



AQUIND Limited

AQUIND INTERCONNECTOR

Environmental Statement – Volume 3 – Appendix 20.3 Watercourses Summary

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations
2009 – Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

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WSP

WSP House

70 Chancery Lane

London

WC2A 1AF

+44 20 7314 5000

www.wsp.com

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Document Owner	WSP UK Limited
Prepared By	J. Welbourn
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Approved By	E. Isnenghi
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APPENDIX 20.3 WATERCOURSES

SUMMARY

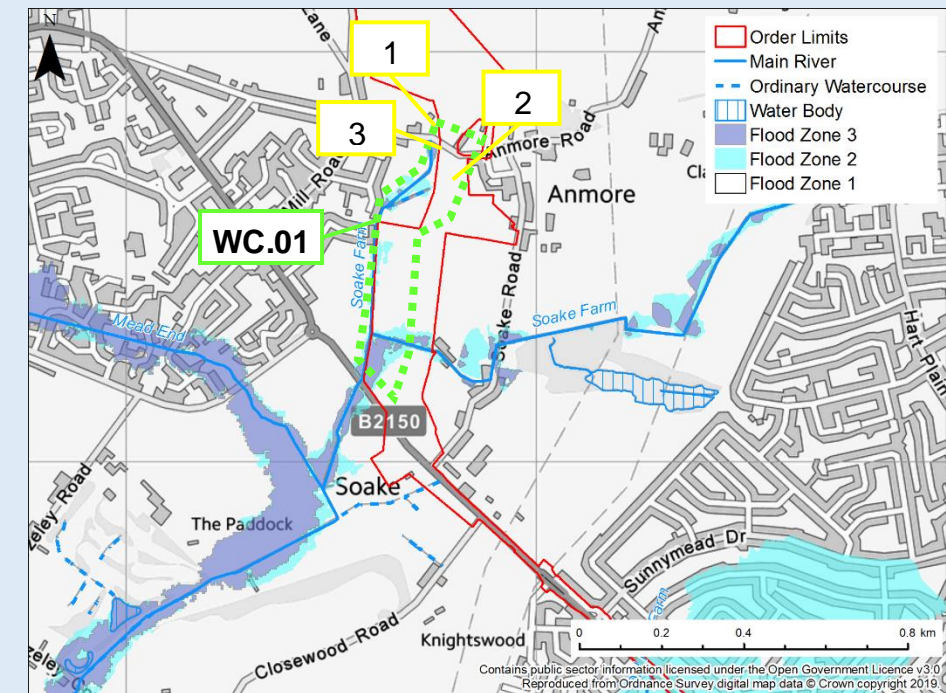
- 1.1.1.1. This document provides a summary of the Main Rivers and Ordinary Watercourses identified within the Order Limits based on a desk top review of Ordinance Survey, Environment Agency and Lead Local Flood Authority mapping and consultation. Main Rivers and Ordinary Watercourses located directly outside of the Order Limits are noted with (*).
- 1.1.1.2. Other minor ditches and dry watercourses, also defined as Ordinary Watercourses, have not been individually identified at this stage; however, it is anticipated that a number of additional Ordinary Watercourse crossings may be required within the Onshore Cable Corridor. Identification of any other Ordinary Watercourse crossings will be further investigated post-application as part of the detailed design undertaken by the appointed contractor once the specific Cable Route is confirmed within the Onshore Cable Corridor.
- 1.1.1.3. It is anticipated that this would include ditches to the side of roads and extreme weather overland flow routes that are typically dry known as ‘winterbourne or dry watercourse’. The overall principles of crossing these open watercourses would be subject to an Ordinary Watercourse Consent and in principle, any works going through these features would need to ensure that: watercourse flow is maintained, there is no increase to the local flood risk, and appropriate pollution prevention measures are in place.
- 1.1.1.4. A summary of the proposed methodology for crossing the identified Main Rivers and Ordinary Watercourses is detailed hereafter. These methodologies will be further developed post-application as part of the detailed design undertaken by the appointed contractor, at which point the specific methodology of watercourse crossing will be developed and refined taking into consideration any site-specific constraints. Specific to watercourse crossings, works would be subject to relevant Environmental Permit approvals or exemptions, including:
- Flood Risk Activities Permit – Regulated by Environment Agency;
 - Ordinary Watercourse Consent – Regulated by relevant Lead Local Flood Authority (Hampshire County Council and Portsmouth City Council); and/ or
 - Build Over Agreement or similar approval – Regulated by relevant regulators/ authorities including: Southern Water (‘SW’); Highways England (‘HE’); East Solent Coastal Partnership (‘ESCP’); and/ or Local Highways Authority. (Consents may be required for other adjacent/ adjoining highway surface water sewers or similar infrastructure in relation to the watercourses).

Table 1 - Summary Table

Code	Watercourse Name	Classification	Setting	Typical Form with Order Limits	Structures within Order Limits	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
WC.01	Soake Farm North	Main River	Rural	Open channel*	None	No	EA	No proposed crossing
WC.02	Soake Farm South	Main River	Rural	Open channel	None	Yes	EA	Proposed to horizontal directional drill under watercourse
WC.03	Unnamed	Ordinary Watercourse	Rural/ Carriageway	Open channel/ culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.04	Old Park Farm	Main River	Urban/ Carriageway	Culvert	Twin culvert	Yes	SW, LLFA, EA	Proposed crossing culvert within carriageway build up
WC.05	Unnamed	Ordinary Watercourse	Urban/ Carriageway	Culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.06	Unnamed	Ordinary Watercourse	Urban/ Carriageway	Culvert	Box Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.07	Unnamed	Ordinary Watercourse	Urban Landscaping	Swales*	None	No	LLFA	No proposed crossing
WC.08	Unnamed	Ordinary Watercourse	Urban/ Carriageway	Culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.09	North Purbrook Heath (North)	Main River	Urban/ Carriageway	Culvert	Twin box culvert	Yes	EA	Proposed crossing culvert within carriageway build up
WC.10	North Purbrook Heath (South)	Main River	Rural	Open channel	None	No	EA	No proposed crossing
WC.11	Unnamed	Ordinary Watercourse	Rural	Open channel	None	Yes	LLFA	Proposed micro tunnelling under watercourse
WC.12	Farlington Marshes Gutter	Main River	Rural	Open channel	None	No	EA	No proposed crossing
WC.13	Broom Channel	Main River	Coastal/ Intertidal	Channel	None	Yes	EA, HE, ESCP	Proposed horizontal directional drill under watercourse & defences
WC.14	Great Salterns Drain	Main River	Rural/ Carriageway	Culvert	Culvert	Yes	EA, HE, ESCP	Proposed crossing culvert within carriageway build up

