABP that there is little or no prospect of replacement land being made available for the purposes of section 127(3) and that the Applicant has not sought to provide any as part of the Scheme (given the conclusions of the Statement of Reasons and the Environmental Statement).

2.1.5 It also agrees with ABP's contention that serious detriment should not be considered purely in the light of the value to the undertaking of the land taken, but that attention should also be paid to the functional effect that is caused by compulsory acquisition being taken of that land – noting that the Scheme proposals include acquisition of airspace over the Port to build the new bridge.

2.1.6 It also agrees that consideration of this issue must be both based on current Port activities, but also its potential for the future; although it is considered that this future must be proven to be at least reasonably likely (for the Scheme's impacts to therefore be considered in the context of whether it has the potential to constitute 'serious' detriment).

2.1.7 This has all been recognised in the Applicant's Statement of Reasons (APP-007), which considered these issues and concluded that no serious detriment is caused by the Scheme.

2.1.8 The Statement of Reasons sets out the Applicant's understanding of what ABP's 'statutory undertaking' is (by reference mainly to the Transport Act 1981); and there is nothing in ABP's Written Representation which suggests to the Examining Authority that this is incorrect.

[1] This is also explained in paragraph 6.3.6 of the Statement of Reasons (APP-007).

2.1.9 This 'statutory undertaking' is carried out with the land that is held by ABP for the purposes of this undertaking - i.e. the existing harbour limits as shown on the Harbour Limits Plan (APP-051.7).

2.1.10 The question that this paper seeks to answer is therefore whether the Scheme proposals would seriously affect ABP's ability to carry out the powers given to it under the Transport Act 1981, both now and in the future, within the limits of the current port.

2.1.11 These limits include the Inner Harbour, Outer Harbour, and, importantly, the existing Bascule Bridge.

2.1.12 As such, the impacts of the Scheme must be considered in comparison to the practical ability for ABP to carry out its statutory undertaking at the present time – i.e. as it is constrained by the existing Bascule Bridge, and not on the basis that such a restraint does not exist. The 'detriment' caused must therefore be judged in that context.

2.1.13 The same test also applies to the consideration of ABP's duties under the various statutes and policies set out in part 2 of ABP's Written Representation – i.e. does the creation of the new bridge change the existing situation so much that ABP would be unable to comply with its statutory duties and would such failure cause a serious detriment to its undertaking.

2.1.14 In considering this latter point, it is the Applicant's position that it is not enough for ABP to say that because they will have to change the way their duties under legislation are managed, a detriment is caused. As ABP themselves set out in their representations, ports are subject to a constant level of development over time, and as such compliance with those duties need to adapt to that development (for example, new berthing) – the same would apply to the development proposed by the Scheme.

Comment [MS4]: This is misleading in the sense that ABP acknowledges that existing infrastructure is subject to adaptation – the Applicant is proposing the reduce the provision of infrastructure at the Port, which is a very different matter.

2.1.15 As such, ABP's representations should be considered to the extent that they demonstrate that the Scheme above and beyond the fact that it will simply exist, and the provisions of the DCO, would impede its statutory duties thus causing a tangible potential detriment sufficient to constitute 'serious detriment'[2]. This is particularly dealt with in chapters 9 and 11 of this paper.

2.1.16 Furthermore, the constraints and practical reality of the port must come into play in considering this aspect - for example ABP's open port duty under section 33 of the Harbours, Docks and Piers Clauses Act 1847 already needs to be managed in the

[2] In particular the Applicant notes that statutes such as the Health and Safety at Work Act 1971 and the Corporate Manslaughter and Corporate Homicide Act 2007 take account of how management of the company involved (in this case the Port) has considered the situation as it exists at the time of the problem concerned. The Port would need to undertake its duties with the bridge in mind once it is constructed.

context of the existing Bascule Bridge; and would continue to be managed post the Scheme's existence.

2.1.17 The following chapters of this paper therefore consider the effect of the Scheme in the context of its present situation (alongside potential realistic future growth) and consider whether a serious detriment is caused to it.

3 Port of Lowestoft

3.1 Background

3.1.1 Lake Lothing was, historically, an inland lake which connected, via Oulton Broad, to the River Waveney by means of a channel, Oulton Dyke. These watercourses were all navigable rivers.

3.1.2 The Norwich & Lowestoft Navigation Act 1827 empowered the Proprietors of the Navigation to install a lock (now Mutford Lock) between Oulton Broad and Lake Lothing and also to make and maintain an "entrance cut from the said lake called Lake Lothing unto and through the seashore into the sea…" The case law suggests that it was these works which led to the creation of "the port called Lowestoft Harbour".

3.1.3 The extent of Lowestoft harbour, which now falls under the control of ABP as harbour authority, is identified in general terms in the list of works specified at paragraph 8 of the Schedule to the Harbour Directions (Designation of Harbour Authorities) (No. 2) Order 2015 (SI 2015/1656)[3]. The boundary of the operational Port of Lowestoft is shown on Figure 15.1 of the Environmental Statement (document reference APP-154) and the Harbour Limits Plan (document reference APP-051.7) whereas the limit of the SHA is the Mean High Spring Tide (MHST) level.

3.1.4 According to ABP's website, the port handles around 100,000 tonnes each year and has facilities to support the handling of general cargo, dry bulks and the offshore industry in particular. ABP reports that as of August 2018 the Port supports 523 direct, indirect and induced full time equivalent jobs at the local level with a GVA impact of between £30.9m and £37.3m to the local economy.

3.1.5 The Port extends to some 97 acres[4] and includes approximately 3,500m of dock, jetty or quay. The Port is dissected by the A47 Bascule Bridge, marking the division between the Outer and Inner harbours. It acts as a physical and operational constraint to vessel movement within the Port.

[3] http://www.legislation.gov.uk/uksi/2015/1656/pdfs/uksi_20151656_en.pdf

[4] http://www.abports.co.uk/Our_Locations/Short_Sea_Ports/Lowestoft

Table 1 - Port of Lowestoft key statistics & berthing information

Dock, Quay or Jetty	Quay length/m	Normal acceptance dimensions of vessels/m			
		Length	Beam	Draught	MHWS MHWN
Outer Harbour – Docks	1,400	125	35	5.5	5.2
Entrance Channel & Inner Harbour	2,100	125	22	6.0	5.7

3.2 Port Activity – current

Vessel Survey

3.2.1 The Applicant undertook a vessel survey for an initial period from the 13 July 2017 to the 3 October 2017 and for a second period from the 2 January 2018 to the 13 April 2018. A third period was monitored from 24 August 2018 to 29 October 2018. The results of the latter survey have been included in an updated Vessel Survey Report, provided to Deadline 3 (Document reference REP3-060). There is a total of 175 business days (i.e. excluding weekends and bank holidays) in this period.

3.2.2 As is explained in the Vessel Survey Report (Appendix B of the Preliminary Navigation Risk Assessment (document reference APP-208)), the objectives of the vessel survey were to establish;

- The typical opening frequency of the existing bascule bridge
- The range of numbers of openings over a 24-hour period
- The size and distribution of vessels navigating within the Port
- The ratio of commercial to recreational vessels
- From this information, derive an estimated frequency of openings for the Scheme bridge.

3.2.3 The above information, supplemented by site visits, has been used to describe an overall level of activity in the Port, and thus provide an assessment of the impact of the Scheme on the Port (as set out in the Environmental Statement, particularly Chapter 15).

3.2.4 In ABP's representation they state that over the 12 months to 30 November 2018 they calculated 1,806 commercial vessel movements passed the location of the scheme, this is lower than the number derived from the vessel survey during the same period, which recorded 1,243 commercial movements over 152 days equating to over 2,900 for the full year. It is also lower than the initial 2017 survey and therefore the movement levels assessed in the Environmental Statement.

3.2.5 ABP's representations should therefore be seen in the context that their estimation of movements potentially affected by the Scheme, upon which they base their concerns more generally, are less than the movements considered in the Applicant's assessment of the impacts.

Variability in vessel movements

3.2.6 However, it is important to note that vessel movements are variable, not only within the year, but potentially over a period of years as a consequence of both local and wider economic/market/structural factors.

3.2.7 In terms of intra-annual variability, comparing the three survey windows undertaken by the Applicant, there are some stark differences in these periods alone:

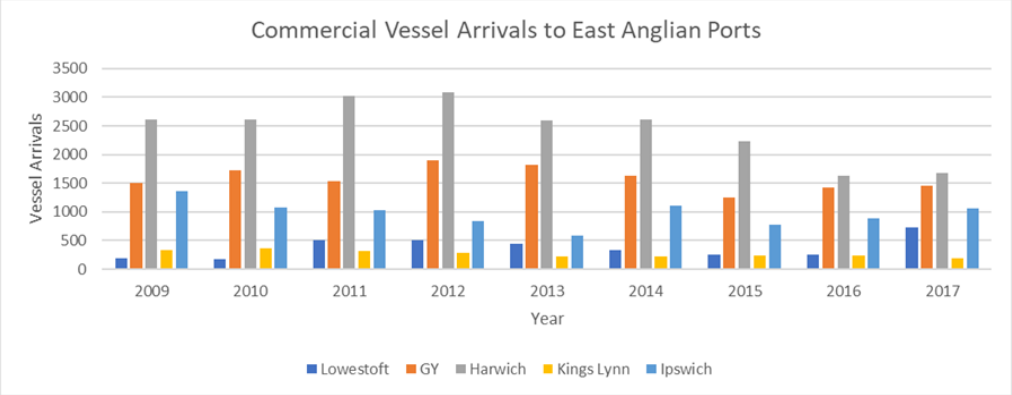
Parameter: Figures stated as average (maximum)	Survey 1 Summer (Jul-Sept) 2017	Survey 2 Spring (Jan-Mar) 2018	Survey 3 Autumn (Aug-Oct) 2018
A47 BB openings	15.5 (23)	9.5 (18)	7.6 (14)
Commercial vessels (including CTVs)	18.8 (34)	12.1 (25)	6.1 (16)
CTVs only	11.8 (17)	7.7 (18)	2.6 (7)
Recreational	11.7 (43)	0.4 (3)	5.9 (23)
Total vessel movements	30.5 (62)	12.5 (27)	12.0 (33)

3.2.8 The variation observed in recreational vessels is as would be expected, with a considerable difference between summer and winter months. Reductions in Crew Transfer Vessels (CTV) movements between summer and winter would also be expected as off-shore weather conditions are typically worse during winter months and therefore less activity is undertaken. The reduction in CTV movements during the 3rd survey is a result of operations transferring away from the Inner Harbour.

3.2.9 As an example of inter-annual variability, data from the Department for Transport Port Freight Annual Statistics[5] illustrates changes in commercial vessel arrivals across five East Anglian ports. Vessel arrivals are shown to be declining from 2011 to 2016 to Lowestoft, before increasing in 2017.

[5] https://www.gov.uk/government/statistics/port-freight-statistics-2017-final-figures

Figure 1 - Vessel arrivals to east coast ports



3.2.10 The data produced above does not differentiate between vessels using the Inner and Outer Harbour and only covers vessels above a certain size, therefore it is presented as an indication of the longer-term variability in vessel movements and to provide some comparison between Lowestoft and other ports in the East Anglia region.

Berth occupancy

3.2.11 The Applicant recognises that port activity is not just a measure of vessel transits, but also of berth occupancy. While the Applicant has been able to observe to some extent berth occupancy to assist its judgment in reaching conclusions on the significance of effects in the Environmental Statement, it has consistently sought berth occupancy information from ABP to support its assessments and this has not yet been provided. The Applicant notes ABP's response to the Examining Authority's question 3.4(ii) in this regard.

Comment [MS5]: Now provided – see Berth Utilisation Report from ABPmer

3.2.12 In the absence of data from ABP, the Applicant has made an assumption based on the observations from the vessel survey (including on vessel length and available berthing space) and data obtained via AIS (Automatic Identification System) and sight of North Quays 1 to 5 that average berth occupancy within the Inner Harbour is around 35% with peak utilisation around 80%. These figures have been derived from a summation of the lengths of vessels observed entering the Inner Harbour less the lengths of vessels leaving compared to the overall length of berths available within the Inner Harbour.

3.2.13 It should be reiterated that as this assumption is based on observed vessel movements, vessels that did not move during the survey periods would not have been considered within these statistics.

Summary

3.2.14 In its application, the Applicant has robustly assessed the current level of activity in the Port based on the availability of information at the time of the application and

does not consider any additional information has become available since to cause that to be reviewed.

Comment [MS6]: The ABPmer Berth Utilisation Report has become available.

3.2.15 A further review of additional vessel survey information indicates the data collected from the first two vessel surveys was representative, if not indicative of a slightly busier period for the Port.

3.2.16 With the exception of a slight uplift in vessel arrivals to the Port in 2017, there has been a downward trend in commercial vessel arrivals at the Port of Lowestoft over the preceding 6 years, according to Department for Transport statistics.

Comment [MS7]: DfT statistics do not capture vessels < 100GT and therefore omit most CTV movements – hence this statement is wholly misleading.

3.3 Port activity – future

Introduction

3.3.1 As set out in the Case for the Scheme (document reference APP-091), it is the Applicant's view that the Scheme is not an obstacle to the development of the Port of Lowestoft, but in fact a necessary pre-requisite.

3.3.2 Paragraph E.S.5 of the Case for the Scheme reads:

> Lowestoft has a growing role in the energy sector as the Port of Lowestoft is to be used as an operations, management and construction base for offshore windfarm projects. These developments, taken alongside planned future housing growth, are likely to lead to significant future traffic growth and the appropriate infrastructure needs to be in place to support this.

3.3.3 It is for this reason that the Direction given by the Secretary of State under section 35 of the Planning Act[6] recognises the Scheme's role in supporting the 'delivery of the Port of Lowestoft's role in being the hub for the offshore wind farms that are part of the East Anglia Array'.

3.3.4 Similarly, this complementarity is reflected in the emerging Waveney District Council Local Plan (which identifies the Scheme as 'Essential infrastructure') in its Vision[7]:

3.3.5 Lowestoft, along with nearby Great Yarmouth will be important centres in the construction, operation and maintenance of offshore renewable projects. The Port of Lowestoft will be an offshore renewables centre of excellence supporting the employment of a significant number of people.

3.3.6 The town will benefit from improved infrastructure, including a third crossing over Lake Lothing and strategic flood risk protection, both of which are essential to allow the town to continue to grow and thrive.

[6] Appendix B to the Case for the Scheme

[7] P21 http://consult.waveney.gov.uk/gf2.ti/f/983938/43714277.1/PDF/-/Waveney_Local_Plan__Incorporating_Modifications.pdf [At Main Modifications consultation stage]

3.3.7 Consequently, it should not be perceived that the future success, measured in terms of increased port activity, of the Port is inherently incompatible with the Scheme.

3.3.8 Indeed, as outlined in the Case for the Scheme (paragraph E.S.9), the Port, and its customers and supply chain, will benefit from a reduction in congestion, improved journey times and journey time reliability.

Comment [MS8]: The proposed LLTC will not benefit road access to the Port which is unaltered. This statement should be qualified to recognise that.

3.3.9 It is for this reason that the Scheme attracted such support from local businesses in a consultation undertaken to support the development of the Outline Business Case (see document reference APP-110), which concluded at p14:

> The results from this consultation give a clear and strong message in support of a new crossing. Businesses that responded to the survey, or that came along to the consultation event (or both) are able to provide clear descriptions of the problems that they face as a result of traffic congestion in the town and the many ways in which this impacts on their capacity to run businesses effectively and efficiently.

3.3.10 It is felt that a new crossing would help to reduce levels of congestion in the town and allow businesses to operate more easily and make the town more attractive for visitors, shoppers and clients of all businesses, and to potential employees and investors. Estimates for the economic impact of a new crossing demonstrate significant potential for development as a result of this project.

3.3.11 The Nautilus report (appended to ABP's Written Representation) similarly states at p7:

> The development of the Third River Crossing (TRC) is recognised as a major milestone for the continued growth of Lowestoft's economy and will have an overall positive impact on the mobility of people, goods, and services across the town,

3.3.12 And, on p16

> The third crossing over Lake Lothing, planned to be in place by 2022, is referenced as representing a key capital investment project in the town to help alleviate traffic congestion in the town and improve connectivity and helping deliver regeneration sites into the future.

3.3.13 At a more general level, in recognition of the importance of robust terrestrial/marine transport interface, the DfT's recent (2018) Study of England's Port Connectivity[8] argues "*if our ports are to continue to thrive then the national, regional and local infrastructure supporting them has to be effective and efficient*".

