AVONMOUTH SEVERNSIDE ENTERPRISE AREA (ASEA) ECOLOGY MITIGATION AND FLOOD DEFENCE SCHEME

Waste Recovery Permit – Environmental Risk Assessment

EPR/JB3309LY/A001

Issue and Revision Record

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Contents

1 Introduction

1.1 Background and Scope

BAM Nuttall Mott MacDonald Joint Venture (BMMJV) has been commissioned by the Environment Agency, alongside South Gloucestershire Council (SGC), to prepare a bespoke environmental permit application to enable the use of recovered waste on the Avonmouth Severnside Enterprise Area (ASEA) Ecology Mitigation and Flood Defence Scheme, hereafter referred to as 'the scheme'.

Different areas of the scheme have different earthworks requirements including areas with a net cut and others with a net fill. Overall, there is due to be a deficit of material, thus requiring import of suitable material to allow completion of the scheme. It is aimed to apply CL:AIRE's Definition of Waste Construction Industry Code of Practice (DoWCoP) v2 (2011) to reuse excavated materials sourced from the site in the various developments across the project under a Materials Management Plan (MMP), where possible. However, due to the deficit of material, additional material is also required.

A source of suitable material for the construction of the scheme has been identified at Durnford Quarry, Longwood Lane, Bristol, BS41 9DW, a site managed by Tarmac Limited. The material at Durnford Quarry comprises class 2C stony cohesive materials (reworked mudstone and limestone) that was surplus to requirement for the restoration of the quarry and is therefore now considered a waste. Approximately 80,000m^3 waste is available for use.

It is intended that the waste be transferred to and stored in a stockpile on land off A403 at Northwick before being used for earthworks in Area 1 of the ASEA scheme. A planning application for the temporary stockpiling of material has been submitted to and approved by SGC (P19/18638/R3F). Despite this, if the material was not able to be stockpiled, it would be directly transferred to the ASEA scheme at a rate appropriate to allow the construction of the scheme. An environmental permit (ref EPR/HB3706SM/A001) to allow the waste transfer into the stockpiling area is also in process, at the time of writing.

This report provides an assessment of the risks to the environment and human health from the proposed recovery of the waste. The report identifies the potentially sensitive receptors within 200m of the scheme and assesses the amenity risk on the items within the categories of noise and vibration; particulate matter; litter; vermin and insects; and mud and debris as well as emissions to air, land and water.

The bespoke permit will be submitted with this risk assessment which will set the requirements for the management of the permitted area, emission control measures etc. All control measures within the rules must be adhered to in order to obtain the permit.

This document conforms to the relevant information required within the Environmental Setting and Site Design Report (ESSD) including report context, site details and pathway and receptor.

Certain elements of the generic risk assessments used for standard rules applicable to the use of waste in a deposit for recovery operation at a specified location “SR2015 No39” have been incorporated into this Environmental Risk Assessment (ERA).

This document assesses risks to the environment, amenity and human health in accordance with the Environment Agency’s H1 Environmental Risk Assessment framework. The risks addressed include:

- Noise and vibration;
- Odour;
- Particulate matter;
- Litter, mud and debris;
- Abatement of other fugitive emissions to air;
- Vermin and insects (pests);
- Emissions to water and land; and
- Abatement of point source emissions to air.

This ERA covers the recovery of the waste only. The risks associated with the transfer station site operations (stockpiling and associated infrastructure works) are covered within the ERA for the stockpiling area (document ref ENVIMSW002194-BMM-XX-A10-RA-EN-0301029) associated with permit reference EPR/HB3706SM/A001.

The site boundary and the green line application boundary are shown in the site plan included in Appendix A. The proposal is described in detail in Section 2 of the Environmental Statement (ES)[1]. Key environmental receptors have been discussed and a conceptual site model been produced in the Contaminated Land Risk Assessment (CLRA)[2]. Environmental hazards associated with construction have been considered as part of the Construction Environmental Management Plan (CEMP)[3]. The effects to ecological habitats have been assessed in the Habitats Regulations Assessment (HRA)[4] and the Protected Species and Habitats Report[5]. These documents should be referred to as necessary by the reader.

1.2 Assumptions and Limitations

The assessment of effects has been based on information sourced from relevant and applicable legislation and guidance and websites. It is assumed that all guidance documents produced by the Environment Agency (EA) are up to date and correct at the time of writing.

[1] CH2M. May 2018. Avonmouth Severnside Enterprise Area Ecology Mitigation and Flood Defence Scheme: Environmental Statement.
[2] BMMJV. April 2020 Area 1 and Area 3A Contaminated Land Risk Assessment, Remediation and Verification Strategy (document reference: ENVIMSW002194-BMM-XX-A10-RA-Y-0109007).
[3] BMMJV. August 2019. Avonmouth Severnside Enterprise Area (ASEA): Ecology Mitigation and Flood Defence Scheme Construction Environmental Management Plan (CEMP) (document reference: ENVIMSW002194-BMM-XX-Z00-RP-Z-0402001).
[4] CH2M. May 2018. Avonmouth Severnside Enterprise Area Ecology Mitigation and Flood Defence Scheme: Habitats Regulations Assessment
[5] CH2M. October 2017. Avonmouth Severnside Enterprise Area Ecology Mitigation and Flood Defence Scheme: Environmental Statement Appendix D7 – Protected Species and Habitats Report: Area 1 Scheme and Area 5 Scheme (Document reference: ENVIMSW002194-CH2-000-XXX-RP-EN-0005-A3-C02-C0400-EA3-LOD3-ES)

This ERA only covers the recovery of waste in Area 1 of the ASEA scheme and associated placement activities. A separate Site Waste Management Plan has been produced for the mitigation of the environmental impacts and management of site waste associated with the construction activities.

2 Scheme Setting

Further information on the scheme is provided in the Area 1 and Area 3A Contaminated Land Risk Assessment, Remediation and Verification Strategy (document reference: ENVIMSW002194-BMM-XX-A10-RA-Y-0109007). The below sections identify the main receptors that will need to be assessed as part of the risk assessment.

2.1 Location

Activity address: ASEA ecological mitigation and flood defence scheme, Area 1. Pilning and Severn Beach, Northwick, South Gloucestershire, BS35 4HW.

National grid reference: approximately centred at ST 55200 86900.

A plan showing the boundary of the scheme is provided in Appendix A.

2.2 Geology

Available geological mapping and ground investigation records shows the site to be underlain by superficial Tidal Flat Deposits, with the bedrock strata comprising the Mercia Mudstone Group.

Made ground is recorded to be present in the scheme area, associated with the existing embankments.

2.3 Hydrogeology

The Environment Agency has classified the Tidal Flat Deposits as unproductive strata with medium vulnerability, and the Murcia Mudstone Group as a Secondary B Aquifer with medium-high vulnerability.

The scheme is not within 1km of a designated Source Protection Zone.

During intrusive investigation of the scheme area, groundwater strikes were recorded between 0.1m and 17.2m below ground level (bgl). Most were encountered within the Tidal Flat Deposits whilst limited strikes were reported within the made ground, and two in the Tidal Flat Deposits and Mercia Mudstone Group boundary. Monitoring identified groundwater variation between 2.05m and 8.91m above ordnance datum (AOD) (0.22m to 7.13mbgl) in the Tidal Flat Deposits. Given the wells proximity to the Severn Estuary and variation in depth within each well, it may be an indication of the estuary's tidal influence.

2.4 Hydrology

The hydrology of the area is largely governed by the Severn Estuary which is adjacent to the west of Area 1. In the Northern Section of Area 1, Northwick Oaze (tidal mud banks) and wetland marshes generally separate Area 1 from the estuary waters whereas the Southern and Middle Sections of Area 1 are bounded directly by them.

Drainage ditches, or rhines, have been dug across much of the surrounding area between Aust and Pilning. Locally, rhines drain into Lords Rhine just north of the site and ultimately

into the Severn Estuary via Cake Pill Gout around 100m north of the site. The rhines are considered sensitive on-site receptors. In addition to Lords Rhine and Cake Pill Gout, surface water features are present across the Northern Section of Area 1 which include, from north to south; an unnamed drainage ditch around the landfills at Northwick, Pilning Wetlands and The Pill (rhine) at Chestle Pill. No surface water features are identified within the Southern and Middle Sections of Area 1.

The scheme is located in Flood Zone 3, which indicates it has a high probability of flooding. However, the scheme itself is a flood defence and has been designed to provide protection to the Avonmouth Severnside Enterprise Area with consideration given to climate change and the potential for flood waters to directly contact the Scheme.

2.5 Protected areas

The Severn Estuary Special Protection Area (SPA) is designated under the EC Birds Directive (2009/147/EC) due to its international importance for over-wintering rare and vulnerable bird species. The Severn Estuary Special Area of Conservation (SAC) has been designated under the Habitats Directive (92/43/EEC) due to its internationally important estuarine habitats and migratory fish species. The estuary has also been designated under the international Ramsar wetlands convention due to the presence of rare or vulnerable breeding and wintering birds, as well as estuarine communities and migratory fish species.

The Severn Estuary includes an area of nationally important Site of Special Scientific Interest (SSSI) designations. The Severn Estuary SSSI is designated for similar habitats and species as the international designations, including littoral sediment communities, coastal saltmarsh and grazing marsh, seagrass beds, migratory fish and rare or vulnerable bird species. The Aust Cliffs SSSI lies at the northern limit of the Scheme, designated for its geological and paleontological features.

Ridge and furrow sites of archaeological interest are present in numerous locations in and around the scheme boundary.

Great crested newts and bats have been confirmed to be present in the area of the scheme. Suitable habitat for fish, otters, reptiles, and badgers has also been recorded by specialists. Protected species are therefore considered to be a receptor in the area.

Environmental receptors are displayed in environmental constraints plans in Appendix B.

2.6 Other notable features

2.6.1 Properties

Residential properties are present at close proximity to the scheme at several locations, including at; Old Passage, New Passage, Redwick, and Severn Beach.

Farmland is present to the east of the existing flood defences between Aust and Pilning.

2.6.2 Landfills

Within 250m of the scheme boundary, there are four Environment Agency landfills. Known information about these landfills is given in Table 2-1.

Table 2-1: Landfill information

ID	Name	Nature of waste	First input	Last input	Licence issued
EAHLD32250	Coast Road Tip	Unknown	1968	<1999*	Unknown
EAHLD09846	Land Adjoining Severn Road	Unknown	Unknown	Unknown	1983
Authorised landfill CLI135. EA/EPR/YP3690FG/V005	Cliffeville Aust Landfill	Co-disposal site. Excludes special wastes	Unknown	2006*	1994
EAHLD09498	Severnside Works	Inert, Industrial (waste from a factory or industrial process it excludes waste from mines, quarries and agricultural wastes) and Special – liquids/sludge (Industrial wastewater, sewage sludge and chemical wastes mixed with municipal solid waste).	1960	1992	1978

* = date not referenced but estimated from the review of historical maps and aerial photography.

The locations of the landfills are shown in Figure 1 (feature references 3a-d).

2.6.3 Public right of way (PROW)

The Severn Way Footpath PRoW runs along the top of the existing flood defence bund.

3 Environmental Risks

Many of the environmental risks, which may be present during the construction of the scheme, are all covered under the sitewide construction environmental management plan[6] which includes a full project environmental risk assessment, and specific relevant management plans as required based on the risk assessment.

As the waste is to substitute similar non-waste materials, the environmental risks of using the waste are equivalent to those of using a non-waste in respect of; emissions to air, the historic environment, nature conservation, nuisance (including; noise, vibration, dust, vermin and pests), silt management, water, sustainability, and waste management. No additional risks for these topics are therefore considered to occur through the use of waste materials, in place of non-waste materials, in the ASEA scheme.

Risks from contamination are covered in Section 4 as these are considered to require further assessment.

[6] BMMJV. March 2020 Site-wide Construction Environmental Management Plan (CEMP) (document reference: ENVIMSW002194-BMM-XX-Z00-RP-Z-0402040).

4 Contamination risk assessment

A conceptual site model (CSM) has been generated for the use of the waste materials in the scheme. This identifies relevant sources, pathways and receptors for the scheme, and identifies which pollutant linkages may be present. A risk assessment is then undertaken on the viable linkages in order to qualify the risks and identify where any additional mitigation may be required to reduce these to acceptable levels.

4.1 Sources

4.1.1 Historical development

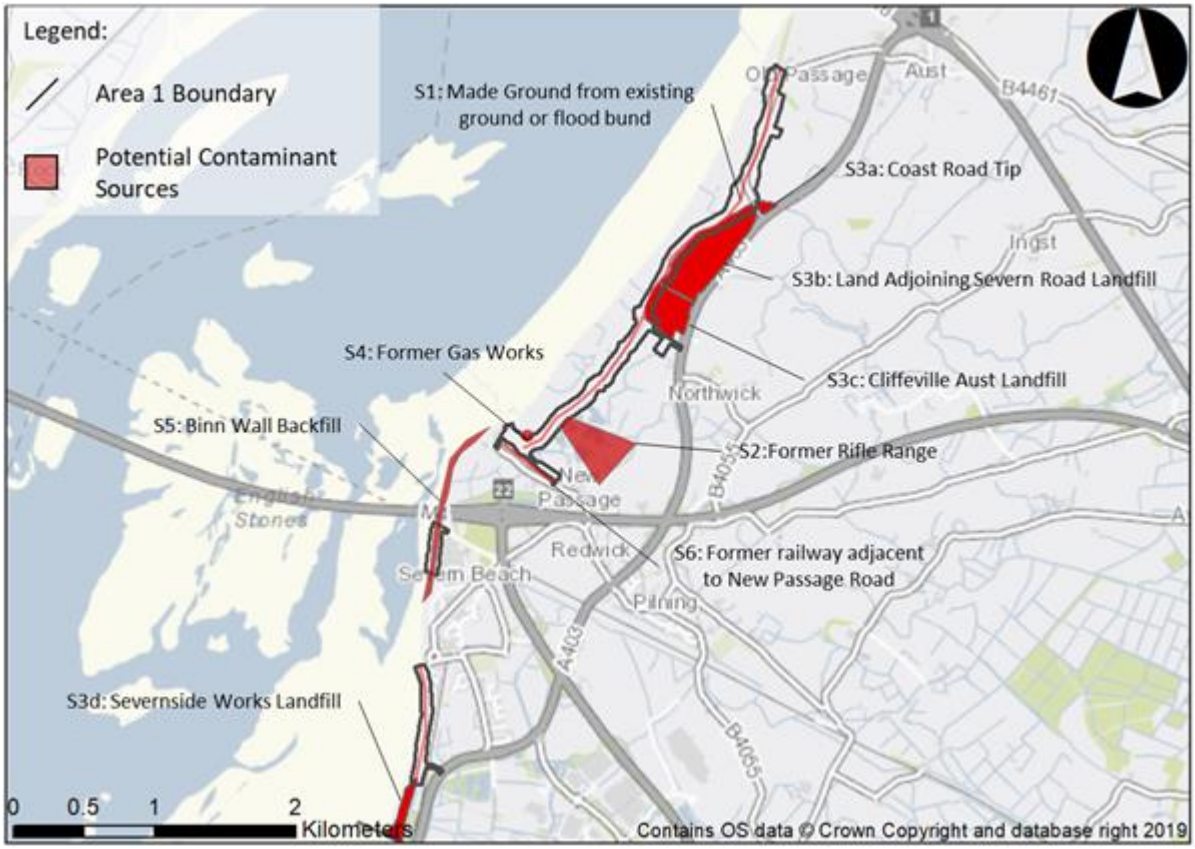
A full discussion of the historical land uses around the scheme has been detailed in the Contaminated Land Risk Assessment, Remediation and Verification Strategy. In summary:

- Historical mapping shows that much of the existing flood defence structures and associated surface water features have been in place since before the earliest available mapping was published in 1881, however the source of the material used to construct the embankments is unknown. The flood defences appear to have changed very little since then, with limited development having taken place immediately inland of the defence structures.
- A gas works is shown to be present immediately south of the outfall structure in the northern section of Area 1 until the 1950s. A sewage works, constructed around the 1960s, still exists 120m east of the outfall structure.
- A pumping station, associated with the Severn Tunnel, has existed in some form at the end of Shaft Road in Area 1 since the earliest available mapping record.
- A railway and station were constructed inland of the embankment in Area 1.
- Military land, including a rifle range and anti-aircraft battery is present to the south-east of Area 1.
- Caravan parks present in the mid and southern sections or Area 1 from the 1960s were converted to residential properties during the 1990/2000s and remain unchanged since.
- The southern part of Area 1 has remained relatively unchanged for the duration of available mapping records.
- Historical landfills are present in the vicinity of the scheme (see section 2.6.2), however the wastes accepted into many of these is unknown.

Much of the land to the east of the scheme is agricultural fields. Ground investigation has identified elevated concentrations of ammoniacal nitrogen in the groundwater, which is likely attributable to this land use, however there may be other diffuse pollution present as a result of this land use.

Figure 1 visually depicts the locations of potentially contaminative historical land uses.

Figure 1: Area 1 sketch map showing potentially contaminative land uses



4.1.2 Proposed development

The ASEA Scheme will improve existing flood defences in the area, and will provide new flood defences, thereby raising the current standard of protection for residents and businesses within the area. The proposed recovery of waste involves using material considered to be suitable geotechnically and geoenvironmentally in order to form the fill of the new ASEA flood defence embankments, which exist on top of the historical embankments. The waste will then be covered with uncompacted subsoil and topsoil before being seeded with an estuarine floodbank species-rich mix to form an amenity grassland, or covered with a crushed stone surface to form the Severn Way footpath. Details of the restoration can be seen in Appendix C.

Approximately 80,000m^3 waste, comprising class 2C stony cohesive material which was surplus to requirements for the restoration of Durnford Quarry, has been identified and assessed to be suitable for the scheme. If permitted, the waste will be used as embankment fill in Area 1.