WC.01 – Soake Farm North

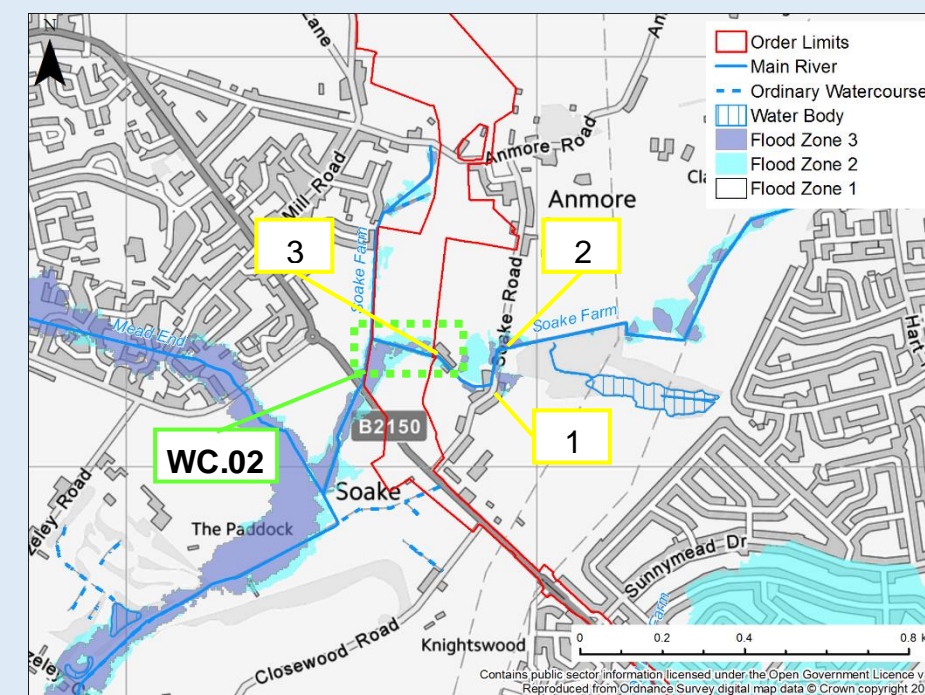
Watercourse:	Soake Farm North (from Kings Pond)	Type:	Main River
Code:	WC.01	NGR:	SU 66747 11774
Watercourse Comment:	The above ground source of Soake Farm North is at Kings Pond, which is located directly south of Anmore Road. Overland flow of surface water from the surrounding area is expected to discharge into Kings Pond alongside inflow from the associated drainage network and any groundwater influences. The watercourse after Kings Pond is a trapezoidal open channel ditch.		
Onshore Order Limits Comment:	The watercourse runs along the boundary of the Onshore Order Limits.		
Likely Crossing Methodology:	Not applicable, located outside of Onshore Order Limits.		
Likely Permit Requirements:	Not expected, however approval or exemption of a Flood Risk Activities Permit required prior to commencement of works, if works are brought forward within close proximity to watercourse, within the associated flood plain, or associated flood zone 2 or 3.		



1) North of watercourse. Looking towards Kings Pond	2) From Kings Pond looking south along watercourse.	3) Kings Pond from Anmore Road
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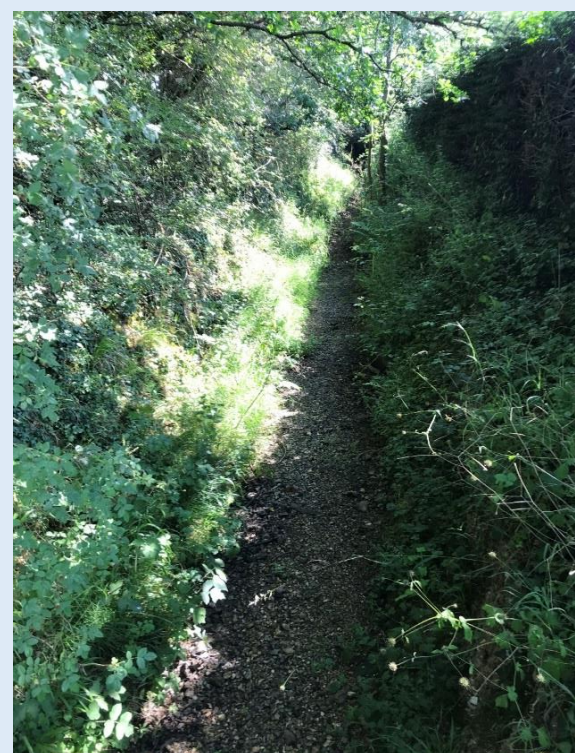
WC.02 – Soake Farm South

Watercourse:	Soake Farm South	Type:	Main River
Code:	WC.02	NGR:	SU 66681 11295
Watercourse Comment:	Watercourse is a trapezoidal open channel ditch. By inspection was noted to have a low flow and was noted to be dry in places.		
Onshore Order Limits Comment:	The watercourse passes from east to west through the Onshore Cable Corridor.		
Likely Crossing Methodology:	Proposed for the Cable Route to pass under the watercourse via horizontal directional drilling (UK-HDD-5A). Based on the outline design of the horizontal directional drilling, it is expected that the horizontal directional drilling will typically be 6 metres below the watercourse bed level. The design of the horizontal directional drilling will be further developed by the contractor during the detailed design and should ensure works are conducted in accordance with EA guidance.		
Likely Permit Requirements:	Horizontal directional drilling is likely to require a Flood Risk Activities Permit or exemption prior to commencement of works.		





1) Watercourse upstream of Onshore Order Limits.