3.3.14 Finally, it is implicit that if the Inner Harbour were to be become busier, additional/longer lifts of the A47 Bascule Bridge would be required, which in the

[8] Referenced at section 4.5 of the Case for the Scheme

absence of the Scheme would exacerbate the existing issues and strengthen the traffic case for the Scheme. Indeed, as the Economics Report (document reference 7.3) outlines, the adjusted Benefit Cost Ratio for the Scheme increases from 4.11 to 5.69 in a high growth scenario. This is discussed further in the accompanying paper Justification and Traffic Effects of the draft Scheme of Operation (document reference SCC/LLTC/EX/60)

Evidence base

3.3.15 It is understood to be common ground with ABP that:

- the Port of Lowestoft is well positioned to benefit from the development of natural resources and the offshore energy sector in the North Sea;
- the growing offshore wind sector presents an important opportunity likely to drive investment and supply chain growth in Lowestoft;
- that other opportunities exist for the Port in addition to those presented by the off-shore energy sector, for example aggregates handling; but that
- the full extent to which the Port of Lowestoft is successful in securing contracts to support offshore energy sector is currently unknown, and that details of contractual discussions are commercially confidential.

3.3.16 The Applicant also recognises the existence of background reports which complement the above assessment, specifically:

- Nautilus Associated (2018) *An Assessment of Land Requirements to Support Offshore Energy and Engineering in Waveney* ("the Nautilus report"), commissioned by Waveney District Council as part of its Local Plan evidence base and appended to ABP's Written Representation.

3.3.17 The Applicant notes the report commissioned by ABP from Edge Economics, though it relies on assumptions in a BVG report which has not been published, or provided to the Applicant, despite several requests for this information, as such it is difficult to provide comment on the veracity of information therein currently.

Comment [MS9]: The BVG report has been published. This impact statement is therefore out of date.

3.3.18 Additional relevant contextual information which serves to highlight potential opportunities for the Port includes:

- Announcement from Crown Estate regarding Round 4 offshore wind leasing, dated 16 November 2018[9]
- Announcement from Crown Estate regarding the assessment of offshore windfarm extensions dated 4 October 2018[10]

[9] https://www.thecrownestate.co.uk/en-gb/media-and-insights/news/2018-the-crown-estate-shares-further-detail-on-plans-for-round-4-including-proposed-locations-to-be-offered-for-new-seabed-rights/

- Marketing by Network Rail of freight sidings immediately north of the Port for handling of maritime cargoes[11]

3.3.19 Currently the Outer Harbour is the operational base for Greater Gabbard and Galloper offshore windfarms as well as East Anglia ONE. Construction is currently underway for that latter facility and its associated pontoons to host its CTVs in the Outer Harbour.

Comment [MS10]: Please note Galloper O&M is actually operated from Harwich.

3.3.20 It is understood that on completion of those works, there is limited, if any, capacity in the Outer Harbour for further CTVs, without significant infrastructural investment, owing to the generally harsher marine environment of the Outer Harbour (in terms of wave action and swell) and the accessibility of/need for appropriate landside access to other areas.

Uncertainty

3.3.21 In response to the lack of capacity in the Outer Harbour and existing commitments to customers in the Inner Harbour to the east of the Scheme, the Applicant understands (as the Environmental Statement notes at paragraph 15.5.13) that ABP has particular aspirations around the creation of an 'East of England Energy Hub' based around land to the west of the Scheme, known as Shell Quay, to capitalise on these opportunities.

3.3.22 The Applicant is aware that ABP has completed the first phase of demolition works on the existing buildings to provide more development land, though is not aware that any tenants have been identified.

3.3.23 It is unclear as to whether a 'hub' in this location will be attractive to CTV operators given its distance from the sea. This location is the furthest inland quays within the Port, adding a transit time in the order of 15 minutes per movement (without the Scheme), compared to being located in the Outer Harbour. Therefore at 30 minutes per journey, with a CTV running cost of £1200 per hour[12], multiplied over the lifetime of a windfarm, there are significant financial implications for CTV operators being located this far inland.

Comment [MS11]: This is not borne out by the fact that this part of the Port has already been used as an offshore wind base. This area was used to support the construction phase of the Galloper windfarm development and also supports activity from Galloper's maintenance programmes.

For the record ABP's view is that the impact of the proposal has the real potential to "tip the scales" against further development of the Inner Harbour to the west of the proposed bridge. There is existing evidence of the use of the Inner Harbour for CTVs – in summary, it is ABP's position that the imposition of a second bridge will be the single factor most likely to put off prospective users in the future.

3.3.24 Indicative of the uncertainty about the future of the Port of Lowestoft, specifically, to benefit from the growth in the offshore sector, was the announcement from

Comment [MS12]: This is a hyperbolic statement which should be reviewed by the Applicant in light of comments below.

[10] https://www.thecrownestate.co.uk/en-gb/media-and-insights/news/2018-the-crown-estate-completes-initial-assessment-of-offshore-wind-extension-applications/

[11] https://property.networkrail.co.uk/properties/CC753122/

[12] This figure is derived from secondary analysis of data the following paper: Dalgic, Y., Lazakis, I. & Turan.O (2015). *Investigation of Optimum Crew Transfer Vessel Fleet for Offshore Wind Farm Maintenance Operations*. Wind Engineering volume 39, no. 1, pp 31–52 (Available: https://pdfs.semanticscholar.org/890d/7676c518649e89ad237a08a9d5efeff84430.pdf)

Vattenfall (by press release dated 4 October 2018[13]) that it has chosen Great Yarmouth (operated by Peel Ports) as the operational base for its Norfolk Vanguard and Norfolk Boreas projects.

3.3.25 The Applicant understands Network Rail's investment in the freight sidings to the north of, and adjacent to, the Port is speculative, insofar that there is no identified tenant at this time.

3.3.26 An additional area of uncertainty relates to the future of the CTV market, both in terms of their role in servicing windfarms, and in their size, which would evidently be relevant as to whether a Scheme bridge lift would be required, and thus whether the Scheme would impede access to land west of the Scheme during peak traffic hours. This is discussed further below.

Market analysis of Crew Transfer Vessels.

3.3.27 According to ABP, the draft BVG report identifies a range of 30 to 50 CTVs potentially being based at the Port, though in the absence of the report this figure cannot be tested. It is also not clear as to whether this figure includes those vessels already operating (or expecting to operate) from the Port, which ABP describes in its Written Representation (paragraph 14.10) as:

- East Anglia ONE (Scottish Power Renewables) - utilises 6 CTV berths in the Outer Harbour.
- Greater Gabbard (SSE) – uses 14 – 18 CTVs in the Outer Harbour
- Galloper (various partners) – used 8 – 10 CTVs in the Inner Harbour. It is anticipated, however, that further use will be made of that facility during their summer maintenance campaigns, in the region of 2 – 4 CTVs, for vessels that exceed CTV capacity at Harwich.

3.3.28 If the draft BVG report figures already include these figures, that would suggest as many as 24 CTVs would be based in the Outer Harbour, with the Inner Harbour opportunity therefore identified as being 6 to 30 CTVs.

3.3.29 The Applicant is aware that there is some market uncertainty over the ongoing role of CTVs in servicing offshore windfarms. The development of larger offshore windfarm sites, further offshore and with larger capacity turbines has changed the operational model for vessel support. Service Operational Vessels (SOVs) and helicopter support is becoming more common place, reducing the need for CTVs. Additionally, the provision of offshore accommodation units is becoming widespread. As a result, demand is stabilising, despite the increasing offshore wind capacity coming online.

[13] https://group.vattenfall.com/uk/newsroom/news-press-releases/pressreleases/stories/offshore-wind-confidence-booster-for-norfolk-as-energy-company-plans-great-yarmouth-home

Comment [MS13]: The announcement referred to is actually carefully worded. The two parties are announcing a "reservation of space" only. This should be made clear to the ExA in this impact statement as this is not necessarily the same as "choosing" GY.

Comment [MS14]: These two farms are geographically closest to Great Yarmouth, both being located to the northern end of the various East Anglian offshore fields. This can therefore hardly be considered as conclusive evidence against ABP's position (nor conclusive evidence in favour of the Applicant's position). The BVG report assessed the future use of the Port of Lowestoft based on a scenario where Lowestoft could potentially win 50% of the East Anglia Round 3 opportunity (EA3, EA 2 and EA1 North)(BVG Section 3.1). All the Round 3 developments have NSIP designation. Despite the Applicant's attempt to dismiss ABP's assertions on potential future demand by claiming that Vattenfall have signed and MOU with the Port of Great Yarmouth, development activity associated with Vattenfall's Norfolk OWF's has not be used to formulate our future demand predictions. ABP and BVG have used a deliberately conservative assessment to derive our predictions. However, it must also be appreciated that the existence of an MOU between Vattenfall and Peel Ports Great Yarmouth is not actually a guarantee that they will secure all the development and O&M business within the Port of Great Yarmouth. Additionally, the Crown Estate has called for proposals to extend existing Round 2 OWF's; several in this region are going through this process at the moment. So rather than dismissing the port's potential, as the Applicant's appraisal of future demand would seek to do, it should be considered that the future demand could indeed be greater than that predicted within the BVG report.

Comment [MS15]: Although the Inspectors viewed the on-going Network Rail works at this location, suggesting that the development is more tangible than the Applicant is making out.

Comment [MS16]: This report has been supplied. Suggest Applicant reviews its wording.

3.3.30 By way of local evidence, the Environmental Statement for Norfolk Vanguard estimates up to 440 CTV movements per year will be required to service that windfarm, i.e. 1-2 per day for an 1800MW windfarm. This application for development consent is seeking consent for offshore accommodation platforms for personnel, though also states an 'accommodation vessel' may be used instead.

3.3.31 East Anglia THREE (development consent granted August 2017) similarly sought consent for offshore accommodation. East Anglia ONE North, in its Scoping Report reaffirms:

3.3.32 There are a number of potential maintenance strategies which could be implemented for the windfarm. The windfarm could be maintained from shore using a fleet of Operation and Maintenance (O&M) vessels (e.g. crew transfer vessels, supply vessels) and / or helicopters. A number of different vessel types would be required for O&M activities. …The windfarm could also be maintained primarily from an offshore base, for example a mother ship or a fixed offshore platform (possibly shared with other infrastructure e.g. the offshore electrical platform or a standalone accommodation platform within the offshore development area) with transfer vessels or helicopters used to transfer personnel to or from wind turbines and platforms.

3.3.33 Consequently, it is clear that there is a degree of uncertainty in the extent of the role of CTVs in serving the growing offshore wind sector, the extent to which the Port of Lowestoft will have a role to play, compared to the role of its competitor ports, and the attractiveness to that sector of an 'Energy Hub' at the western end of the Port.

3.3.34 Notwithstanding the above, it is instructive to consider the possible impacts of the introduction of the Scheme to CTV movements, should such craft be located to the west of the Scheme.

3.3.35 During the vessel survey, 1,783 CTV movements were observed entering the Inner Harbour, of which 1,587 transited past the location of the Scheme, averaging 7.6 and 6.8 per day, respectively. However, the numbers show a considerable reduction in the later survey periods, dropping from a daily average over 11 during the first survey to under 3 during the third entering in to the Inner Harbour, this reduction reflects the movement of operations from the inner harbour to newly built facilities in the outer harbour, confirming the preference for operators to be located in proximity to the port entrance rather than at a remote location.

3.3.36 Different classes of CTV vessel were observed during the vessel survey. Of the 50 individual vessels recorded, 45 had an air draft of less than 11.5m and therefore would not have required a Scheme opening. Five vessels had an air draft of greater than 11.5m therefore could have required a Scheme opening. It should however also be noted that of the 214 moves associated with the larger CTVs, over 150 terminated at Town Quay (adjacent to the A47 Bascule Bridge) and therefore did not pass the Scheme location. The use of an 11.5m air draft cut off is discussed in paragraph 6.2.14

Comment [MS17]: This comment is misleading – for example, the ES for EA3 says at section 15.6.5.2 that "*During operation and maintenance there would be both service and support vessels working on the site with an estimated 52 service vessel movements and a maximum of 4,000 support vessel movements per annum. As with the construction phase this has the potential to increase congestion within port limits but should be mitigated by local management. It is noted that service and support vessels may operate from an offshore base which would reduce nearshore vessel movements.*" In other words the promoter of EA3 is, quite understandably, keeping its options open. It is also telling that at section 16.6.5.1 the promoter of EA3 states "*During the construction phase there is expected to be an increase in vessels on site (approximately 55 vessels on site associated with the project throughout and a total of 5,700 vessel movements throughout the Single Phase and a total of 7,600 vessel* ...

Comment [MS18]: Again this just demonstrates that promoters are seeking, quite understandably, to keep their options open. ABP notes that the ES for Norfolk Vanguard considers in detail the possibility of utilising the Port of Lowestoft (along with other ports) – this has included detailed traffic modelling (including a "twoport" strategy – see chapter 24 of that ES. In reality, therefore, the situation is more nuanced than the Applicant is making out.

Comment [MS19]: In light of this, does the Applicant remain of the views stated in 3.3.2 (about Lowestoft having a growing role in the energy sector as an operations, management and construction base for offshore windfarm projects). If not, then is the LLTC required? If so, then where can this sector be accommodated in the Port except to the west of the proposed bridge? (there are no other locations). In short, the Applicant is trying to "have it both ways".

Comment [MS20]: This is incorrect. There has been no migration of specific CTV operations from the Inner Harbour to the Outer Harbour.

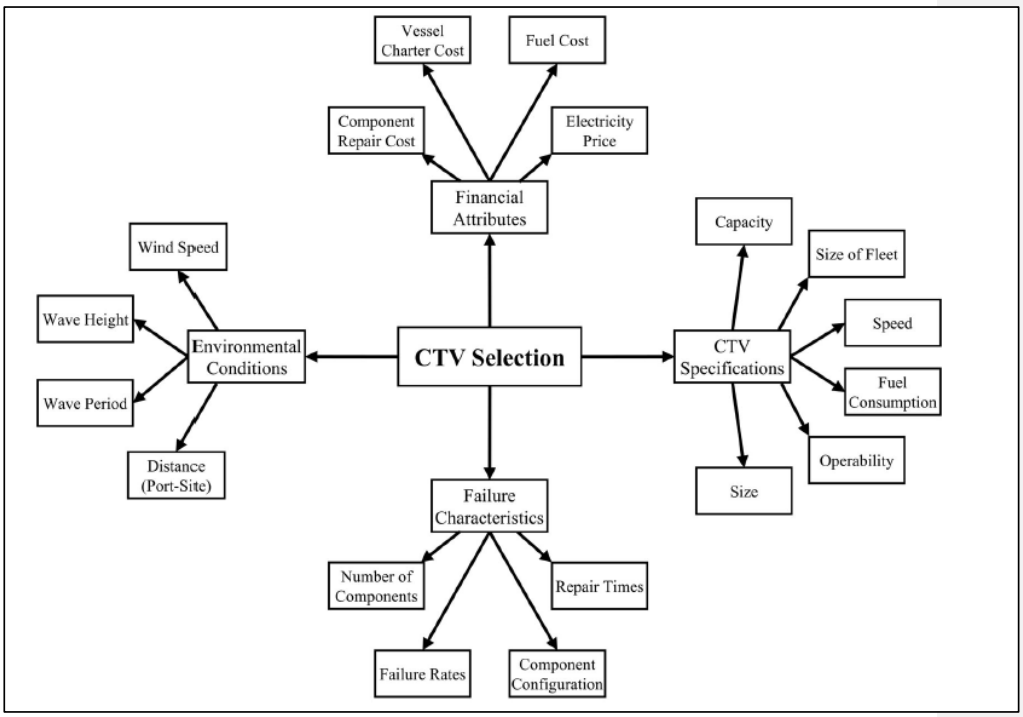
Comment [MS21]: Going forward this will no longer be an option as the new Peterson's traffic will dominate the use of Town Quay. Thus the larger CTVs referred to will have to move westwards within the Inner Harbour. This again illustrates the danger in using out-of-date vessel survey data that is not reflective of current activity levels within the Port.

3.3.37 While it is accepted that CTV vessel sizes may evolve, it is important to note the factors driving their design, in particular;

- passenger comfort (so technicians feel well before arriving on site)
- running costs – fuel and lubricants are paid for by the charterer outside of the day rate, so fuel efficient vessels are becoming increasingly important
- safety regulations – once passenger numbers exceed 12, currently, more stringent regulations apply to the build, which adds to the overall cost. While the passenger capacity of CTV's may increase as a consequence of deregulation, it does not necessarily follow that the vessel dimensions need increase to accommodate this as current vessel designs are optimised for stability during the transfer operations and are over-sized for the number of personnel carried. A general arrangement drawing the Applicant has observed for a 24-person CTV (the M/V Detecter) has an indicated air draft in the region of 11m.

3.3.38 It should also be recognised that an even larger number of attributes contribute to CTV selection process for a particular project. The figure below is republished from Dalgic *et al*. (2015).