The waste at Durnford Quarry was subject to an investigation in August 2019, during which, five machine excavated trial pits were dug, with associated sampling and geo-environmental laboratory analysis. The fieldwork logs summarised the waste as soft to firm slightly sandy, slightly gravelly clay with rare cobbles of angular to subangular brick. The gravel comprised limestone, siltstone, slate and brick fragments. Rare rootlets and some wood fragments were also reported in the material. No other anthropogenic inclusions were recorded to have been

identified during the investigation. The material is, therefore, considered to be very similar in nature to the natural bedrock of the area and is classified as European Waste Catalogue (EWC) code 17 05 04. The material was also assessed for import under the MMP in 2016, and the material was found to be inert.

Twenty-five soil samples of the waste were analysed for; inorganic parameters, metals, speciated polycyclic aromatic hydrocarbons (PAH), total petroleum hydrocarbons (split by TPH-CWG fractions), and BTEX (benzene, toluene, ethyl benzene and xylenes). Additionally, 10 of those samples were subject to leachate testing for; inorganic parameters, dissolved metals and phenols. The results were assessed against criteria for the protection of human health and the environment, and were found to be below the generic screening criteria or considered to be similar to natural soils in the area, which also marginally exceeded the criteria. The risk assessment concluded that the use of the material would not present a significant risk to human health or the environment if used within the proposed embankments. See Appendix D for a full assessment of the results.

4.1.3 CSM sources

Potential contamination of existing site materials from historical activities on site and in the surrounding area is covered under the contaminated land risk assessment[2] for the scheme and is not thought to be increased or altered as a result of the use of the waste material. This risk assessment covers the use of waste only, and the only source considered is the impacts as a result of the deposition of the waste in place of non-waste materials.

From the assessment, the following are considered to be the relevant sources:

Table 4-1 - List of relevant sources

ID	Description
S1	Imported waste for the fill of the proposed embankments

4.2 Pathways

For the conceptual model of the site including the recovered material, the following pathways are considered to be relevant, including combinations of multiple pathways:

Table 4-2 - List of pathways considered plausible at the site

ID	Description
P1	Infiltration and migration through the saturated and unsaturated zones
P2	Surface run-off (entry into surface waters, or infiltration)
P3	In flood waters
P4	Human uptake pathways (direct contact, inhalation, ingestion)
P5	Transport through the air (sound waves or by wind)
P6	On vehicles entering and leaving site
P7	Direct contact

4.3 Receptors

Based on the site setting, the following receptors are considered to be relevant to the proposed recovery of material:

Table 4-3 - List of receptors in the vicinity of the site

ID	Description
R1	Severn Estuary (SSSI, SPA, SAC, Ramsar) adjacent to site boundary
R2	Small surface waters close to and downstream of the scheme (including rhines)
R3	Groundwater (bedrock Secondary B aquifer)
R4	Local residents
R5	Future scheme users (walkers)
R6	Construction and maintenance workers
R7	Ecological (protected species)
R8	Construction materials (buildings, infrastructure etc)

4.4 Risk assessment

Table 4-4 presents the risk assessment for the use of waste in the scheme, instead of the use of non-waste materials. The CSM for the construction and presence of the scheme, using non-waste materials is available in the contaminated land risk assessment[2]. It is therefore assumed that the recommended mitigation for the scheme (e.g. use of a construction environmental management plan (CEMP), dust management plan, personal protective equipment (PPE) for groundworkers etc) has been implemented.

When placed, the waste will not give rise to significant ground gases and any produced would vent to the atmosphere. Testing has demonstrated there is not a significant risk to human health or controlled waters from the determinands present in the waste.

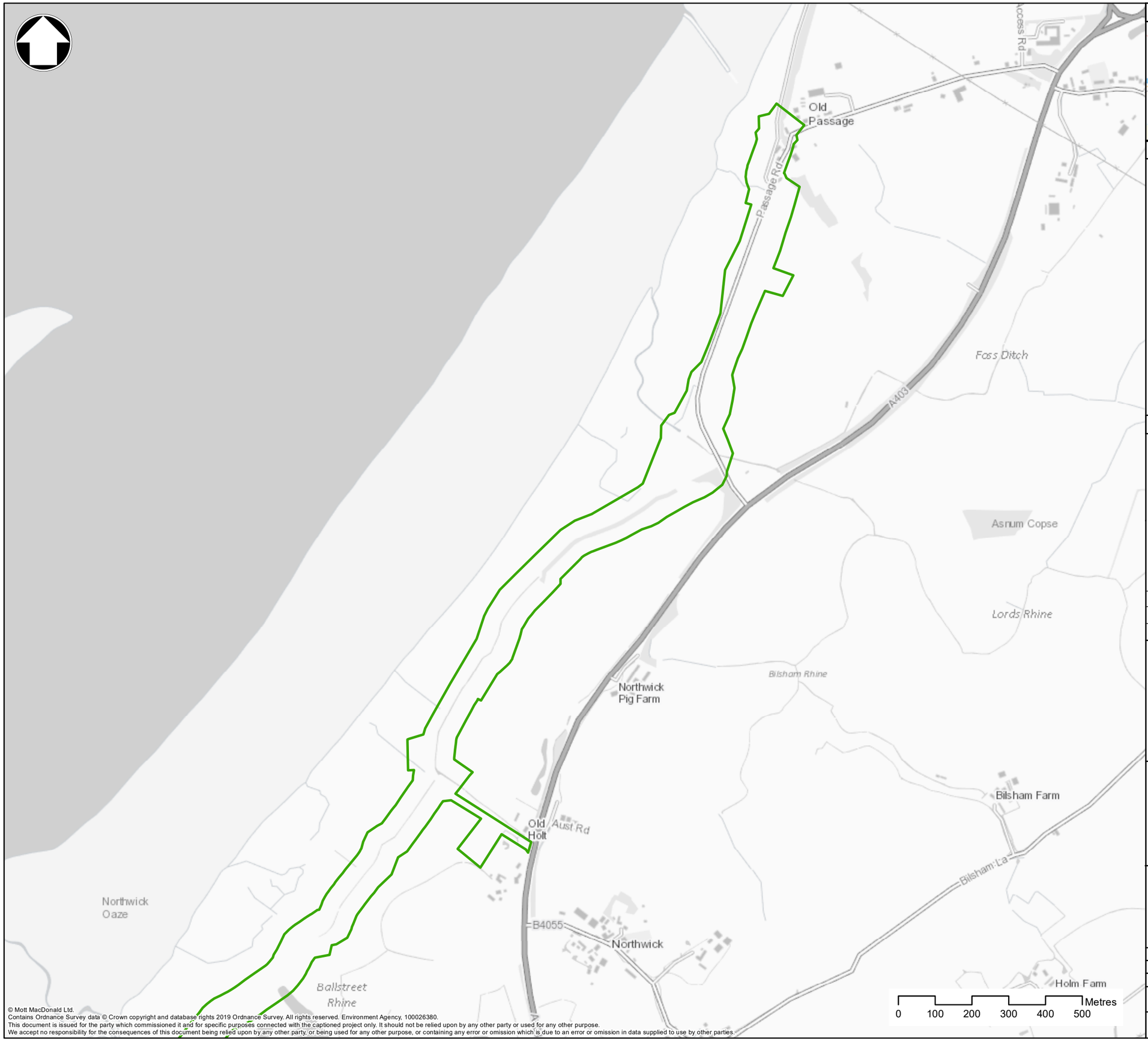
Overall, based on the data collected from the investigation of the source pile and deposition locations, it is considered that there is no increase in risks from the use of the waste in the flood defences, compared to non-waste materials being used (low to very low in both assessments).

No further mitigation measures are therefore required for the protection of human health, or the environment as a result of the use of the waste.

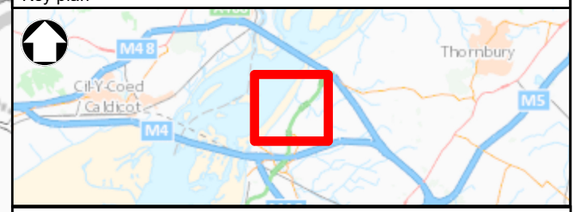
Table 4-4 – Risk assessment of the use of waste in the ASEA scheme

Source	Pathway	Receptor	Consequence	Likelihood	Risk	Comment
S1: Waste material	P1: Infiltration and migration	R1: Severn Estuary	Mild	Low	Low	Leachate testing has identified no significant exceedances of water quality standards. Material predominantly clay therefore lower infiltration and production of dusts than granular non-waste materials.
	P2: Surface run-off		Mild	Unlikely	Very low	
	P3: In flood waters		Mild	Unlikely	Very low	
	P1: Infiltration and migration	R2: Small surface waters	Mild	Low	Low	
	P2: Surface run-off		Mild	Low	Low	
	P3: In flood waters		Mild	Unlikely	Very low	
	P1: Infiltration and migration	R3: Groundwater	Mild	Low	Low	Leachate testing has identified no significant exceedances of water quality standards. Those determinands exceeding criteria are similar to concentrations in natural soils in the area.
	P5: Transport through the air **then** P4: Human uptake pathways	R4: Local residents	Minor	Low	Very low	Dust management plan in th CEMP will ensure dust mitigation employed to minimise exposure. Concentrations of contaminants in dust not likely to cause harm.
	P6: On vehicles **then** P4: Human uptake pathways		Minor	Low	Very low	
	P4: Human uptake pathways	R5: Future scheme users	Minor	Unlikely	Very low	Only material meeting reuse criteria would be accepted and exposure to materials would be negligible (beneath topsoil, grass cover etc and duration short).
	P4: Human uptake pathways	R6: Construction and maintenance workers	Minor	Likely	Low	Concentrations of contaminants in dust not likely to cause harm. Short exposure duration. PPE as standard.
	P7: Direct contact	R7: Ecological (protected species)	Minor	Unlikely	Very low	Protected species unlikely to come into contact with material. Similar composition to natural materials in area therefore not likely to impact protected species
	P7: Direct contact	R8: Construction materials	Minor	Likely	Low	Minor/no impacts expected from exposure of construction materials, including concrete, to the waste based on recorded pH and sulphate.

Appendix A: Site Plan



Key plan



Key to symbols

Green line boundary (Area 1)

Notes

1. For information only, not for construction.
2. Proposed scheme layout is representative at the date of drawing issue. Drawing will be revised, if required, following design updates.
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Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA Ecology & Flood Mitigation Scheme
Area 1
Waste Recovery Permit - Green Line Boundary
Page 1 of 3

Designed	S George	SG	Eng Check	C Postlethwaite	CP
Drawn	G O'Donovan	GO	Coordination	S George	SG
GIS Check	S Anstice	SA	Approved	M Secker	SA

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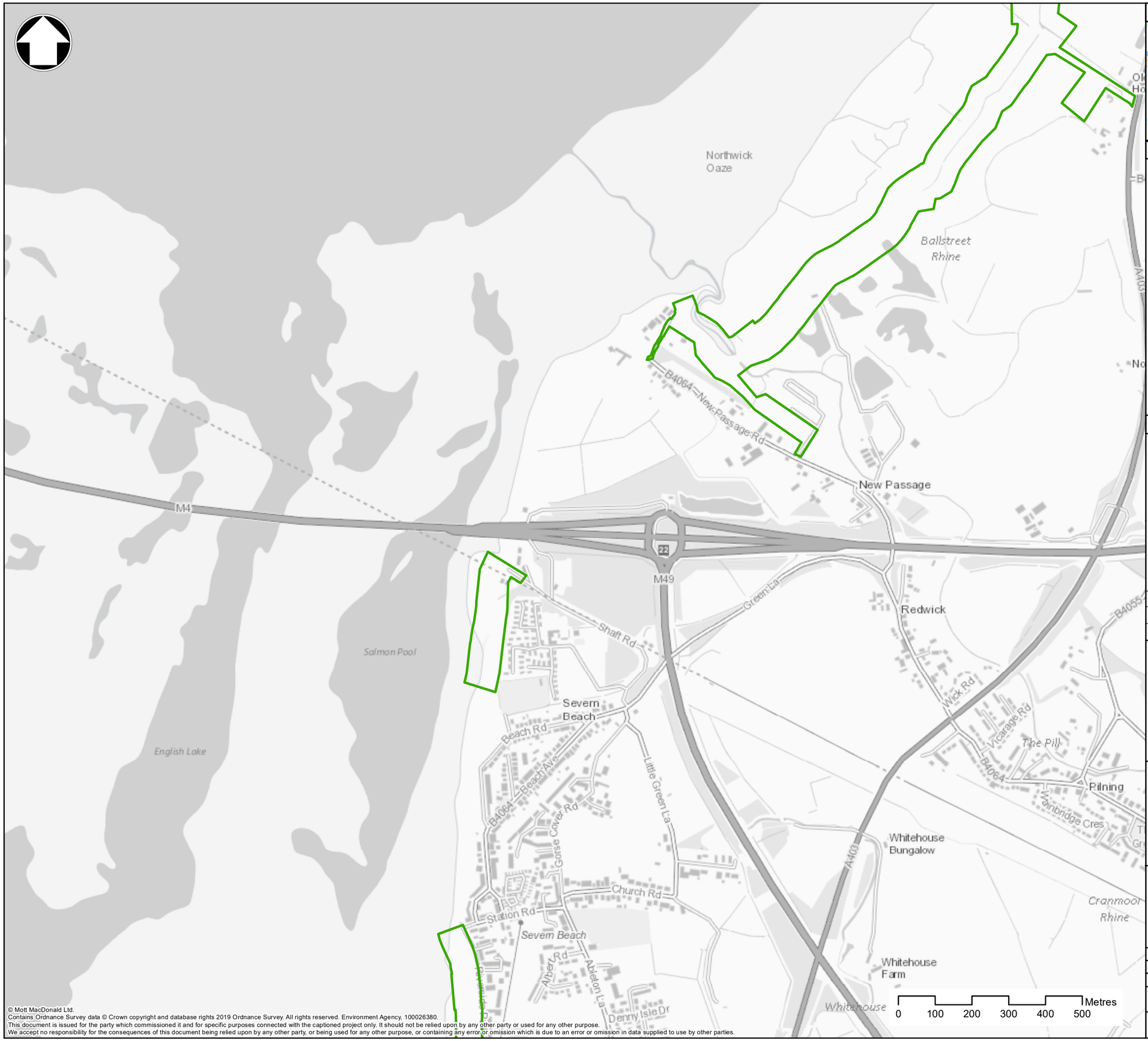

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Key plan

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Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

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Page 2 of 3

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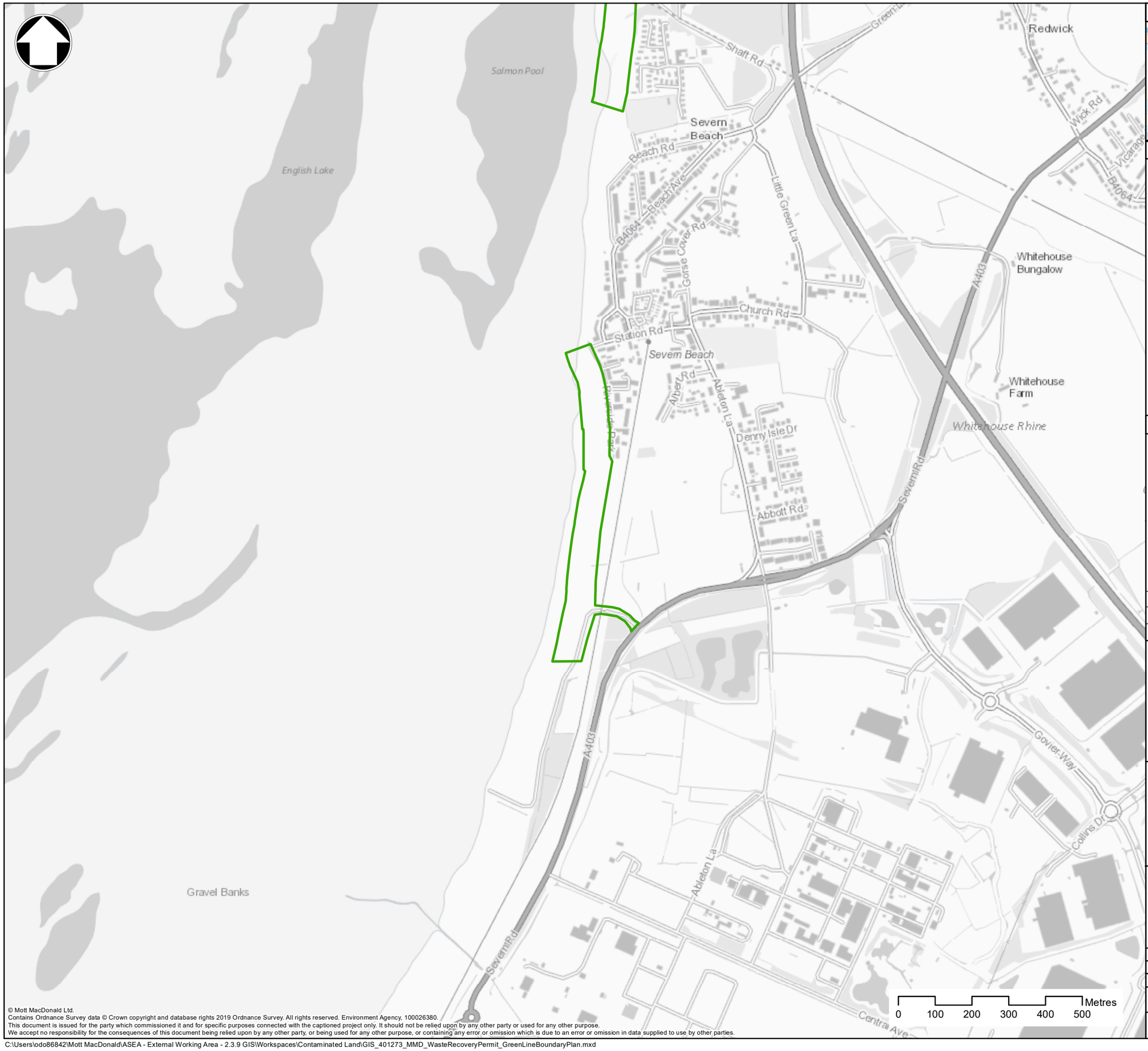