2) Soake Farm South at Soake Road looking south along watercourse

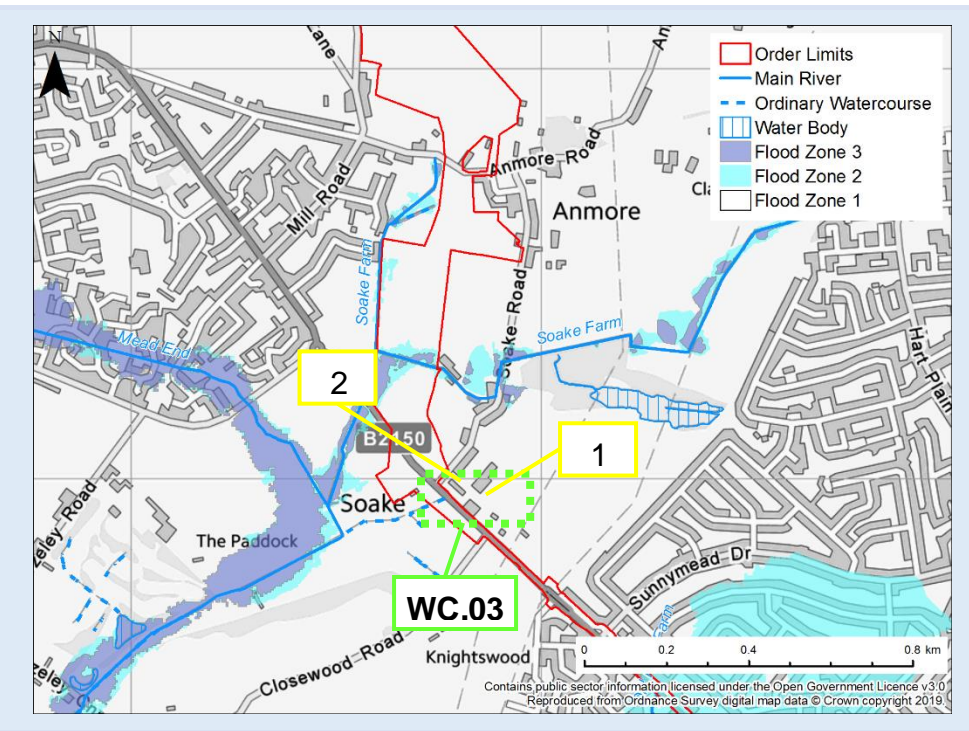


3) Soake Farm South at Soake Road looking south along watercourse

WC.03 – Unnamed Watercourse

Watercourse:	Unnamed	Type:	Ordinary Watercourse
Code:	WC.03	NGR:	SU 66776 10943
Watercourse Comment:	The watercourse could not be inspected due to access restrictions across the carriageway. Based on information available it is understood to be a trapezoidal open channel ditch follows the hedge line from east to west and leads onto Soake Farm (Main River). The Ordinary Watercourse starts directly south west of Hambledon Road (B2150) and based on correspondence with Hampshire County Council's Lead Local Flood Authority is understood that a Sothern Water culvert under the carriageway which discharges into the Ordinary Watercourse south of the carriageway, however this feature is not detailed on Southern Water asset plans.		
Onshore Order Limits Comment:	Culverted surface water sewer under carriageway, with potential of other associated surface water sewer infrastructure and open channel from the boundary of the Onshore Order Limits.		

<p>Likely Crossing Methodology:</p>	<p>The proposed cables will pass the watercourse within the carriageway where the watercourse is confined to a culvert. Specific offsets and design of works around the culvert will be developed post-application as part of detailed design by the contractor. Contractor should be aware that other assets such as highway drainage may discharge to watercourse/ culvert.</p>
<p>Likely Permit Requirements:</p>	<p>Approval or exemption of a build over agreement with Southern Water and/ or Ordinary Watercourse Consent is likely to be required prior to works.</p>



1) Upstream end of Ordinary Watercourse from Hambledon Road.

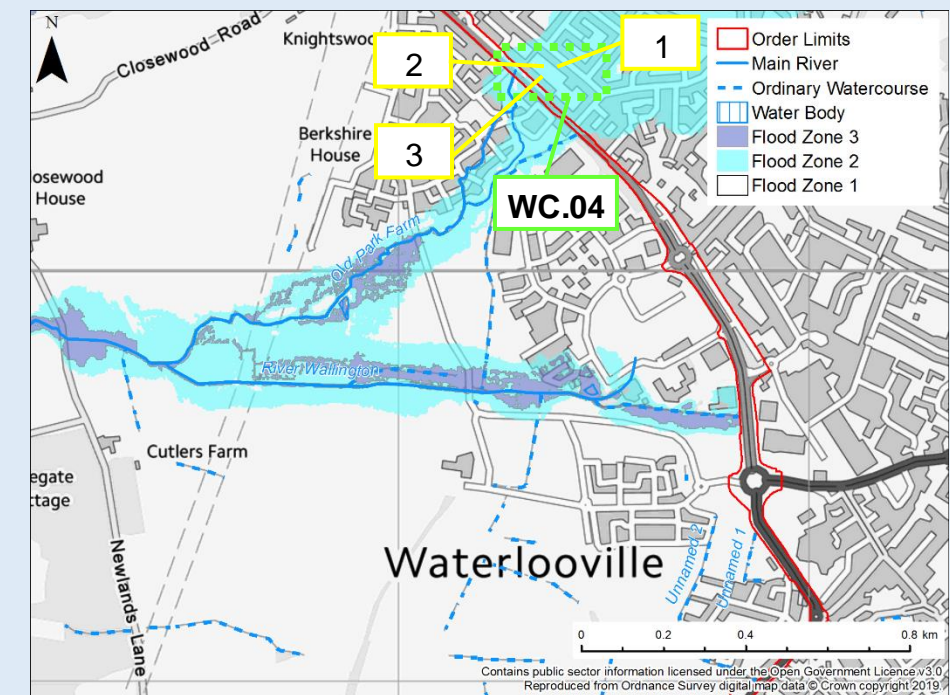


2) View from north on Hambledon Road looking towards location of crossing. Arrow represents approximate location of crossing.

WC.04 – Old Park Farm

<p>Watercourse:</p>	<p>Old Park Farm</p>	<p>Type:</p>	<p>Main River</p>
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Code:	WC.04	NGR:	SU 67282 10480
Watercourse Comment:	Watercourse flows from north east to south west. A Southern Water twin culvert, surface water sewer, passes under Hambledon Road (B2150) and discharges through a concrete headwall into an open channel trapezoidal ditch where it becomes a Main River.		
Onshore Order Limits Comment:	Culverted watercourse under Hambledon Road (B2150) with other associated Southern Water assets within carriageway and open channel Main River directly south on the boundary of the Onshore Order Limit extent.		
Likely Crossing Methodology:	The proposed cables will pass the watercourse within the carriageway where the watercourse is confined to a culvert. Specific offsets and design of works around the culvert will be developed post-application as part of detailed design by the contractor. Contractor should be aware that other assets such as highway drainage may discharge to watercourse/ culvert.		
Likely Permit Requirements:	Approval or exemption of a build over agreement or similar agreement with Southern Water, Ordinary Watercourse Consent and/ or Flood Risk Activities Permit or exemption of works is likely to be required prior to works.		



