Appendix 11.6

EA MEETING MINUTES



Minutes

Subject	Project Blue: Privileged and Confidential Flood Risk and Surface Water Drainage Meeting with EA and LCC	Job no	0040026
Place	Liver Building, Liverpool	Date	19 February 2019
Present	Stephen Sayce – Environment Agency (EA) Graham Bate – EA Peter Jones – Liverpool City Council (LCC) Dave Jackson - LCC Alix Craig – EFC Peter Wardle – Gardiner & Theobald (G&T) Helen Clarkson – CBRE Georgina Baines – Planit IE Sean Swarbrick - Planit IE Jon-Scott Kohli – Pattern Design Matthew Vaughan-Shaw- BuroHappold Engineering (BHE) Nick Hall – BHE Rob Frost – BHE Clare Jones – BHE Dr Sam Fox – United Utilities	Apologies	
Distribution	As above and: Graham Drennan – Gardiner & Theobald (G&T) Mario Samara – Meis Architects Alan Travers - BHE		

Objective of meeting: To provide an update to the EA and LCC on Project Blue and to agree in principle the flood risk management strategy for the development including minimum development levels

Item		Action
1.0 Introd	uctions	
1.1	Introductions	
1.2	Project Blue Update	

EΑ

Outline of Stage 2 scheme design provided which includes a 52,000 seat stadium orientated north – south in the centre of the site. A canal channel to the west with a car park structure located on the west wharf beyond. To the east of the stadium is an open area of fan zone and the existing hydraulic engine house.



It was explained that future site levels are determined by three factors: 1. Historic England requirements which are to keep the site as close to its historic levels as possible; 2. Constructability requirements which means that the new stadium structure has to pass above the existing historic dock wall and below finished floor level within the stadium: and 3. Building and access levels must be protective from future flooding.

Based on these requirements a level of 7.3mAOD within the stadium footprint has been proposed with lower levels in the surrounding area. This was the basis for the following discussion.

In addition as part of Stage 2 design BuroHappold have developed a preferred surface water drainage strategy and a discussion on the suitability of this strategy also took place and is detailed here.

2.0 Review of information available from the Environment Agency

- 2.1 Review of the information received from the EA
 - BHE tabled the latest flood levels provided from the EA in January 2019 which source the data from the 'DRAFT Mersey Estuary 2016 Study'.
 - Previously, the flood level information received from DRAFT Mersey Estuary 2016 Study had been considered to be draft. The EA confirmed that the latest flood levels were now considered finalised.

2.2 Extreme water level predictions for River Mersey and methodology used

- The EA advised that the Mersey Estuary hydraulic model incorporated climate change allowance and a degree of wave action in the order of a 1 in 1 year event. The EA agreed to send to BHE the hydraulic model and/or the report in order for BHE to understand the design parameters used.
- 2.3 Status of the latest model information received January 2019
 - The EA confirmed that the flood levels provided in January 2019 were now finalised.

		 The EA advised they were in the process of updating their flood mapping and were expected updated maps by summer 2019. These would be indicative as the EA do not hold detailed topographic survey information. 	
3.0	Flood	Levels for the site	
	3.1	Flood levels information to be used	
		• The EA confirmed that the flood levels provided in January 2019 should be used for the Flood Risk Assessment.	
	3.2	Approach to assessing flood levels for the site	
		Modelled Levels	
		 BHE tabled the 2019 flood levels from Node 3 (MEST_2750) within the River Mersey. 	
		 BHE explained that there is an upstand wall along the river wall. Whilst it is not considered continuous and not a formal flood defence wall, it is likely to provide some benefits to the site. BHE has taken the approach however, that the flood level within the River Mersey is assumed to be the same level at Bramley Moore Dock. The EA agreed with this approach. 	
		Allowance for Climate Change	
		 BHE explained that the EA 2115 1in 200 (0.5%AEP) modelled flood level was approximately 200mm lower than if the 2016 1 in 200 (0.5%AEP) modelled flood level had climate change allowance added in accordance with NPPF guidance. In 2017, the EA had previously advised to use the latter approach to define the 2115 flood levels. 	
		 The EA confirmed in this meeting that the climate change allowance had already been included within the hydraulic model and so the 2115 1 in 200 (0.5% AEP) flood model level can be used within the FRA. This is 6.97m AOD at the site (taken from Node 3). 	
		 The EA advised that the UKCP18 guidance may change the climate change allowances required for developments but as yet did not know what these changes would be. The EA confirmed they would take a flexible approach to this as the FRA was being prepared now for a planning submission. 	
		Consideration of wave overtopping and breach	
		 The EA reconfirmed that breach modelling was not required as the river wall is not a formal flood defence 	
		 BHE advised that wave overtopping will be looked at within the FRA. Preliminary analysis has identified that the main mechanism is from still water flooding rather than overtopping. Due to wave heights being relatively low, significant overtopping is only anticipated to occur during periods of extreme high water within the river. It is proposed that the site would already be evacuated under such conditions and therefore the additional risk posed by 	BHE