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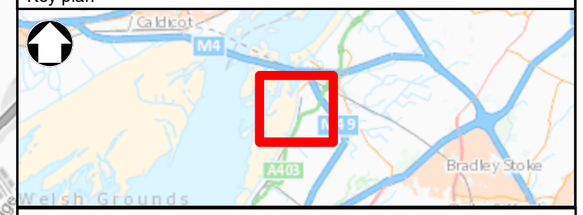

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Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

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Page 3 of 3

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GIS Check	S Anstice	SA	Approved	M Secker	SA

Scale at A3	Status	Rev	Security
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Drawing number
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N

SEVERN ESTUARY

SEVERN ESTUARY

RIVER SEVERN

River Severn

Area 1 Drawing detail 1 of 10

See drawing:
IMSW002194-CH2-Z00-A10-DR-C-1220

Aust Pier

AUST

NORTHWICK WARTH

OLD PASSAGE ROAD

Area 1 Drawing detail 2 of 10

See drawing:
IMSW002194-CH2-Z00-A10-DR-C-1221

Northwick Doze

Mud

Cake Pill

Salt Marsh Habitat Creation Area

Area 1 Drawing detail 3 of 10

See drawing:
IMSW002194-CH2-Z00-A10-DR-C-1222

NORTHWICK OAZE

NORTHWICK WARTH

SEVERN ROAD A403

SEVERN ESTUARY

RIVER SEVERN

River Severn

NORTHWICK LANDFILL SITE

NORTHWICK PIG FARM

Area 1 Drawing detail 4 of 10

See drawing:
IMSW002194-CH2-Z00-A10-DR-C-1223

NORTHWICK WARTH

NORTHWICK OAZE

Northwick Ecological mitigation Area (Area 5)

See drawing:
IMSW002194-CH2-Z00-A50-C-5210 &
IMSW002194-CH2-Z00-A50-C-5211

Area 1 Drawing detail 5 of 10

See drawing:
IMSW002194-CH2-Z00-A10-DR-C-1224

Area 1 Drawing detail 6 of 10

See drawing:
IMSW002194-CH2-Z00-A10-DR-C-1225

Area 1 Overview plan Sheet 2

See Drawing:
ENVIMSW002194-CH2-Z00-A10-DR-C-1211

SEVERN ESTUARY

RIVER SEVERN

NORTHWICK OAZE

Chestle Pill

NORTHWICK WARTH

SEVERN ROAD A403

NORTHWICK

EXISTING WETLAND HABITAT AREA

REDWICK

PLAN

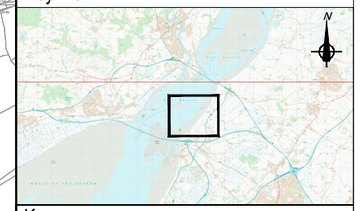
SCALE 1:5000 AT A1, 1:10000 AT A3

0 50 100 150 200 250 300 350 400 450 500

METRES

SCALE 1:5000 (A1)
SCALE 1:10000 (A3)

Key Plan:



Key:

- 10.83 — Existing levels on cross sections
- 11.83 — Proposed levels on cross sections
- 9.10 — Existing levels on plan
- 9.40 — Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Salt Marsh Mitigation Area

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	LC	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client

Bristol City Council

Environment Agency

South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

ch2m:

Project

AVONMOUTH SEVERNSIDE
ENTERPRISE AREA
ECOLOGY MITIGATION
& FLOOD DEFENCE PROJECT

Drawing

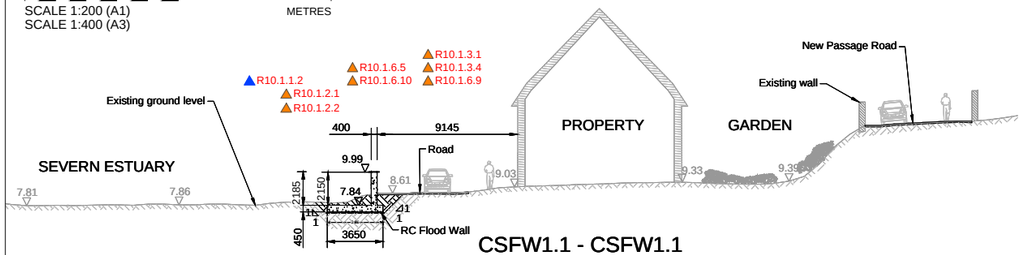
ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) OVERVIEW PLAN SHEET 1 OF 2

Drawn by:	PG	Date: 20/06/17
Checked by:	CAG	Date: 24/05/18
Approved by:	LL	Date: 25/05/18

Drawing No.	Revision
ENVIMSW002194-CH2-Z00-A10-DR-C-1210	D2

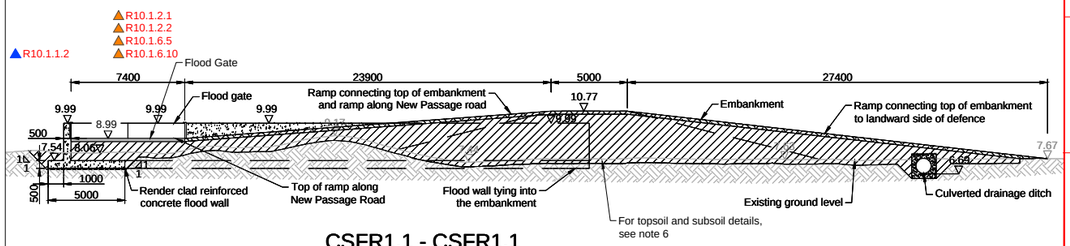
Drawing Scale: AS SHOWN

0 5 10 20
SCALE 1:200 (A1)
SCALE 1:400 (A3)
METRES



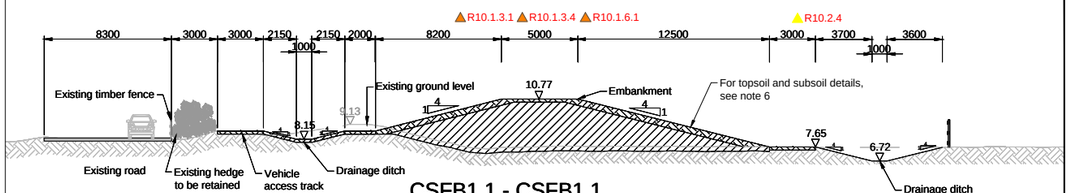
CSFW1.1 - CSFW1.1

SCALE 1:200 AT A1, 1:400 AT A3



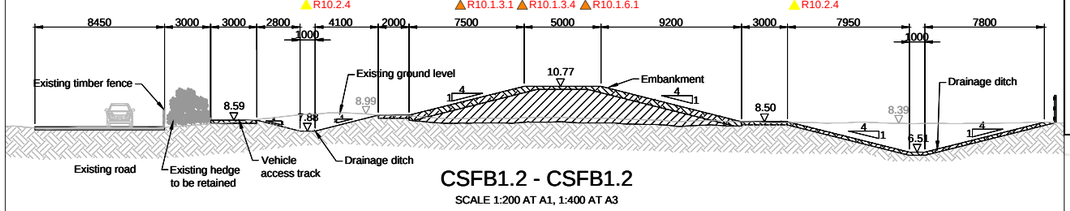
CSFR1.1 - CSFR1.1

SCALE 1:200 AT A1, 1:400 AT A3



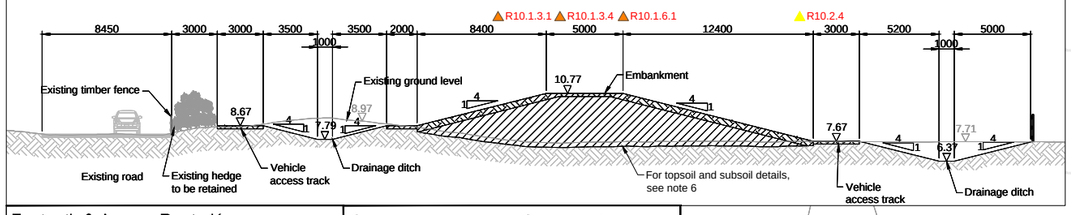
CSFB1.1 - CSFB1.1

SCALE 1:200 AT A1, 1:400 AT A3



CSFB1.2 - CSFB1.2

SCALE 1:200 AT A1, 1:400 AT A3



CSFB1.3 - CSFB1.3

SCALE 1:200 AT A1, 1:400 AT A3

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- W — Bristol City Council - Mains
- LV — WPD - Low Voltage
- LV — WPD - Low Voltage (overhead)
- BT — BT - Duct

0 10 20 30 40 50 60 70 80 90 100
SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)
METRES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following

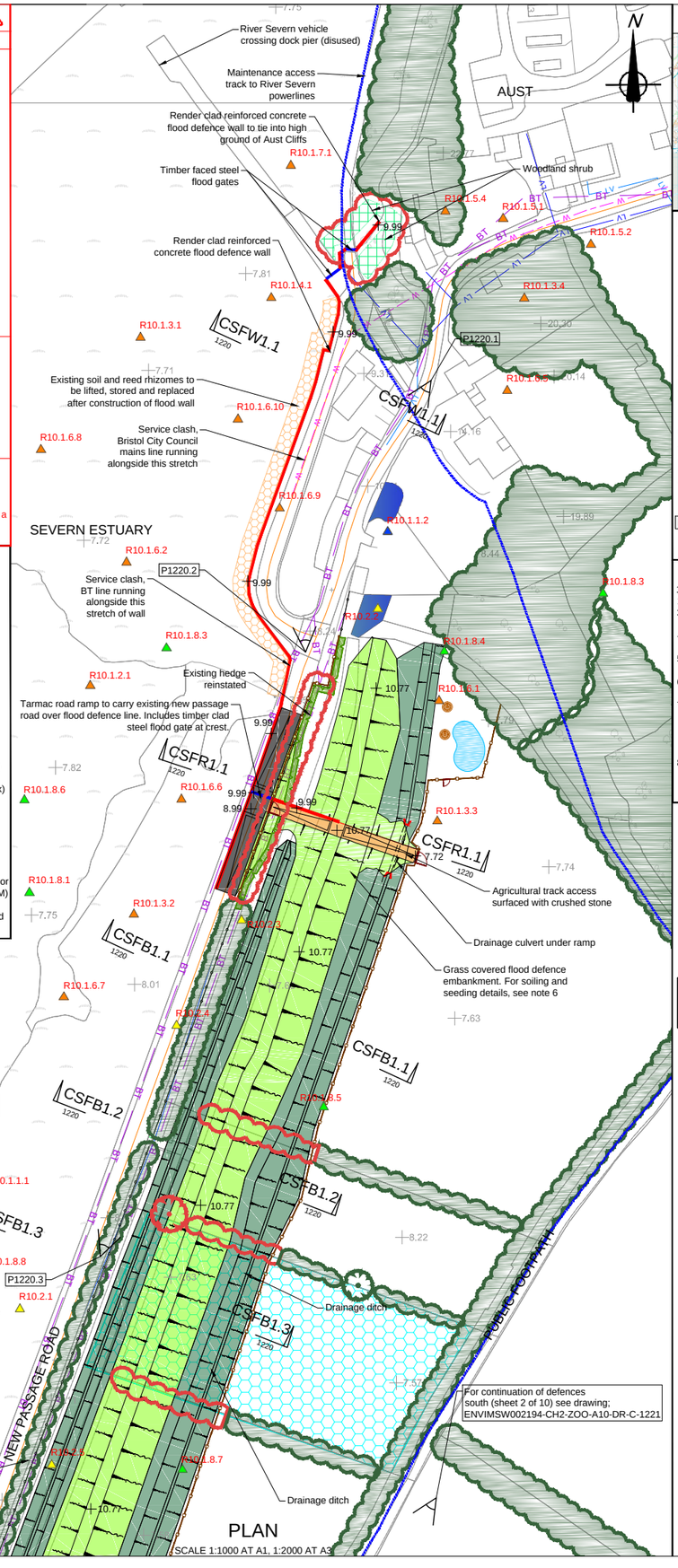
Safety:
- R10.1.1.1 Weather/Stormy Conditions
- R10.1.1.2 Proximity To River/Working at height over River
- R10.1.3.1 Interface between the works and the public
- R10.1.3.2 Working near trees
- R10.1.3.3 Interface between works and livestock
- R10.1.3.4 Working next to or on existing structures
- R10.1.4.1 Contact with unexploded ordnance
- R10.1.5.1 Bristol City council mains
- R10.1.5.2 WPD Power Lines overhead
- R10.1.5.4 BT lines overhead/Underground
- R10.1.6.1 Embankments and slopes
- R10.1.6.2 Lifting of materials for construction
- R10.1.6.5 Reinforcement
- R10.1.6.6 Landscaping
- R10.1.6.7 Manual Handling
- R10.1.6.8 Substances hazardous to health
- R10.1.6.9 Road construction/resurfacing
- R10.1.6.10 Concrete construction
- R10.1.7.1 Works haulage routes, interface with public through road access restrictions
- R10.1.2.1 Mud and Soft Ground
- R10.1.2.2 Stability of excavations and ground

Environment:
- R10.1.8.1 Sensitive areas of habitats that could be damaged during works
- R10.1.8.2 Pollution of the watercourse
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter habitat potential
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plants

Maintenance and operation:
- R10.2.1 Steep Embankments
- R10.2.2 Inspection and Operation of pills
- R10.2.3 Inspection and maintenance of flood gates
- R10.2.4 Inspection and maintenance of structures near a watercourse
- R10.2.5 Removal of silt from a watercourse

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate
- Flood wall foundation erosion protection: rock roll or rock mattress with turf reinforcement matting (TRM)
- Existing topsoil to be stripped, stored and replaced on completion of engineering works



PLAN

SCALE 1:1000 AT A1, 1:2000 AT A3

Key Plan:

Key:

- Existing levels on cross sections
- Proposed levels on cross sections
- Existing levels on plan
- Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client: Bristol City Council; Environment Agency; South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

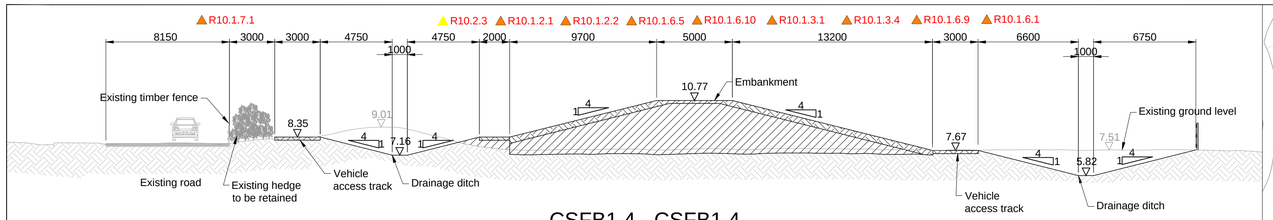
Project: AVONMOUTH SEVERNSIDE ENTERPRISE AREA ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

Drawing: ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) DETAIL PLAN SHEET 1 OF 10

Drawn by:	PG	Date: 06/07/17
Checked by:	CAG	Date: 24/05/18
Approved by:	LL	Date: 25/05/18

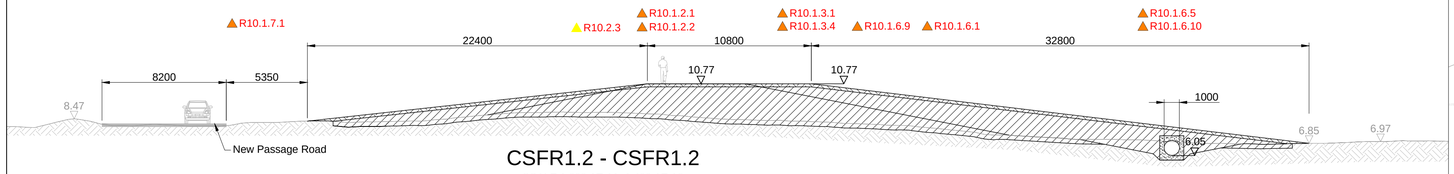
Drawing No.	Revision
ENVIMSW002194-CH2-Z00-A10-DR-C-1220	D2

Drawing Scale: AS SHOWN



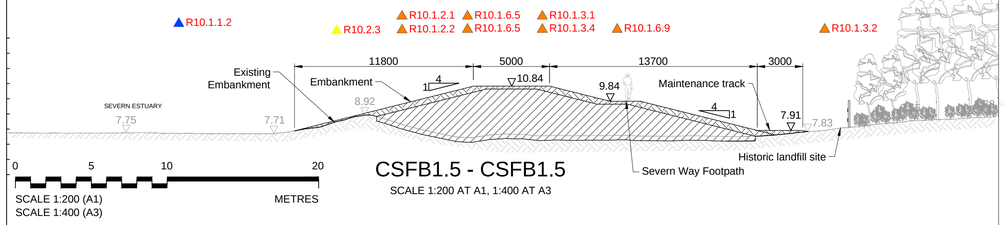
CSFB1.4 - CSFB1.4

SCALE 1:200 AT A1, 1:400 AT A3



CSFR1.2 - CSFR1.2

SCALE 1:200 AT A1, 1:400 AT A3



CSFB1.5 - CSFB1.5

SCALE 1:200 AT A1, 1:400 AT A3

0 5 10 20

SCALE 1:200 (A1)
SCALE 1:400 (A3)

METRES

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- VM — Virgin Media - Telecoms
- LV — WPD - Low Voltage (overhead)
- BT — BT - Duct

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :

Safety:

- R10.1.1.1 Weather Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 interface between works &Public
- R10.1.3.2 Working near trees
- R10.1.3.3 Interface with works and livestock
- R10.1.3.4 Working Next to/on existing structures
- R10.1.3.5 Unprotected edges at pills and channels
- R10.1.4.1 Contact with UXO
- R10.1.5.4 BT lines underground/overhead
- R10.1.6.1 Embankments and Slopes
- R10.1.6.2 Lifting of materials for construction
- R10.1.6.5 Reinforcement
- R10.1.6.6 Landscaping
- R10.1.6.7 Manual Handling
- R10.1.6.8 Substances hazardous to health
- R10.1.6.9 Road construction/resurfacing
- R10.1.6.10 Concrete construction
- R10.1.7.1 Works haulage routes interface with public and road access restrictions
- R10.1.2.1 Mud And Soft ground
- R10.1.2.2 Stability of ground & Excavations