1) View across carriageway from north to south (upstream of watercourse)



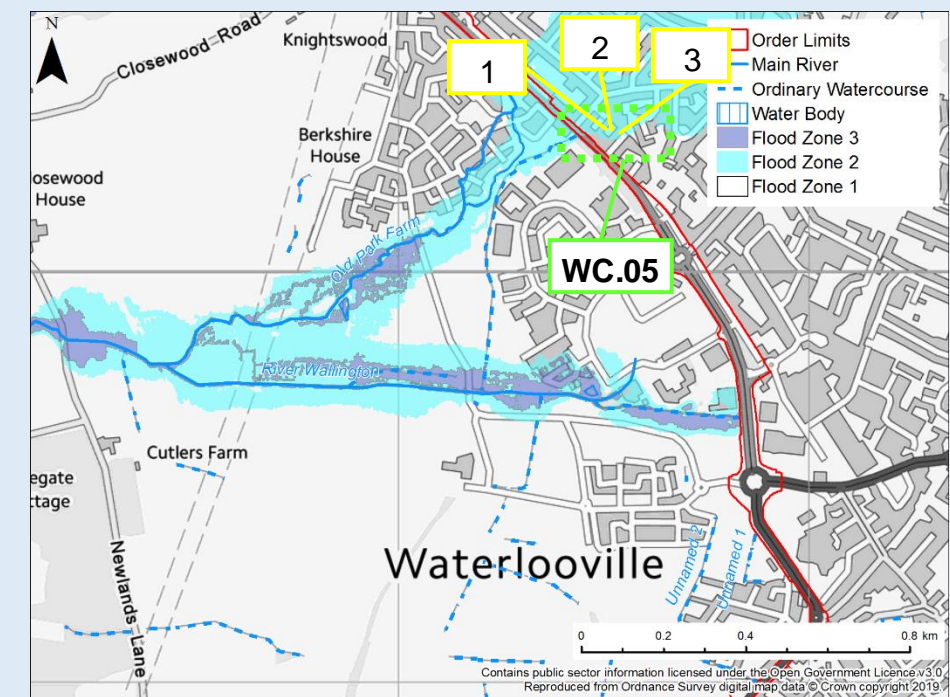
2) View of culvert outfall south of carriageway



3) View of open channel south of carriageway

WC.05 – Unnamed Watercourse leading to River Wallington

Watercourse:	Unnamed Watercourse	Type:	Ordinary Watercourse
Code:	WC.05	NGR:	SU 67445 10333
Watercourse Comment:	Watercourse flows from east to west. Watercourse is culverted under Hambledon Road (B2150), and is a Southern Water asset. Directly west of Hambledon Road the culvert discharges through a headwall into an open channel trapezoidal ditch along the edge of the adjacent residential development where the watercourse becomes an Ordinary Watercourse.		
Onshore Order Limits Comment:	Southern Water culverted watercourse under Hambledon Road (B2150), with other associated assets within carriageway and open channel from the Onshore Order Limit boundary continuing South West.		
Likely Crossing Methodology:	The proposed cables will pass the watercourse within the carriageway where the watercourse is confined to a culvert. Specific offsets and design of works around the culvert will be developed post-application as part of detailed design by the contractor. Contractor should be aware that other assets such as highway drainage may discharge to watercourse/ culvert.		
Likely Permit Requirements:	Approval or exemption of a build over agreement or similar agreement with Southern Water and/ or Ordinary Watercourse Consent is likely to be required prior to works.		



1) View of carriageway within Onshore Order Limit above culverts



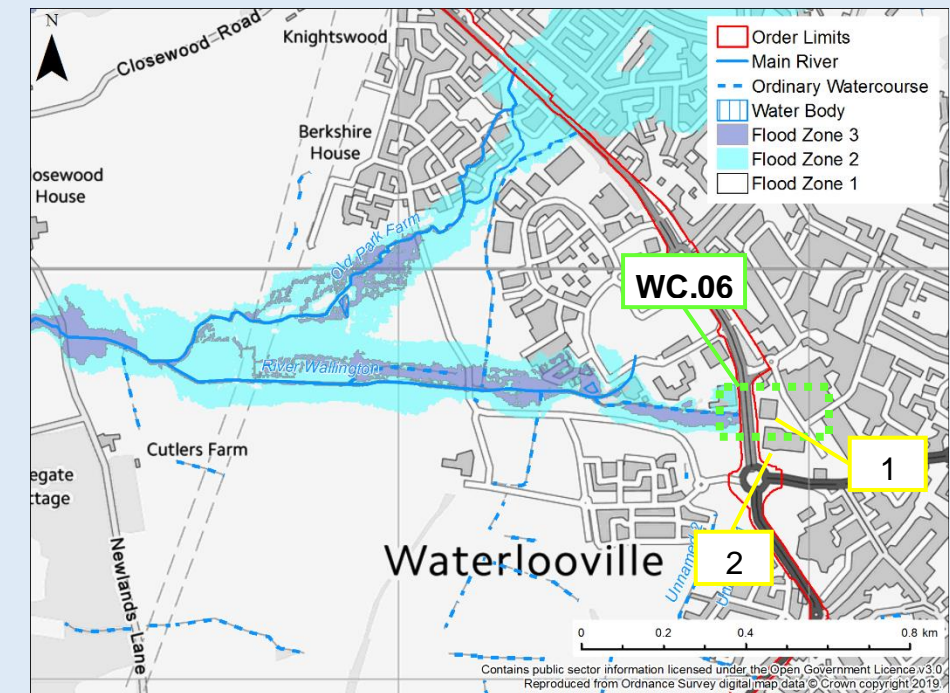
2) View of open channel south of Onshore Order Limit



3) View of headwall outfall of culvert on south west boundary of Onshore Order Limit

WC.06 – Unnamed Watercourse leading to River Wallington

Watercourse:	Unnamed Watercourse	Type:	Ordinary Watercourse
Code:	WC.06	NGR:	SU 67835 09644
Watercourse Comment:	Watercourse discharges from east to west. Southern Water box culvert/ surface water sewer under carriageway discharges into an open channel trapezoidal ditch with a screened outfall where it becomes an Ordinary Watercourse.		
Onshore Order Limits Comment:	Culverted watercourse under Hambledon Road (B2150), with other associated Southern Water assets under carriageway and open channel directly south of the Onshore Order Limit extent.		
Likely Crossing Methodology:	The proposed cables will pass the watercourse within the carriageway where the watercourse is confined to a culvert. Specific offsets and design of works around the culvert will be developed post-application as part of detailed design by the contractor. Contractor should be aware that other assets such as highway drainage may discharge to watercourse/ culvert.		
Likely Permit Requirements:	Approval or exemption of a build over agreement or similar agreement with Southern Water and/ or Ordinary Watercourse Consent is likely to be required prior to works.		



