PORTISHEAD BRANCH LINE PRELIMINARY ENVIRONMENTAL INFORMATION REPORT
VOLUME 4

APPENDIX 17.3

Water Receptors

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Water Receptors

1.1 Surface Water Features/Receptors in the Study Area with their Assigned Value

Table 1.1: Surface Water Features/Receptors in the Study Area with their Assigned Value

Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
Portishead Branch Line (NSIP)			
Portbury Ditch (Fig. 17.1; Sheet 1, Volume 3 Book of Figures)	After passing under the railway line it flows north eastwards in a straight channel for ~1 km to enter the Severn Estuary, east of Portishead Pier. (In its upstream reaches it is also known as Sandy Rhyne). Main River. Classified under the Water Framework Directive ("WFD") - Moderate Ecological Potential (2009 and Cycle 2- 2014) and Good chemical quality (Cycle 2 – 2014)	Scoped In	Medium
PDT1 (Fig.17.1; Sheet 1)	Tributary of Portbury Ditch. Enters Portbury Ditch on the left bank immediately downstream of where Portbury Ditch passes under the railway line. Small section of watercourse, receives local runoff from small catchment area. Not classified under WFD.	Scoped In	Low
PDRDN1 and PDRDS1 (Fig.17.1; Sheet 1)	These two drains, run parallel to the railway between Portbury Ditch and eastward to Quays Avenue to the north and south respectively.	Scoped in	Low
The Cut (Fig.17.1; Sheet 1)	A tributary of Portbury Ditch, known as "The Cut." The ditch takes drainage from the south, flowing northward along the eastern boundary of the Vale estate and then parallel to the south side of the railway line for approximately 275 m, flowing westwards before passing in culvert under the railway. After the railway line it flows north westwards in concrete lined channel. Receives existing discharges from urban areas. Classed as an Ordinary Watercourse. It is managed by North Somerset Levels Inland Drainage Board ("NSLIDB"). Not classified under WFD.	Scoped In. Discharges from Portishead Station to be discharged to The Cut downstream of railway line.	Low

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Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
Pond 0 (Fig.17.1; Sheet 1)	This is a drainage/ storage pond (maintained by NSDC) from the Vale Estate that discharges northward through a culvert into The Cut.	Scoped out. The pond is located upstream and therefore there is no pathway for pollutants from the railway.	N/A
D2 (Fig.17.1; Sheet 1)	A small drain running in a northerly direction parallel and to the east of The Cut and terminates at the railway line. There is a short link to The Cut.	Scoped out. The mapped ditch shows that the ditch is located solely upstream of the railway line.	N/A
D2b (Not mapped)	Small drain within field to the east of The Cut and D2. Connects to The Cut at its southern end.	Scoped out, not hydrologically connected to railway drainage or ditches (RDN2 and RDS2) adjacent to railway.	N/A
Pond 1 (Fig.17.1; Sheet 1)	There are two attenuation ponds / wetland areas within the new housing estate off Phoenix Way to the east of Fennel Road. One of the ponds is within 250 m of the railway. Both ponds accept runoff from the housing estate and discharge northwards into The Moat.	Scoped Out. Not hydrologically connected to railway drainage system.	N/A
RDN2 and RDS2 (Fig.17.1; Sheet 1)	Two drains, flowing parallel to and located north and south of the railway respectively, between Fennel Road and Sheepway.	Scoped in.	Low
SG1 (Fig.17.1; Sheet 1)	Drain flowing southward from Sheepway Gate Farm and under the railway in collapsing culvert.	Scoped In.	Low
D3 (Fig.17.1; Sheet 1)	Between Fennel Road and Sheepway there is also a drain passing under the railway line, flowing southwards towards Portbury Ditch.	Scoped In	Low
D3b (Not mapped)	Drain originates along south side of Sheepway and flows southwards towards A369, where connects with other drains – likely to flow into Portbury Ditch.	Scoped out. Not hydrologically connected to railway drainage and flows southwards away from railway line.	N/A