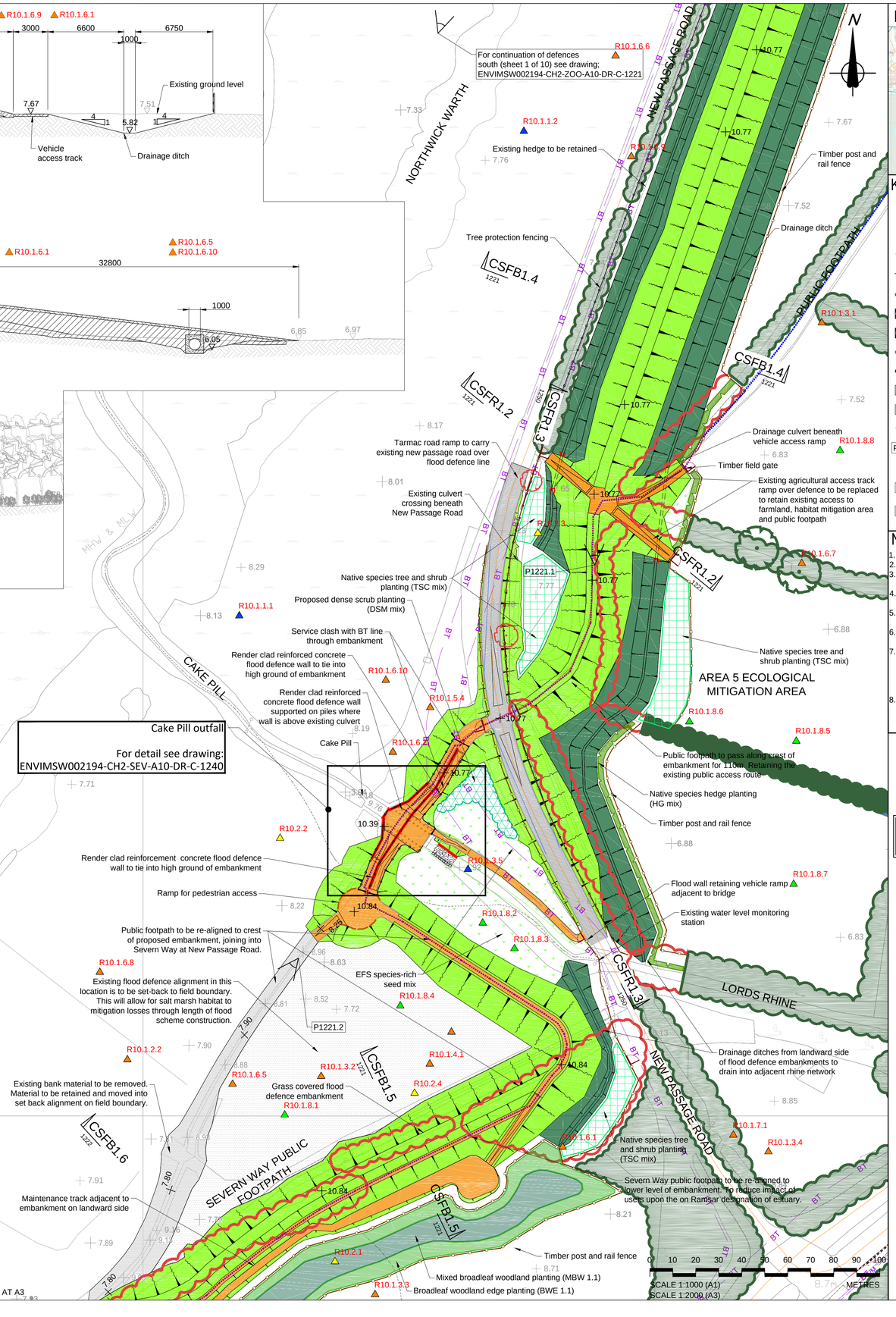
Environment:

- R10.1.8.1 Sensitive habitat area that could be damaged due to works
- R10.1.8.2 Pollution of water course
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter Habitat Potential area
- R10.1.8.5 Badger Set Area
- R10.1.8.6 Bats Habitat Area
- R10.1.8.7 Water Vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:

- R10.2.1 Steep embankments
- R10.2.2 Inspection and operation of pills
- R10.2.4 Inspection And maintenance of structures
- R10.2.5 Removal of silt from watercourse, repairing of banks, removing obstructions from watercourse

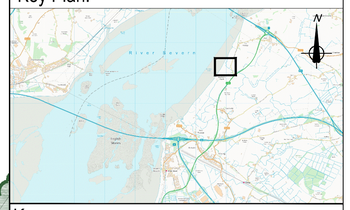
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.



PLAN

SCALE 1:1000 AT A1, 1:2000 AT A3

Key Plan:



Key:

- 10.83 — Existing levels on cross sections
- 11.83 — Proposed Levels on cross sections
- 9.10 — Existing Levels on plan
- 9.40 — Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / Footpath
- Reinforced concrete footing extents
- P1220.1 — Image location / Frame view
- Salt Marsh Mitigation Area
- Existing embankment removal footprint

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client: Bristol City Council; Environment Agency; South Gloucestershire Council

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Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

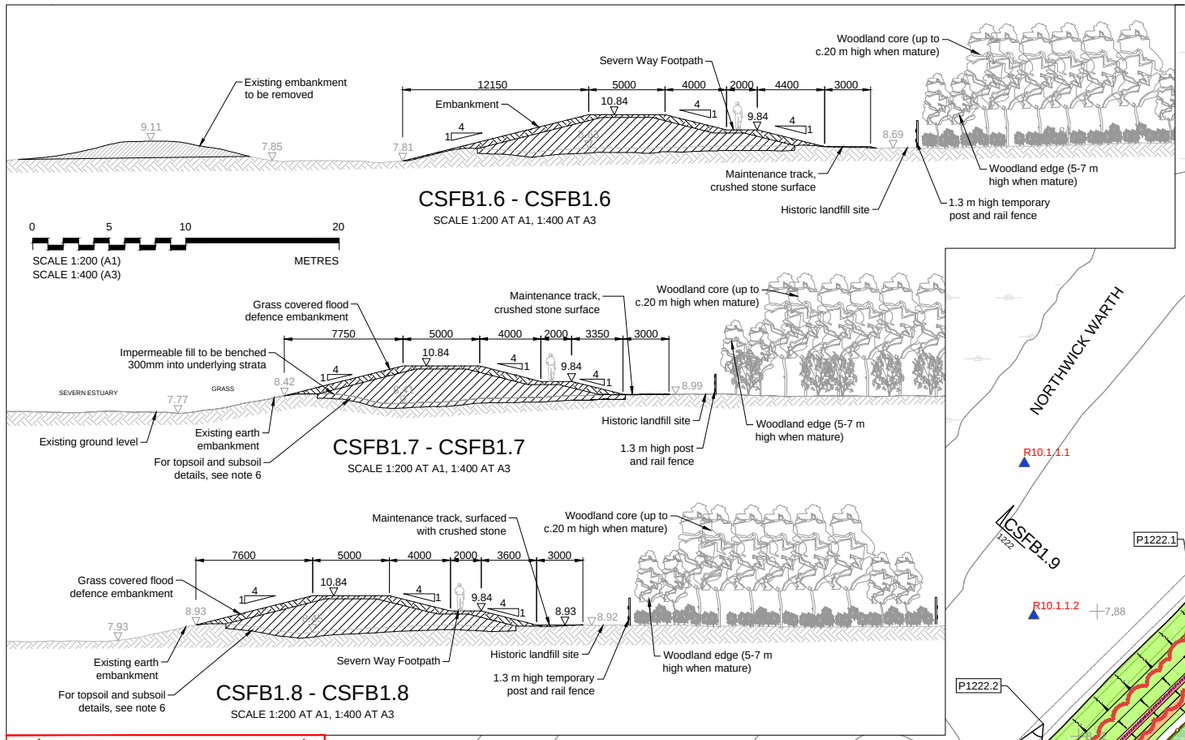
Project: AVONMOUTH SEVERNSIDE ENTERPRISE AREA ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

Drawing: ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) DETAIL PLAN SHEET 2 OF 10

Drawn by:	PG	Date: 06/07/17
Checked by:	CAG	Date: 24/05/18
Approved by:	LL	Date: 25/05/18

Drawing No.	Revision
ENVIMSW002194-CH2-ZOO-A10-DR-C-1221	D2

Drawing Scale: AS SHOWN


Existing embankment to be removed
Embankment
Severn Way Footpath
Woodland core (up to c.20 m high when mature)
Maintenance track, crushed stone surface
Woodland edge (5-7 m high when mature)
Historic landfill site
1.3 m high temporary post and rail fence
12150
5000
4000
2000
4400
3000
10.84
9.84
9.11
7.85
7.81
8.69
CSFB1.6 - CSFB1.6
SCALE 1:200 AT A1, 1:400 AT A3
0
5
10
20
SCALE 1:200 (A1)
SCALE 1:400 (A3)
METRES
Grass covered flood defence embankment
Maintenance track, crushed stone surface
Woodland core (up to c.20 m high when mature)
Impermeable fill to be benched 300mm into underlying strata
SEVERN ESTUARY
GRASS
Existing ground level
Existing earth embankment
For topsoil and subsoil details, see note 6
Historic landfill site
1.3 m high post and rail fence
Woodland edge (5-7 m high when mature)
7750
5000
4000
2000
3350
3000
10.84
9.84
8.42
7.77
8.99
CSFB1.7 - CSFB1.7
SCALE 1:200 AT A1, 1:400 AT A3
Maintenance track, surfaced with crushed stone
Woodland core (up to c.20 m high when mature)
Grass covered flood defence embankment
Existing earth embankment
For topsoil and subsoil details, see note 6
Severn Way Footpath
Historic landfill site
1.3 m high temporary post and rail fence
Woodland edge (5-7 m high when mature)
7600
5000
4000
2000
3600
3000
10.84
9.84
8.93
7.93
8.92
CSFB1.8 - CSFB1.8
SCALE 1:200 AT A1, 1:400 AT A3
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :
Safety:
R10.1.1.1 Weather/Storm Conditions
R10.1.1.2 Proximity to river
R10.1.3.1 Interface between works and public
R10.1.3.2 Working near trees
R10.1.3.3 Interface between works and livestock
R10.1.4.1 Contact with UXO
R10.1.6.1 Embankments and slopes
R10.1.6.6 Landscaping
R10.1.6.7 Manual handling
R10.1.6.8 Substances hazardous to health
R10.1.7.1 Works haulage routes, interface with public and road access restrictions
R10.1.2.1 Mud And Soft Ground
R10.1.2.2 Stability of the ground and excavations
Environment:
R10.1.8.1 Identified sensitive area of habitat that works could damage
R10.1.8.2 Pollution of watercourse
R10.1.8.4 Otter habitat potential area
R10.1.8.5 Badger set area
R10.1.8.6 Bats habitat area
R10.1.8.7 Water vole habitat area
R10.1.8.8 Invasive plant species
Maintenance and operation:
R10.2.1 Steep embankments and slopes
R10.2.4 Inspection and maintenance of structure
R10.2.5 Removal of silt and obstructions from water course
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.
N
For continuation of defences north (sheet 2 of 10) see drawing: ENVIMSW002194-CH2-Z00-A10-DR-C-1221
For continuation of defences south (sheet 4 of 10) see drawing; ENVIMSW002194-CH2-Z00-A10-DR-C-1223
Public footpath to be re-aligned to crest of proposed embankment, joining into Severn Way at New Passage Road
Existing bank material to be removed, creating additional salt marsh habitat area. Material to be retained and moved into set back alignment on field boundary
Mixed broadleaf woodland planting (MBW 1.2)
Grass covered flood defence embankment
Severn way public footpath to be re-aligned to lower level of raised embankment.
Broadleaf woodland edge planting (BWE 1.2)
Timber post and rail fence
Mixed broadleaf woodland planting (MBW 1.3)
Maintenance access gate
Timber post and rail fence
Designated RAMSAR Salt Marsh Habitat
Severn Way public footpath
Mixed broadleaf woodland planting (MBW 1.4)
Broadleaf woodland edge planting (BWE 1.3)
Drainage culvert to be provided with flap valves
Existing culvert to be rebuilt
Grass covered maintenance track adjacent to embankment on landward side
Grass covered flood defence embankment, along length of current defence alignment.
Mixed broadleaf woodland planting (MBW 1.5)
Broadleaf woodland edge planting (BWE 1.4)
Proposed dense scrub planting (DSM mix)
NORTHWICK LANDFILL
NORTHWICK WARTH
RIVER SEVERN
CSFB1.7
CSFB1.8
CSFB1.9
CSFB1.10
CSFB1.11
P1222.1
P1222.2
R10.1.1.1
R10.1.1.2
R10.1.2.2
R10.1.3.1
R10.1.3.2
R10.1.3.3
R10.1.6.1
R10.1.6.6
R10.1.6.7
R10.1.6.8
R10.1.8.1
R10.1.8.2
R10.1.8.4
R10.1.8.5
R10.1.8.6
R10.1.8.7
R10.1.8.8
R10.2.1
R10.2.4
R10.2.5
0
10
20
30
40
50
60
70
80
90
100
SCALE 1:1000 (A1)
SCALE 1:2000 (A3)
METRES
PLAN
SCALE 1:1000 AT A1, 1:2000 AT A3
Grass covered flood defence embankment
Maintenance track, surfaced with crushed stones
Woodland core (up to c.20 m high when mature)
Existing earth embankment
For topsoil and subsoil details, see note 6
Severn Way Footpath
Historic landfill site
1.3 m high temporary post and rail fence
Woodland edge (5-7 m high when mature)
8600
5000
4000
2000
3300
3000
10.84
9.84
8.59
7.89
9.02
CSFB1.9 - CSFB1.9
SCALE 1:200 AT A1, 1:400 AT A3
For topsoil and subsoil details, see note 6
Grass covered flood defence embankment
Existing earth embankment
Severn Way public footpath
Maintenance track, surfaced with crushed stones
Woodland core (up to c.20 m high when mature)
Historic landfill site
1.3 m high post and rail fence
Woodland edge (5-7 m high when mature)
6850
5000
4000
2000
10850
3000
10.84
9.43
7.92
6.98
6.95
CSFB1.10 - CSFB1.10
SCALE 1:200 AT A1, 1:400 AT A3
For topsoil and subsoil details, see note 6
Existing earth embankment
Severn Way public footpath
Maintenance track, surfaced with crushed stones
Woodland core (up to c.20 m high when mature)
Historic landfill site
1.3 m high post and rail fence
Woodland edge (5-7 m high when mature)
6000
5000
4000
2000
10900
3000
10.84
9.84
9.34
7.71
7.12
6.99
CSFB1.11 - CSFB1.11
SCALE 1:200 AT A1, 1:400 AT A3
Key Plan:
Key:
10.83 Existing levels on cross sections
11.83 Proposed levels on cross sections
9.10 Existing levels on plan
9.40 Proposed levels on plan
Reinforced concrete flood defence wall
Grass covered flood defence embankment
Grass covered drainage ditch
Steel sheet pile flood defence wall
Flood gate
Road ramp
Maintenance access track / footpath
Reinforced concrete footing extents
P1220.1 Image location / frame view
Statutory Undertakers Services Key:
Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.
LV WPD - Low Voltage
VM Virgin Media - Telecoms
BT BT - Duct
Landscape Key:
Proposed hibernacula
Proposed pond
Existing vegetation to be retained
Existing tree to be retained
Existing vegetation to be removed
Existing tree to be removed
Proposed amenity grassland (EFG mix)
Proposed species-rich grassland (EFS mix)
Proposed native species hedge planting (HG mix)
Proposed tree and shrub copse planting (TSC mix)
Proposed dense scrub planting (DSM mix)
Proposed timber post and rail fence
Proposed maintenance or farm access field gate
Notes
1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
ENVIMSW002194-CH2-Z00-A10-PH-C-1260
ENVIMSW002194-CH2-Z00-A10-PH-C-1261
Footpath & Access Route Key:
Public footpath - existing route (SGC, BCC & NSC)
Public footpath - realigned route (as proposed)
Access route along highway
Access route along farm track/bridleway etc.
Potential compound area
Plant crossing
D2-FIT FOR TENDER
D2 TB CAG LL 11/07/18 FOR TENDER
C.01 PG CAG LL 25/05/18 PLANNING APPLICATION
Rev By Chkd Apprvd Date Description
Client
Bristol City Council
Environment Agency
South Gloucestershire Council
1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com
ch2m:
Project
AVONMOUTH SEVERNSIDE ENTERPRISE AREA
ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME
Drawing
ASEA WORKS INFORMATION
AREA 1 (SEVERNSIDE)
DETAIL PLAN
SHEET 3 OF 10
Drawn by: PG Date: 06/07/17
Checked by: CAG Date: 24/05/18
Approved by: LL Date: 25/05/18
Drawing No. ENVIMSW002194-CH2-Z00-A10-DR-C-1222
Revision D2
Drawing Scale: AS SHOWN
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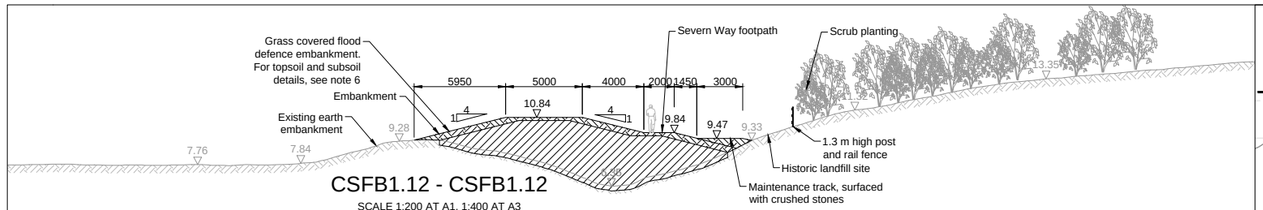
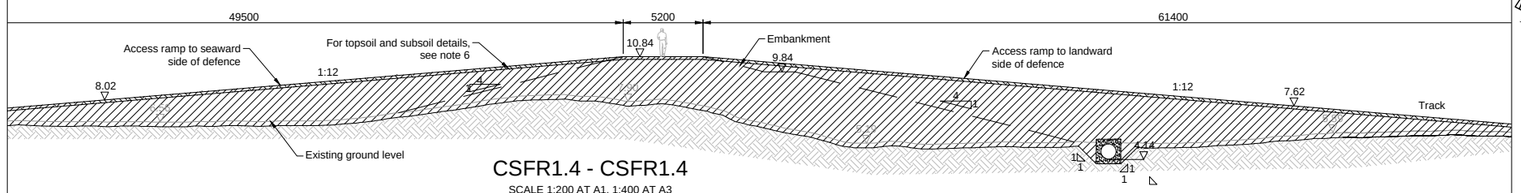