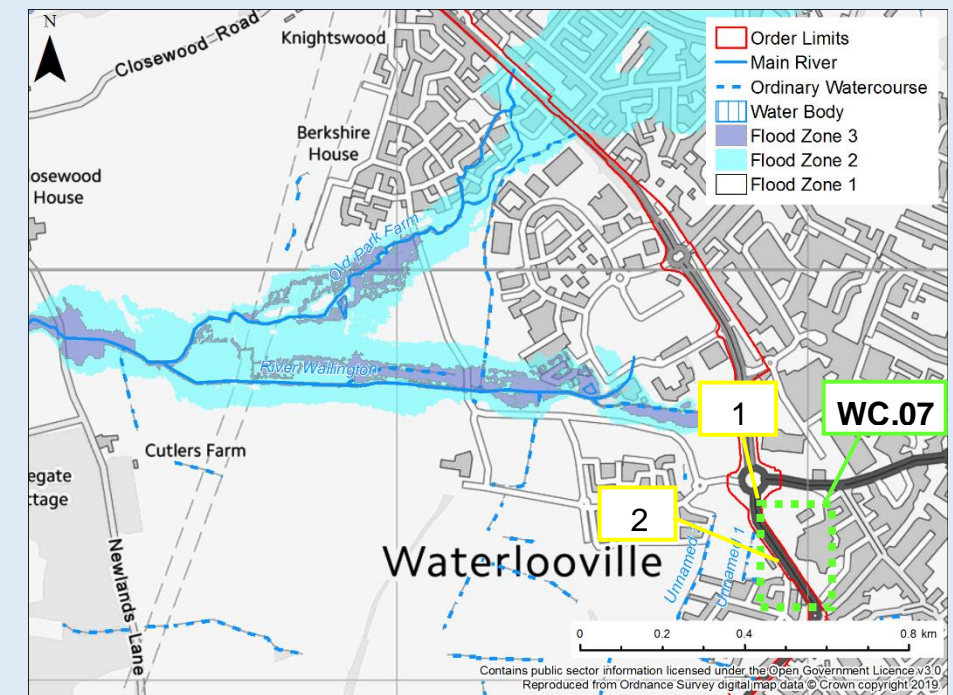
1) Outfall south of carriageway



2) View of carriageway above culvert

WC.07 – Unnamed Watercourse

Watercourse:	Unnamed Watercourse	Type:	Ordinary Watercourse
Code:	WC.07	NGR:	SU 67847 09418
Watercourse Comment:	Open channel swale features located south of Hambledon Road (B2150).		
Onshore Order Limits Comment:	The watercourse is located outside the Onshore Order Limit extent.		
Likely Crossing Methodology:	Not applicable, located outside of Onshore Order Limits.		
Likely Permit Requirements:	Not applicable, located outside of Onshore Order Limits		



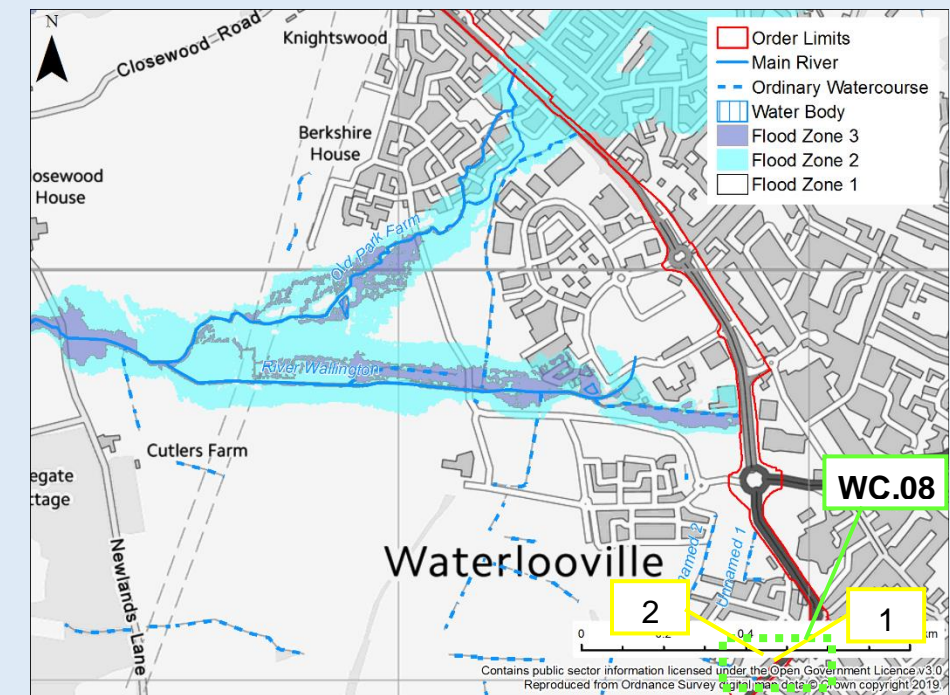
1) View of upstream end of swale from roundabout



2) Long section along swale

WC.08 – Unnamed Watercourse

Watercourse:	Unnamed Watercourse	Type:	Ordinary Watercourse
Code:	WC.08	NGR:	SU 67864 09336
Watercourse Comment:	Southern Water culverted watercourse under London Road (A3) leads to a culverted watercourse as Ordinary Watercourse which continues west around the boundary of the tree line between the urban and rural environment.		
Onshore Order Limits Comment:	Culverted watercourse under Hambledon Road (B2150), with other associated Southern Water assets under carriageway.		
Likely Crossing Methodology:	The proposed cables will pass the watercourse within the carriageway where the watercourse is confined to a culvert. Specific offsets and design of works around the culvert will be developed post-application as part of detailed design by the contractor. Contractor should be aware that other assets such as highway drainage may discharge to watercourse/ culvert.		
Likely Permit Requirements:	Approval or exemption of a build over agreement or similar agreement with Southern Water and/ or Ordinary Watercourse Consent is likely to be required prior to works.		