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Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
The Moat (Old Sea Bank) (Fig.17.1; Sheet 1)	Located on the eastern side of the Inner Tidal Defence. Watercourse that flows northwards into Bristol Channel. Located within Portbury Wharf Nature Reserve. From google aerial photos may suffer from eutrophication.	Scoped Out. OS maps show that the watercourse is not hydrologically connected due to flood defence wall. No clear evidence of culverts/ hydraulic pathway through flood defence.	N/A
D4 (Fig.17.1; Sheet 1)	At the south eastern end of the settlement of Sheepway (Portbury village) a ditch passes underneath the railway, flowing southwards and discharges into Portbury Ditch/Sandy Rhyne. Likely to receive railway drainage (as well as runoff from areas around Portbury Village and agricultural land). Small catchment. Not classified under WFD.	Scoped In.	Low
Pond 2 (Fig.17.1; Sheet 1)	This pond lies approximately 20 m north of the railway line and to the immediate east of where ditch D4 passes under the railway. Large pond forming Paddock Lake Coarse Fisheries.	Scoped Out. This pond lies upstream within the catchment and therefore does not provide a pathway for pollutants. Assumed to be hydrologically separate and artificial for recreational purposes.	N/A
Pond 3 (Fig.17.1; Sheet 1)	A small circular pond located around 145 m east of Pond 2 and 10 m north of the railway line. Ponds 2 and 3 are believed to be fishing lakes.	Scoped out. This pond lies upstream within the catchment with no apparent hydrological connection to a watercourse and therefore does not provide a pathway for pollutants.	N/A
D5 (Fig.17.1; Sheet 2)	Where Station Road from Sheepway crosses the railway line, there is a small section of drain located to the north of the line and east of the road. This drain is less than 10 m from the railway. It is assumed this ditch flows southwards towards the railway line.	Scoped in. Small drain, siphon (ref culvert survey ID 70) beneath railway.	Low
Pond 4 (Fig.17.1; Sheet 2)	A vegetated balancing pond located between the A369 Portbury Hundred and the M5 (with no drains to or from the pond). Motorway storm water storage tank with outlet control, discharges eastwards to the drains network (which ultimately discharges to Drove Rhyne).	Scoped Out. Located south of the A369 and upstream within the catchment, therefore does not provide a pathway for pollutants from the railway line.	N/A

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Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
D6 (Fig.17.1; Sheet 2)	East of Elm Tree Park this section of drain runs parallel and south of the railway (and flows eastwards), on the northern side of the A369 for approximately 300 m, likely to receive road runoff from A369. A tributary within the Drove Rhyne catchment it is located within local wildlife site.	Scoped Out. Located upstream of any expected railway discharges, therefore no pathway for pollutants.	N/A
D7 (Fig.17.1; Sheet 2)	Located adjacent to and north of the railway line. Flows eastwards to discharge to Drove Rhyne. May receive railway drainage discharges. Not classified under WFD. Located within local wildlife site.	Scoped In.	Low
D8 (Fig.17.1; Sheet 2)	Located adjacent to and south of the railway line. Passes under the railway to discharge into D7 (and ultimately the Drove Rhyne). May receive railway discharges. Small catchment. Not classified under WFD. Located within local wildlife site.	Scoped In.	Low
Pond 5 (Fig.17.1; Sheet 2)	A small circular pond located approximately 15 m north of the railway line. Likely to be balancing pond receiving runoff from depot area to the north (aerial photos show sometimes dry). Assumed to be an offline pond and to discharge to D7. Located within local wildlife site.	Scoped in. Appears to be an offline pond that discharges to D7. As this is located upstream of D7 therefore there is no pathway for pollutants during operation. However there is potential for direct physical impacts and construction impacts due to proximity of the proposed construction access route adjacent to pond.	Low
D9 (Fig.17.1; Sheet 2)	A small circular drain (also known as plantation with moat) to the immediate east of Pond 5. The “moat” receives discharges (via culvert) from D7 and discharges (via culvert) into the Drove Rhyne to the north. Receives runoff from surrounding agricultural land (and potentially car parking areas to east) and tributaries. Small catchment. Not classified under WFD.	Scoped In.	Low

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Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
Drove Rhyne (Fig.17.1; Sheet 2)	The Drove Rhyne, a Main River, within the study area, flows southwards on the eastern side of Royal Portbury Dock Road, it then turns to flow south westwards along the southern boundary of the Portbury Dock Industrial area, at this point it is around 95 m from the railway line (located to the south). After 610 m it turns 90 degrees northwards where it flows along the western edge of the Portbury Dock Industrial Area. The watercourse outfalls to the Bristol Channel via a tidal exclusion sluice and water level control structure. Receives discharges from Portbury Dock area (including discharge consents for trade effluent), motorway and surrounding agricultural land. Highly modified and straightened channel with controlled water levels. Not classified under WFD.	Scoped In.	Low
D10 and D11 (Fig.17.1; Sheet 2)	Two drains, originating near the motorway, flow northwards through the grassed area to the south of the railway alongside the Portbury Hundred. They pass in culvert under the railway line and beneath the car park to the immediate north where they outfall to the Drove Rhyne. These drains may receive runoff from the railway. Partially located within local wildlife site.	Scoped in. Culverts may require work during construction.	Low.
D12 (Fig.17.1; Sheet 2)	Between Royal Portbury Dock Road, Marsh Lane and the M5 Junction 19. This watercourse has two branches between the railway and motorway draining grassland and farmland. They meet adjacent to Royal Portbury Dock Road and the railway where the watercourse passes in culvert under the railway, under Royal Portbury Dock Road to discharge to the Drove Rhyne. Has the potential to receive runoff from the railway. Pollution incidents reported on this watercourse.	Scoped In.	Low
Pond 6 (Fig.17.1; Sheet 2)	Located on the northern side of the railway and to the east of Royal Portbury Dock Road. It is assumed this pond discharges to D12 after it passes under the railway in culvert and prior to passing under Royal Portbury Dock Road. May receive runoff off as an attenuation pond for Portbury Dock area.	Scoped Out. No pathway for pollutants (assuming no railway discharges direct to the pond).	N/A