_

		BOROTATI OLD L	IN OTHELLICITY
		wave overtopping is minimal. BHE have currently used a wave height of 0.6m based upon Maritime and Coastguard Agency documentation. BHE will undertake further sensitivity analysis during preparation of the FRA with the aim of obtaining additional wave data.	
		 LCC recommended reading the High Link Road FRA as wave overtopping was undertaken for the development and may have sources of wave data within it. 	BHE
		• The EA to review the model to see if there is wave data which can be provided.	EA
4.0 Minim	num Developi	ment/ Threshold Levels	
4.1	Flood Levels	s for the Site	
	• BHE (ME	provided the tabled the 2019 flood levels from Node 3 ST_2750) within the River Mersey.	
4.2	Design life f	or the Development	
	○ The life o life i	EA noted that commercial buildings would have a design of of 60-75 years whilst residential would have 100 years design in relation to flood risk.	
	 The from 	EA confirmed that the design life may be considered to start n when the planning application is submitted.	
	 LCC recc cone 	had no comments regarding design life. However, they ommended front loading the planning application to avoid ditions to make the planning process easier.	
4.3	Allowance for	or Climate Change	
	o As c	liscussed in section 3.2.	
4.4	Approach to	> Freeboard	
	 The acce would 	EA confirmed that 300mm of freeboard was appropriate and eptable for the development. A higher freeboard of 600mm IId be typical for residential uses.	
4.5	Minimum de	evelopment/ Threshold Levels	
	 The 7.3n 211 EA a chai 	EA confirmed that a development level for the stadium of n AOD was acceptable to the EA. This would be based on the 5 1 in 200 (0.5% AEP) flood level with 300mm freeboard. The accepted that the stadium did not require 100 years of climate nge allowance.	
	 BHE the the 	tabled the Development Levels figure in Appendix A showing proposals based on a minimum development of 7.3m AOD for stadium.	
	 BHE proj devi floo inco raise app 	explained that the existing Hydraulic Engine House is posed to be refurbished. The proposals have not yet been fully eloped but they could include a café. The existing finished r is approximately 6.6m AOD. Flood resilience measures will be proporated within the design and where possible, kitchen areas ed above the 7.3m AOD level. The EA agreed with this roach.	

- BHE explained that the proposed car park located to west of the stadium would be at grade at the existing dock level (approximately 6.6mAOD). There will be toilets and lifts within the ground floor cores. Flood resilient measures will be considered during the design. The EA agreed with this approach.
- GB presented the Fan Zone approach where most heritage aspects are concentrated. BHE noted the proposal to maintain existing levels within the Fan Zone, with the infilled part of the dock raised to meet the existing coping level. Existing levels will also be maintained within the area between the Fan Zone and Nelson Dock to the south, which will create a flood route between Nelson Dock and the Fan Zone during the design flood event. The EA accepted the principle that the Fan Zone may flood during the design flood event. The EA queried whether any structures would be installed within the Fan Zone. BHE confirmed that any structures would be of a temporary nature, e.g. temporary performance stages, or shipping container style kiosks.
- Planit described the proposal to create a shallow water feature within the northern part of the Fan Zone by locally lowering a section below the dock wall coping. It would be possible to drain the water from this feature on match days.