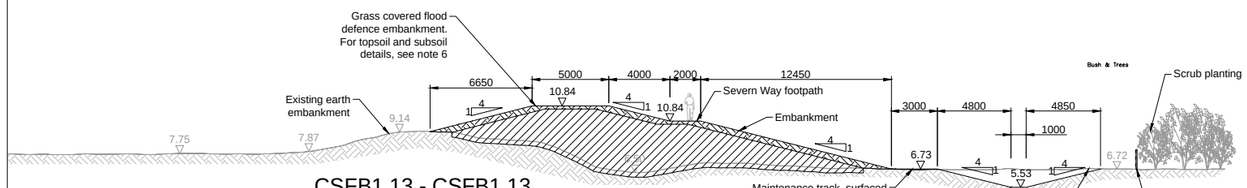
CSFB1.12 - CSFB1.12

SCALE 1:200 AT A1, 1:400 AT A3



CSFR1.4 - CSFR1.4

SCALE 1:200 AT A1, 1:400 AT A3



CSFB1.13 - CSFB1.13

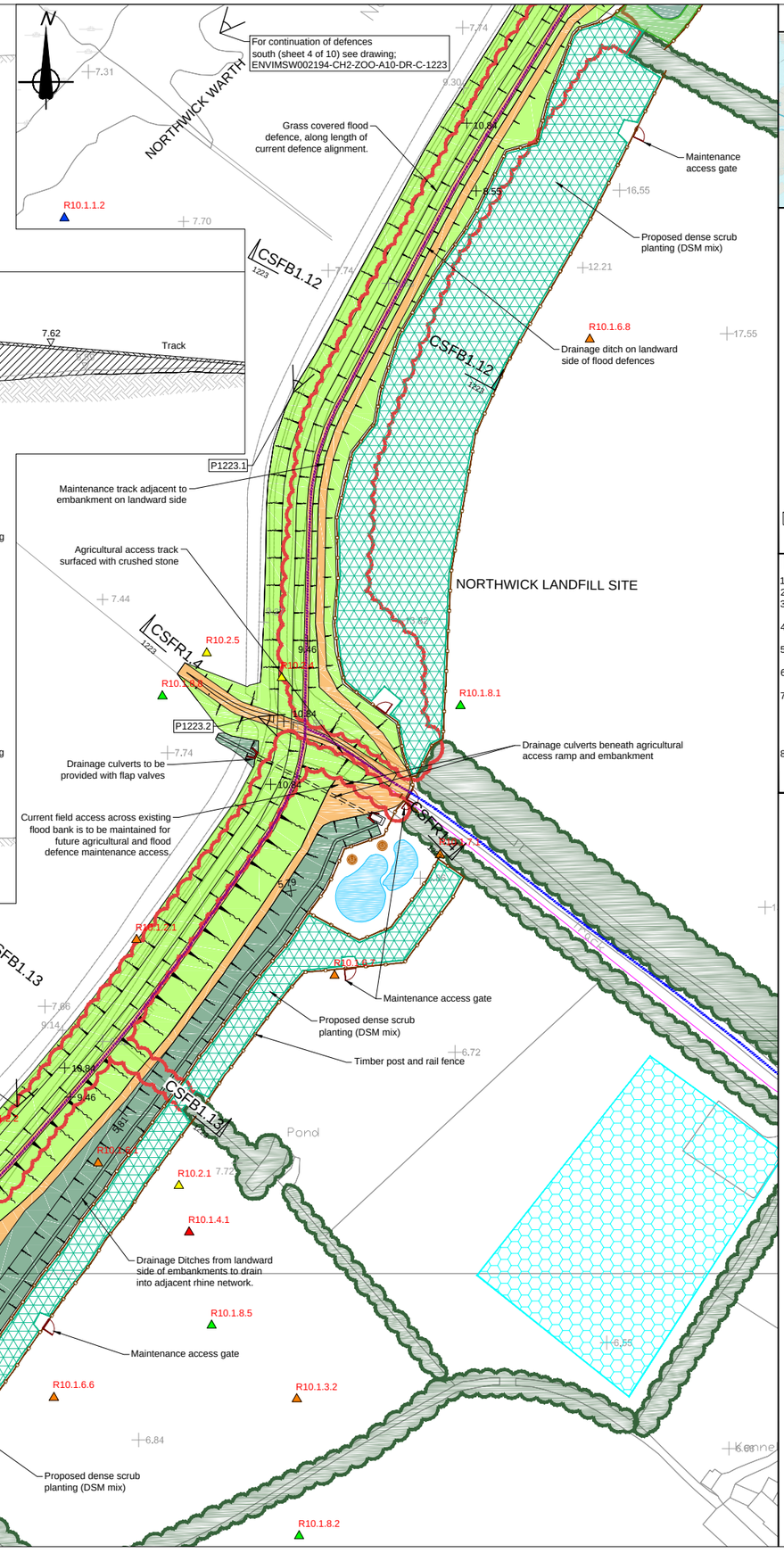
SCALE 1:200 AT A1, 1:400 AT A3

0 5 10 20 METRES

SCALE 1:200 (A1)
SCALE 1:400 (A3)

CSFB1.14 - CSFB1.14

SCALE 1:200 AT A1, 1:400 AT A3



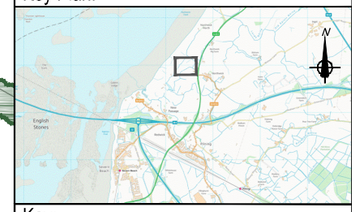
PLAN

SCALE 1:1000 AT A1, 1:2000 AT A3

0 10 20 30 40 50 60 70 80 90 100 METRES

SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)

Key Plan:



Key:

- 10.83 Existing levels on cross sections
- 11.83 Proposed levels on cross sections
- 9.10 Existing levels on plan
- 9.40 Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :

Safety:
- R10.1.1.1 Weather/Storm Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 Interface between works and public
- R10.1.3.2 Working near trees
- R10.1.3.3 Interface between works and livestock
- R10.1.4.1 Contact with UXO
- R10.1.6.1 Embankments and slopes
- R10.1.6.6 Landscaping
- R10.1.6.7 Manual handling
- R10.1.6.8 Substances hazardous to health
- R10.1.7.1 Works haulage routes, interface with public and road access restrictions
- R10.1.2.1 Mud And Soft Ground
- R10.1.2.2 Stability of the ground and excavations

Environment:
- R10.1.8.1 Identified sensitive area of habitat that works could damage
- R10.1.8.2 Pollution of watercourse-
- R10.1.8.4 Otter habitat potential area
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat area
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:
- R10.2.1 Steep embankments and slopes
- R10.2.4 Inspection and maintenance of structure
- R10.2.5 Removal of silt and obstructions from water course

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- W Bristol City Council - Mains
- LV WPD - Low Voltage
- LV WPD - Low Voltage (overhead)
- BT BT - Duct
- VM Virgin Media - Telecoms
- TEL TEL Fibernet - Telecoms
- TEL TEL Surf - Telecoms
- HV11 WPD - High Voltage 11kV
- LP Wales & West - Low Pressure Gas
- FOUL FOUL Wessex Water - Foul Sewer

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client: Bristol City Council; Environment Agency; South Gloucestershire Council

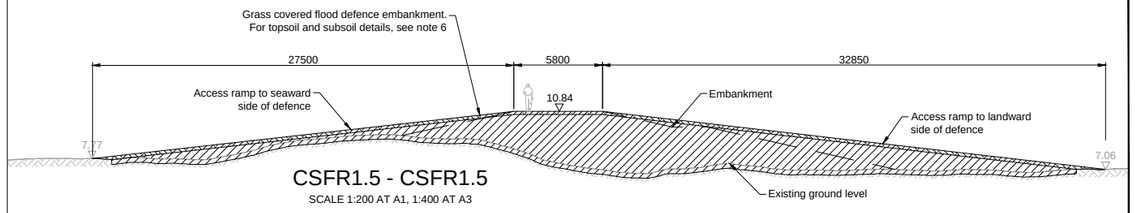
1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

Project: AVONMOUTH SEVERNSIDE ENTERPRISE AREA ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

Drawing: ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) DETAIL PLAN SHEET 4 OF 10

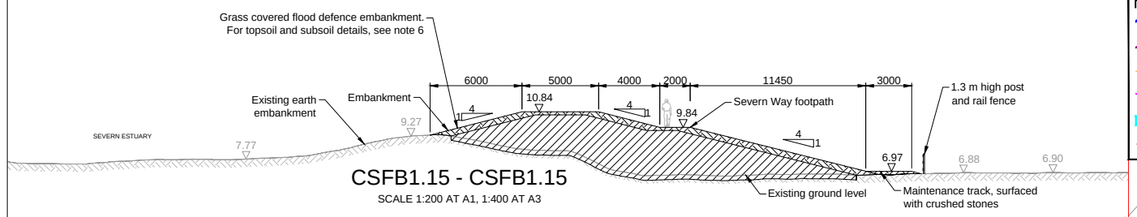
Drawn by:	PG	Date: 06/07/17
Checked by:	CAG	Date: 24/05/18
Approved by:	LL	Date: 25/05/18
Drawing No.	ENVIMSW002194-CH2-Z00-A10-DR-C-1223	Revision: D2

Drawing Scale: AS SHOWN



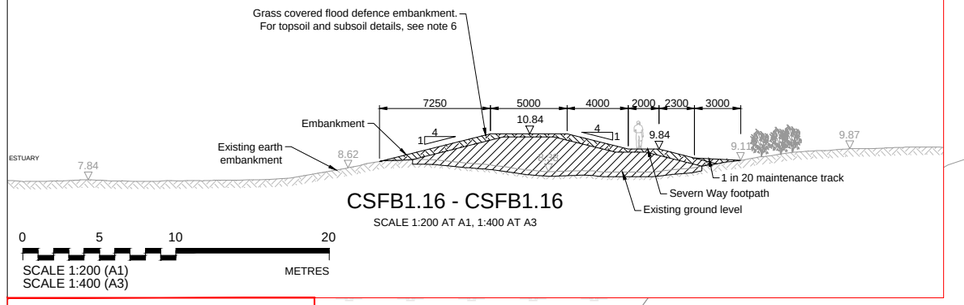
CSFR1.5 - CSFR1.5

SCALE 1:200 AT A1, 1:400 AT A3



CSFB1.15 - CSFB1.15

SCALE 1:200 AT A1, 1:400 AT A3



CSFB1.16 - CSFB1.16

SCALE 1:200 AT A1, 1:400 AT A3

0 5 10 20

SCALE 1:200 (A1)
SCALE 1:400 (A3)

METRES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :

Safety:

- R10.1.1.1 Weather/Storm Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 Interface between works and public
- R10.1.3.2 Working near trees
- R10.1.3.3 Interface between works and livestock
- R10.1.3.5 Working on or near existing structures
- R10.1.4.1 Contact with UXO
- R10.1.5.4 BT lines overhead underground
- R10.1.6.1 Embankments and slopes
- R10.1.6.2 Lifting of materials for construction of structures
- R10.1.6.5 Reinforcement
- R10.1.6.6 Landscaping
- R10.1.6.7 Manual handling
- R10.1.6.8 Substances hazardous to health
- R10.1.6.10 Concrete construction
- R10.1.7.1 Works haulage routes, interface with public and road access restrictions
- R10.1.2.1 Mud And Soft Ground
- R10.1.2.2 Stability of the ground and excavations

Environment:

- R10.1.8.1 Identified sensitive area of habitat that works could damage
- R10.1.8.2 Pollution of watercourse
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter habitat potential area
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat area
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:

- R10.2.1 Steep embankments and slopes
- R10.2.4 Inspection and maintenance of structure
- R10.2.5 Removal of silt and obstructions from water course

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

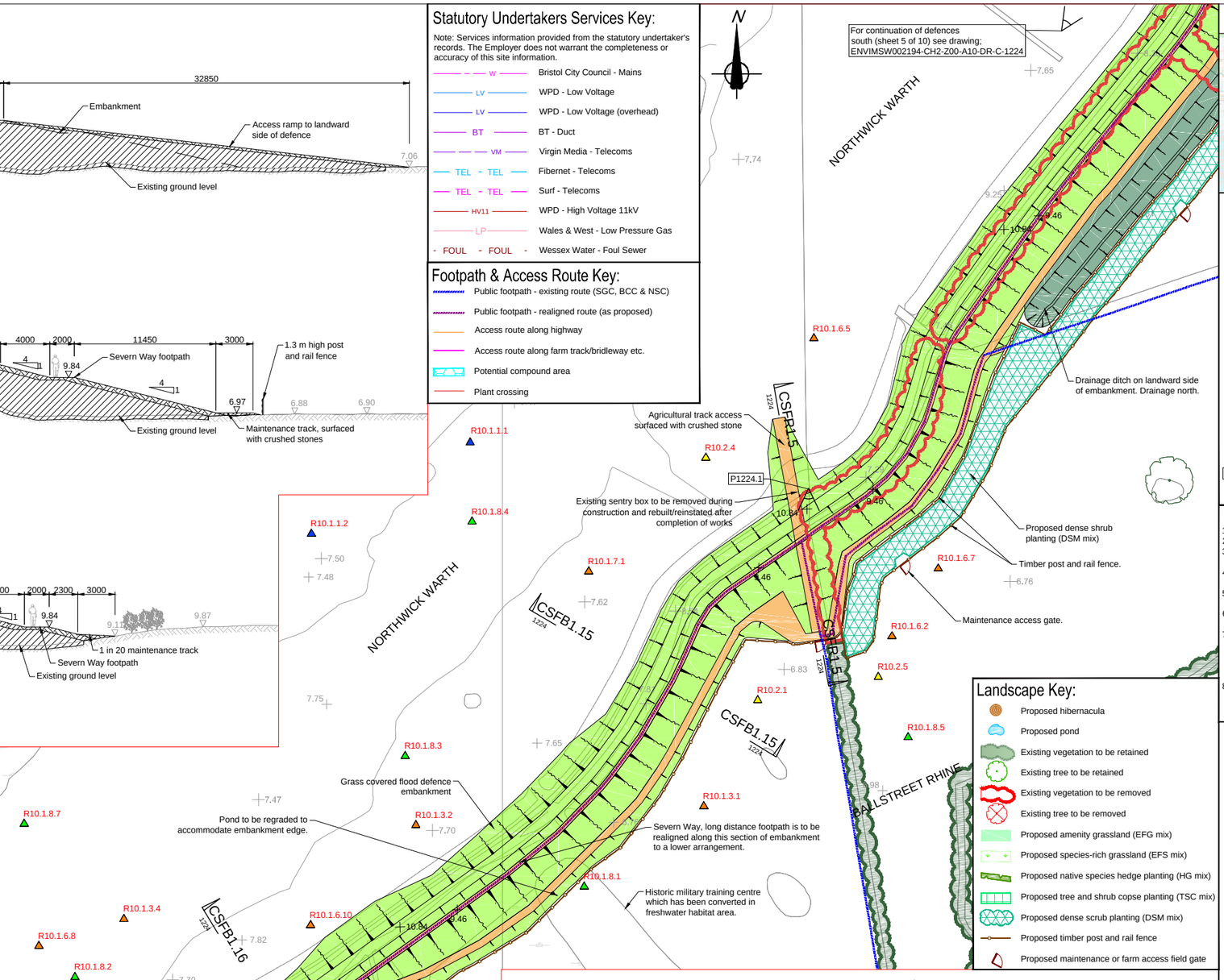
Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- W — Bristol City Council - Mains
- LV — WPD - Low Voltage
- LV — WPD - Low Voltage (overhead)
- BT — BT - Duct
- VM — Virgin Media - Telecoms
- TEL - TEL — Fibernet - Telecoms
- TEL - TEL — Surf - Telecoms
- HV11 — WPD - High Voltage 11kV
- LP — Wales & West - Low Pressure Gas
- FOUL - FOUL - Wessex Water - Foul Sewer

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

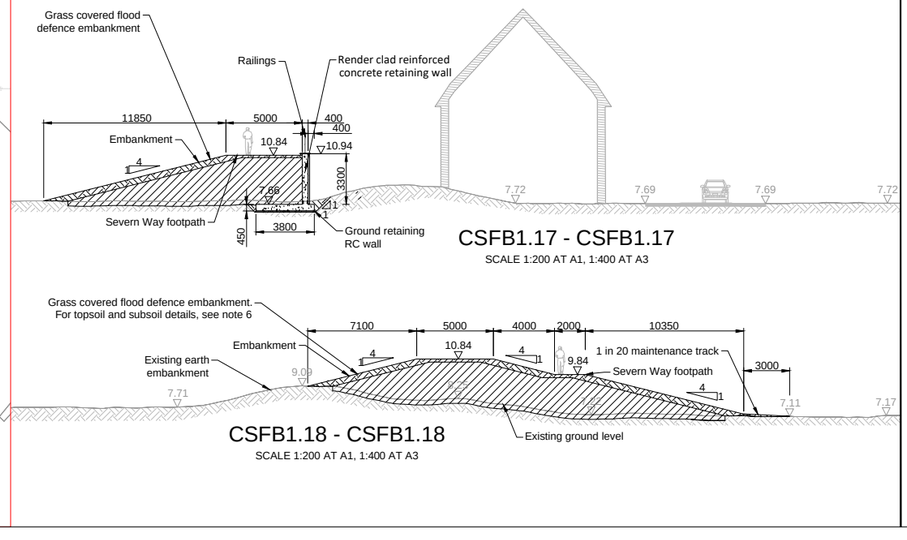


PLAN

SCALE 1:1000 AT A1, 1:2000 A3

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate



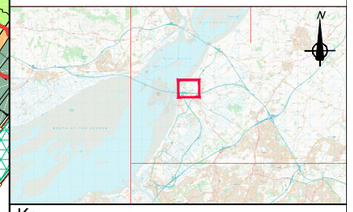
CSFB1.17 - CSFB1.17

SCALE 1:200 AT A1, 1:400 AT A3

CSFB1.18 - CSFB1.18

SCALE 1:200 AT A1, 1:400 AT A3

Key Plan:



Key:

- 10.83 — Existing levels on cross sections
- 11.83 — Proposed levels on cross sections
- 9.10 — Existing levels on plan
- 9.40 — Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 — Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   ENVIMSW002194-CH2-Z00-A10-PH-C-1261

0 10 20 30 40 50 60 70 80 90 100

SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)

METRES

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client
Bristol City Council
Environment Agency
South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

ch2m:

Project

AVONMOUTH SEVERNSIDE ENTERPRISE AREA
ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

Drawing

ASEA WORKS INFORMATION
AREA 1 (SEVERNSIDE)
DETAIL PLAN
SHEET 5 OF 10

Drawn by:	PG	Date:	06/07/17
Checked by:	CAG	Date:	24/05/18
Approved by:	LL	Date:	25/05/18

Drawing No.	Revision
ENVIMSW002194-CH2-Z00-A10-DR-C-1224	D2

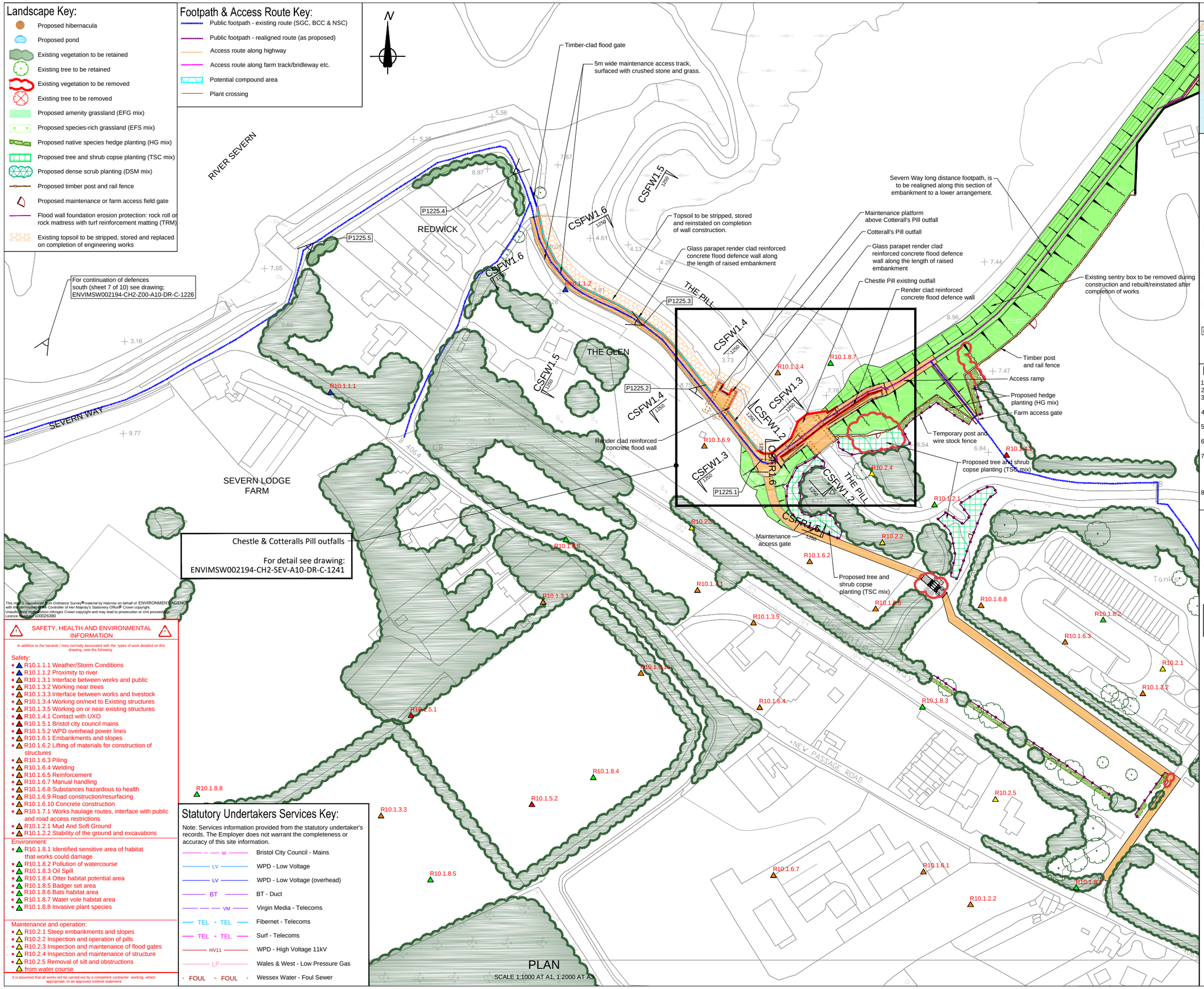
Drawing Scale: AS SHOWN

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate
- Flood wall foundation erosion protection: rock roll or rock mattress with turf reinforcement matting (TRM)
- Existing topsoil to be stripped, stored and replaced on completion of engineering works

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing



PLAN
SCALE 1:1000 AT A1, 1:2000 AT A3

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :-

Safety:

- R10.1.1.1 Weather/Storm Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 Interface between works and public
- R10.1.3.2 Working near trees
- R10.1.3.3 Interface between works and livestock
- R10.1.3.4 Working on/next to Existing structures
- R10.1.3.5 Working on or near existing structures
- R10.1.4.1 Contact with UXO
- R10.1.5.1 Bristol city council mains
- R10.1.5.2 WPD overhead power lines
- R10.1.6.1 Embankments and slopes
- R10.1.6.2 Lifting of materials for construction of structures
- R10.1.6.3 Piling
- R10.1.6.4 Welding
- R10.1.6.5 Reinforcement
- R10.1.6.7 Manual handling
- R10.1.6.8 Substances hazardous to health
- R10.1.6.9 Road construction/resurfacing
- R10.1.6.10 Concrete construction
- R10.1.7.1 Works haulage routes, interface with public and road access restrictions
- R10.1.2.1 Mud And Soft Ground
- R10.1.2.2 Stability of the ground and excavations

Environment:

- R10.1.8.1 Identified sensitive area of habitat that works could damage
- R10.1.8.2 Pollution of watercourse
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter habitat potential area
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat area
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:

- R10.2.1 Steep embankments and slopes
- R10.2.2 Inspection and operation of pills
- R10.2.3 Inspection and maintenance of flood gates
- R10.2.4 Inspection and maintenance of structure
- R10.2.5 Removal of silt and obstructions from water course

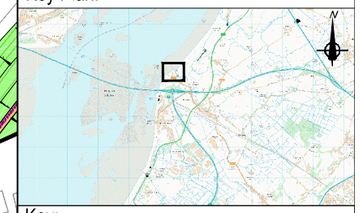
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- W — Bristol City Council - Mains
- LV — WPD - Low Voltage
- LV — WPD - Low Voltage (overhead)
- BT — BT - Duct
- VM — Virgin Media - Telecoms
- TEL - TEL — Fibernet - Telecoms
- TEL - TEL — Surf - Telecoms
- HV11 — WPD - High Voltage 11kV
- LP — Wales & West - Low Pressure Gas
- FOUL - FOUL - Wessex Water - Foul Sewer

Key Plan:



Key:

- 10.83 — Existing levels on cross sections
- 11.83 — Proposed levels on cross sections
- 9.10 — Existing levels on plan
- 9.40 — Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 — Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

0 10 20 30 40 50 60 70 80 90 100 METRES

SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)

D2-FIT FOR TENDER

Rev	By	Chkd	Approvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client: Bristol City Council; Environment Agency; South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com
ch2m:

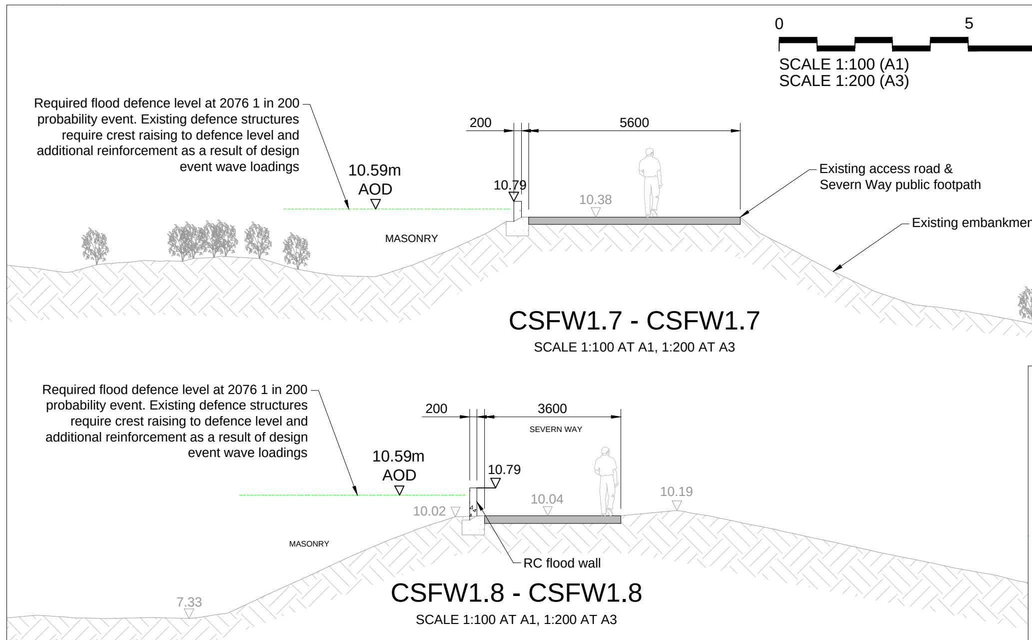
Project: AVONMOUTH SEVERNSIDE ENTERPRISE AREA ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

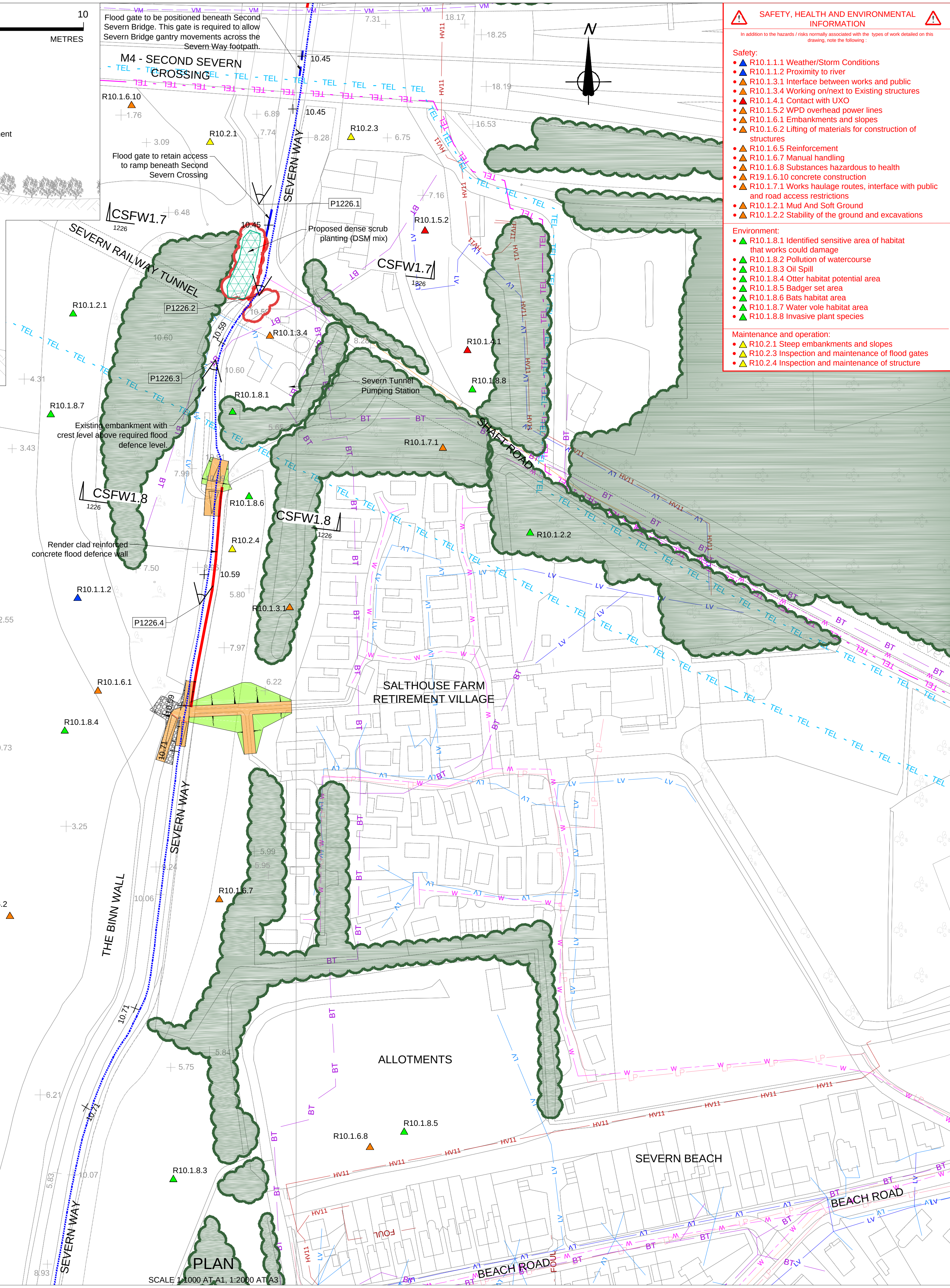
Drawing: ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) DETAIL PLAN SHEET 6 OF 10

Drawn by:	PG	Date:	06/07/17
Checked by:	CAG	Date:	24/05/18
Approved by:	LL	Date:	25/05/18

Drawing No.	Revision
ENVIMSW002194-CH2-Z00-A10-DR-C-1225	D2

Drawing Scale: AS SHOWN





Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- W — Bristol City Council - Mains
- LV — WPD - Low Voltage
- LV — WPD - Low Voltage (overhead)
- BT — BT - Duct
- VM — Virgin Media - Telecoms
- TEL - TEL — Fibernet - Telecoms
- TEL - TEL — Surf - Telecoms
- HV11 — WPD - High Voltage 11kV
- LP — Wales & West - Low Pressure Gas

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

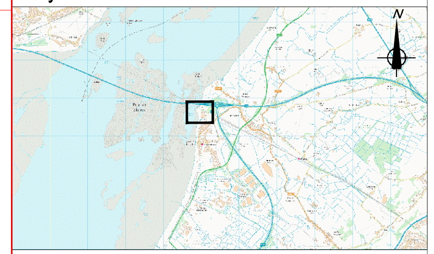
In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following:

Safety:
- R10.1.1.1 Weather/Storm Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 Interface between works and public
- R10.1.3.4 Working on/next to Existing structures
- R10.1.4.1 Contact with UXO
- R10.1.5.2 WPD overhead power lines
- R10.1.6.1 Embankments and slopes
- R10.1.6.2 Lifting of materials for construction of structures
- R10.1.6.5 Reinforcement
- R10.1.6.7 Manual handling
- R10.1.6.8 Substances hazardous to health
- R19.1.6.10 concrete construction
- R10.1.7.1 Works haulage routes, interface with public and road access restrictions
- R10.1.2.1 Mud And Soft Ground
- R10.1.2.2 Stability of the ground and excavations

Environment:
- R10.1.8.1 Identified sensitive area of habitat that works could damage
- R10.1.8.2 Pollution of watercourse
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter habitat potential area
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat area
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:
- R10.2.1 Steep embankments and slopes
- R10.2.3 Inspection and maintenance of flood gates
- R10.2.4 Inspection and maintenance of structure

Key Plan:



Key:

- 10.83 Existing levels on cross sections
- 11.83 Proposed levels on cross sections
- 9.10 Existing levels on plan
- 9.40 Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-DR-C-0236
7. For all zone standard details see drawings:
   Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   ENVIMSW002194-CH2-Z00-A10-PH-C-1261

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client: Bristol City Council; Environment Agency; South Gloucestershire Council

1 The Square
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2nd Floor
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Fax: +44 (0) 117 910 2581
www.ch2mhill.com
ch2m:

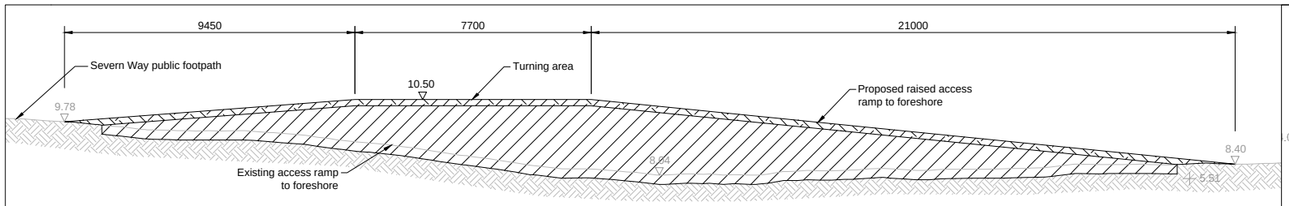
Project
AVONMOUTH SEVERNSIDE ENTERPRISE AREA ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

Drawing
ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) DETAIL PLAN SHEET 7 OF 10

Drawn by: PG Date: 06/07/17
Checked by: CAG Date: 24/05/18
Approved by: LL Date: 25/05/18