Figure 2 - Attributes in the CTV selection process (from Dalgic et al. 2015)



3.3.39 Currently CTV's fall into two broad categories, 19m LOA (Length Overall, this is a measure of the total length of a vessel from bow to stern) which have sub-10m air draft, and the 25 to 27m LOA which are generally 10.5 to 11m air draft. The largest CTVs go up to 13m air draft, though these vessels are generally less common, and this was observed to be the case during the Vessel Survey.

Comment [MS22]: During the Accompanied Site Inspection, CTVs were observed with air drafts of up to 14 metres.

3.3.40 While, CTV design will continue to evolve, it is not necessarily the case that such vessels will increase in size, and furthermore CTV requirements will remain project specific. Additionally, the selection of vessels for a particular operation is based on a range of factors, including accessibility, which would include consideration of the presence of the Scheme once constructed, therefore selection of vessels that avoided the need for a bridge lift would likely be considered. Consequently, the Applicant considers that while it will remain the case that some CTVs may require a Scheme opening, the majority will not, and in any event larger vessels would be able to request an opening on demand outside peak traffic hours.

Comment [MS23]: What evidence does the Applicant have to support this statement? Please provide a copy to the ExA and ABP. If the Applicant has no evidence base to support this assertion, this should be stated.

Future growth scenario

3.3.41 The Applicant has considered the information included in the Edge Economics report, commissioned by ABP. The Applicant would note that the assumptions applied in Scenario 2 (With SCC bridge) in the Edge Economics report relies on assumptions of an extreme nature, specifically that no CTV operators would berth west of the crossing at all and that up to 200m of quay which could be used by CTVs would be sterilised. Impact on berthing is considered in Chapter 6.

3.3.42 The Applicant does not consider that the land to the west of the crossing (including at the former Shell Base) is rendered significantly less attractive to CTVs operators by the Scheme. This is because, having regard to the current operating procedures of the A47 Bascule Bridge, the Scheme of Operation does not greatly increase the hours in which vessel movements are restricted.

3.3.43 Furthermore, the Scheme will not pose a constraint to certain classes of CTV which do not require a Scheme opening due to their draft, and finally the effect of any delay associated with the Scheme needs to be considered in the context of the geographic remoteness of this part of the Port from the sea.

3.3.44 The Applicant also notes that ABP has assumed at paragraph 14.5 of its Written Representation that there would be “a five-minute delay caused by the existence of the proposed LLTC” to CTV operators. It is not clear on what this assumption is based as under the draft Scheme of Operation, the Scheme bridge would be opened for commercial vessels on demand, outside of peak hours, and requires a specified pre-notification period, to be determined by ABP, at which point the HM could inform the vessel of any issues with timing. It is considered that any openings would be undertaken in such a way that the vessel would not experience any delay and as such the assumption made by ABP is considered inaccurate and unduly pessimistic.

3.3.45 Notwithstanding, therefore, that both the future growth within the Port and the nature of vessels associated with any such growth is uncertain, the Applicant

recognises that such a growth scenario should be considered, accounting for a range of vessel types, and encompass a significant proportion of that growth to the west of the Scheme.

3.3.46 This scenario therefore has potential implications, in particular for:

(i) Berth occupancy within the Port, and thus the extent to which the appropriation of berthing space by the Scheme is detrimental.

(ii) The number of both A47 Bascule Bridge and Scheme bridge openings

(iii) Associated, cross-cutting implications, notably navigational risk.

3.3.47 In order to consider this matter further, for the purposes of a sensitivity test, the Applicant has applied the following assumptions:

- Additional 50 CTVs, requiring 40 berths[14] west of the bridge (based on draft BVG report) (ignoring the practicalities of how berthing for 40 x 30m (1200m) could be created along a quay of 720m). Air draft of the additional CTVs has been assumed to be either 10.5 or 13m, proportioned in line with observations from the vessel survey (90%/10% respectively).
- Each of the 50 CTV vessels operating 200 sailings per year.
- A 5% uplift in other commercial vessel movements

Comment [MS24]: This significantly understates the position, for example, the uplift in vessel numbers arising from the new Peterson's business, referred to by Mr Andrew Harston at the hearing on 1 April (hearing recording is available on the PINS website).

3.3.48 For the purposes of this test, commercial vessel movements have been apportioned across the day on a pro-rata basis, having regard to the existing distribution across the day (see Table 7, below).

3.3.49 Increased port activity could manifest itself in both a greater number of bridge lifts and/or bridge lifts of a longer duration. In the absence of the Scheme, therefore, the A47 Bascule Bridge would open more often and/or for longer, with commensurate impact on traffic conditions. With the Scheme in place, given the interaction between the bridges, whichever approach the Harbour Master adopted would therefore apply to the Scheme bridge and A47 Bascule Bridge similarly.

3.3.50 Therefore, it is unreasonable to only consider the effect of a busier port, however it manifested itself in terms of bridge openings, on the Scheme bridge as the same impact would also have to be applied to the A47 Bascule Bridge, meaning that one cannot apply a port growth scenario only in the Scheme world, it would have to be applied to the no-scheme world as well.

3.3.51 For simplicity, a busier port is assumed to result in longer individual bridge lifts. This is likely to be preferable from a traffic point of view. Consequently, if instead, or additionally, more bridge lifts were also required, while this would affect journey times reliability associated with the Scheme, such assumptions would also need to

Comment [MS25]: This is an uncorroborated assumption. Why not more frequent bridge lifts for example?

Comment [MS26]: Is that preferable as regards marine traffic or road traffic? Please clarify (and explain why more preferable).

[14] 40 new berths required assuming that 10 vessels would use existing berths west of the bridge.

be applied to the A47 Bascule Bridge, both with and without the Scheme, meaning traffic journey time reliability would commensurately deteriorate.

3.3.52 This increased port activity has been assessed in each of the following sections of this report

3.3.53 Operational impact of the Scheme on berthing ; and Impact of the Scheme on navigational risk and is also discussed in the accompanying paper Justification and Effects of draft Scheme of Operation in a traffic context.

4 Operating regime of the A47 Bascule Bridge

4.1 Introduction

4.1.1 In order to understand the effect of the introduction of the Scheme bridge on the operation of the Port, it is instructive to understand the history to, and management of the existing A47 Bascule Bridge, which is therefore set out below, with supporting Appendices A to E.

4.2 The London-Great Yarmouth Trunk Road (Lowestoft Inner Harbour Bridge Diversion) (No.2) Order 1969

4.2.1 The London-Great Yarmouth Trunk Road (Lowestoft Inner Harbour Bridge Diversion) (No.2) Order 1969 ("the 1969 Order", enclosed in Appendix A) provided for the construction of the A47 Bascule Bridge. It replaced a swing bridge in the same location which was no longer adequate for the traffic demand upon it. The Swing Bridge was owned and operated by the British Transport Docks Board, then owner and operator of the Port of Lowestoft.

4.2.2 The regulation of the A47 Bascule Bridge's operation is set out in Schedule 4 to the Order and interpreted below:

Table 2 Provisions for regulating the operations of the A47 Bascule Bridge as set out in the 1969 Order.

Period	Day	Time	Scheme of Operation
All year	'Weekdays'*	6am to 10pm	Open to vessels for such reasonable periods as may be required
May to September	Sundays	6am to 6pm	
October to April	Sundays	6am to 2pm	
All year	All other times		Closed to vessels except (i) in case of emergency (ii) after prior arrangement with the Harbour Master to permit a vessel to pass the bridge on a particular tide

4.2.3 * NB, as Saturday is not specifically mentioned, there is a degree of ambiguity as to whether it was considered to be a 'weekday' or conversely fell into the category of 'all other times'. This report for simplicity treats Saturday as a weekday (which would give greater flexibility for vessels).

4.2.4 While the Applicant notes that the Harbour Master can open the bridge at any time, there are certain prerequisites that apply to the period "All Year/All other

times" as noted in the table above. The Applicant therefore does not agree with ABP's contention at paragraph 4.6 of its Written Representation that the Harbour Master has "total discretion as to when to open the bridge".

4.2.5 The Applicant believes the 1969 Order to remain extant, without alteration, and it is noted that this has been agreed with Highways England (see Statement of Common Ground, document reference AS-007) and it has noted that ABP has similarly referenced the 1969 Order in its representation.

4.3 British Transport Docks Board – Ministry of Transport Agreement, dated 20 January 1970

4.3.1 In 1970 an Agreement was signed between the British Transport Docks Board ("the Board") and the Minister of Transport ("the Agreement", enclosed in Appendix B) which confirmed the transfer of the Swing Bridge and associated approaches to the Ministry of Transport under powers set out in section 100 (1)(c) of the Highways Act 1959.

4.3.2 The Agreement confirms that the Board would become the operator (but not owner) of the A47 Bascule Bridge, and that it should be operated in accordance with Schedule 4 of the 1969 Order.

4.3.3 The Agreement commits the Minister of Transport to maintaining the A47 Bascule Bridge and associated equipment in good working order, though the Board was to provide the staff power to operate the bridge, without payment.

4.3.4 The Board was indemnified from all claims arising from an A47 Bascule Bridge failure, except in the case of wilful negligence of the Board, and thus conversely the Minister of Transport was similarly indemnified against negligent actions of the Board. This is discussed further in section 10.

4.3.5 The Applicant believes this Agreement to remain extant, and it is noted that this has been agreed with Highways England (see document reference AS-007)).

4.4 Port of Lowestoft Bye-laws

4.4.1 Following privatisation in 1982, under the Transport Act 1981, the Board was reconstituted as a newly formed company known as Associated British Ports ("ABP"), which retained the assets of the Board and thus became the owner and operator of the Port of Lowestoft.

4.4.2 In exercise of the powers conferred on it by Section 82 of the Harbours, Docks & Piers Clauses Act 1847 (incorporated by Section 51 of the British Transport Docks Act 1964) and by Section 52 of the British Transport Docks Act 1964 and of all other enabling powers, ABP made the Lowestoft Harbour Bye-Laws 1993 (enclosed at Appendix C).

4.4.3 The Lowestoft Harbour Bye-laws 1993 require vessels to adhere to signals associated with opening bridges, but do not provide any information of the scheme of operation for the Bascule Bridge, which is instead set out in a separate Notice (see below).

Comment [MS27]: The Applicant has cut off the quote early – the full quote in the WR is as follows:
"In other words, the Order has given the Port Harbour Master total discretion as to when to open the bridge - albeit in a context that, certainly during busy week-day traffic periods, there will be a presumption that vehicular traffic and pedestrians will be able to pass over the bridge whenever possible."
The second half of the quote (omitted by the Applicant) essentially captures the limits to the Scheme of Operation.

Comment [MS28]: Note this is a reference to a Swing Bridge, not a Bascule Bridge.

Comment [MS29]: Note that this is a reference to the Bascule Bridge. The wording of this statement seems to suggest that that it's under the same "Agreement" as referred to in section 4.3.1 (which refers to a Swing Bridge). Is this analysis by the Applicant therefore complete? Has this been verified by DfT, for example?

Comment [MS30]: Noteworthy in the context of ABP's request to the applicant for an indemnity, backed by insurance. A precedent was set for the existing bascule bridge.

4.4.4 From the date of these bye-laws coming in to operation (18 May 1994), the previously extant Lowestoft Harbour and Fish Market Byelaws 1958 (included in Appendix D) were revoked. Byelaw 66 of the 1958 Bye-laws, entitled Swing Bridge - times of opening and shutting, provided that:

Table 3 Provisions for regulating the operations of the A47 Bascule Bridge as set out in the 1958 Byelaws

Period	Day	Time	Scheme of Operation
All year	'Any day other than Sunday''	6am to 10pm	Open to vessels for such reasonable periods as may be required
May to September	Sundays	6am to 6pm	
October to April	Sundays	6am to 2pm	
All year	All other times		Closed to vessels except (i) in case of emergency (ii) after prior arrangement with the Harbour Master to permit a vessel to pass the bridge on a particular tide

4.4.5 This provision is therefore almost identical to that in the 1969 Order, save for the ambiguity around whether a Saturday is a weekday or 'any other time' did not exist.

4.5 Information for Small Craft and Yachts Using Lowestoft Harbour and the Seaward Approaches to Mutford Lock

4.5.1 As noted above, the current 1993 Bye-laws do not set out how the A47 Bascule Bridge should be operated, potentially because at the time of their introduction it was recognised the provisions of the preceding 1958 byelaws were now catered for in the 1969 Order and therefore did not need to be carried over.

4.5.2 Nevertheless, it is understood that following engagement by the then operator of the Port with local businesses in the 1970s, and perhaps most significantly the development of the former Shell Base, the Port moved to 24 hour operations, which were not obviously considered in the drafting of Schedule 4 of the 1969 Order.

4.5.3 Consequently, a more detailed operational regime came in to being, which was most recently updated by ABP in December 2018, published in the form of a non-

Comment [MS31]: A somewhat fatuous comment, in that the 1970s post-dated the 1969 Order, so how could it have been considered?

Comment [MS32]: Please insert the date when it came into being. ABP no longer has a record of the date, as it pre-dates all ABP personnel involved, which places it to before 1988 (so we can accept that this regime has been in place for 30+ years without challenge).

statutory notice on its website entitled *Information for Small Craft And Yachts Using Lowestoft Harbour and the Seaward Approaches to Mutford Lock*, dated 3 December 2018 ("the Notice"[15]) (also enclosed as Appendix E).

4.5.4 Paragraph 4 of the Notice sets out the points of principle relevance to the operating regime for the A47 Bascule Bridge:

Figure 3 - Extract from 2018 Notice explaining how the A47 Bascule Bridge is operated

4.	The Lowestoft Harbour Bridge (between the Outer and Inner Harbours) will only be opened on demand for commercial shipping over 50 GRT.
4(A)	Commercial shipping is discouraged from passage: **0815 - 0900** hours, **1230 - 1300** hours and **1700 - 1745** hours.
4(B)	Small craft and yachts may use a bridge opening for commercial shipping provided that prior arrangement has been made with Lowestoft Harbour Control - VHF Channel 14, telephone 572286 or personal visit, subject to vesels proceeding in the same direction as the commercial vessel. Other vessels wishing to pass through the bridge from the opposite direction will have to wait for the next advertised small craft opening time.
4(C)	In addition to 4(B) and subject to prior notification of at least twenty minutes, small craft and yachts may be given a bridge opening at the following times: **Monday – Friday:** - 0300, 0500, 0700, 0945, 1115, 1430, 1600, 1900, 2100, 2400. **Sat. Sun. Bank Holidays: -** 0300, 0500, 0700, 0945, 1115, 1430, 1600, 1800, 1900, 2100, 2400.

4.5.5 It can reasonably be inferred that the purpose of the Notice's introduction was to seek to mediate between the competing and growing demands of both road and maritime traffic, by managing the timing and numbers of openings to a greater extent than the 1969 Order provides for. For example, the Notice sets out that "*Long bridge openings make it difficult to preserve the facility from pressures of road traffic and in consequence bridge operators are instructed not to wait for stragglers*."

4.5.6 Strictly speaking, the scheduled openings in the 2018 Notice are not wholly compatible with the 1969 Order. Note that it has been assumed that the 1969 Order treats Saturday as a workday (i.e. therefore had the same provisions as the 1958 Bye-laws, and therefore has a more generous window of opening for vessels).

Comment [MS33]: To understand the context properly, the Applicant should include the date this was first introduced – to avoid creating the impression it was in 2018. It has been in place for 30+ years.

Comment [MS34]: The management referred to was achieved by balancing the competing requirements of road and maritime traffic. This was achieved by establishing more limits around recreational vessels in return for opening windows that extended before 0600 and after 1400, 1800 or 2200 as appropriate. The overall result therefore was a better balance between competing users. It is noteworthy that the Applicant is not advocating a return to the 1969 Order timings. It is also noteworthy that, as far as ABP is aware, no party (including the Applicant) has challenged these restrictions at any time since their introduction.

Comment [MS35]: To avoid being misleading, shouldn't there be a reference also to the established custom & practice of operating the bascule in the this way since at least 1988 (i.e. 30+ years), with no challenge to the regime.

[15] This is the same document which ABP refers to as the 2017 Bridge Operating Protocol in its Written Representation at paragraph 4.7.

Table 4 - Compatibility of the 2018 Notice with the 1969 Order

Day	Opening window in Notice for recreational vessels										
Monday to Friday	03:00	05:00	07:00	09:45	11:15	14:30	16:00	-------	19:00	21:00	24:00
Saturday, Sunday, Bank Holidays	03:00	05:00	07:00	09:45	11:15	14:30	16:00	18:00	19:00	21:00	24:00

4.5.7 Key - Red: Not permitted at any time by 1969 Order: Orange: not permitted on Sundays or Bank Holidays in the 1969 Order. Yellow: not permitted on Sundays or Bank Holidays from October to April by 1969 Order.

4.5.8 It should of course be noted that the provisions in the 1969 Order apply to all vessel types, whereas the comparison above focusses on discrepancies in provisions for recreational craft only.