5.0 Safe Access and Egress Provision

- 5.1 BHE explained that in the event of a flood warning on or prior to a match day, the match would be cancelled. Therefore evacuation of tens of thousands of people is not required as part of the flood management strategy. The provision of a safe access and egress route is therefore being considered for the evacuation of staff on the site.
- 5.2 BHE tabled the proposed safe access and egress route along the northern boundary of the site. BHE explained that this access route is proposed to be provided at a minimum of 7.1m AOD to match the level on Regent Road. A route through the stadium at 7.3m AOD will be provided as shown in Appendix B. The EA agreed to this approach and did not identify a requirement for vehicular and pedestrian route at 7.1m AOD around the stadium.
- 5.3 A Flood Warning and Evacuation Plan will be required to manage closure and evacuation of lower areas of the site including the at grade car park and riverside walkway. This approach was acceptable to the EA.

6.0 Surface Water Drainage Strategy

- 6.1 Discharge Rates and Route
 - LCC advised that there is the Liverpool Integrated Model for surface water flooding for the 1 in 30 year and 1 in 100 year events. There are maps available for these events to show the surface water flooding in the vicinity of the site. These are considered to be more accurate than the maps published by the EA on their website. LCC agreed to forward a copy to BHE. (Post meeting note: maps now received from LCC)
 - BHE advised that surface water run-off would continue to be discharged into the docks, including the waterway proposed between the Stadium and Car Park that will connect Nelson Dock to Sandon Half-Tide Dock. New outfalls are proposed through

		BOROTAFFOLD	OINCLININ
		new walls wherever viable, one is required through the existing dock wall but is proposed to be incorporated into the new isolation structure at the northern end of the waterway, to be hidden from view.	
		 LCC requested that the invert levels for the surface water outlet pipes are above the maximum water level of 5.16m AOD. BHE advised that this may not be possible due to the length of pipe required and the need to meet self-cleansing gradients/velocities, BHE will keep the drainage as high as possible. BHE to review. 	ВНЕ
		• LCC advised that for a site recently brought forward for planning within the docks, Peel Ports had a requirement to have discharge velocities lower than 0.5m/s into the Docks. LCC recommended to discuss with Peel Ports if they are affected by the development.	
		 LCC require no flooding of site for a 1 in 30 event and whilst for a 1 in 100 year event, ponding is acceptable, storage on site should be avoided for match days. LCC to forward on their guidance document for planning. (Post meeting note: info now received from LCC) 	
		 UU advised that they have studies of all surface water drainage to Sandon dock. UU suggested BHE to contact them if they require further information. 	BHE
		• BHE advised that rainwater harvesting was being considered for the development.	
		• BHE explained that wave overtopping will need to be incorporated within the drainage network.	
	6.2	Water Quality	
		 BHE explained that a SuDS viability assessment had been completed and features at the top of the SuDS hierarchy (open ponds, swales and the like) were not considered appropriate given the context of the site. BHE are proposing to use mechanical means such as vortex separators to improve water quality prior to discharge into the docks. In low risk areas, over edge drainage was proposed to be maintained. LCC agreed with this approach. 	
		 LCC advised that Environmental Health and the EA would be consulted regarding water quality. 	
7.0	Any O	ther Business	
	7.1	The EA confirmed that the River Mersey is an Ordinary Watercourse and therefore Flood Risk Environmental Permits were not required.	
	7.2	LCC recommended including a section on the Sequential Test within the FRA.	

The minutes detailed herein reflect the author's recollection of the discussions held during the meeting detailed above. If you feel that these minutes are inaccurate; proposed additions, corrections and/or comments must be submitted to the author in writing within five working days of the date of these minutes. If no written responses are received within this period, these minutes will be deemed the official record of the meeting.