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Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
Pond 7 (Fig.17.1; Sheet 2)	A rectangular shaped pond within a field (associated with Court House Farm) located to the south of the railway and west of Marsh Lane.	Scoped Out. It is assumed the pond is not hydrologically linked to any watercourses and therefore does not provide a pathway for pollutants.	N/A
D13 (Fig.17.1; Sheet 2)	Originates to the north of the railway line and to the immediate east of where Marsh Lane crosses the railway line. Flows northwards, parallel to Marsh Lane, then north eastwards and is assumed to discharge to Easton-in-Gordano Stream.	Scoped In.	Low
Easton-in-Gordano stream (Fig.17.1; Sheet 2)	It originates south of the village of Easton-in-Gordano and flows northwards under the motorway and railway and ultimately discharges to the River Avon. The stream is classed as an Ordinary Watercourse and managed by the EA. Classified under WFD under Cycle 1 as having Good Ecological Potential. Not classified under Cycle 2. Receives runoff from agricultural land to the south and small urban areas. Forms boundary of local wildlife site.	Scoped In.	High
D14 (Fig.17.1; Sheet 2)	Located where the M5 crosses the railway line. A series of drains associated with the motorway crossing of the River Avon. The drains are located at the toe of the embankments. The drains appear to be Highways England assets. The section of drain to the south west of the railway discharges to Easton-in-Gordano Stream and the section to the north of the railway discharges to the River Avon.	Scoped out. Assumed to be Highways England drainage ditches and therefore discharges of runoff from the railway will not be permitted. Forms boundary of local wildlife site.	N/A
Pond 8 (Fig.17.1; Sheet 2)	Located south of the railway. Small pond associated with field north of Lodway Farm.	Scoped Out. Not hydraulically linked to any watercourses therefore no pathway for pollutants.	N/A
Pond 9 and Pond 10 (Fig.17.1; Sheet 2)	Adjacent ponds located within the triangle of land formed by the M5, the Portbury Freight Line and the disused railway line. The first is located approximately 55 m north of the disused section of railway line and the second north of this and 90 m north of the disused railway line. The two ponds do not appear to be hydrologically connected to any watercourses. Located within local wildlife site.	Scoped Out. The two ponds do not appear to be hydrologically connected to any watercourses and are unlikely to receive railway runoff directly. Therefore no pathway for pollutants.	N/A
D15 (Fig.17.1; Sheet 2)	Runs parallel to the western side of the Portbury Freight Line for short section between Portbury Junction and M5.	Scope out. Does not appear to be hydrologically linked to any watercourses.	Low