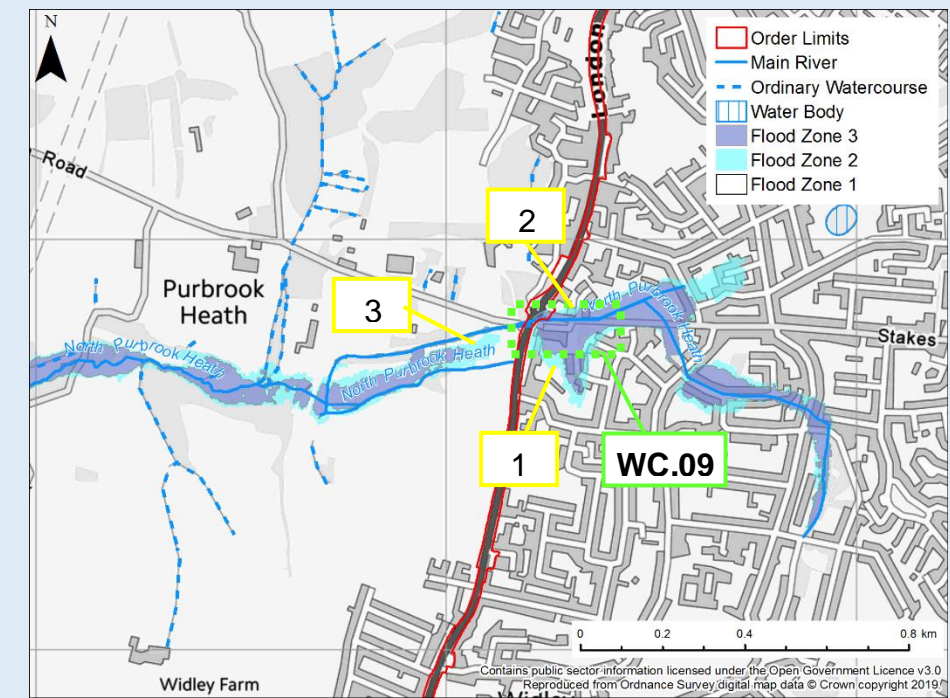
1) View of ground above culvert south of Onshore Order Limit



2) View of carriageway above culvert within Onshore Order Limits

WC.09 – North Purbrook Heath (North)

Watercourse:	North Purbrook Heath (North)	Type:	Main River
Code:	WC.09	NGR:	SU 67215 07818
Watercourse Comment:	Watercourse passes under carriageway in a twin box culvert prior to discharge into a concrete lined trapezoidal open channel.		
Onshore Order Limits Comment:	Watercourse confined to a culverted watercourse within Onshore Order Limits.		
Likely Crossing Methodology:	The proposed cables will pass the watercourse within the carriageway where the watercourse is confined to a culvert. Specific offsets and design of works around the culvert will be developed post-application as part of detailed design by the contractor. Contractor should be aware that other assets such as highway drainage may discharge to watercourse/ culvert.		
Likely Permit Requirements:	Approval or exemption of a Flood Risk Activities Permit prior to commencement of works.		



1) Looking north towards carriageway above culvert



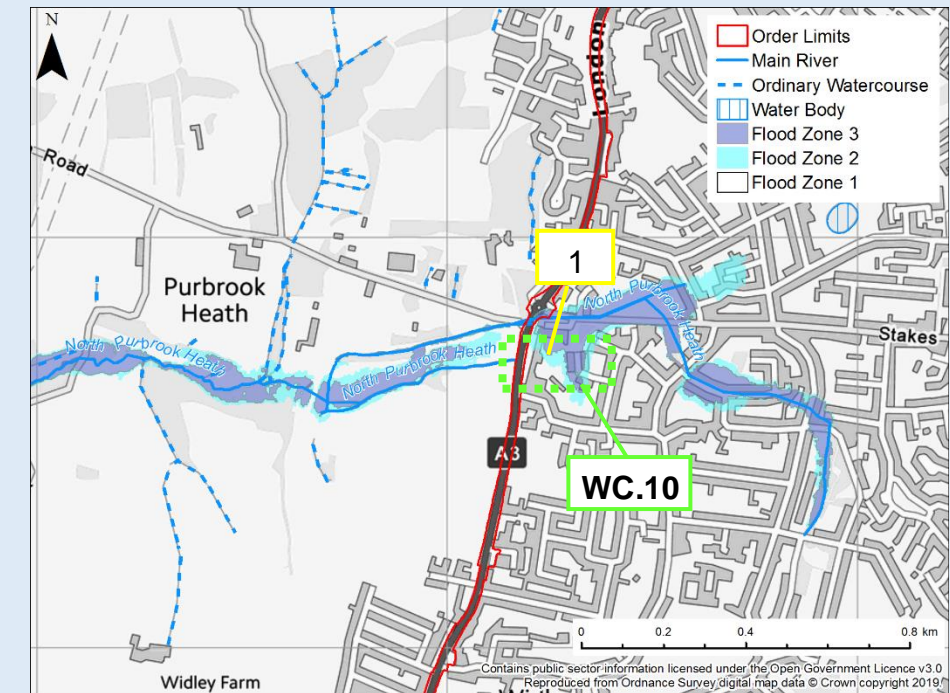
2) Culvert outfall



3) downstream open channel

WC.10 – North Purbrook Heath (South)

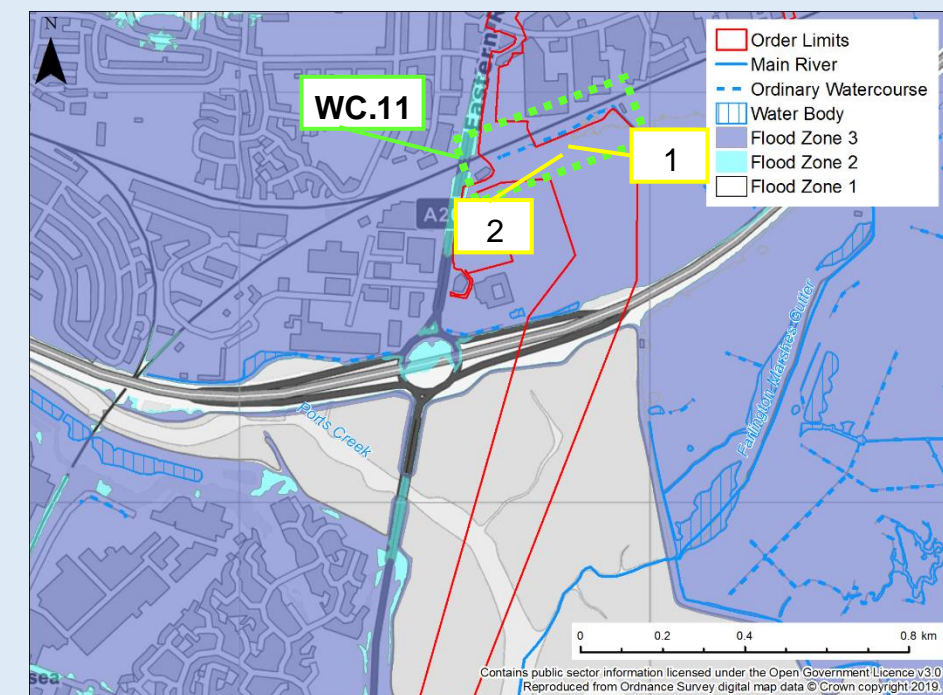
Watercourse:	North Purbrook Heath (South)	Type:	Main River
Code:	WC.10	NGR:	SU 67173 07689
Watercourse Comment:	Watercourse not identified during inspection due to access limitations. Watercourse expected to be a ditch located within hedge row and converges with North Purbrook Heath (North) downstream. No Southern Water assets shown on asset plans to discharge into watercourse.		
Onshore Order Limits Comment:	Main River starts on Onshore Order Limit boundary.		
Likely Crossing Methodology:	Not applicable, no watercourse crossing proposed. Contractor should be aware of watercourse as other assets such as highway drainage may discharge to watercourse.		
Likely Permit Requirements:	Not applicable, located outside of Onshore Order Limits.		