4.5.9 Further analysis of the Applicant's updated Vessel Survey Report is presented in the next section, but the Applicant can confirm that the vessel movements that occurred outside the 'core' windows in the 1969 Order during the survey periods were:

Table 5 - A47 Bascule Bridge openings outside the identified windows

Day	Number of openings
Openings between 22:00 and 06:00 (Mondays to Saturdays, excluding 00:00 to 06:00 on Sundays)	351
Openings on Sundays and Bank Holidays before 06:00 and after 18:00 (April to October)	65
Openings on Sundays and Bank Holidays before 06:00 after 14:00 (October to April)	64

Comment [MS36]: This title is somewhat misleading – what are "the identified windows" referred to? Presumably a reference to the Order, but in compliance with the Notices issued by ABP over the years? If the latter, it should say so.

4.5.10 It is acknowledged that the Harbour Master retains discretion to open the A47 Bascule Bridge to vessels (i) in case of emergency (ii) after prior arrangement with the Harbour Master to permit a vessel to pass the bridge on a particular tide, as such a proportion of the transits above could have been compatible with those provisions.

4.6 Summary

4.6.1 The legal basis for the operation of the A47 Bascule Bridge is the 1969 Order. This Order through Schedule 4 sets out the windows in which a vessel can reasonably expect the A47 Bascule Bridge to be opened by the operator, ABP.

4.6.2 On weekdays, there are no legal obstacles to ABP to opening the A47 Bascule Bridge between the hours of 6am and 10pm.

4.6.3 In 2018 ABP published a Notice effectively supplanting in practical terms, if not in law, the 1969 Order and this currently guides operations on a day to day basis. There are some conflicts with the 1969 Order and as such there are bridge openings occurring which may be argued to be contrary to the legal and contractual basis on which ABP operates the A47 Bascule Bridge.

Comment [MS37]: It might assist the Panel if the Applicant were to "get off the fence' as regards the statement "may be argued…". Is the Applicant alleging that ABP is not operating the existing bascule properly, or not? ABP is not aware of any complaints from any party that the bridge is not being operated properly for the past 30+ years (including no complaints from the Applicant).

4.6.4 The Applicant considers that this evidence lends weight to the argument that the Scheme of Operation should be a certified document, and further that changes to it which cannot be agreed between the Applicant with ABP (after consultation with the Navigation Working Group) should be determined by the Secretary of State. It is on this basis that article 40 in the draft DCO (as revised at Deadline 3 – document reference REP3-030) has been drafted.

4.6.5 As the operation of the A47 Bascule Bridge is being guided by the Notice, rather than the 1969 Order, the next section examines the impact of the Scheme in that context in more detail.

5 A47 Bascule Bridge and Scheme bridge openings – Effect on Port Operations

5.1 Introduction

5.1.1 As set out above in Table 1, above, there is approximately 2100m of quay in the Inner Harbour; Annex 1A of ABP's Written Representation confirms that there is approximately 720m of quay to the west of the Scheme access to which would be through the Scheme bridge, which may require a bridge lift, depending on vessel size.

5.1.2 Taking into account, therefore, the relative split of quay either side of the Scheme bridge, and the additional height clearance afforded by the Scheme bridge, the Transport Assessment (document reference REP3-056) (Table 4-1 therein) presented the following table as an indication of the likely frequency and duration of bridge openings, based on information gathered through the Vessel Survey.

5.1.3 This matter is discussed further in the accompanying paper on the Justification and Traffic Effects of the draft Scheme of Operation, which explains how bridge openings are considered in the economic assessment of the Scheme.

Table 6 - Bridge operations

Bridge	Time of Full Opening and Closing Sequence/mins	Bridge clearance above HAT/m	Average Times Opened per day
A47 Bascule Bridge	5 - 10	2.16	14
Scheme	6 - 12	12	5

5.1.4 As such the Scheme bridge, by virtue of its westerly position and increased height is predicted to open far less than the A47 Bascule Bridge, based on the Vessel Survey, i.e. current levels of activity.

5.1.5 However, while ABP has determined the operating regime for the A47 Bascule Bridge through its 2018 Notice (as explained in the previous chapter), the Applicant proposes to impose a Scheme of Operation for the Scheme bridge that would place greater restrictions on when ABP can open it, specifically the AM and PM peak hour periods, to ensure the traffic and strategic benefits of the Scheme are properly realised. This has been supported by Highways England in the Statement of Common Ground (document reference SCC/LLTC/EX/53)).

5.1.6 Notwithstanding the above, ABP has 'self-imposed' restrictions, as such it is instructive to review the effect of the draft Scheme of Operation (document reference REP3-033)) in that context, albeit recognising ABP may seek to alter the way in which it operates the A47 Bascule Bridge in the future.

Comment [MS38]: This is presumably based on historical vessel data surveys? Needs updating to reflect current levels of activity.

Comment [MS39]: Reflecting Petersons new business? (which generates significant additional marine traffic) If not, then these are not current levels of activity.

5.1.7 This section of the report should therefore be read alongside the draft Scheme of Operation and the paper on *Justification and Traffic Effects of the draft Scheme of Operation*.

5.2 Analysis of vessel survey (current port activity)

Introduction

5.2.1 In its Written Representation at paragraph 4.10, ABP states that "during the last 12 months, the A47 Bascule Bridge has been opened only on limited occasions during the rush hour however for commercial vessels as the Harbour Master has responsibly exercised his control to minimise impact on vehicular traffic". This section provides a quantitative assessment of bridge openings in the peak traffic hours.

5.2.2 The Applicant has further interrogated the information from the Vessel Survey to confirm how in practice the A47 Bascule Bridge is being operated, having regard to the information published in paragraph 4 of the Notice (see Figure 1, above).

5.2.3 While paragraph 4(A) of the Notice (see Figure 3) does not distinguish between the discouragement of commercial traffic between 08:15 – 09:00 and 17:00 and 17:45 on weekends and weekdays, it is in peak hour on weekdays:

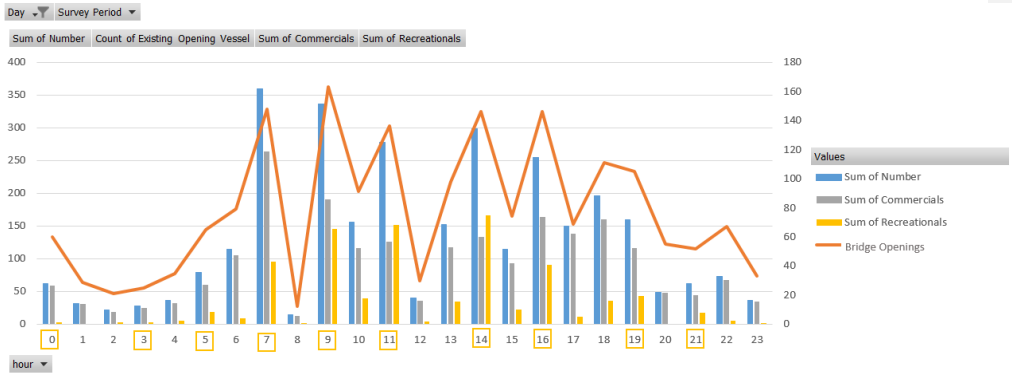
- that the passage of vessels has most impact on traffic flows due to the increased volume of traffic at this time,
- in which the assessment of impact of a bridge opening has been presented in the Transport Assessment and;
- which the Applicant is seeking a restriction on vessel movements

5.2.4 and therefore the data analysis presented below is derived from vessel survey data collated on weekdays only. There were 175 weekdays in the survey period.

Overall trends

5.2.5 The graph below confirms, as would be expected, pronounced peaks in vessel movements associated with recreational windows identified in the Notice. There are noticeable dips at 8:00 to 9:00 am and 12 noon to 13:00. This corroborates with the AM peak hour 'restriction' and the similar discouragement of commercial vessels between 12:30 and 13:00 as set out in the Notice. There is however a less pronounced reduction in commercial vessels movements between 17:00 and 18:00.

Figure 4 - Distribution of vessel movements and A47 Bascule Bridge openings.[16]



5.2.6 Note: Primary Y axis shows the number of vessels and should be read alongside the respective bar charts. Secondary Y axis shows the number of bridge openings and should be read alongside the orange line. The yellow boxes on the X axis denote the recreational windows (as per the Notice).

5.2.7 There is a recognisable peak in commercial traffic between 07:00 and 08:00; CTVs are a significant contributor to this as Table 7, below, shows. The favoured windows of return for such vessels are, in order of volume of movements, 16:00 to 17:00 and 18:00 to 19:00 ostensibly to avoid the discouraged window of 17:00 to 17:45. There is therefore some evidence that such vessels' transits are capable of being timed to avoid peak traffic hours.

Table 7 - Number of windfarm vessel movements by hour, compared to total number of commercial movements per hour, derived from the Applicant's Vessel Survey Report: [17]

Hour		Total Vessels	Total Windfarm CTV's
00:00	01:00	62	38
01:00	02:00	31	20
02:00	03:00	22	14
03:00	04:00	28	10
04:00	05:00	37	19
05:00	06:00	79	40
06:00	07:00	114	60

[16] Indication of weekend recreational opening at 18:00 removed from figure as data relates to weekdays only.

[17] Table has been updated to correct GMT/BST recording error in original, this affected 13 of 175 surveyed weekdays.

Hour		Total Vessels	Total Windfarm CTV's
07:00	08:00	360	155
08:00	09:00	14	3
09:00	10:00	336	89
10:00	11:00	156	69
11:00	12:00	278	68
12:00	13:00	40	12
13:00	14:00	152	65
14:00	15:00	299	83
15:00	16:00	115	49
16:00	17:00	255	87
17:00	18:00	150	98
18:00	19:00	196	89
19:00	20:00	159	75
20:00	21:00	48	27
21:00	22:00	62	22
22:00	23:00	73	49
23:00	24:00	36	20

ABP Peak 'Hour' openings

5.2.8 Collectively, 71 vessel movements were recorded in the AM and PM 'discouraged' periods over the survey period contributing to 43 A47 Bascule Bridge openings[18]. In the survey period of 175 days, this therefore means that the A47 Bascule Bridge was opened on average approximately once per 15 working days in the AM discouraged period and once per week in the PM discouraged period.[19]

5.2.9 However, following discussions with ABP over the method of operation at the control room it was agreed to consider a margin of error of a few minutes at the beginning and end of each 'discouraged' period to allow for clock differences and vagaries in time keeping by bridge operatives; making this allowance the number of vessel movements reduces to 15 and the A47 Bascule Bridge openings to 10.

[18] These values have been updated to correct for GMT/BST recording error in original.

[19] AM: 12/175 = 6%; PM: 21/175 = 12%

Comment [MS40]: Table 7 shows 14 + 150 = 164 vessels in the discouraged peak hours. Why the difference? (if because one is referring to peak hours and the other referring to peak "hours" (or periods?) , then should this not be made clearer to avoid confusing the reader?

Comment [MS41]: 175/43=4 days. Why therefore are the AM and PM individual figures materially worse? Please explain the mathematics.

Comment [MS42]: Please confirm this figure is correct – see comment MS7 below. If 15, then 175/15=11.67 days

Comment [MS43]: 175/31=5.6 days, not a week.

Comment [MS44]: What was the actual margin allowed. I thought it was two minutes – if so, we should state that.

Comment [MS45]: This suggest failing by the bridge operatives which doesn't sit comfortably with the conclusion at 5.2.11. Suggest delete "vagaries" and replace with "slight variations".

Table 8 – A47 Bascule Bridge openings occurring within the specified period across the survey period on weekdays.[20]

	08:15-09:00	17:00 – 17:45
Total number of A47 Bascule Bridge openings	12*	31[21]
Total number of vessels passing	15	56
Total Commercial vessels passing	15	55
Total Recreational vessels passing	0	1
Number of vessels considered to be tidally restricted**	3	4
Number of openings in either first or last 2 minutes	9	24
Instances of Single vessel passages	13	18
Instances of double vessel passages	1	4
Instances of triple vessel passages	1	6
Instances of quadruple vessel passages.	0	3
Average duration of opening in this period (when it does open)	4 min 46 sec	4min 48 sec

Comment [MS46]: This doesn't agree to the instances analysis below – 13 + 1 + 1 + 0 = 15, not 12

5.2.10 *One AM opening appears to be due to an incident, the pilot launch berthed adjacent to the bridge and was attended by an ambulance. ** "Tidally restricted" for the purpose of this table denotes any vessel whose draught is greater than the minimum depth of water (with appropriate under keel clearance) available within the navigation channel on a given low water. More generally any vessel with a draught of more than 4.2m may be tidally restricted on certain tides and any vessel with a draught in excess of 5.2m would be restricted on nearly all tides.

Comment [MS47]: The HM is of the view that this statement is factually incorrect. Suggest that WSP speaks with the HM and then revises the statement as required. Alternative the position is addressed in Captain Horton's evidence to the ExA.

5.2.11 Discussions with ABP over the 10 movements occurring outside of the margins of error have identified reasons for these operations, being either tidally restricted vessels or emergency movements, it is therefore acknowledged that ABP are, within the limitations of the control systems in place, operating the bridge in general accordance with their stated scheme of operation.

[20] Table has been updated to correct GMT/BST recording error in original, this affected 13 of 175 surveyed weekdays

[21] This figure has not changed however some of the actual vessel movements creating the openings are different from those previously included.

Peak Hour openings

5.2.12 It is unclear as to why in the Notice published by ABP commercial vessel traffic is discouraged for only three quarters of the peak hour, i.e. is not discouraged from 08:00 to 08:15 and 17:45 to 18:00. As is reported in the Justification and Traffic Effects of the draft Scheme of Operation there is no obvious decrease in traffic flows in these 15 minute periods.

5.2.13 For completeness, therefore, the following tables present a similar record of openings from the Vessel Survey for the full peak hour and, separately for the two 15 minute periods omitted from the ABP peak 'hour' discouragement provisions.

Comment [MS48]: Why are you referring to "only ¾ of the peak hour?". Where is it mandated that the restrictions should apply for an hour, rather than the ¾ hour used for many years (essentially under custom & practice). This is a confusing statement as a result.

Comment [MS49]: See previous comment – why is this an omission? What has it been omitted from?

Table 9 – A47 Bascule Bridge openings commencing within the specified period across the vessel survey period on weekdays [22]

	08:00 – 09:00	17:00 – 18:00
Total number of A47 Bascule Bridge openings	18	69
Total number of vessels passing	23	147
Total Commercial vessels	22	135
Total Recreational vessels	1	12
Number of vessels considered to be tidally restricted	4	10
Instances of Single vessel passages	14	30
Instances of double vessel passages	3	13
Instances of triple vessel passages	1	13
Instances of quadruple (or more) vessel passages.	0	13
Average duration of opening in this period (when it does open)	5 Min 03 Sec	4 Min 54 Sec

Comment [MS50]: This is 14 per table 7. Please explain the difference – weekdays/weekends?

Comment [MS51]: This is 150 per table 7. Please explain the difference – weekdays/weekends?

Table 10 – A47 Bascule Bridge openings commencing within the specified period across the six-month survey period on weekdays[23]

	08:00 – 08:15	17:45 – 18:00
Total number of A47 Bascule Bridge openings	6	38

[22] Table has been updated to correct GMT/BST recording error in original, this affected 13 of 175 surveyed weekdays

[23] Table has been updated to correct GMT/BST recording error in original, this affected 13 of 175 surveyed weekdays

Total number of vessels passing	8	91
Total Commercial vessels	7	80
Total Recreational vessels	1	11
Number of vessels considered to be tidally restricted	1	6
Instances of Single vessel passages	4	12
Instances of double vessel passages	2	9
Instances of triple vessel passages	0	7
Instances of quadruple (or more) vessel passages.	0	10
Average duration of opening in this period (when it does open)	5 Min 07 Sec	4 Min 54 Sec

5.2.14 When the figures are presented in this way, accounting for the full peak hours of traffic, the frequency of bridge lifts in the AM and PM peaks significantly increases when compared to those lifts in only the 45-minute periods, such that the A47 Bascule Bridge lifts on average once every 10 weekdays in the AM Peak and once every 3 weekdays in the PM peak[24]. The Applicant does not agree with ABP therefore that the A47 Bascule Bridge is being opened on "limited occasions during the rush hour", but rather that it is being opened with some regularity, which would be expected to increase if activity in the Port were to increase.

5.2.15 The analysis does however show that vessel movements are proportionately higher in those 15-minute periods excluded from the peak traffic hour, which indicates that the Harbour Master is seeking to mitigate the effects on peak hour traffic, but openings remain regular. This data also provides some evidence therefore that vessels (including CTVs) are able to adjust their transit (plan their journey) to avoid the discouraged periods.