Drawing No. ENVIMSW002194-CH2-Z00-A10-DR-C-1226 Revision D2

Drawing Scale: AS SHOWN



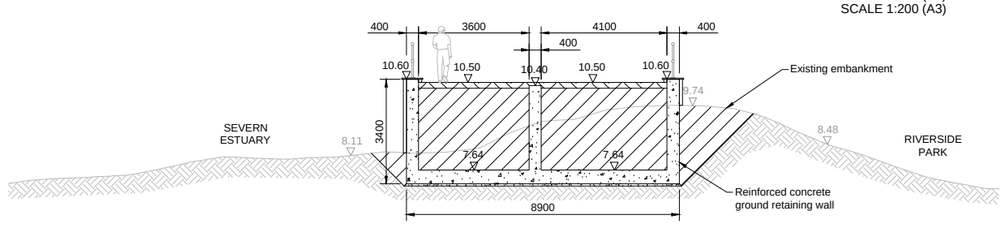
CSFR1.7 - CSFR1.7

SCALE 1:100 AT A1, 1:200 AT A3

0 5 10

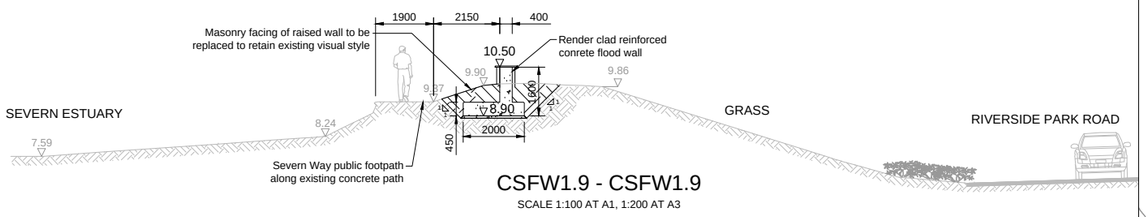
SCALE 1:100 (A1)
SCALE 1:200 (A3)

METRES



CSFR1.8 - CSFR1.8

SCALE 1:100 AT A1, 1:200 AT A3



CSFW1.9 - CSFW1.9

SCALE 1:100 AT A1, 1:200 AT A3

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :

Safety:
- R10.1.1.1 Weather/Storm Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 Interface between works and public
- R10.1.3.2 Working near trees
- R10.1.3.4 Working on/next to Existing structures
- R10.1.3.6 Proximity to railways and Network Rail Land
- R10.1.4.1 Contact with UXO
- R10.1.5.2 WPD overhead power lines
- R10.1.5.5 W&W/GTC low pressure gas main
- R10.1.5.6 Network rail communications cable
- R10.1.6.1 Embankments and slopes
- R10.1.6.2 Lifting of materials for construction of structures
- R10.1.6.5 Reinforcement
- R10.1.6.7 Manual handling
- R10.1.6.8 Substances hazardous to health
- R10.1.6.10 Concrete construction
- R10.1.7.1 Works haulage routes, interface with public and road access restrictions
- R10.1.2.1 Mud And Soft Ground
- R10.1.2.2 Stability of the ground and excavations

Environment:
- R10.1.8.2 Pollution of watercourse
- R10.1.8.1 Identified sensitive area of habitat that works could damage
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter habitat potential area
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat area
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:
- R10.2.1 Steep embankments and slopes
- R10.2.3 Inspection and maintenance of flood gates
- R10.2.4 Inspection and maintenance of structure

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate

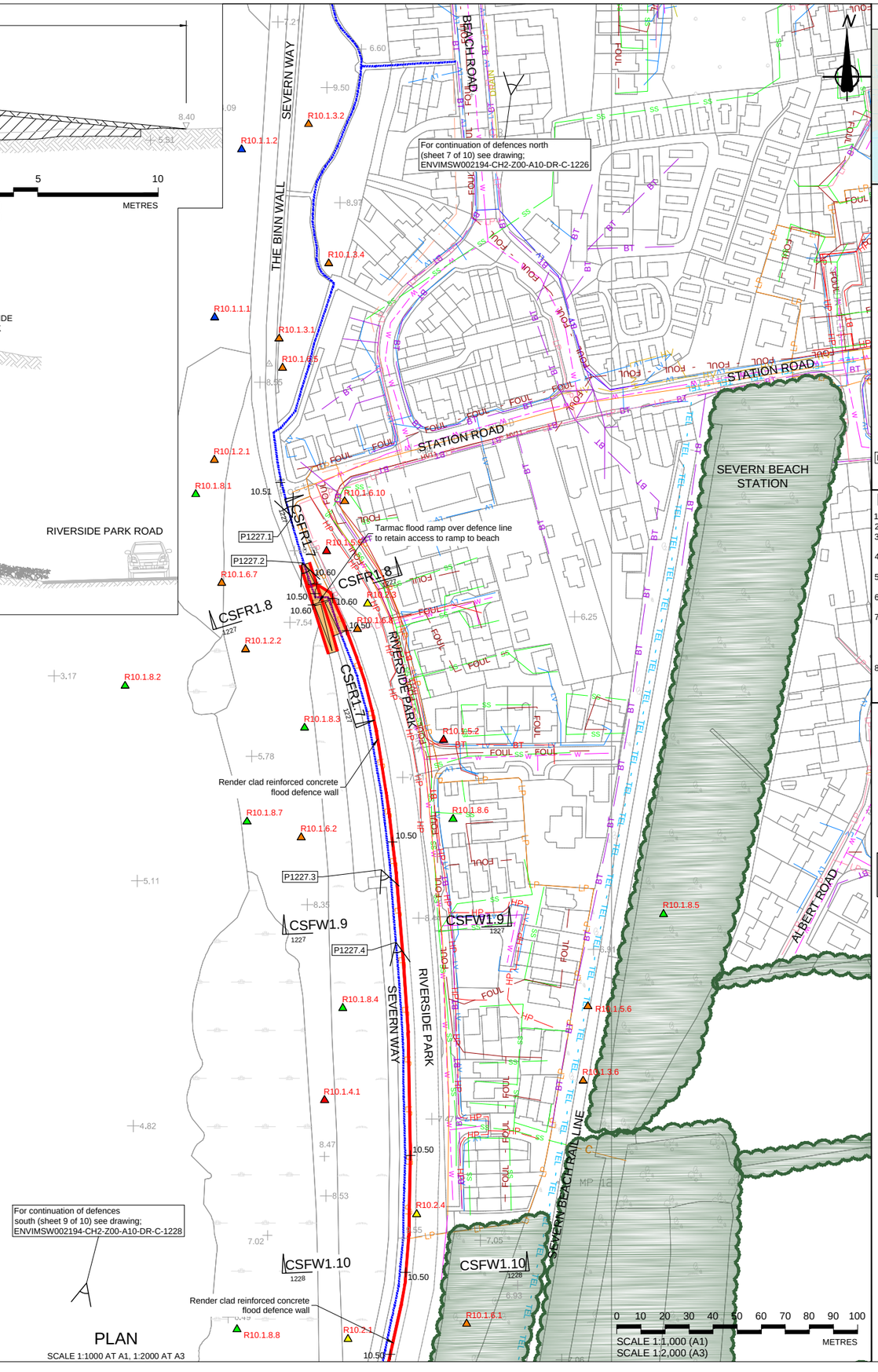
Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- W - Bristol City Council - Mains
- LV - WPD - Low Voltage
- LV - WPD - Low Voltage (overhead)
- BT - BT - Duct
- VM - Virgin Media - Telecoms
- TEL - TEL - Fibernet - Telecoms
- TEL - TEL - Surf - Telecoms
- HV11 - WPD - High Voltage 11kV
- LP - Wales & West - Low Pressure Gas
- FOUL - FOUL - Wessex Water - Foul Sewer



PLAN

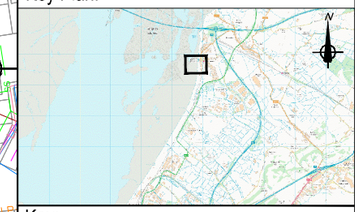
SCALE 1:1000 AT A1, 1:2000 AT A3

0 10 20 30 40 50 60 70 80 90 100

SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)

METRES

Key Plan:



Key:

- 10.83 Existing levels on cross sections
- 11.83 Proposed levels on cross sections
- 9.10 Existing levels on plan
- 9.40 Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client
Bristol City Council
Environment Agency
South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

ch2m:

Project

AVONMOUTH SEVERNSIDE ENTERPRISE AREA ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

Drawing

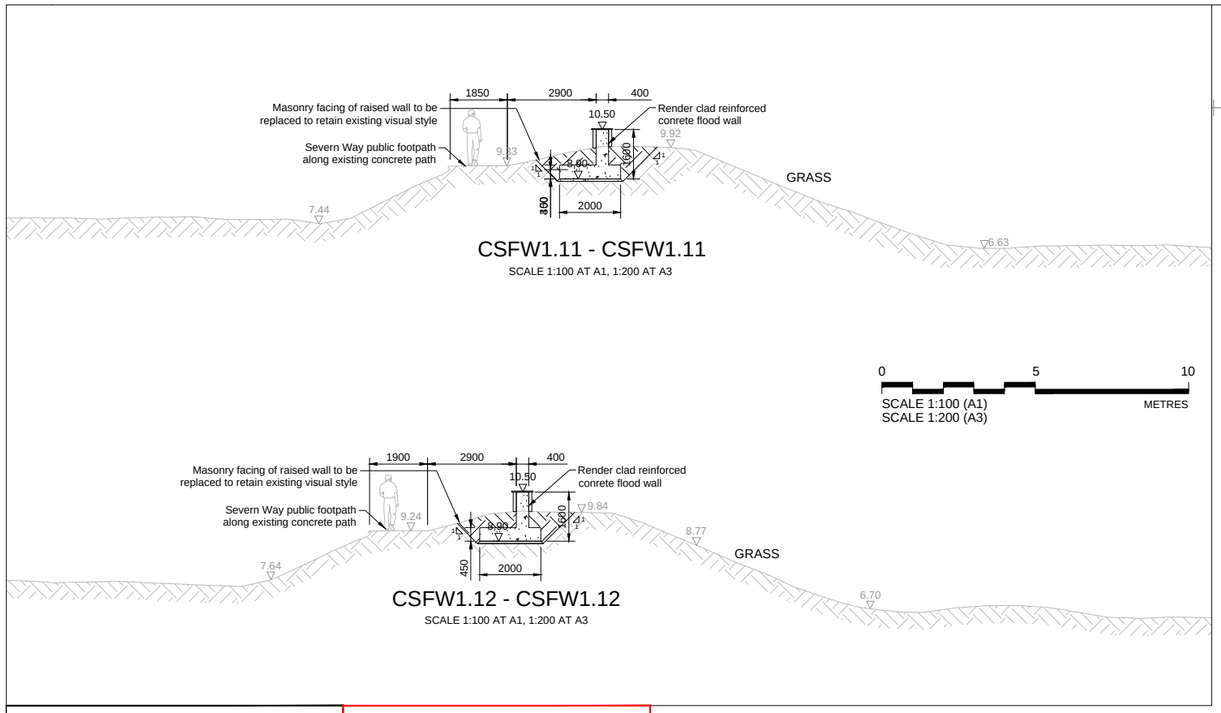
ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) DETAIL PLAN SHEET 8 OF 10

Drawn by:	PG	Date:	06/07/17
Checked by:	CAG	Date:	24/05/18
Approved by:	LL	Date:	25/05/18

Drawing No. ENVIMSW002194-CH2-Z00-A10-DR-C-1227

Revision D2

Drawing Scale: AS SHOWN



CSFW1.11 - CSFW1.11

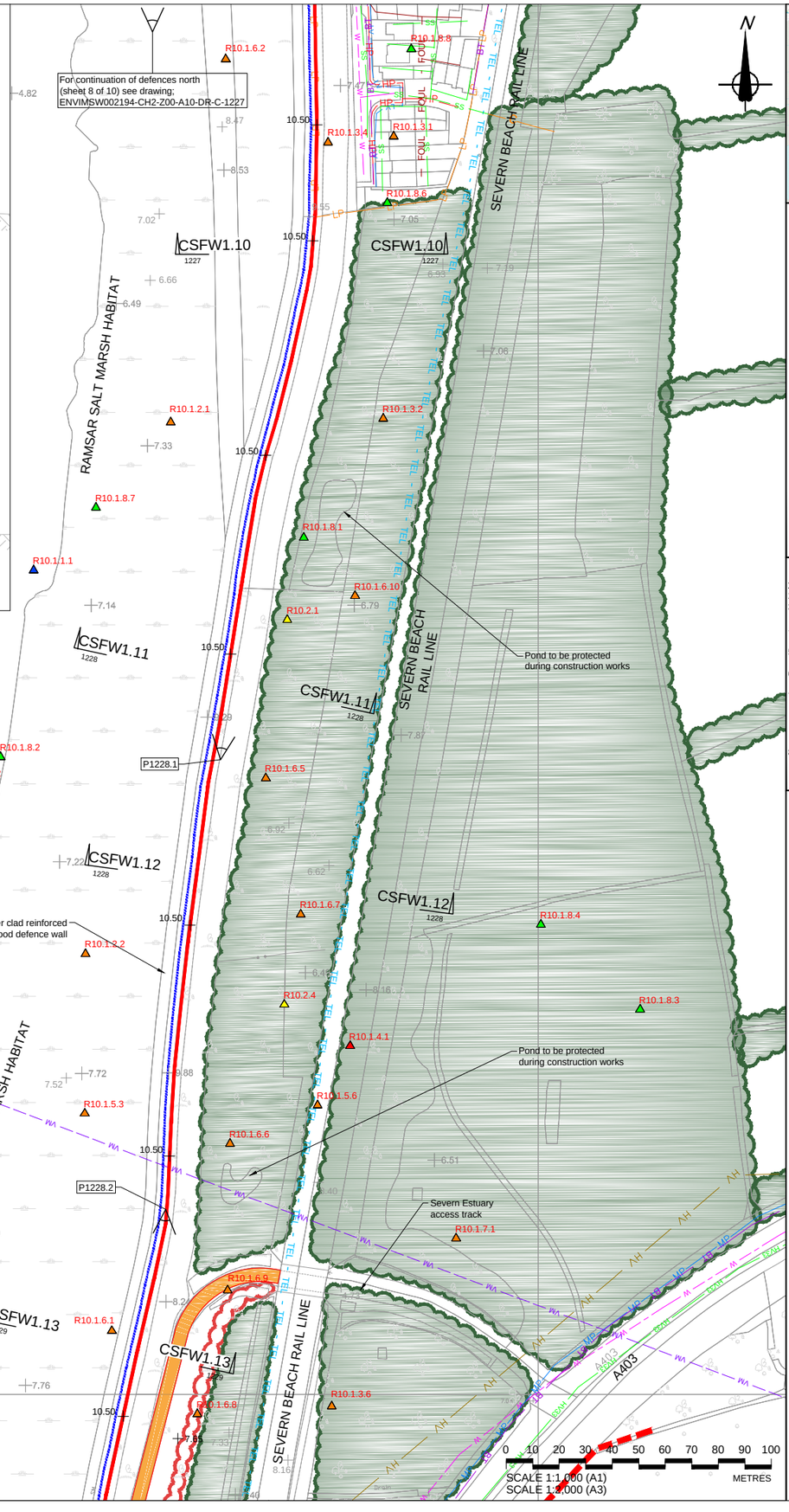
SCALE 1:100 AT A1, 1:200 AT A3

CSFW1.12 - CSFW1.12

SCALE 1:100 AT A1, 1:200 AT A3

0 5 10 METRES

SCALE 1:100 (A1)
SCALE 1:200 (A3)



PLAN

SCALE 1:1000 AT A1, 1:2000 AT A3

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
- Proposed amenity grassland (EFG mix)
- Proposed species-rich grassland (EFS mix)
- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

- W — Bristol City Council - Mains
- LV — WPD - Low Voltage
- BT — BT - Duct
- SS — Wessex Water - Surface Water Sewer
- HP — GTC - High Pressure Gas
- FOUL — Wessex Water - Foul Sewer
- LP — GTC - Low Pressure Gas
- TEL — Fibernet - Telecoms
- C — Wessex Water - Culverted Watercourse
- VM — Virgin Media - Telecoms
- MP — Wales & West - Medium Pressure Gas
- HV33 — WPD - High Voltage 33kV

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :

Safety:

- R10.1.1.1 Weather/Storm Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 Interface between works and public
- R10.1.3.2 Working near trees
- R10.1.3.4 Working on/next to Existing structures
- R10.1.3.6 Proximity to railways and Network Rail Land
- R10.1.4.1 Contact with UXO
- R10.1.5.3 Virgin media lines (below ground)
- R10.1.5.6 Network rail communications cable
- R10.1.6.1 Embankments and slopes
- R10.1.6.2 Lifting of materials for construction of structures
- R10.1.6.5 Reinforcement
- R10.1.6.6 Landscaping
- R10.1.6.7 Manual handling
- R10.1.6.8 Substances hazardous to health
- R10.1.6.9 Road construction/resurfacing
- R10.1.6.10 Concrete construction
- R10.1.7.1 Works haulage routes, interface with public and road access restrictions
- R10.1.2.1 Mud And Soft Ground
- R10.1.2.2 Stability of the ground and excavations

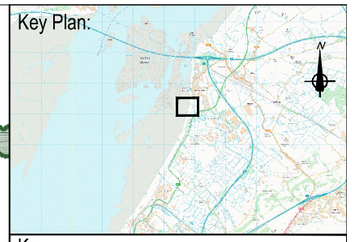
Environment:

- R10.1.8.1 Identified sensitive area of habitat that works could damage
- R10.1.8.2 Pollution of watercourse
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter habitat potential area
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat area
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:

- R10.2.1 Steep embankments and slopes
- R10.2.4 Inspection and maintenance of structure

Key Plan:



Key:

- 10.83 — Existing levels on cross sections
- 11.83 — Proposed levels on cross sections
- 9.10 — Existing levels on plan
- 9.40 — Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 — Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