1) View of north looking south along carriageway, where upstream end of watercourse is anticipated.

WC.11 – Unnamed Watercourse

Watercourse:	Unnamed Watercourse	Type:	Ordinary Watercourse
Code:	WC.11	NGR:	SU 67749 04913
Watercourse Comment:	A trapezoidal open channel runs parallel to the railway line within Farlington Marshes playing fields within an overgrown hedge row. It is understood that this collects overland flow from within the open space, a number of Southern Water surface water culverts discharge into the downstream end of the Ordinary Watercourse where the watercourse becomes a Main River – see WC.12.		
Onshore Order Limits Comment:	Watercourse located partially within and along the Onshore Order Limit boundary.		
Likely Crossing Methodology:	Proposed for the watercourse to be passed under via micro-tunnelling (UK-HDD-4). Based on the outline design of the micro-tunnelling, it is expected that the micro-tunnelling will typically be 4 metres below the ground level adjacent to the ditch and 3m below the bed of the ditch, assuming a ditch depth of 1m. Micro-tunnelling design will be further developed by the contractor during the detailed design and should ensure works are conducted in accordance with LLFA/ EA guidance.		
Likely Permit Requirements:	Approval or exemption of an Ordinary Watercourse Consent prior to commencement of works.		



1) View looking west along hedge line with watercourse within

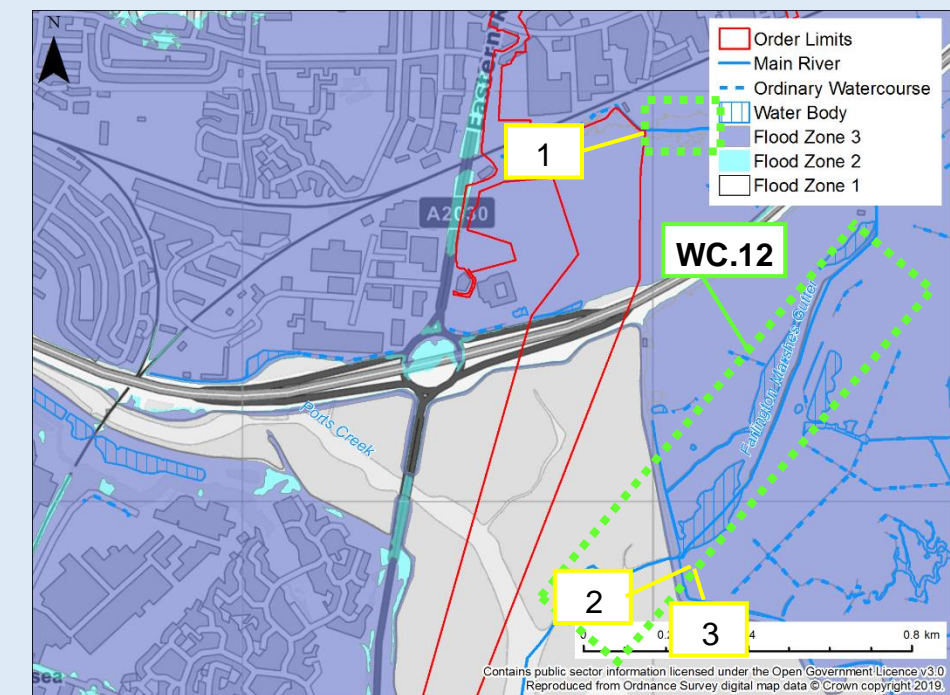


2) View looking east along hedge line with watercourse within

WC.12 – Farlington Marshes

Watercourse:	Farlington Marshes Gutter	Type:	Main River
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Code:	WC.12	NGR:	SU 67926 04960
Watercourse Comment:	Collecting discharges from the Southern Water network and the Farlington Marshes Gutter (Ordinary Watercourse), the watercourse is a trapezoidal open channel ditch that discharges into Farlington Marshes prior to outfall into Langstone Harbour.		
Onshore Order Limits Comment:	Watercourse upstream end located on boundary of Onshore Order Limits.		
Likely Crossing Methodology:	Not anticipated as watercourse located on boundary of Onshore Order Limits.		
Likely Permit Requirements:	Not expected, however approval or exemption of a Flood Risk Activities Permit required prior to commencement of works, if works are brought forward in close proximity to watercourse and similar approval or exemption would be expected for works within Flood Zone 3.		