Summary

5.2.16 In the survey period of 175 weekdays, applying the observed vessel data to the Scheme Bridge, taking in to account the draft Scheme of Operation, and assuming an available air draft of 11.5m the impact of the Scheme on vessel movements would have been as shown in Table 11. While ABP suggests a safety margin of 1m may be appropriate (paragraph 11.9 of its Written Representation), however

Comment [MS52]: ABP is operating the bridge generally in accordance with the agreed restrictions (para 5.2.11). What evidence can the Applicant put forward that it is being operated regularly during the peak restriction?

Comment [MS53]: Again, why the ref to peak hour?

Comment [MS54]: Why? Please explain this statement, with evidence.

[24] AM Peak: 18/175 = 10%; PM Peak: 69/175 =39%

for 99% of the time water levels would be 0.5m below HAT[25], as such the Applicant's assessment remains robust.

Table 11 - Effect of Scheme peak hour restrictions (current activity)[26]

	A47 Bascule Bridge		Scheme Bridge (Figures in brackets are those unable to pass without a bridge opening)	
	08:00 – 09:00	17:00 – 18:00	08:00 – 09:00	17:00 – 18:00
Total number of vessels passing bridge location	23	147	16 (4)	131 (12)
Total Commercial vessels passing bridge location	22	135	15 (4)	119 (12)
Total number of CTVs passing bridge location	11	98	11 (0)	93 (0)
Number of vessels considered to be tidally restricted passing bridge location	4	10	4 (4)	8 (8)
Total number of openings	18	69	4	8

Comment [MS55]: (1) Does this statement take into account the possibility of weather conditions causing higher than predicted tides? It should do. (2) Does this statement take into account the effects of sea level rise? It should do (3) Given the variations in water levels (especially gibe (1) and (2), the Applicant should be required to install a "magic eye" either side of the bridge – in a similar way, for example, as height detector for HGVs either side of low overbridges.

Comment [MS56]: This table may need amending given ABP's Q's on preceding tables e.g. table 9.

Comment [MS57]: How have these figures been arrived at? Can we see the basis of calculation please?

Comment [MS58]: (1) Table 7 suggests this is 3 CTVs rather than 11? (2) Does this take into account additional air draft arising from whip aerials? These are essential for safe navigation.

5.2.17 The table above illustrates that the envisaged number of openings of the Scheme Bridge during peak hours would have been significantly less than those for the A47 Bascule Bridge, while only resulting in a marginal disruption to the timing of vessel movements as most vessels would still be able to transit. 4 of 134 (3%) commercial vessels would have been unable to transit past the Scheme over the survey period of 175 days. This means a vessel would have to adjust their transit time on average every 44 weekdays[27].

5.2.18 It should be noted that in order to present a worst case, the figures above, as stated, refer to the full peak hour and as has been explained above, vessel activity

[25] HAT, Highest Astronomical Tide, a measure of the highest water level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions. In Lowestoft this is 2.98m above Chart Datum.

[26] Table has been updated to correct GMT/BST recording error in original, this affected 13 of 175 surveyed weekdays

[27] 175/4 = 43.75

has responded to the 2018 Notice, meaning journeys have been timed to target times immediately outside the 45 minute discouraged windows.

5.2.19 The Applicant would suggest therefore that vessels who would otherwise nominally be delayed would, in practical terms, be unaffected by the proposed peak hour restrictions as they would simply adjust transit times by a further 15 minutes (as the effect of the Scheme needs to be seen the context of the existing operation of the A47 Bascule Bridge). While this may appear onerous to CTV operators, the potential effect on CTVs should be understood in the context of the commentary above outlining the financial implications of running CTVs from this location, and that on their likely air drafts of CTVs as set out in section 3.3.

5.2.20 It is noted in responding to the Examining Authority's question 2.18, ABP suggested that of the 1,806 commercial vessels it estimated had transited past the Scheme location, 1454 would have required a Scheme opening (80%). It is not clear what information on air draft was used to support this estimate. From the results of the vessel survey the Applicant estimates the figure to be over 2,000[28] vessel movements though considers the number of commercial vessels requiring a Scheme opening to be in the order of 45% (between 800 and 900).

5.3 Future port activity

5.3.1 As explained in section 3.3.41, the Applicant has considered a future growth scenario in the Port for the purposes of sensitivity testing. Applying the data in that section to Table 11, would result in the following picture over an equivalent period to that of the Applicant's vessel survey, 175 weekdays:

Table 12 - Effect of Scheme peak hour restrictions (future growth)[29]

	A47 Bascule Bridge		Scheme Bridge (Figures in brackets are those unable to pass without a bridge opening)	
	08:00 – 09:00	17:00 – 18:00	08:00 – 09:00	17:00 – 18:00
Total number of vessels passing bridge location	175	549	170 (19)	527 (52)
Total Commercial vessels passing bridge location	174	537	169 (19)	511 (52)
Total number of CTVs passing bridge location	162	498	164 (10)	493 (40)
Number of vessels considered	4	10	4	8

[28] Annual figure based on average daily movements observed during the vessel survey periods.

[29] Table has been updated to correct GMT/BST recording error in original, this affected 13 of 175 surveyed weekdays

Comment [MS59]: Does this statement take into account the transit time between the two bridges? It's not just a Q of overlaying the two (different) operating restrictions, as to understand the impact on traffic, the time it takes to travel between the two bridges needs to be factored in – where has this been undertaken please?

Comment [MS60]: CTV operators are indeed telling ABP that it is onerous – to the extent that they are unlikely to transit past two bascule bridges. All potential developers spoken to by the ABP team were concerned and responded negatively to the prospect of operating "behind a second bridge" despite ABP's attempts to reassure them. There were concerns expressed over the potential costs and associated risks of delays to CTV operations. However, the overall main theme was the prospect of adding a potential second point of failure into their due diligence scoping of the port, as part of their pre-decision assessment of operational bases. The feedback given to ABP, by senior team members with these potential future customers, was that such a potential second point of failure was likely to be seen as an unacceptable increase in the risk profile, which outweighed positive factors such as the Port's experience in working with OWF developers and geographic proximity to the proposed development areas.

Comment [MS61]: We will respond separately on this point

Comment [MS62]: Please clarify. There is no data presented in section 3.3.41. If the future growth scenario assumptions made by SCC are materially different from ABP's assumptions, where have they been derived from and have they been validated by a 3rd party?

Comment [MS63]: May we see the underlying calculations to this table please?

to be tidally restricted passing bridge location				
Total number of openings	148	249	4	8

5.3.2 Because the main contributor to the increased openings is CTV vessels, the number of tidally restricted vessels has not been considered to change in the future growth situation and as such the number of Scheme bridge openings does not therefore change.

Comment [MS64]: Please explain the basis of this statement. The need for bridge openings is a function of vessel air draft – which applies equally to CTVs and other traffic.

5.3.3 However, the number of vessels whose passage would be restricted by the draft Scheme of Operation for the Scheme bridge increases. 59 of 680 (9%) commercial vessels would have been unable to transit past the Scheme over the survey period of 175 days. This means a vessel would have to adjust a transit time on average every 3 weekdays[30].

Comment [MS65]: Query whether this a safe conclusion given the preceding comment? Also does it reflect new Peterson's traffic calling at the Port?

5.3.4 In such a scenario, though, A47 Bascule Bridge openings increase significantly from 18 to 148 in the AM peak (meaning, on average, it would need to open every AM peak hour) and from 69 to 249 in the PM peak (meaning, on average, it would need to open at least once in every PM peak hour. For reasons explained in paragraph 3.3.49 *et seq* one cannot consider the effect of the Scheme in a busier port in isolation of the effect of a busier port on traffic conditions with and without the Scheme. This is discussed further in the accompanying paper *Justification and Traffic Effects of the draft Scheme of Operation*.

5.4 Summary

Comment [MS66]: This summary needs amending to reflect points raised above.

5.4.1 The effect of peak hour restrictions on Scheme bridge lifts in the AM and PM peak based on current levels of activity is set out in Table 11 above. The consequence of the Scheme is a commercial vessel having to adjust a transit time on average every 44 weekdays.

5.4.2 The effect of peak hour restrictions on Scheme bridge lifts in the AM and PM peak based on future levels of port activity is set out in Table 12 above. The consequence of this is a commercial vessel having to adjust a transit time on average every 3 weekdays.

5.4.3 This assessment assumes that vessels do not manage their access to/from the Port to take account of the draft Scheme of Operation, though evidence from the operation of the A47 Bascule Bridge suggests this would be the case.

5.4.4 There is an inseparable relationship between the level of vessel activity in the Inner Harbour and the frequency with which, currently, the A47 Bascule Bridge, and in the future, both bridges will need to lift. Consequently, growth in port activity in both cases needs to be considered alongside the associated traffic implications with and without the Scheme. This is discussed further in the accompanying note on the *Justification and Traffic Effects of the draft Scheme of Operation*.

[30] 175/59 = 3

6 Operational impact of the Scheme on berthing

Extent of berthing loss

6.1.1 North Quay, where the Scheme is located, comprises a series of common user berths, i.e. those not assigned exclusively to a particular shipping line or operation. Figure 15-2 of the Environmental Statement indicates the location of the Scheme in relation to the existing berthing arrangements at North Quay.

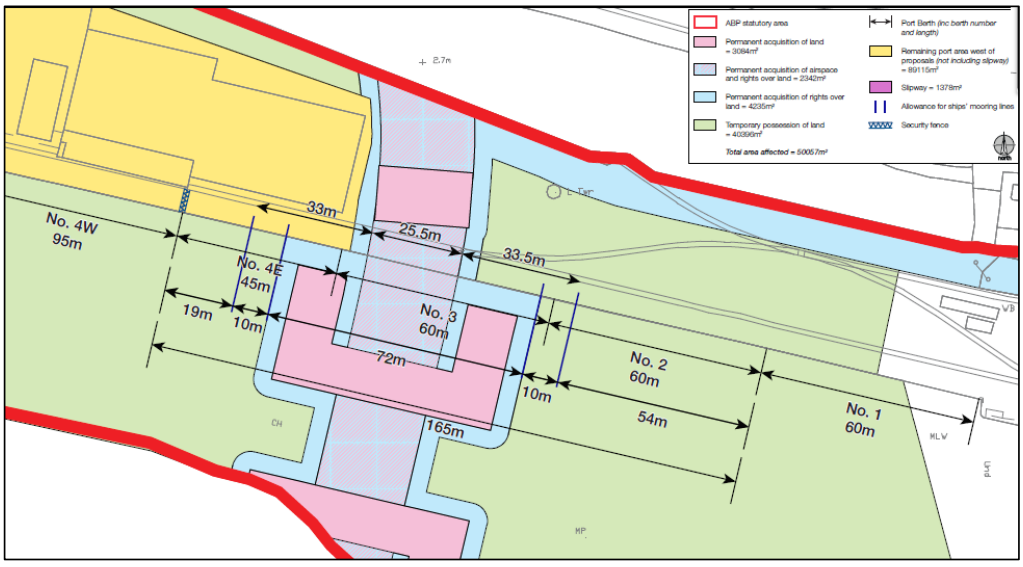
Comment [MS67]: This comment adds strength to ABP's position that the private highway comprising Commercial Road cannot be diverted along these common user berths, without ABP's agreement.

6.1.2 As that Figure shows the Scheme sits fairly centrally to Berth No.3, a 60m berth. If the full extent of the limits of deviation (as shown in the Land Plans) is utilised, the footprint of the Scheme and associated fendering extends to 62m.

6.1.3 The positioning of the Scheme is such that it extends westwards 10.5m into Berth No. 4E, a 45m berth, while on its eastward extent it falls 9.5m short of the eastern end of the 60m Berth No.3 (i.e. 51.5m + 10.5m = 62m).

6.1.4 This is therefore the 'direct loss' of berthing associated with the footprint of the Scheme This is helpfully illustrated in Annex 6 of ABP's Written Representation, repeated below for convenience.

Figure 5 - Location of Scheme with reference to existing berth provision (republished from Annex 6 of ABP's Written Representation)



6.1.5 Either side of the 62m footprint of the Scheme lies a 5m 'rights strip' (illustrated in blue above). As the Statement of Reasons (document reference APP-007) explains the purpose of this strip is to provide the Applicant some control over operations in this area in order to protect the structure. The Applicant considers that this space will generally remain available for the mooring of

Comment [MS68]: What does 'generally' mean in this context? To assist the ExA, the Applicant needs to be more specific in its position.

vessels/associated tying of ropes (security matters are discussed in the next section).

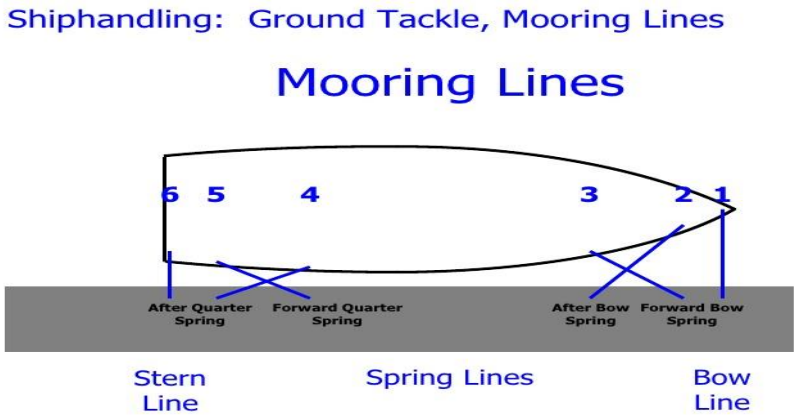
6.1.6 The Applicant understands that ABP considers that an allowance of 10m for ships' mooring lines (used to secure the ship to the land, using bollards which are regularly spaced along the quay edge (at approximately 12m along North Quay)) needs to be considered in assessing the impact of the Scheme on berthing; thus implying that vessels can only berth a further 10m away from the outermost point of the rights strip. The Applicant does not consider that this allowance needs to be made, application of this rationale to the existing berths would imply that all berths would in effect lose 20m in length as an allowance for mooring lines.

Comment [MS69]: Without a consideration of bollard positions, this analysis is incomplete and therefore of limited use to the ExA. ABP has now supplied bollard positions to the hearing. Suggest the Applicant reconsiders this entire section in light of this.

6.1.7 The Applicant considers that there is no impediment to a vessels mooring lines being closer, or indeed passing over, the areas were rights are sort as these rights are for maintenance access only and not intended to limit port operations, additionally while each vessel is different there are options for altering the mooring arrangements that would eliminate the need for head and stern lines, thereby removing the need for this allowance, as shown in the figure below:

Comment [MS70]: Is the Applicant still intending to advance this as a serious in light of ABP's evidence from multiple east coast ports that this is not a practice in use in tidal locations.

Figure 6 - Alternate mooring arrangement



Berth No.4E

6.1.8 The Applicant acknowledges that in addition to the direct loss of quay, there will be indirect effects on adjacent quay. With respect to berth No. 4E (a 45m berth) a direct loss of 10.5m leaves a berth of 34.5m, 5m of which sits within the rights strip, though as stated above, the Applicant considers this will generally remain available for berthing.

6.1.9 The Applicant considers that the remaining 34.5m of berth No. 4E remains usable. Analysis of the Vessel Survey shows the following distribution of commercial vessel sizes during the survey period:

Table 13 - LOA of vessels berthing in the Port during the vessel survey

Commercial vessel length overall (LOA)	Number of moves
<10m	0
10<20m	584
20<30m	1261
30-40	78
40-50	15
50-60	45
60-70	51
70-80	43
>80	4

6.1.10 Therefore around 90% of commercial vessel movements recorded in the vessel survey were for vessels of less than 30m LOA and as such could continue to use this berth. As noted earlier, 30m is sufficient berthing space for a CTV.

Berth No.3

6.1.11 The Applicant accepts that Berth No.3 (60m) is largely lost to the Scheme, though a small length of quay (9.5m) could be reassigned to berth No.2.

Berth No.2

6.1.12 Berth No.2 is unaffected by the Scheme, though would benefit from reassignment of 9.5m of quay from Berth No.3

Berth No.1

6.1.13 Berth No.1 is unaffected by the Scheme

Summary of berth loss

6.1.14 The Applicant maintains that the length of quay which is no longer usable by ABP is 62m, and it is against this figure that the extent of detriment to the Port should be considered. It believes that ABP's suggestion that the entirety of berths No.4E, No.3 and No.2 totalling 165m should be considered a direct loss is not a reasonable assessment of the impacts of the Scheme.

6.1.15 The 103m of additional quay that ABP considers a direct loss will remain usable for port operations. Berth No.4E will have reduced functionality insofar as it can no longer accommodate vessels for which it was designed, but it can accommodate the vast majority of vessels that frequent the Port, and critically it is large enough for CTVs, which ABP anticipates being increasingly common in the future. As noted above Berth No.2 is unaffected by the Scheme as such its functionality is retained.

Comment [MS71]: (1)What about fendering arrangements? Suggest Applicant addresses this point to assist the ExA. (2) No such conclusion is safe absent consideration of bollard placement along the quay.