Appendix A Minimum Development Levels



Appendix B Safe Access and Egress Route



B U R O H A P P O L D E N G I N E E R I N G

Minutes

Subject	Meeting with Peel Ports	Job no	0040026
Place	Peel Ports Liverpool Office	Date	16 May 2019
Present	Phil Jones - Peel Land Ian Politt - Peel Land Tim Bingham - Curtains Steve Gavin - Peel Ports Garry Sharpe - Peel Ports Alix Craig - EFC Colin Chong - EFC Rob Frost - BuroHappold	Apologies	

Distribution

Objective of meeting: To provide Peel with details of the RIBA Stage 2 EFC Stadium design and to gain from their experience of development in the Liverpool dock system

Item		Action
1.0 Sh	ared learning	
F e s	Peel have offered to share with the EFC team a number of their key learning experiences they have had when developing other parts of the Liverpool dock system. It was agreed that a future workshop would be very beneficial and is to be arranged in due course.	EFC design team and Peel
2.0 Riv	ver Wall	
F	Peel advised that the true 'back of the river wall' is likely to step into the EFC site at depth within the ground. Peel do not believe they have any drawings of this construction but will investigate.	Peel
(Consideration of the below ground profile of the wall needs to be recognised as part of the legal work to define the red line site boundaries and maintenance responsibilities.	Slaughter and May
, i	As part of enabling works EFC to probe for the back of the river wall to confirm its profile.	ВН

	Peel stated that the nature of the works to be undertaken to construct the Stadium are unlikely to risk a breach of the river wall and therefore it is likely that they will require the Stadium contractors PI insurance to be in the region of £20m rather than significantly greater amount. Peel Ports will require monitoring of the river wall via piezometers and inclinometers on the wall with agreed trigger levels. Exact monitoring specification to be agreed between the contractor and Peel together with trigger values. Item to be added to ER's.	EFC
3.0	Surface water drainage	
	BuroHappold confirmed that the design intent is for surface water from the Stadium development to be discharged into the western channel feature which will connect to the wider dock system with drainage from any car park areas first passing through an interceptor. Peel confirmed they have no objection to this.	
4.0	Connection of dock system via western channel	
	Peel confirmed that they were aware of operational problems occurring due to the closure of the valves within the isolation structure in the past. The effects suggested that in the long term it is important to the environment and management of the docks to the south (water levels for the canal and aquatic environment) to maintain the connection through the isolation structure between the docks to the north of Barmley Moore and to the south. Peel do not wish to see the connection permanently blocked up but accept that during construction it will not be possible to maintain the link.	
	Peel suggested that the Canal and Rivers Trust should be consulted about the temporary blocking of the connection through the isolation structure during construction.	EFC / BH
5.0	Wind	
	Peel suggested that during windy periods they experience operational difficulties particularly in area around the former lock gates. It was suggested that the new vehicle access to the car park over the western channel could be vulnerable to gusting wind that could endanger vehicle movements.	Design Team
	Peel confirmed that it has been necessary for some of their larger gate to have piled foundations in order that they resist the force of the wind.	ВН
6.0	Additional consultees	
	Peel suggested that light from the new stadium could have the potential to cause difficulties for river traffic. In order to ensure this is not the case the Mersey Marine Department and Pilots should be consulted. Peel can assist in making contact. A mock-up of the light spill from the Stadium in use and out of use from the river will be required.	Design Team

Peel suggested that consultations with the MMO should be undertaken for the filling works. Some outline consultation already undertaken and main consultation to be undertaken by the filling contractor.

7.0 Removal of mooring bollards

Peel noted surface removal of mooring bollards around other docks has proved easy though their foundations remain in-situ.

The minutes detailed herein reflect the author's recollection of the discussions held during the meeting detailed above. If you feel that these minutes are inaccurate; proposed additions, corrections and/or comments must be submitted to the author in writing within five working days of the date of these minutes. If no written responses are received within this period, these minutes will be deemed the official record of the meeting.