1) Upstream end of Main River



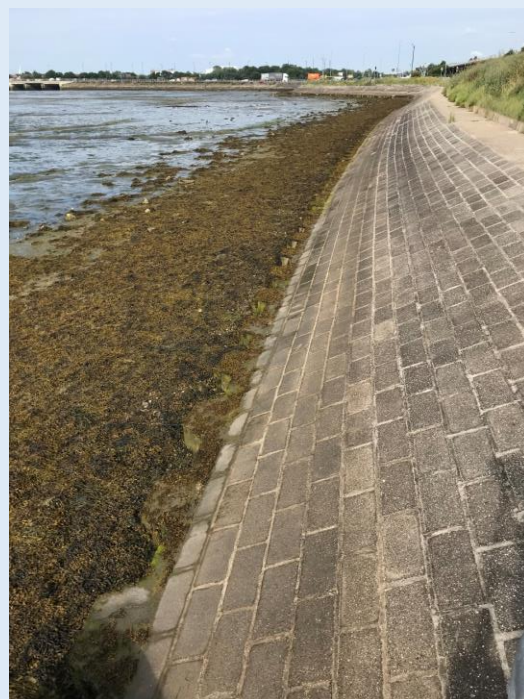
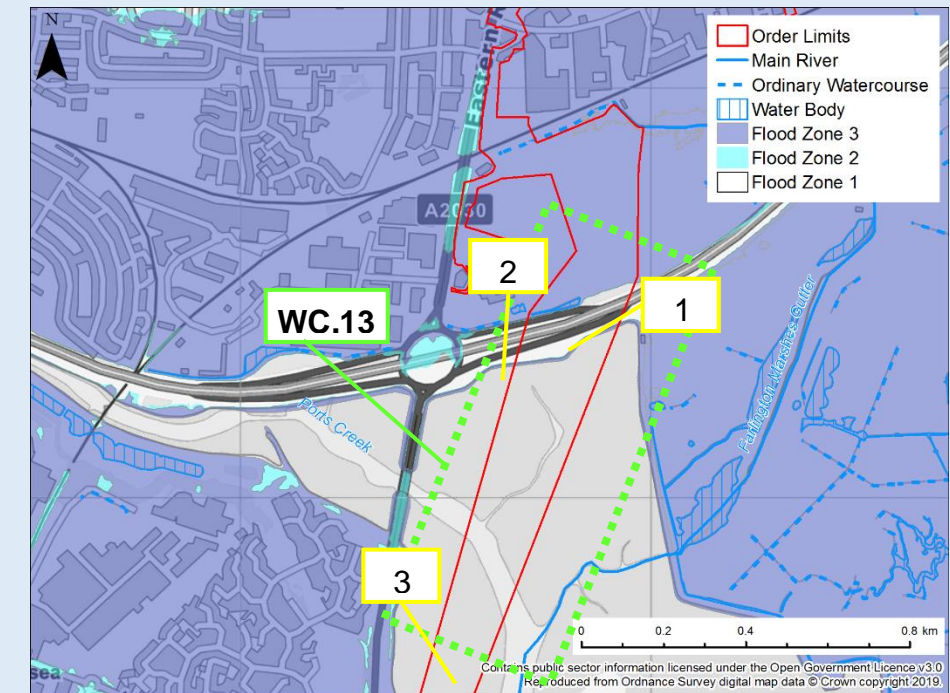
2) Downstream end prior to outfall through flood defence



3) Flood Defence prior to outfall into Langstone Harbour

WC.13 – Broom Channel

Watercourse:	Broom Channel	Type:	Coastal Estuary
Code:	WC.13	NGR:	SU 67438 04022
Watercourse Comment:	Broom channel is located in the north-western corner of Langstone Harbour and continues on from Ports Creek, which are all tidally influenced. The watercourse is part of the coastal estuary, not formally designated as a Main River however still falls under the Environment Agency’s remit. Rip-rap flood defence on southern banks (East Solent Coastal Partnership) and stone revetment with sheet piled toe (Highways England) on northern banks.		
Onshore Order Limits Comment:	Onshore Order Limit passes across Broom Channel		
Likely Crossing Methodology:	Proposed for the watercourse to be crossed via horizontal directional drilling (UK-HDD-3B). Based on the outline design of the horizontal directional drilling, it is expected that the horizontal directional drilling will typically be 10 metres below the watercourse bed level. Horizontal directional drilling to consider impacts/ proximity to sheet piling. The design of the horizontal directional drilling will be further developed by the contractor during the detailed design and should ensure works are conducted in accordance with EA guidance.		
Likely Permit Requirements:	Horizontal directional drilling is likely to require a Flood Risk Activities Permit or exemption prior to commencement of works.		



1) Northern flood defence



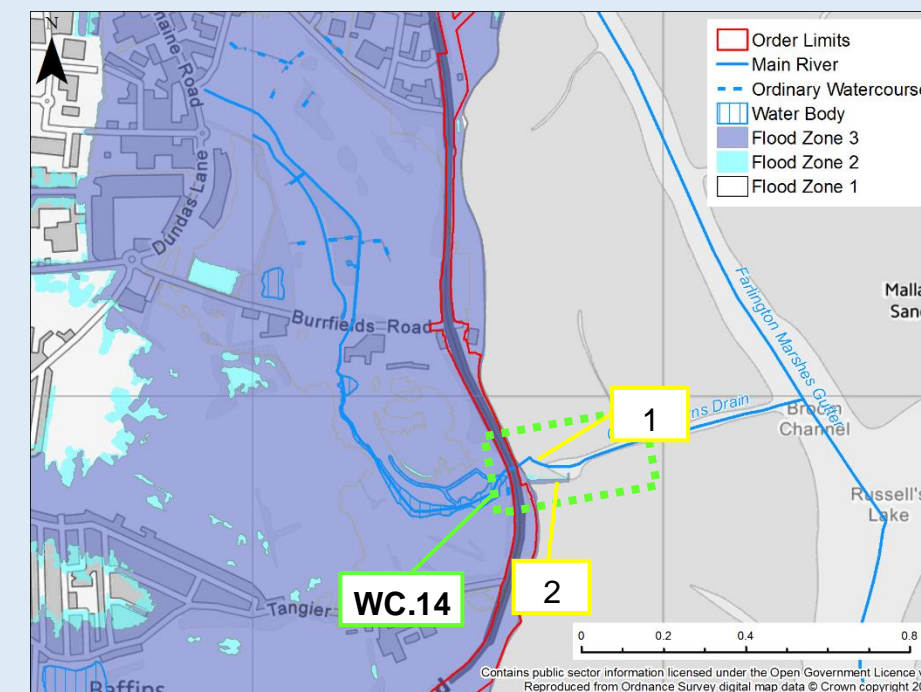
2) Main channel



3) Southern flood defence

WC.14 – Great Salterns Drain

Watercourse:	Great Salterns Drain	Type:	Main River
Code:	WC.14	NGR:	SU 67633 01801
Watercourse Comment:	Great Saltern Drain discharges under Eastern Road via a pumped outfall into Langstone Harbour.		
Onshore Order Limits Comment:	Watercourse crosses perpendicular to Onshore Order Limits and is confined to a culvert under Eastern Road.		
Likely Crossing Methodology:	The proposed cables will pass the watercourse within the carriageway where the watercourse is confined to a culvert. Specific offsets and design of works around the culvert will be developed post-application as part of detailed design by the contractor.		
Likely Permit Requirements:	Approval or exemption of a Flood Risk Activities Permit prior to commencement of works.		



1) Pumping station and carriageway over culvert



2) Outfall to Langstone Harbour