Comment [MS72]: What about the security fencing? Suggest the Applicant addresses this point.

6.1.16 The Applicant recognises that the Scheme in effect creates an opposite 'book-end' to the 'Knuckle' which demarcates the eastern end of Berth No.1, which is inset 5m from Silo Quay. The distance between the Scheme fenders and the Knuckle is 129.5m, which is just longer than the normal maximum length of vessel accepted in the inner harbour (quoted as 125m on ABP website).

Comment [MS73]: Is the Applicant suggesting that a 125m vessel can be accommodated in a 129.5m gap? Has this been simulated? (a 100m LOA vessel has and we believe that to be the maximum size capable of being accommodated). Suggest that this comment is modified to make that clear to the ExA.

Berth occupancy

Current berth occupancy

6.1.17 As noted in the Environmental Statement at paragraph 15.5.35, it was judged that this 62m loss creates a small reduction in the flexibility of the Port as a whole to accommodate vessels simultaneously, and that based on the numbers of vessel movements observed during the vessel survey the impact of this loss upon the Port is considered to be no greater than slight adverse.

6.1.18 The Applicant has sought berthing occupancy information from ABP, but in the absence of this has drawn its own conclusions as set out in paragraph 3.2.12, that berth occupancy during the vessel survey period averaged around 35% with peak utilisation around 80%.

Comment [MS74]: See ABPmer's Berth Utilisation Report.

Future berth occupancy

6.1.19 The creation of a dedicated CTV base at the Shell Quay should create a facility capable of handling all future additional CTV traffic that will potentially use the Port. This would result in the creation of up to 40 additional berths within the Port and therefore significantly increase the number of berths available. Consequently, future berth occupancy may actually reduce for the Port as whole when these new berths are factored in.

Comment [MS75]: This is misleading in that no new berths are being created within the Port. The corresponding loss of other (general) berths has been glossed over – it should be taken into account here.

6.1.20 With respect to increases in other commercial vessel traffic, including that which would otherwise make use of the quay taken by the Scheme, as noted above, the Applicant has assumed this could increase by 5%. This would have a limited effect on berth occupancy within the Port.

Significance of berthing loss.

6.1.21 In terms of the significance of a 62m loss to the Port, it should be noted that (as shown in Table 1), there is 2100m of quay in the Inner Harbour, thus 62m represents less than 3% of that currently available. It is also pertinent to note that the area affected is a suspended quay with a four-tonne axle limit, which therefore imposes some restrictions on the operations in this location. Having regard to berthing occupancy assumptions for the past and the future (acknowledging that little information is available), this loss is not considered significant.

6.1.22 The Applicant also understands that ABP considers the 720m of berthing space to the west of the Scheme (namely Shell Quay (330m), No.7W (30m), No.7E (70m), No.6 (100m), No.5. (95m) and No.4W (95m)) to be indirectly impacted by the Scheme owing to the Scheme acting as an impediment to access.

6.1.23 As discussed in the preceding section, it is only in the AM and PM peak periods that the Applicant is seeking to restrict Scheme bridge openings; at all other times

(and indeed during peak hour periods, if air draft clearance is sufficient) there will be no impediment to commercial vessels, which are otherwise able to seek a bridge lift on demand. Additionally, no restrictions are proposed for tidally restricted vessels, whose destinations are commonly the deeper berths at Berths No.6 and No.7, at any time.

6.1.24 Please refer to the analysis in the preceding section which presents the likely numbers of vessels affected by such a restriction in both a 'base case' and 'future case', while the transport case for such a restriction is also set out in the accompanying paper *Justification and Effects of the draft Scheme of Operation*.

Summary

6.1.25 The direct loss of berthing space to the Scheme is 62m; the assessment of this loss against berth availability in the Port as presented in the Environmental Statement was judged to be slight adverse. This loss cannot be considered to be of a serious detriment to the Port.

6.1.26 In a future case the suggested requirement for creation of potentially up to 1200m (40 vessels at 30m) of additional CTV berthing would significantly diminish the proportional loss of berth length as a result of the Scheme.

Comment [MS76]: Again a misleading statement. No new berthing is being created.

7 Impact of the Scheme on navigational risk

7.1 Legislative background

7.1.1 The Applicant generally agrees with ABP's statements on the documents which frame the requirements for production of a Navigation Risk Assessment (NRA), namely the Port Marine Safety Code (PMSC) and associated Guide to Good Practice.

7.1.2 However, it is considered that the extracts from these selected for inclusion do not give a full picture of the position, in particular the Applicant would question the inclusion of the extract stated in paragraph 12.4 of its Written Representation regarding intolerable risks without the inclusion of how this is defined within the Guide, thereby giving the impression that the Scheme creates an intolerable risk. Whereas the preceding paragraph in the Guide, 4.2.24, states:

7.1.3 "The aim of assessing and managing marine operations in harbours is to reduce risk as low as reasonably practicable ('ALARP'). Judgement of risk should be an objective one, without being influenced by the financial position of the authority. The degree of risk in a particular activity or environment can, however, be balanced on the following terms against the time, trouble, cost and physical difficulty of taking measures that avoid the risk. If these are so disproportionate to the risk that it would be unreasonable for the people concerned to incur them, they are not obliged to do so. The greater the risk, the more likely it is that it is reasonable to go to very substantial expense, trouble and invention to reduce it. But if the consequences and the extent of a risk are small, insistence on great expense would not be considered reasonable."

7.2 Preparation of pNRA

7.2.1 In order to ensure the initial design of the Scheme included consideration of navigational safety, the Applicant began the process of preparing a preliminary Navigation Risk Assessment to consider the potential risks created as a direct result of the Scheme (both in operation and during construction).

Comment [MS77]: For the record, ABP has been advised that the pNRA is deficient.

7.2.2 To comply with the requirement of the PMSC to produce an NRA informed by consultation with stakeholders, the Applicant established a Navigation Working Group (NWG).

7.2.3 As the assessment was focused on the risks of the Scheme, a risk matrix was selected based on the Scheme design life.

7.2.4 The proposed methodology was presented to the Navigation Working Group (NWG) and its opinion on the major hazards was sought, this information is included within the pNRA (document reference APP-208).

7.2.5 Various computer modelling including hydrodynamic, sediment transport and vessel simulations were undertaken to assess the potential for the Scheme to affect aspects of navigational safety.

7.2.6 The Applicant notes that the submission of a 'preliminary' NRA as part of an application has precedent in both the Silvertown and Thames Tideway DCO projects.

7.2.7 With respect to vessel simulation the Applicant considers that the simulations undertaken so far are sufficient to establish that the broad parameters of the bridge design, namely the width of the navigation channel, location of protection fendering and waiting pontoons and the operational cycle time of the Scheme are satisfactory and would not create unreasonable impediments to navigational safety. The Applicant also notes that marine simulators are principally developed to undertake situation management simulations for the training and assessment of ships personnel, as such they are not developed to produce an absolute rendition of vessel response to all external factors, this is particularly relevant to the issue of modelling of wind shear effects and the level of model detail that would be required to simulate this with any level of accuracy.

Comment [MS78]: Not just a question of location of fendering. What about strength of fendering? (ability to withstand more than a side-strike by a vessel).

Comment [MS79]: This is a misleading glossing over of the fact that other simulator providers are able to simulate for wind shear. With such a large bascule bridge ABP considers this to be a concerning omission by the Applicant.

7.3 Future development

7.3.1 As stated in the submitted pNRA, further revisions of the document will be undertaken at key stages of the Scheme development. Discussions have taken place with ABP on how these revisions can be aligned with its company standard assessment process.

7.3.2 While the Applicant has for some time sought information from ABP on how it undertakes its risk assessments, it was only in January 2019 such information has been provided. Following, therefore, a recent presentation by ABP of its existing NRA procedure (MarNIS software) the Applicant understands that this is a bespoke application with a focus on ABP's corporate mitigation measures and would therefore require significant alterations to be compatible with the assessment of the design mitigation measures for this Scheme, as is currently being assessed within the Applicant's pNRA. The system, as presented, will be more useful for producing the final operational NRA and future monitoring once the Scheme is in operation.

Comment [MS80]: ABP had understood that the Applicant now accepts that this is not the case? Suggest the Applicant's latest (amended?) position is reflected here.

7.3.3 That said, the Applicant believes that application of ABP's methodology would not fundamentally change the assessment of risks associated with the Scheme and any minor amendments to the pNRA are best addressed during the planned update prior to the construction phase when further particulars will be available for consideration.

7.3.4 It is the Applicant's intention that both ABP and the NWG will be involved in future development of the Scheme NRA and this is secured through the drafting of the DCO (Requirement 11).

7.3.5 It is also the Applicant's intention to undertake additional vessel simulation based on the finalised Scheme design, once complete. This is made clear in the revised Requirement 11 submitted at Deadline 4. This final simulation model would also be made available for marine training purposes as recommended within the pNRA, if desired.

7.4 Commercial Emergency Berth

7.4.1 Within its written representation ABP comment on the need for an emergency waiting facility suitable for larger commercial vessels. The Applicant has considered this requirement in line with the principles of the NRA process and is of the opinion that a facility of this nature is not required.

Existing Situation

7.4.2 ABP response to the ExA question 2.16, does not consider the failure of the A47 Bascule Bridge for outbound vessels, its assessment only considers inbound movements, it therefore does not describe what happens in the inner harbour should the bridge fail to operate.

7.4.3 The below table sets out the Applicants interpretation of how the situation with the existing bridge correlates with the situation that could arise with the Scheme bridge.

Table 14 – Mitigation measures in bridge failure scenarios

Scenario	Mitigation	
	Scheme Bridge Failure	A47 Bascule Bridge Failure
Vessel sea going from Shell Quay	Vessel incapable of turning/reversing does not leave berth before bridge lifts.	Turns/reverses in Inner Harbour and return to berth (protocol is as existing, though involves a second Scheme bridge lift). Alternatively, Harbour Master has discretion for simultaneous lift of both bridges.
Vessel destined for Shell Quay	Turns/reverses in Inner Harbour and if no berth available uses Emergency berth in the Outer Harbour involves a second Bascule Bridge lift). Alternatively, Harbour Master has discretion for simultaneous lift of both bridges.	Uses Emergency berth in Outer Harbour (risk is as existing)

Comment [MS81]: As this will, in effect, become the norm for such manoeuvres, has the Applicant considered the impact on the BCR of the proposed scheme?

7.4.8 Using the procedure established for the pNRA, and considering that during a Scheme bridge failure event a vessel on approach would retain full navigation

control so would therefore be able to take appropriate action to minimise any impacts, the Applicant considers that for vessels less than 60m in length the severity should be ranked as 3, rising to 4 for vessels greater than 60m in length. The Applicant considers that these values would be the same for both Contact and Collision, the two principle hazard types that could occur as a result of an event.

7.4.9 To quantify the frequency of incident at the Applicant has first considered the anticipated frequency of Scheme bridge failure. The industry recognised precedent for measuring reliability is to target a reliability of 99.9% and this is the target that the Applicant is basing the Scheme design upon. In this scenario, this means that the bridge could be out of operation for 1 working day per year which is equivalent to 8 hours per year. While there is no database of records from bridge owners which would allow the Applicant to accurately advise on the assessment of failure to operate frequency or convert a reliability of 99.9%, an appropriate estimate would be approximately 1 in 5,000 failure to operate due to an issue with the lifting mechanism.

7.4.10 Notwithstanding the above, for the purpose of a worst-case assessment, the Applicant has considered 1 in 2,000 failure to operate frequency. Combining this with the predicted annual number of operations based on the results of the vessel survey, a failure rate of 1 in 1.5 years is obtained. This failure potential applies to all vessel transits requiring an opening of the Scheme bridge. The method of applying the rate to the number of operations is the probabilistic method recommended by PIANC in the Report of WG19, Ship collisions due to the Presence of Bridges.

7.4.11 Considering next the transit of vessels with a draught greater than 3.7m, that being the minimum depth limit on the berths located between the two bridges, the data set out in t he Vessel Survey Report indicates that 84 of a total 784 identified bridge openings involved vessels with a maximum draught (and not all of these vessels would have been sailing at maximum draught) greater than this value. Combining this factor with the bridge failure rate, a coincident rate of around 1 in 15 years is obtained.

7.4.12 Adding the further factors that would contribute to the need for the facility, weather, visibility, tide, occupation of other berths etc. coincident rates of greater than the 120-year design life of the Scheme are obtained. Applying these likelihoods to the grading used in the pNRA a likelihood value of 1 is obtained.

7.4.13 These values of severity and likelihood lead to risk rating of 3 and 4, both within the low risk grading. These risk gradings are such that a methodical and systematic assessment could not view them as “intolerable”.

7.4.14 Notwithstanding the above, the Applicant has considered operational methods that could further reduce this risk based on the principle of ALARP. The implementation of a sequential operational mitigation process would allow management of vessel movements based on prevailing conditions at the time of transit. This process is appended to the draft Scheme of Operation, and as per the

provisions in the dDCO changes to this certified document must be agreed with ABP, in the absence of such agreement escalated to the Secretary of State.

7.4.15 Notwithstanding the above analysis, the Applicant considers that the suggested location for an emergency berth would be, in some situations, ineffective as it is seaward of the location at which the request to open the Scheme bridge would be made, therefore should the bridge fail to open a vessel would have already passed the emergency berth before they knew of the failure and would thus have to either turn or reverse back to the berth and have to undertake the manoeuvres ABP indicate may not be possible.

7.5 Summary

7.5.1 The Applicant has undertaken an initial assessment of risks using a method in accordance with the Port Marine Safety Code.

7.5.2 The assessment has been undertaken in consultation with a Navigation Working Group set up to contribute to the process.

7.5.3 The inclusion of mitigation measures identified within the outcomes of the pNRA within the Scheme are secured through the DCO.

7.5.4 An assessment of the effects of bridge failure has been undertaken using the method for the pNRA.

7.5.5 This assessment has determined that the risk level for vessels would be classed as Low and can therefore be considered as low as reasonably practicable (ALARP).

8 Impact of the Scheme on Port Security

8.1 Legislative background

8.1.1 The Applicant considers ABP's description of the relevant statutory and non-statutory provisions relating to port security to be accurate.

8.2 Security at the Port of Lowestoft

Port Security Plan

8.2.1 This is a restricted document and understandably therefore has not been made available to the Applicant for review. Nevertheless, this evidently affects the Applicant's ability to full understand the security implications of the Scheme and assist ABP in the mitigation of any issues arising. Notwithstanding this the Applicant has given consideration to the potential implications for security that may result from the construction of the Scheme Bridge

Designated Restricted Areas

8.2.2 It is the Applicant's understanding that there are currently no permanently designated restricted areas within the Port of Lowestoft.

Designated Temporary Restricted Areas

8.2.3 It is the Applicant's understanding that any berth within the Port of Lowestoft can be designated as a Temporary Restricted Area if required by the presence of a vessel to which the ISPS Code applies, which in the case of the Port of Lowestoft would most likely be in relation to a vessel in excess of 500 gross tonnes engaged on international shipping.

8.2.4 ABP has not indicated the frequency with which such restricted areas have been created generally and more specifically in the vicinity of the Scheme. However, noting that vessels of more than 500 gross tonnes would typically have an LOA greater than 35m, there were only 240 movements of such vessels observed during the Vessel Survey of which 47 were associated with port dredging operations, a further 83 were by vessels using assigned berths, e.g. CEFAS, and of the remaining 110 movements only 17 were of a draught that could use the berths at North Quays 2 or 4, accounting for a potential 9 vessel visits to which ISPS *may* apply on these berths. By comparison a CTV would typically be around 200 gross tonnes.

8.3 Impact of Scheme on security at the Port of Lowestoft

8.3.1 The main impact of the Scheme on the security of the Port is through the ability of people to walk, at an elevated level, in proximity to an area that has the capability of being designated as a restricted area, on a temporary or a permanent basis.

8.3.2 In the presence of such a restricted area, there is therefore a requirement to prevent, or at least deter, undetected entry and the usual method for this mitigating this type of risk to ports is through fencing and CCTV.

8.3.3 In terms of people accessing a restricted area established on the North Quay, the bridge deck being some 11m above the quay level would in itself present a significant obstacle to access and, the Applicant believes, unachievable without detection.

8.3.4 Considering the potential for proscribed objects to be thrown onto a moored vessel, because of the location of the protection fendering that forms part of the Scheme, any moored vessel would be at least 22m from the pedestrian footway on the bridge deck, which mitigates this risk.

8.3.5 In considering the potential for thrown objects, the increase in range that the bridge elevation produces must also be taken into account; while any individual's throwing range is governed by many factors, the increase that would result from elevation has been assessed at between 5m and 10m. As such the distance that it could reasonably be assumed that an object could be thrown is around 25m.

8.3.6 The Applicant therefore recognises that mitigation measures and/or an amendment to the Port Security Plan would be needed to address this residual risk. The Applicant has already agreed with ABP that a joint review of CCTV coverage will be undertaken within the Port, and the impact on areas able to be designated as restricted areas would be considered as part of this review.