Minutes

Subject	Follow on meeting with Peel Ports and Canal and River Trust	Job no	0040026
Place	Royal Liver Building	Date	7 October 2019
Present	Alix Craig (EFC) Colin Chong (EFC) Tim Carey (PROCDM) Graham Drennan (G&T) Peter Wardle (G&T) Joe Blythe (Peel Ports) Steve Gavin (Peel Ports) Russel Lloyd (RLB) Steve Macey (BH) Rob Frost (BH) Jonathan Rowe (BH)	Apologies	

Distribution

Objective of meeting: To update Peel Ports of the design

development for the EFC Stadium scheme and to discuss issues of mutual interest

Item	Action
1.0 Red Line 1.1 (The site red line needs confirmation with Peel Ports and Peel Land and Property)	AC / EFC Legals
2.0 River Wall	
 2.1 Peel Ports confirmed that based on the minimal proposed intrusive works in the area of the river wall (western wharf of Bramley-Moore Dock) the monitoring of the wall should comprise – A visual survey (undertaken using drone utilising 3D photography or lazer or discrete points on the wall) undertaken prior to the works to establish a baseline of line and level of the wall 	EFC - ERs
 A visual survey post works to establish any change of line and level 	

3.0	Existing isolation structure	
3.1	The existing isolation structure owned by Peel Land and Property- Ian Pollitt is contact (IPollitt@peellandp.co.uk)	
3.2	It was confirmed by Peel Ports that the sluices are currently open.	Peel Ports
3.3	Peel Ports to confirm the power source for the sluice and confirm the operational and access requirements for it post construction (i.e. access requirements for closing the sluice gates and location of controls to do that, could this be remote?)	
3.4	Peel Ports confirmed that they had no problem with the sluice gates being closed during construction but that other interested parties (such as Peel Land and Property and CRT) should be consulted.	CBRE BuroHappold
4.0	Light impact to river traffic	
4.1	Everton confirmed that no red or green lights are to be used as part of the illumination (blue and white to be used).	EFC design team note
4.2	CBRE to make available photos from EIA visualisations on light impact.	CBRE
4.3	Peel Ports confirmed that there are no navigation aids in the area of BMD.	
4.4	Joe Blythe to make contact with the pilots to facilitate a discussion on potential light spread impact to the river with EFC (hopefully none)	JB – Peel Ports
5.0	Dock flooding	
5.1	Peel reported the following in relation to dock flooding:	
	The last storm surge that overtopped the port lock gates was in 2013	
	If the River Mersey level exceeds 9.7mAOD the dock lock gates are pushed	
	open by the flow	
	Normal storm River Mersey level predictions 10.2-10.3mAOD	
	Highest storm surge prediction with the addition of high winds >11.0mAOD	55
	5.2 BuroHappold to issue historic photographs of dock flooding to JB to see if he can locate them so the flood level can be assessed.	BuroHappold
6.0	Construction work and licencing	
6.1	Peel Ports confirmed they are unlikely to have a problem with installation works for the new isolation structure provided the craft / construction plant involved stay within the neck of the Sandon Half-Tide dock entrance. Svitzer Marine will be re-locating their tug operations into Sandon Half Tide dock from BMD so it will be busier than at present.	Peel Ports
6.2	Peel Ports to investigate if the installation of a new isolation structure requires a HRO and confirm to EFC.	
6.3	Peel Ports would undertake a bathymetric survey of the entrance of Sandon Half- Tide Dock prior to filling works and post filling works to establish if they have any significant impact on dock bed level. What constitutes significant to be agreed between both parties.	

6.4 6.5	(Peel Ports confirmed they have just updated their service survey.)	Peel Ports and BuroHappold
0.0	Moore Dock can be terminated has been suggested as there is a potential risk to the robustness of the wider dock electrical network.	EFC note
6.6	Peel Ports have confirmed that they are the body best placed to apply for a mooring licence for the dredger in the River Mersey. Such an application takes 6 months before mooring rights are gained.	Peel Ports
6.7	Peel to provide a copy of the 2012 mooring licence that was applied for the Wellington dock filling works	

The minutes detailed herein reflect the author's recollection of the discussions held during the meeting detailed above. If you feel that these minutes are inaccurate; proposed additions, corrections and/or comments must be submitted to the author in writing within five working days of the date of these minutes. If no written responses are received within this period, these minutes will be deemed the official record of the meeting.