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Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
River (Bristol) Avon (Fig.17.1; Sheets 2, 3,4,5)	Main River located to the north of the railway line and within 250 m between Ham Green and Bower Ashton. Tidal throughout the study area. Receives discharges from tributary catchments located to the south of the river. Classified under WFD (Cycle 2) as having Good Ecological Potential and Good Chemical Status.	Scoped In.	High
Pond 11 (Fig.17.1; Sheet 2)	Large pond located to the north east of the Portbury Freight Line near the Portbury Junction and west of Avon Road in Pill. The pond is located approximately 115 m north of the junction and does not appear to be connected to any watercourses.	Scoped Out. Assumed to be not hydrologically linked to watercourses and unlikely to receive direct discharge of railway runoff due to distance, therefore no pathway for pollutants.	N/A
D16 (Fig.17.1; Sheet 2)	Originates 80 m north of the railway line (at Portbury Junction) and west of Avon Road. The drain flows north westwards where it discharges directly to the River Avon. Forms boundary of local wildlife site. Heavily vegetated, located on edge of saltmarsh.	Scoped Out. Due to distance from railway line unlikely to receive discharges from railway runoff. Assumes construction site compound not located within “Jenny’s Field” but National Cycle Network 41 to be diverted around construction compound and across Jenny’s Field.	N/A
D17 (Fig.17.1; Sheet 2)	Network of small ditches located within saltmarsh, draining to River Avon. Two drains originate behind properties on the north side of Avon Road. They flow generally northwards and meet prior to discharging directly to the River Avon. Located within local wildlife site.	Scoped Out. Due to distance from railway line unlikely to receive discharges from railway runoff.	N/A
Markham Brook (Fig.17.1; Sheets 2,3)	In culvert through Victoria Park in Pill and enters Crockerne Pill. The railway is located on a viaduct above the culverted watercourse. Located within local wildlife site. Classified as Main River downstream of A369. Classified under WFD cycle 1 as having moderate ecological status.	Scoped In. Discharge from Pill Station proposed to open/tidal section of Markham Brook immediately after it emerges from culvert.	Medium
Pond 12 (Fig.17.1; Sheet 3)	Located within recreational ground between Ham Green and Pill. The railway is in Tunnel underneath the pond/recreational area.	Scoped Out. Not connected to any watercourses therefore no pathway for pollutants.	N/A

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Watercourse Name	Description and water indicators/ features	Scoping (In/Out/To be confirmed) of the Assessment and Justification	Value
Chapel Pill (Ham Green Lake) (Fig.17.1; Sheet 3)	This watercourse flows from Ham Green to Chapel Pill Farm and is crossed by the railway at the eastern end of Pill Tunnel. Ordinary watercourse. Classified under WFD as having Moderate Ecological Potential (cycle 1). Known water quality problems associated with existing railway discharge to this watercourse. Located within local wildlife site.	Scoped In. Currently receive runoff from railway and Pill Tunnel and will continue to do so.	Medium
Portbury Freight Line (Operational Railway)			
WC1 (Fig 17.1; Sheet 3)	This stream rises from Paradise Bottom in Leigh Woods and discharges directly to the River Avon. Likely to receive runoff from small wooded catchment. Not classified under WFD. Ordinary watercourse. Located within local wildlife site.	Scoped In.	Low
Ashton Brook/ Longmoor Brook (Fig.17.1; Sheet 5)	Flows west to east from Long Ashton, parallel to the A370 then splits into two culverted sections downstream of Ashton Vale Road – one discharges via a flood relief culvert to the Avon downstream of Avon Bridge the other passes in an extended culvert under the Ashton Gate Underpass and discharges into Colliter's Brook. Designated as Main River Located immediately south of the Police Dog Training Centre, there is also a small watercourse in an extended culvert from the western side of the A639 Clanage Road beneath the railway line to its outfall with the River Avon immediately downstream of Avon Bridge. This is a small catchment (semi-urban). Located within local wildlife site.	Scoped In.	Medium
Colliter's Brook (Fig.17.1; Sheet 5)	Located to the north of Barons Close/East Close (for the South Bristol Trade Park), Colliter's Brook flows in a north easterly direction through an extended culvert underneath the railway line (at Barons Close Pedestrian Crossing) and Winterstoke Road (A3029). The brook emerges from culvert for a short section before entering another culvert as it flows northwards through the Ashton Gate area to discharge via the pumping station near Ashton Avenue Bridge into the River Avon. Receives discharges from Ashton Brook, downstream of Ashton Gate Level Crossing. Designated as Main River. Classified under WFD cycle 1 as having moderate ecological potential	Scoped In.	Medium

1.2 Groundwater Receptors in the Study Area with their Assigned Value

Table 1.2: Groundwater Receptors in the Study Area with their Assigned Value

Receptor	Description and water indicators/features	Scoping (In/Out/To be confirmed) and Justification	Value
Portishead Mercia Mudstone	Classified under WFD as having Good quantitative and Good chemical quality. Bedrock classified as Secondary B aquifer and superficial deposits as Secondary A and B where they exist. No Source Protection Zones (SPZs).	Scoped In.	Medium
Carboniferous Limestone (Bristol)	Classified under WFD as having Good quantitative and Good chemical quality. Bedrock classified as Principal Aquifer and Secondary A aquifer. Superficial deposits mostly classified as Secondary B with small areas of Secondary A where they exist. No SPZs.	Scoped In.	High
Bristol Triassic	Classified under WFD as having Good quantitative quality and poor chemical quality. Identified as “At risk” waterbody. Bedrock classified as Secondary A aquifer and superficial deposits as Secondary A where they exist. No SPZs.	Scoped In.	Medium