8.3.7 The Applicant does not consider it is practicable to include on the structure itself a specification of fence that would eliminate the ability to throw a proscribed object over it and considers that the impact is likely best addressed through active and/or passive surveillance and the design and management of the restricted areas, if established. The Applicant is unclear how ABP currently mitigates the risk of throwing of proscribed objects in to areas that may similarly be used as Temporary Restricted Areas, given the proximity between public highway and other berths within the Port.

Comment [MS82]: This appears to push responsibility onto ABP – another reason why an indemnity from the Applicant is required.

8.4 Summary

8.4.1 The Applicant recognises that there are potential implications for the Port Security Plan as a consequence of the Scheme, and thus potential implications for berthing certain classes of vessel on parts of berth immediately adjacent to the Scheme. The Applicant considers the physical extent of the fenders (which the Applicant has already assessed delineates the permanent direct loss of quay) mitigates the risk, though remains receptive to other security measures that would complement this in addition to CCTV.

8.4.2 Notwithstanding the above, given the likely frequency with which the designation of such restricted areas are likely to occur and, as ABP notes, a significant amount of alternative locations to site such restricted areas, the Applicant considers the impact on port security cannot be considered significant.

9 Other impacts

9.1 Introduction

9.1.1 In its Written Representation ABP raises a number of concerns about the impact of the Scheme both during construction and operation.

9.1.2 The Applicant notes that pursuant to ABP's Protection Provisions in the draft DCO, the Applicant cannot temporarily possess, acquire or use, or acquire new rights over, port land without the consent of the harbour authority, though such consent must not be unreasonably withheld.

9.1.3 Consequently, the draft DCO provides a mechanism and process by which the Applicant and ABP can work together to mitigate the effects of the Scheme during construction, when the full details of the construction methodology and contractor's requirements are known.

9.1.4 The Applicant is also engaged with ABP over a Side Agreement through which appropriate mitigation measures sought by ABP would be secured.

9.2 Commercial Road

9.2.1 ABP has raised concerns over access along Commercial Road during construction. The Applicant will undertake to maintain access along Commercial Road during construction wherever practicable. Where closures are required of Commercial Road within the Port Estate (for example to lift in a deck span), a diversion route would be agreed with ABP, this is foreseen to be to the south of Shed 3 (as shown in Annex 5 of ABP's Written Representation). It is understood port traffic has been directed along this route previously, though before doing so relevant measures to ensure the safety of all users would be agreed with ABP.

Comment [MS83]: Meaningless statement – if no practical use to either the ExA or ABP

Comment [MS84]: ABP is not minded to agree this – see open correspondence from ABP to the Applicant dated 5 April 2019. Suggest this section is updated to reflect the Applicant's latest thinking.

Comment [MS85]: This is a misleading statement – it was used as an abnormal load route for a small number of pontoons – but never for general two-way traffic – and Commercial Road was kept open at that time in any event. Suggest this statement is reworded as it is misleading as drafted.

9.2.2 ABP seeks a commitment from the Applicant to a pre-and post-construction survey of Commercial Road within the Port Estate and a proportionate contribution to the upkeep of that stretch of road. This is agreed, noting the Applicant's access requirements over this road would be very limited, post-construction.

9.2.3 The Scheme will introduce a head room restriction along Commercial Road, the; minimum clearance will be no less than 5.3m. The Applicant acknowledges that this would restrict the ready movement of mobile cranes. It is understood that ABP does not own any such cranes, and it is unlikely such cranes would be required in association with the proposed CTV facility to the west of the Scheme. This matter remains under discussion with ABP.

9.3 Construction compound (plot 2-22)

9.3.1 Following discussion with the previous Port Manager an area for a construction compound was identified on north quay. An area adjacent to the Scheme is critical for an efficient construction programme. The exact size and configuration of the compound will be determined during the detailed design stage, and the requirements discussed with ABP pursuant to its Protective Provisions – in

particular that the Applicant cannot temporarily possess land under its powers in the DCO without the consent of ABP.

9.3.2 The Applicant is aware that there is an informal arrangement between ABP and Dudmans who periodically stacks HGVs in this area, as discussed in ABP's written Representation. The Applicant has engaged with Dudmans and understands the principal requirement is for access to its weighbridge. This could be resolved by limiting the size of the compound to the extent that permits access to the weighbridge, and potentially reserving space adjacent to Commercial Road for Dudman's HGVs. Conversely, as ABP notes, it may be preferable to ABP/Dudmans that such vehicles are corralled elsewhere in the Port supported with appropriate telecommunication links. Alternatively, subject to the Contractor's requirements, the Applicant would be willing to come to an agreement with ABP to lease alternative areas of land within Port should it be practicable for both parties.

Comment [MS86]: This may be Dudman's principal requirement. But it is not ABP's principal requirement which has to be the safe stacking of multiple HGVs off the highway, thereby avoiding work place transport issues as far as possible. The Applicant does not address this point.

Comment [MS87]: See open correspondence from ABP dated 5 April 2019 addressing this point. This statement needs to be amended to reflect the Applicant's latest thinking/proposals in this regard.

9.3.3 As ABP has noted at paragraph 14.26(d) of its Written Representation the potential area available in the Inner Harbour is 10 hectares, by comparison plot 2-22 covers 3374m^2 (0.3374ha). As such the Applicant considers this matter can satisfactorily be resolved with ABP.

9.4 Shed 3 – impact during construction and operation

9.4.1 Shed 3 is adjacent to the pier on north quay and access to its eastern door would be obstructed during the construction of the Scheme. It is understood the Shed has recently become fully let, and the Applicant has sought, via ABP, to speak to its new tenant to understand its access requirements. There are a number of doors to this Shed and, subject to further discussion with ABP some reconfiguration (at the Applicant's expense) may be possible to minimise impact on this facility.

Comment [MS88]: See open correspondence from ABP dated 5 April 2019 addressing this point. This statement needs to be amended to reflect the Applicant's latest thinking/proposals in this regard.

9.4.2 During the operational phase of development, the eastern door would be in proximity to a pier, and it is possible the door may need to be adjusted at the Applicant's expense. Again, the Applicant would be willing to discuss this with ABP at the appropriate time, pursuant to the need for ABP's consent to the use of the Applicant's land powers under the DCO and its approval of detailed plans prior to construction.

Comment [MS89]: See open correspondence from ABP dated 5 April 2019 addressing this point. This statement needs to be amended to reflect the Applicant's latest thinking/proposals in this regard.

9.5 Temporary possession of Lake Lothing

9.5.1 Further to the changes to the DCO submitted at Deadline 3 the Applicant considers that ABP now has appropriate control over any effects caused by the Scheme's requirements for use of Lake Lothing during the construction period:

- the Applicant must obtain ABP's consent for use of its temporary possession powers over the Lake, pursuant to the protective provisions;
- the Applicant must obtain ABP's consent to temporarily suspend navigation in Lake Lothing pursuant to article 20; and

- ABP must approve the construction methodology for works in the lake pursuant to the protective provisions.

9.5.2 Furthermore, and as noted by ABP, the Applicant has drawn the Order limits within the Lake on a wide basis to take account of potential construction issues and obstructions, pending the development of a detailed design and construction methodology by the Contractor - as such the full extent of potential detriment whether in physical extent or in time is unlikely to be caused.

9.5.3 With this in mind, and the controls set out in paragraph 9.5.1, it is considered that the effects of temporary possession of Lake Lothing by the Scheme will be able to managed such that little detriment will be caused.

10 Development Consent Order and Indemnity

10.1 Introduction

10.1.1 ABP has made a number of comments in its Written Representation with regard to the drafting of the draft DCO and its interactions with its statutory powers and duties. Some of these comments are now out of date given the amendments made by the Applicant to the draft DCO at Deadline 3.

10.1.2 However, the Applicant considers that none of the concerns raised by ABP in relation to the drafting of the DCO is relevant to the question of detriment to ABP's statutory undertaking caused by the Scheme – they are instead a question of how the statutory regime created by the DCO should interact with ABP's statutory powers and duties.

10.2 DCO Articles and the Requirements

10.2.1 The Applicant's position on each article and the Requirements as raised by ABP in paragraphs 22.5 – 22.20 of its Written Representation is set out in the table below.

DCO Article	Applicant's Position
Article 3 (Disapplication)	The Applicant has sought to dis-apply the Port of Lowestoft Byelaws only to facilitate the development and operation of the Scheme. It was understood from previous discussions with ABP that the disapplication of Byelaw 25 was agreed and so the Applicant will discuss this with ABP further. This leaves only Byelaw 36, which seeks to remove the requirement for a permit for diving or swimming in the waters of the harbour.The Applicant considers that a permit should not be required given the broad scope of the protective provisions and the controls these would give ABP. Any diving operations will be undertaken by experienced professional divers who will have proper regard to safety considerations and will be approved by ABP under the protective provisions. As such, ABP and the Harbour Master will still be able to properly exercise their respective functions.
Article 20 (temporary suspension of navigation within Lake Lothing)	The Applicant amended this article at Deadline 3 such that the consent of the harbour authority will be required before it is able to be used. It is important that the Applicant is able to do this

	(rather than SCC requesting that ABP do so on its behalf as suggested in ABP's written representation) as delivery of the Scheme is the responsibility of the Applicant. As such, it will want to ensure that closures can be undertaken in line with its programme, rather than be subsumed within ABP's wider management of the Port.
Article 21 (removal of vessels)	The Applicant amended this article at Deadline 3 further to requests made by ABP. It is important that this power is able to be utilised without the consent of the harbour authority, as a vessel that is stranded within the Order limits may cause an obstruction to the construction, maintenance or operation of the new bridge, which will be an asset owned and operated by the Applicant to fulfil a traffic function. Waiting for harbour authority consent to move a vessel which is preventing the safe operation of the bridge, for example, would not be an acceptable situation.
Article 40 (scheme of operation)	This article was amended at Deadline 3 to provide a mechanism for the scheme of operation to be certified under the DCO to be varied with the consent of ABP. If that consent is not given, the Applicant would be able to seek the consent of the Secretary of State to the proposed variation. It is considered that these amendments should be sufficient to deal with ABP's concerns in relation to this article. In the context of ABP's submissions in part 2 of their Written Representation, the provisions of this article and the certified Scheme of Operation are important - as they provide certainty as to how the Scheme bridge will be operated, which will enable ABP's to properly manage the Port in accordance with its statutory functions. By way of example, point 11 of the Scheme of Operation would facilitate ABP's compliance with its duties under the Merchant Shipping Act 1995.
Article 41 (extinguishment of navigation)	This article was amended at Deadline 3 to give the harbour master the ability to allow a vessel to enter into the areas proposed to be closed to navigation. It is considered that these amendments should be sufficient to deal with ABP's concerns in this regard expressed in part 22 of their representation, but also with regards to their comments on the Dangerous Vessels Act 1985

	and the Dangerous Goods in Harbour Areas Regulations 2016.
Article 44 (protection against dredging)	This article was amended at Deadline 3 to provide that ABP must provide the Applicant with plans of its proposed dredging operation within the limits of dredging. These limits are tightly drawn to the new bridge, and this protection is sought to ensure that dredging activities do not cause damage to the new, statutorily authorised, structure.
Article 45 (byelaws)	The draft DCO does not create 'two sets of byelaws' controlling navigation within the Port as suggested by ABP. The changes at article 45(5) seek to amend ABP's existing byelaws; this was suggested deliberately by the Applicant for that reason – to ensure that there continues to be only one set of byelaws dealing with navigation. The byelaws in Schedule 10 to the draft DCO deal only with behaviour and traffic issues on the new bridge. This is important in the context of ABP's comments in part 2 of its Written Representation, as it means that there will be one set of regulating byelaws for Port operations in the harbour, meaning that ABP will be able to continue to manage the Port in accordance with its statutory duties. Changes are required to be made to the existing byelaws as those existing byelaws do not contemplate the existence of the Scheme bridge. It would be particularly unacceptable if byelaws which are put in place under this DCO for the protection of statutorily authorised works were amended or even revoked without the Applicant's approval (as is suggested in ABP's Written Representation) – it is right that the body which has sought those byelaws has some control as to their continued existence or modification. If the DCO is made the Applicant will become responsible for a statutorily authorised undertaking just as ABP is in respect of the Harbour and therefore we maintain that the principle of equivalence should apply. Finally, the Applicant amended this article at Deadline 3

	to provide for ABP's consent to be required for any new byelaw proposed by the Applicant which affects navigation or mooring.
Requirement 11 (navigation risk assessment)	Notwithstanding the Applicant's comments in this paper that it considers that its preliminary navigation risk assessment is acceptable at this stage in the Scheme's development, it amended this article at Deadline 3 to provide for the updating of the Navigation Risk Assessment pre-construction in consultation with ABP.

10.3 Protective Provisions

10.3.1 ABP has made comments on the draft protective provisions for its benefit at paragraph 22.21 of its Written Representation. The Applicant can confirm that the changes to these protective provisions at Deadline 3 correspond to these points and so these issues can be considered as closed.

10.4 Indemnity

10.4.1 ABP makes a number of comments in part 20 of its Written Representation, outlining that it considers that the Applicant should be providing a more comprehensive indemnity than that contained in paragraph 62 of the protective provisions for its benefit contained in the draft DCO.

10.4.2 ABP's position is brought forward on the basis of a claimed 'increased risk' arising from the Scheme as well as a new 'safety hazard'. For the reasons given elsewhere in this paper, the Applicant does not agree with this position, and as such there is not a common 'starting position' between the parties that a comprehensive indemnity is in fact necessary.

10.4.3 ABP also claims that reference to precedent from other statutory authorisations for bridge projects is not appropriate to this Scheme, with the suggestion that its effects to an operational port are 'unique', being a bridge crossing through the middle of the port.

10.4.4 The Applicant would disagree with this view, and notes that there are a number of statutory authorisations which have involved the crossing of a bridge over an operational port, including the Mersey Gateway Bridge, the Gateshead Baltic Millennium Bridge and the Dartford Crossing.

Comment [MS90]: These are not operational ports – they are operational waterways.

10.4.5 In addition, the Applicant particularly notes the 'Twin Sails' opening bridge in Poole (consented through the Borough of Poole (Poole Harbour Opening Bridges) Order 2006) and the Hungerford Footbridges in London, consented through the River Thames (Hungerford Footbridges) Order 1999, both of which involve bridges which would potentially interfere directly with the operation of those ports given their height and location - indeed in respect of the former, the bridge is an opening bridge for that very reason.

10.4.6 Whilst every project is of course different, and each port/harbour concerned is different from the others, the Applicant considers that clear and consistent principles can be deduced from the precedents in terms of how the effect of the projects concerned on the statutory port and harbour undertakings in question has typically been dealt with, in terms of indemnities and other provisions.

10.4.7 Furthermore, it is instructive to consider that ABP have been affected by other DCOs, all of which have included protective provisions for the benefit of ABP, which have included an indemnity in a similar fashion to that set out in the draft DCO for this Scheme.

10.4.8 The Applicant questions why this Scheme should be considered differently from these projects, noting in particular the close location of the Tidal Lagoon scheme to the Port of Swansea, a project which also involved authorising the compulsory acquisition of ABP's land at that port.

Comment [MS91]: See open correspondence from ABP dated 5 April 2019 addressing this point, explaining the differences.

10.4.9 The wording of the indemnity within the examples mentioned above is set out in the table below:

Scheme	Scope of Indemnity
Poole	(a) the inspection of any of the tidal works; (b) the carrying out of surveys, inspections, tests and sampling within and of the Channel (i) to establish the marine conditions prevailing prior to the construction of any of the tidal works in such area of the river as the authority have reasonable cause to believe may subsequently be affected by any siltation, scouring or other alteration which the Council is liable to remedy under this Schedule; and (ii) where the Commissioners have reasonable cause to believe that the construction of any of the tidal works is causing or has caused any siltation, scouring or other alteration as aforesaid; (c) the construction of any of the tidal works or the failure of any of the tidal works or the undertaking by the [harbour authority] of works or measures to prevent or remedy danger or impediment to navigation or damage to any property arising from such construction, exercise or failure; and (d) any act or omission of the [promoter] or its servants or agents whilst engaged in the construction or operation of any of the tidal works. (e) all claims and demands arising out of, or in connection with, such construction, exercise, failure or act or omission as is mentioned in that paragraph.