B U R O H A P P O L D E N G I N E E R I N G

Minutes

Subject	The People's Project EA Consultation - Flooding & WFD	Job no	0040026
Place	06/11/2019	Date	07 November 2019
Present	Graham Bate (EA) Bonnie Boulton (EA) Dominic Flynn (CBRE) Matthew Vaughan-Shaw (BuroHappold) Matthew Davison (Carcinus) Phil Preston (WYG)	Apologies	Stephen Sayce (EA)
Distribution	Above + Steve Macey (BuroHappold) Lloyd Baker (BuroHappold)		

Objectives of meeting:

Georgina Dowling (CBRE)

- 1 Agree in principle the response to new flood zone mapping within the FRA
- 2 Agree in principle the approach to wave overtopping assessment within the FRA
- 3 Agree the WFD Assessment Scoping and general approach to the assessment

Item		Action
1.0 Flood	Zone Mapping	
1.1	Graham Bate (GB) noted that flood zone maps have been updated but the flood levels that inform the mapping remain unchanged. The changes in flood extents are therefore expected to be due to updates to the ground surface model.	
1.2	It was agreed that the project team hold more accurate topographic data than the ground surface model that the EA flood mapping is based upon. It is therefore appropriate for the project team to undertake its own assessment of flood zones using the topographic survey and the flood levels provided by the EA.	
1.3	Matthew Vaughan-Shaw (MVS) noted that updated flood level data was provided to BHE in January 2019 for use within the FRA. The document includes the note 'Model data taken from DRAFT Mersey Estuary 2016 Study' The FA are requested to confirm that the levels remain valid for the	

purpose of the FRA. (post-meeting note – the final flood report, Mersey Estuary, Ditton Brook and River Gowy, is dated December 2018; it is therefore expected that the levels supplied in January 2019 remain valid).

2.0 Wave Overtopping Assessment

- 2.1 MVS noted that BuroHappold have submitted a request for access to the EA's wave modelling predictions. The model is summarised within the Mersey Flood Model Report, Appendix C, but does not contain model outputs at the development site.
- 2.2 GB confirmed that an enquiry has been submitted and he will follow up.
- 2.3 In the absence of model outputs BHE have developed an estimate of the wave conditions, for different return periods, at the development site. MVS described the methodology as follows:
 - Wave data for variable return periods obtained for the nearest wave buoy within the Irish Sea
 - Research multiple academic papers and modelling reports to estimate the relationship between the wave buoy location and the development site, i.e. identification of wave height reduction for different return periods from an offshore location to a location within the estuary
 - Wave overtopping calculations using EuroTop methodology, and comparison with recommended safe limits for pedestrians and vehicles
 - Identification of mitigation measures to protect pedestrians and vehicles during storm event and limit damage to structures. This will include closure of the river wall access road to pedestrians and vehicles. Access to the Outside Broadcasting Compound may be achieved via the southern access road, avoiding the need to drive alongside the river wall.
- 2.4 Dominic Flynn (DF) noted that the river wall is outside of the planning application boundary. Access along the crest of the wall is not part of the scheme and there will be a fence in place to prevent this.
- 2.5 The main uncertainty relates to the wave conditions. BHE will include a sensitivity assessment of the estimated wave conditions if the EA are unable to supply modelled wave data.
- 2.6 GB noted that the wave overtopping risks shall be considered as a residual risk within the FRA. The methodology and results should therefore be of sufficient reliability to inform the level of residual risk and mitigation measures needed. It was agreed in principle that the methodology described above would be sufficient for the FRA but would be improved if modelled wave data is available.
- 2.7 MVS noted that the FRA will outline the operational procedures that will need to be developed in relation to closure of the riverside road to pedestrians and vehicles. GB noted that Wirral Council now provide flood warnings linked to high winds and waves since wave overtopping contributed to flooding of New Brighton 2013. This information or similar may be available for the proposed development.

3.0 Water Framework Directive – Background Information

- 3.1 MVS provided background information relating to the proposed development and construction methodology. Key points of relevance to the WFD were noted:
 - Bramley Moore Dock (BMD) is currently an operational dock, providing mooring for the port's tug boats.
 - An isolation structure was constructed in 2005 to allow separation of the north and south dock water. The structure includes a series of culverts with sluice gates. MVS noted that there is anecdotal evidence that the sluice gates were closed for an extended period of time following construction which resulted in a noticeable change to the water quality conditions within the southern dock network. There is however no documented evidence of this.
 - The dock will be infilled completely during the construction phase; towards completion of the construction phase a channel will be constructed to the west of the stadium to provide hydraulic connectivity between the north and south dock network;
 - Material for dock infilling will be dredged from the Irish Sea from a licenced dredge site
 - An new isolation structure will be installed within the northern entrance of BMD, this will include a series of culverts to match the existing isolation structure to the south; during construction phase the culverts will be blocked to prevent loss of sand during infilling
 - The bed of BMD will be raked to remove objects that could result in voids occurring within the infill
 - A geotextile membrane will be placed across the bed of BMD to separate the existing silt from the infill material to meet geotechnical requirements
 - Infilling will be undertaken by the supply of a water-sand mix from a dredger moored in the River Mersey. The water-sand mix will be pumped via a floating pipeline and discharged into the dock basin. As the material is deposited, the water from the basin will be displaced. It is currently anticipated that this will be displaced to the north into the northern dock network.
 - As noted above, the hydraulic connectivity between the north and south will be temporarily removed during the construction phase (approximately 2 years). It is proposed that monitoring (pre and during construction) will inform the requirement for pumping between the north and south dock networks to mitigate water quality risks.
- 3.2 MVS noted that the EIA and WFD assessment are not considering impacts of the dredging operations as they will be undertaken within a licenced site in the Irish Sea. The

4.0 Water Framework Directive – Scoping Overview

- 4.1 Bonnie Boulton (BB) noted that she had reviewed the draft scoping document issued by BHE together with inputs from specialists.
- 4.2 BB noted that the information in the scoping note can be simplified by only covering the consideration of potential impact. Information relating to

proposed mitigation should not be included within this stage of the process.

- 4.3 BB noted that information relating to timing of activities needs to be completed.
- 4.4 MVS noted that there are two potential water bodies that may require assessment: Mersey *Surface Water Body* and Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers *Ground Water Body*.
- 4.5 MVS noted BHE's opinion that the development's ability to impact the Ground Water Body is negligible. Also noted that the main water quality issues associated with the Ground Water Body are defined as relating to agricultural pollution. Given the development site's location on the boundary of the Ground Water Body BHE propose that this may be scoped out. BB agreed with this approach and requested that this is documented and justified within the WFD Assessment Report.
- 4.6 MVS noted that the assessment will cover construction phase and operational phase. The construction phase will focus on the infilling and early works through to stadium sub structure. Stadium super-structure construction is likely to have limited impact and will not be covered in detail. During operational phase the focus of the assessment will be on surface water drainage impacts.

5.0 Water Framework Directive – Hydro-morphology

- 5.1 BB agreed that this should be scoped in
- 5.2 BB advised that water quality issues should not be covered within this section
- 5.3 BB advised that the mitigation measures should include monitoring of the TSS within the displaced water during infilling operations.

6.0 Water Framework Directive – Biology – Habitats

- 6.1 BB agreed that this should be scoped out based upon the scoping questions in the EA template. Reference may be made to the EIA chapter to highlight that wider assessment has been completed and mitigation measures proposed.
- 6.2 Benthic habitats within BMD have been characterised during 2017 site specific survey. This also included consideration of the fauna / flora growing on the dock walls.

7.0 Water Framework Directive – Biology – Fish

- 7.1 BB agreed that this should be scoped in.
- 7.2 Matthew Davison (MD) noted the baseline survey methodology and key findings:
 - Site specific survey undertaken in 2017 to characterise fish assemblages within BMD;
 - Survey used a multi-method approach consisting of hydroacoustic (vertical and horizontal) analysis for biomass and density as well as static fyke netting.
 - Overall, fish densities within Bradley-Moore dock were reported to be relatively high at >3,000 fish per hectare observed throughout.