Scheme	Scope of Indemnity
Hungerford Footbridges	(a) by reason of the construction or maintenance of the authorised works or failure thereof, or (b) by reason of any act or omission of the undertaker or of any persons in its employ or of its contractors or agents or others whilst engaged upon the construction or maintenance of the authorised works or dealing with any the failure of such works, or (c) from and against all claims and demands arising out of or in connection with the authorised works or any such failure, act or omission and the fact that any act or thing may have been done by the Port Authority on behalf of the undertaker or done by the undertaker, any person in its employ or its contractors or agents in accordance with plans or particulars submitted to or modifications or conditions specified by the Port Authority, or in a manner approved by the Port Authority, or under its supervision or the supervision of its duly authorised representative shall not (if it was done or required without negligence on the part of the Port Authority or its duly authorised representative, or any person in its employ or its contractors or agents) excuse the undertaker from liability under the provisions of this indemnity.
Able Marine	(a) accumulation or erosion in consequence of the construction of a tidal work or the exercise of the powers to dredge conferred by this Order; (b) surveys, inspections, tests or sampling reasonably carried out to establish whether such accumulation or erosion is occurring or has occurred; (c) stopping up their access to certain land parcels before providing a new vehicular access to that parcel (adjacent to rail sidings). (d) the movement of construction vessels obstructing or interfering with the operation of the Ports of Immingham and Grimsby.
Hornsea One and Hornsea Two	(a) the perusal of plans and the inspection of the specified works by A. B. Ports or its duly authorised representative (b) the construction or failure of the specified works [works within ABP's jurisdiction], or the undertaking by A. B. Ports of works or measures to prevent or remedy danger or impediment to navigation or damage to any property of A. B. Ports arising from such construction or failure (c) any act or omission of the undertaker or their servants or agents whilst engaged in the construction of any of the specified works.
Tidal Lagoon	(a) the perusal of plans and navigation schemes and the inspection of a specified work by AB Ports or its duly authorised representative;

Scheme	Scope of Indemnity
Swansea	(b) the carrying out of surveys, inspections, tests and sampling within the harbours and the approaches to the harbours— (i) to establish the marine conditions prevailing prior to the construction of any of the tidal works in such area of the River Tawe as AB Ports has reasonable cause to believe may subsequently be affected by any accumulation or erosion which the undertaker is liable to remedy under paragraph 8; and (ii) where AB Ports has reasonable cause to believe that the construction of any of the tidal works is causing or has caused any such accumulation or erosion; (c) the construction or failure of a specified work, or the undertaking by AB Ports of works or measures to prevent or remedy danger or impediment to navigation or damage to any property of AB Ports arising from such construction or failure including— (i) any additional costs of dredging incurred by AB Ports as a result of contamination of the seabed caused by the construction of the specified work; and (ii) any damage to the lock gates or damage from flooding caused by increased wave reflection as a result of the construction of the specified work; (d) any act or omission of the undertaker or their servants or agents whilst engaged in the construction of a specified work.

10.4.10 In relation to precedent, the Applicant notes the provisions of the 1970 Agreement referred to previously in this paper (included in Appendix B); which simply sets out that the Board was indemnified from all claims arising from a Bascule Bridge failure, except in the case of wilful negligence of the Board, and thus conversely the Minister of Transport was similarly indemnified against negligent actions of the Board.

10.4.11 Finally, the Applicant considers that ABP's position ignores the history of protective provisions (or similar) (and the indemnities included within them) in statutory authorisations as primarily being focussed on the protection of apparatus where it is affected by a scheme - see for example Schedule 9 of the Transport and Works (Model Clauses for Railways and Tramways) Order 1992, which related to the Transport and Works Act regime, a precursor to the DCO regime; and section 21 of the Railways Clauses Consolidation Act 1843 which provided for railway companies to make good and compensate for all damage done to the property of the water or gas companies by reason of any interference with the mains, pipes, or works of those companies arising from use of the powers that Act (as incorporated in individual local Acts) gave railway companies to construct new railways.

10.4.12 From the examples and history given above, it is clear that the Applicant's approach to indemnities in the draft DCO accords with precedent, including that agreed by ABP on other DCOs and with previous comparable Schemes, as it provides for an indemnity for the construction, maintenance and failure of tidal works causing an impediment to navigation or damage to any property of the

harbour authority. In the wide context of what activities a statutory harbour authority can undertake, these elements can be considered the parallel for the 'apparatus' that has been protected by protective provisions within statutory authorisations since the Industrial Revolution.

10.4.13 Notwithstanding this accordance with precedent, the Applicant has considered ABP's submissions in part 20 of its Written Representation. In general terms the Applicant would note that the provisions requested by ABP are either unprecedented by the examples given above; would be matters that could be compensated under the Compensation Code or already covered in the general law; are in fact already covered by the indemnity in the DCO (e.g. the collapse of the LLTC would be a 'failure'); or would not arise (e.g. any navigation risk arising from lighting would be dealt with through the development of the navigation risk assessment pursuant to Requirement 11 of the draft DCO).

10.4.14 The Applicant would note in particular the following points:

ABP Contention	Applicant's Response
References to liability for 'operation or use'	This can not be accepted as once the new bridge is built both ABP and third parties will be aware of its existence, and so could both foresee and mitigate any losses caused. The Applicant' starting position is that there is no general entitlement to compensation arising from the use of public works (outside of the special arrangements in Part 1 of the Land Compensation Act 1973). As such, persons affected by issues arising from use of those works and can pursue civil law remedies where necessary and appropriate (e.g. negligence, nuisance, breach of statutory duty, etc.). Furthermore, the Applicant notes that many aspects raised by ABP as potentially causing issues to its undertaking would arise from a 'failure' of the bridge. The indemnity already deals with the 'failure' of a specified work; meaning that if, to use an example from ABP's Written Representation, a vehicle did crash through a barrier onto port land, and it was shown that this resulted from the failure of the barrier, ABP would be able to claim under the indemnity. The same principle would apply if the bridge

	were to get 'stuck' in a non-lifted position - any costs and losses, etc., arising to ABP from vessels being unable to traverse underneath the bridge would be claimable under the existing proposed indemnity.
The Applicant will also be expected to accept a continuing obligation to keep under review in accordance with the principles of ALARP the risks posed by the LLTC and to identify and implement any further mitigation measures which may become appropriate if technology changes or the nature of the risks are reassessed.	This is not required as part of an indemnity - the need to keep risks ALARP and under review is secured through Requirement 11 of the DCO.
ABP accepts that it will be liable for such losses as may arise due to its negligence – subject to an agreed cap.	A cap on ABP's negligence cannot be considered to be acceptable from any perspective - the Applicant should not be liable in any way for ABP's negligence. This can be contrasted with ABP's approach that the Applicant should be 'on the hook' for a wide range of uncapped losses.
The Applicant must, prior to the commencement of the LLTC Works, put in place and then maintain commercial insurance with a reputable insurer cover in a sum to be agreed.	The need for insurance is not only unprecedented in the DCOs and other statutory authorisations mentioned above. Whilst the Applicant may or may not choose to put such insurance in place, it is not reasonable and so appropriate for this to be a statutory requirement on the Applicant.
Terrorism and malicious acts; lightning strike; loss caused by pollution	All of these matters are not directly related to the existence of the Scheme and would be essentially *force majeure* activities. It is considered that these are therefore not appropriate for an indemnity. Furthermore, the Applicant notes that, as confirmed in Appendix F to the Case for the Scheme (APP-092), it is considered that terrorism/malicious acts are not a likely event for this Scheme.
References to issues which could be considered as disturbance to business operations	The Applicant would expect ABP to have insurances in place for such issues based on its current operations. The Applicant would be happy to discuss with ABP how the Applicant could facilitate any

	increase in premium to those insurances which may be caused by construction of the Scheme (albeit noting that some elements of these issues could be covered under the Disturbance head of the Compensation Code); but considers that this is not a matter for an indemnity.

10.4.15 Notwithstanding the position set out above, the Applicant does want to work constructively with ABP and recognises that despite the fact that the general nature of the indemnity within the DCO covers damage to property and as such would deal with many of ABP's concerns, ABP would be able to derive some added comfort from the indemnity specifically making clear what would be covered within it. As such, at Deadline 4, the DCO has been amended to make clear that the indemnity will cover in particular:

(i) any additional costs of dredging incurred by the harbour authority as a result of contamination of the lakebed caused by the construction or maintenance of the specified work; and

(ii) damage to any plant or equipment belonging to the harbour authority and located on port land, or to any port land or building on port land, that is caused by the construction, maintenance or failure of a specified work

10.4.16 The Applicant will continue to discuss this matter with ABP.

11 Mitigation Measures

11.1 ABP Mitigation Measures and Applicant's response

11.1.1 In Chapter 15 of its Written Representation ABP suggests a number of mitigation measures are required. They are considered in turn here by reference to the preceding chapters.

11.2 Emergency Berth

11.2.1 This has been considered in Chapter 7 and for the reasons stated therein, the Applicant does not consider such a facility is required.

11.3 Replacement berthing in the Outer Harbour

11.3.1 The Applicant has discussed and considered the justification for these works and does not consider that they are proportionate or necessary to mitigate for the effects of the Scheme.

11.3.2 At paragraph 15.12 of its Written Representation, ABP sets out that mitigation works in the Outer Harbour are necessitated by:

- Direct loss – 165m of berthing;
- Indirect loss – comprising the impairment to the utility of all 720m of berthing upstream of the proposed crossing; and in particular:
- Impairment to the functionality of North Quay 6 and 7 – length 170m, depth alongside 4.7m; and
- Impairment to accessibility to berthing for larger CTV vessels working to a fixed schedule west of the proposed LLTC.

11.3.3 These matters have been considered in Chapter 6. As explained in that Chapter, the Applicant considers the direct loss to be a maximum of 62m of berthing, and having regard to that as a proportion of available berthing, alongside berthing occupancy in the Inner Harbour, does not consider this to be significant, as this does not prevent ABP from undertaking its current operations, nor expanding those operations, based on the information available to the Applicant.

11.3.4 With respect to indirect effects, the Applicant has sought to mitigate these effects by, firstly, proposing an opening structure, elevating the structure to 12m HAT and by proposing a draft Scheme of Operation with restrictions for only two hours of the day. Indeed, there are no restrictions proposed for tidally restricted vessels, as such access to the deeper berths at North Quay 6 and 7 for such vessels is unaffected. For CTV vessels the Applicant considers that for most vessels the clearance would be sufficient to allow unrestricted access and for those vessels of greater air draft the operator could adjust their sailing schedule to avoid the restricted time periods.

11.3.5 Consequently, while the Applicant recognises that the Scheme appropriates quay within the Inner Harbour and affects the functionality of some of that remaining, it does not consider the Outer Harbour works proposed by ABP are proportionate and therefore disagrees with ABP that they meet the test of equivalence as set out in its Written Representation at paragraph 15.14.

11.3.6 That said, the Applicant awaits further information from ABP on berth occupancy and is willing to reconsider its position if analysis of such data materially alters the Applicant's conclusions on the impact on the Port, particularly with regard to the certainty which can be applied to the future prospects of growth within the Port, which ABP seeks to rely on in making its case for serious detriment.

Comment [MS92]: This has now been provided in the ABPmer Berth Utilisation Report

11.4 Indemnity

11.4.1 The Applicant's view on the indemnity sought by ABP is discussed in Chapter 10; as noted there the Applicant does not consider ABP's request to be reasonable or precedented.

Comment [MS93]: It is precedented by the M4 crossing of Newport Docks – an operational port (unlike the "precedents" cited by the Applicant). Suggest this is reworded to acknowledge that, in order to assist the ExA.

11.5 Related issues

Oil Spill Prevention & Control

11.5.1 The Applicant has agreed with ABP that it will facilitate two additional oil transporter booms it requests are provided in its written representation. The Applicant is discussing with ABP how this is provided, as part of a proposed side agreement.

11.5.2 In any event, even if agreement is unable to be reached, ABP could, if it wished require, the provision of such booms pursuant to paragraph 54(2)(b) - the Applicant agrees that this would be a 'reasonable requirement' under that paragraph.

Statutory Port Security

11.5.3 Port Security is discussed in Chapter 8. The Applicant has agreed to cover the reasonable costs associated with a review and remedial action to ensure that CCTV provision is not detrimentally impacted by the Scheme. The Applicant agrees therefore to the reasonable costs associated with any additional statutory security measures that may be required by the Department for Transport as a consequence of the Scheme.

Traffic Management Action Plan

11.5.4 The Applicant notes that the interaction of the Scheme with Commercial Road (both in terms of the use of temporary possession powers and in practical methodology) would be subject to the Protective Provisions for ABP's benefit within the draft DCO - see paragraphs 53 and 54 (noting that the definition of 'plans' includes 'method statements).

11.5.5 As such, the Applicant agrees to enter into a Traffic Management Action Plan as required by ABP.

11.5.6 The Applicant is discussing the content of such a plan with ABP pursuant to a proposed side agreement between the parties.

Navigational Marks

11.5.7 The requirement for navigation markings for the bridge is set out in the pNRA and the finalisation of that document, including recommended mitigation measures, is secured through Requirement 11.

11.5.8 Reference to navigational markings is also made within the Scheme of Operation, which is also secured through article 40 of the DCO.

11.5.9 Finally, paragraph 59 of the Protective Provisions for the benefit of ABP refer to the harbour authority requiring the Applicant to take 'such other steps' for preventing danger to navigation as it may from time to time require. Such 'other steps' could include navigational markings.

11.5.10 However, to ensure the avoidance of doubt, the Applicant has amended paragraph 59 at Deadline 4 to specifically add the words 'navigational marks'.

12 Conclusions

12.1.1 The Applicant has brought the Scheme forward cognisant of its location as spanning an operational port; but recognising that the Scheme will in itself also bring benefits to the operator and tenants of the Port in improving traffic conditions on the surrounding strategic and local highway network, which is critical to their operations. The Scheme needs to be seen in this context.

12.1.2 As noted in chapter 3 of this paper, the Applicant considers that the question of serious detriment needs to be seen in the context of the present situation of the Port and a realistic likely scenario for future growth, and whether the Scheme can be considered to cause a detriment to those activities.

12.1.3 In this paper, the Applicant has considered a range of contemporary evidence:

- existing vessel movements (from its vessel survey);
- current berth occupancy (on the basis of the data available); and
- preferences shown by current and prospective Port tenants.

12.1.4 Based on this, the following conclusions have been drawn on current operational conditions:

- the operation of the A47 Bascule Bridge has a significant impact on vessel movements in and out of the Inner Harbour, influencing their transit times
- average berth occupancy in the Inner Harbour is estimated at 35%
- windfarm operators prefer to be located in the Outer Harbour, given its better accessibility and, despite availability of berthing in the Inner Harbour, potential CTV operators have decided to locate at other ports.

12.1.5 Additionally, to examine the likelihood and nature of future growth, the Applicant has considered:

- vessel movements in a possible growth scenario;
- likely trends in vessel sizes; and
- strategies in servicing of offshore windfarms.

12.1.6 The conclusions of this work are that:

- The Port is well-positioned to benefit from the development of North Sea resources, though doubt must remain over the viability of locating CTVs at the former Shell Base (west of the Scheme);
- The scale of the requirement for CTVs in servicing the offshore sector is unclear; and

- The size of CTVs may evolve, but it is not necessarily the case they would get larger, there will certainly be vessels available that do not require a Scheme bridge lift, and that would be a consideration for a prospective CTV operator based at Shell Quay.
- In the absence of the Scheme, vessels would still be subject to the timing restrictions at the A47 Bascule Bridge (to which vessels have already adjusted) and thus the effect of the Scheme (and its draft Scheme of Operation) need to be seen in that context.

12.1.7 With respect to land take:

- the land proposed to be acquired permanently to facilitate the Scheme is not an irreplaceable part of the operational land of ABP's statutory undertaking and its loss would not seriously impair the functionality of Port given its small extent in the context of the available berthing in the Inner Harbour and current information on berth occupancy.
- the temporary land take associated with the Scheme is a small portion of the operational Port, the terms of occupation of which will be able to be managed pursuant to ABP's protective provisions.

12.1.8 ABP has raised various concerns as to the effect of the Scheme on the practical operation of the Port, on issues such as Port Security, navigational risk, traffic management and pollution, which together it claims could cause serious detriment to the Port. This paper has shown that these concerns are either (a) unfounded or (b) can be managed through the provisions of the DCO and through the provision of additional equipment paid for by the Applicant.

12.1.9 The Applicant does not deny that the Scheme will bring change to the Port of Lowestoft, but this is a different question as to whether it causes a serious detriment.

12.1.10 Through its design and proposals for operation, having regard to the current and potential future use of the Port, this paper has shown that no such serious detriment is caused; and that therefore the need for large scale mitigation interventions as proposed by ABP does not arise.

Appendix A: The London-Great Yarmouth Trunk Road (Lowestoft Inner Harbour Bridge Diversion) (No.2) Order 1969

Appendix B: British Transport Docks Board – Ministry of Transport Agreement, dated 20 January 1970

Appendix C: Port of Lowestoft Bye-laws 1993

Appendix D – Port of Lowestoft Bye-laws 1958

Appendix E - Information for Small Craft and Yachts Using Lowestoft Harbour and the Seaward Approaches to Mutford Lock