- Most common fish species recorded within the fyke nets was pouting *Trisopterus luscus* followed by coal fish *Pollachius virens*, European (silver) eel *Anguilla anguilla*, sole *Solea solea* and plaice *Pleuronectes platessa*.
- Report concluded that at the time of sampling, BMD was not considered a fish nursery and that the presence of European eel does not warrant special status.
- 7.3 MD noted that the key impact is considered to be associated with the dock infilling operation, with the requirement for fish capture in advance.
- 7.4 It was discussed and agreed that potential impacts upon fish movement due to the temporary and permanent condition of the western channel should be considered.
- 7.5 Aquatic ecology chapter baseline will draw from site specific survey and other available data to characterise likely fish populations within BMD and lower Mersey. This will include consideration of migratory species such as Atlantic salmon and European eel.
- 7.6 Guidance in relation to the construction and modification of culverts in respect to fish passage will be undertaken in view of the 'Culvert Design and Operation Guidance' (CIRIA, 2010) and Armstrong G.S et al., (2004). In addition to the Environment Agency Fish Pass Manual: Guidance notes on the Legislation, Selection and Approval of Fish Passes in England and Wales.

8.0 Water Framework Directive – Water Quality

- 8.1 BB agreed that this should be scoped in.
- 8.2 The potential to disturb contaminated sediment during the works was discussed. It was agreed that the risk is heavily reduced by the proposal
- 8.3 MVS noted that the disconnection of hydraulic connectivity between north and south dock network may result in water quality impacts. This will be covered within the WFD Assessment with the current proposed mitigation to undertake monitoring and pump if changes beyond trigger levels are observed.
- 8.4 Potential impacts from sediment bound contaminants will be considered within the ES. This will draw from the results of the 2017 site specific survey sediment chemistry analysis.

9.0 Water Framework Directive – WFD Protected Areas

- 9.1 MVS noted that the list of protected areas added to the scoping note may not all be within the 2km radius.
- 9.2 Philip Preston (PP) confirmed that a HRA is being undertaken for the project and that the conclusions will be presented within the WFD Assessment.
- 9.3 BB advised that the WFD Assessment should include reference to Natural England consultation.
- 9.4 BB advised that areas defined under the Nitrates Directive and Conservation of Wild Birds Directive should be checked.

10.0 Water Framework Directive – Invasive Species

	BOROHAPPOLD E	NGINEERING
10.1	MD confirmed that the list of invasive species provided in the scoping note were identified through survey of BMD in 2017.	
10.2	BB queried whether Chinese Mitten Crab were identified. MD will check the survey report.	
10.3	BB queried what are the proposed mitigation measures for dealing with invasive species?	
10.4	MD noted that a Bio-Security Plan may be required to define mitigation measures. DF to check requirement for Bio-Security Plan as part of planning submission.	
11.0 Water	Framework Directive – Assessment Approach	
11.1	MVS noted that the assessment will cover three broad areas:	
	- No deterioration assessment	
	- Protected areas assessment	
	- Future status assessment	
11.2	MVS noted that the assessment will be predominantly qualitative, providing judgement of whether the impact will be negligible through to large.	
11.3	Depending upon the findings of the qualitative assessment the project team will consider whether any further assessment is needed beyond the level of the ESIA to adequate cover the WFD assessment. Based upon the current understanding of the receptors, scales, activities and potential impacts the likelihood of any more detailed assessment is considered low. BB noted that this sounded reasonable based upon the information discussed.	
11.4	MVS presented a spreadsheet tool that is proposed to be used for recording the assessment of potential impacts across the full range of WFD elements and proposed activities (construction and operational).	
11.5	BB warned that the spreadsheet approach may lead to a lot of duplication of information where similar impacts apply. BB suggested that cells may be merged to create a simpler record of potential impacts. BB advised that the provision of a narrative against each section would be adequate in place of the spreadsheet. Agreed that project team would review best way of presenting the information within the assessment report.	

The minutes detailed herein reflect the author's recollection of the discussions held during the meeting detailed above. If you feel that these minutes are inaccurate; proposed additions, corrections and/or comments must be submitted to the author in writing within five working days of the date of these minutes. If no written responses are received within this period, these minutes will be deemed the official record of the meeting.