D2-FIT FOR TENDER

Rev.	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

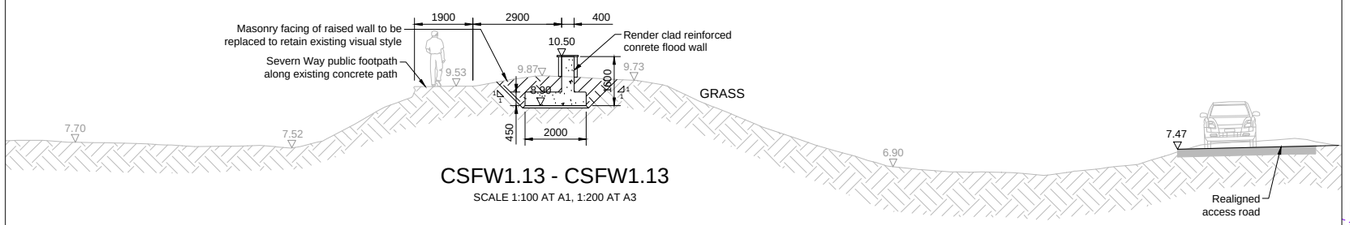
Client: Bristol City Council; Environment Agency; South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

Project: AVONMOUTH SEVERNSIDE ENTERPRISE AREA ECOLOGY MITIGATION & FLOOD DEFENCE SCHEME

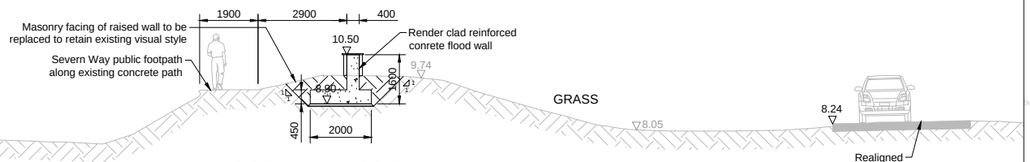
Drawing: ASEA WORKS INFORMATION AREA 1 (SEVERNSIDE) DETAIL PLAN SHEET 9 OF 10

Drawn by:	PG	Date:	06/07/17
Checked by:	CAG	Date:	24/05/18
Approved by:	LL	Date:	25/05/18
Drawing No.	ENVIMSW002194-CH2-Z00-A10-DR-C-1228	Revision	D2
Drawing Scale:	AS SHOWN		



CSFW1.13 - CSFW1.13

SCALE 1:100 AT A1, 1:200 AT A3



CSFW1.14 - CSFW1.14

SCALE 1:100 AT A1, 1:200 AT A3

0 5 10

SCALE 1:100 (A1)
SCALE 1:200 (A3)

METRES

Footpath & Access Route Key:

- Public footpath - existing route (SGC, BCC & NSC)
- Public footpath - realigned route (as proposed)
- Access route along highway
- Access route along farm track/bridleway etc.
- Potential compound area
- Plant crossing

Landscape Key:

- Proposed hibernacula
- Proposed pond
- Existing vegetation to be retained
- Existing tree to be retained
- Existing vegetation to be removed
- Existing tree to be removed
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- Proposed native species hedge planting (HG mix)
- Proposed tree and shrub copse planting (TSC mix)
- Proposed dense scrub planting (DSM mix)
- Proposed timber post and rail fence
- Proposed maintenance or farm access field gate

Statutory Undertakers Services Key:

Note: Services information provided from the statutory undertaker's records. The Employer does not warrant the completeness or accuracy of this site information.

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- BT — BT - Duct
- SS — Wessex Water - Surface Water Sewer
- HP — GTC - High Pressure Gas
- FOUL — Wessex Water - Foul Sewer
- LP — GTC - Low Pressure Gas
- TEL — Fibernet - Telecoms
- C — Wessex Water - Culverted Watercourse
- VM — Virgin Media - Telecoms
- MP — Wales & West - Medium Pressure Gas
- HV33 — WPD - High Voltage 33kV

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following :

Safety:

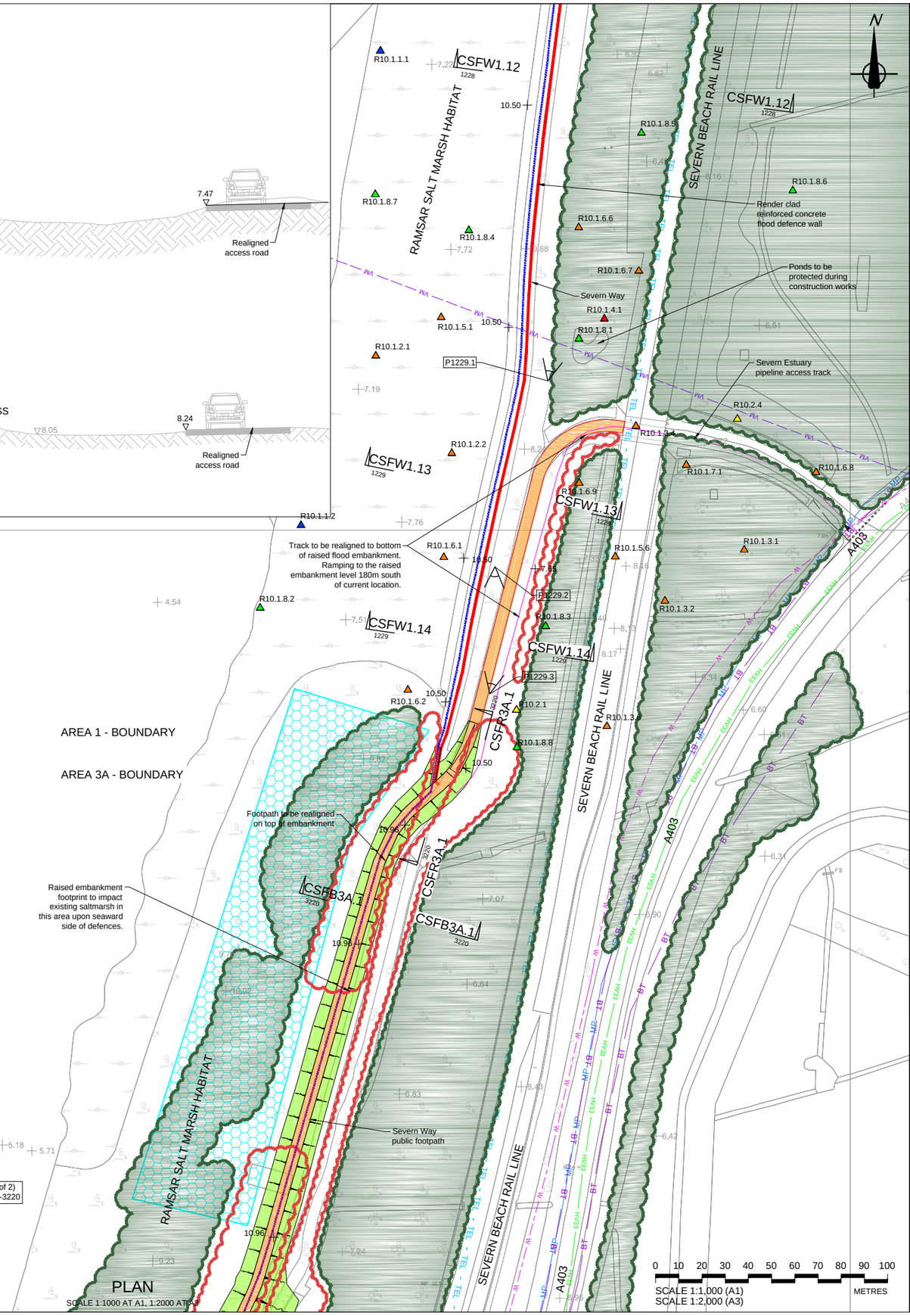
- R10.1.1.1 Weather/Storm Conditions
- R10.1.1.2 Proximity to river
- R10.1.3.1 Interface between works and public
- R10.1.3.2 Working near trees
- R10.1.3.4 Working on/next to Existing structures
- R10.1.3.6 Proximity to railways and Network Rail Land
- R10.1.4.1 Contact with UXO
- R10.1.5.3 Virgin media lines (below ground)
- R10.1.5.6 Network rail communications cable
- R10.1.6.1 Embankments and slopes
- R10.1.6.2 Lifting of materials for construction of structures
- R10.1.6.6 Landscaping
- R10.1.6.7 Manual handling
- R10.1.6.8 Substances hazardous to health
- R10.1.6.9 Road construction/resurfacing
- R10.1.6.10 Concrete construction
- R10.1.7.1 Works haulage routes, interface with public and road access restrictions
- R10.1.2.1 Mud And Soft Ground
- R10.1.2.2 Stability of the ground and excavations

Environment:

- R10.1.8.1 Identified sensitive area of habitat that works could damage
- R10.1.8.2 Pollution of watercourse
- R10.1.8.3 Oil Spill
- R10.1.8.4 Otter habitat potential area
- R10.1.8.5 Badger set area
- R10.1.8.6 Bats habitat area
- R10.1.8.7 Water vole habitat area
- R10.1.8.8 Invasive plant species

Maintenance and operation:

- R10.2.1 Steep embankments and slopes
- R10.2.4 Inspection and maintenance of structure



PLAN

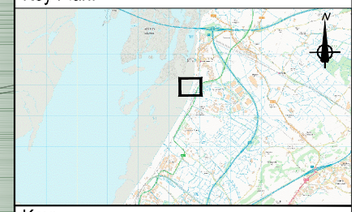
SCALE 1:1000 AT A1, 1:2000 AT A3

0 10 20 30 40 50 60 70 80 90 100

SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)

METRES

Key Plan:



Key:

- 10.83 — Existing levels on cross sections
- 11.83 — Proposed levels on cross sections
- 9.10 — Existing levels on plan
- 9.40 — Proposed levels on plan
- Reinforced concrete flood defence wall
- Grass covered flood defence embankment
- Grass covered drainage ditch
- Steel sheet pile flood defence wall
- Flood gate
- Road ramp
- Maintenance access track / footpath
- Reinforced concrete footing extents
- P1220.1 — Image location / frame view

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243
8. For Area 1 images see drawings:
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1260
   - ENVIMSW002194-CH2-Z00-A10-PH-C-1261

D2-FIT FOR TENDER

Rev.	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client: Bristol City Council; Environment Agency; South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com

Project

AVONMOUTH SEVERNSIDE
ENTERPRISE AREA
ECOLOGY MITIGATION
& FLOOD DEFENCE SCHEME

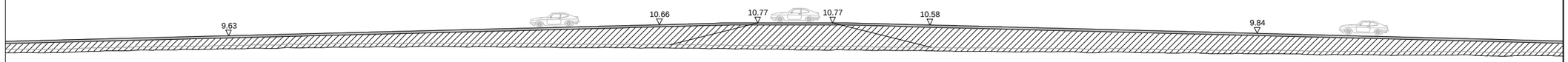
Drawing

ASEA WORKS INFORMATION
AREA 1 (SEVERNSIDE)
DETAIL PLAN
SHEET 10 OF 10

Drawn by:	PG	Date: 06/07/17
Checked by:	CAG	Date: 24/05/18
Approved by:	LL	Date: 25/05/18

Drawing No.	Revision
ENVIMSW002194-CH2-Z00-A10-DR-C-1229	D2

Drawing Scale: AS SHOWN



CSFR1.3 - CSFR1.3

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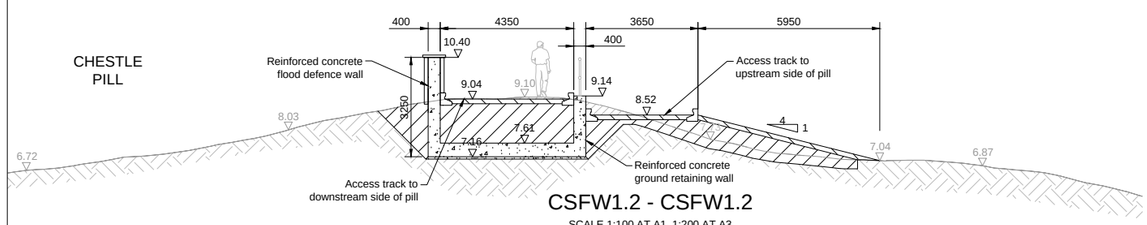

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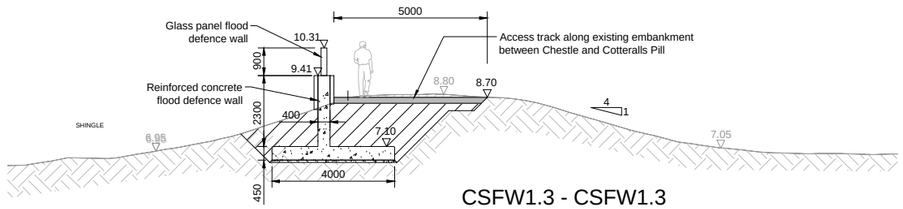
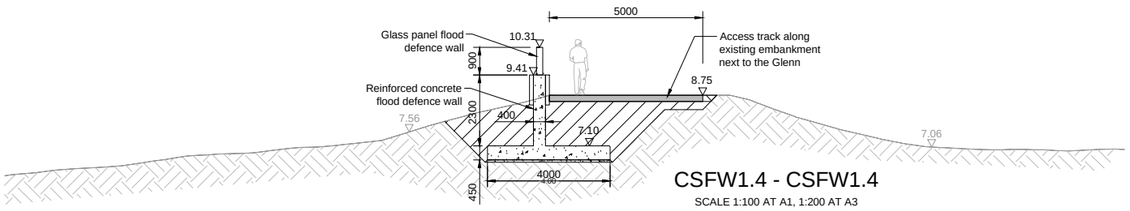


CSFW1.3 - CSFW1.3

SCALE 1:100 AT A1, 1:200 AT A3



CSFW1.4 - CSFW1.4

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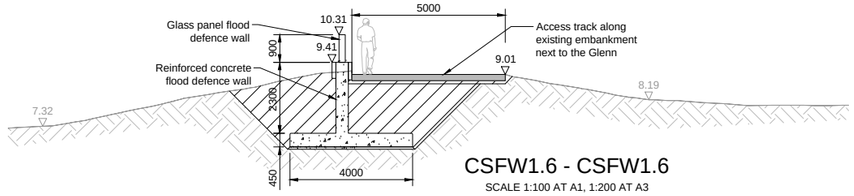

CSFW1.6 - CSFW1.6

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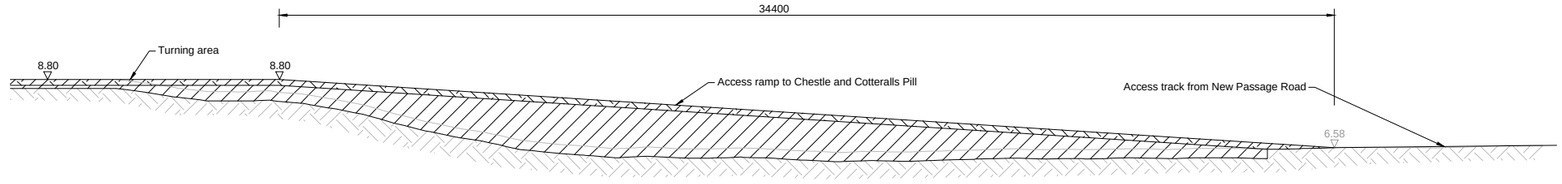

CSFR1.6 - CSFR1.6

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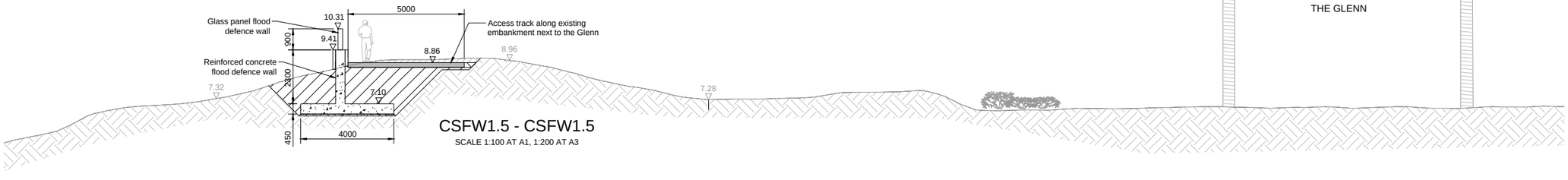


CSFW1.5 - CSFW1.5

SCALE 1:100 AT A1, 1:200 AT A3

Key:

- Existing levels (9.57)
- Proposed levels (10.97)
- Reinforced concrete flood defence wall / Ground retaining reinforced concrete wall
- Reinforced concrete flood defence wall in elevation view
- Reinforced concrete ground retaining wall in elevation view
- Earth embankment / filling material
- Rip rap erosion protection

Notes

1. All levels shown are to GPS datum.
2. All dimensions are in millimetres unless stated otherwise.
3. Images shown upon drawings show existing environment and flood defences.
4. All flood defence embankment profiles to be rounded to avoid angular trapezoidal appearance wherever viable.
5. For planting and seed mixes see drawing: ENVIMSW002194-CH2-Z00-DR-C-0235
6. For proposed embankment and ditch soiling and seeding details see drawing: ENVIMSW002194-CH2-Z00-Z00-DR-C-0236
7. For all zone standard details see drawings:
   - Sheet 1 - ENVIMSW002194-CH2-Z00-DR-C-0240
   - Sheet 2 - ENVIMSW002194-CH2-Z00-DR-C-0241
   - Sheet 3 - ENVIMSW002194-CH2-Z00-DR-C-0242
   - Sheet 4 - ENVIMSW002194-CH2-Z00-DR-C-0243

0 5 10
SCALE 1:100 (A1)
SCALE 1:200 (A3)
METRES

0 5 10 20
SCALE 1:200 (A1)
SCALE 1:400 (A3)
METRES

D2-FIT FOR TENDER

Rev	By	Chkd	Apprvd	Date	Description
D2	TB	CAG	LL	11/07/18	FOR TENDER
C.01	PG	CAG	LL	25/05/18	PLANNING APPLICATION

Client
Bristol City Council
Environment Agency
South Gloucestershire Council

1 The Square
Temple Quay
2nd Floor
Bristol, BS1 6DG
Tel: +44 (0) 117 910 2580
Fax: +44 (0) 117 910 2581
www.ch2mhill.com
ch2m:

Project
AVONMOUTH SEVERNSIDE
ENTERPRISE AREA
ECOLOGY MITIGATION
& FLOOD DEFENCE SCHEME

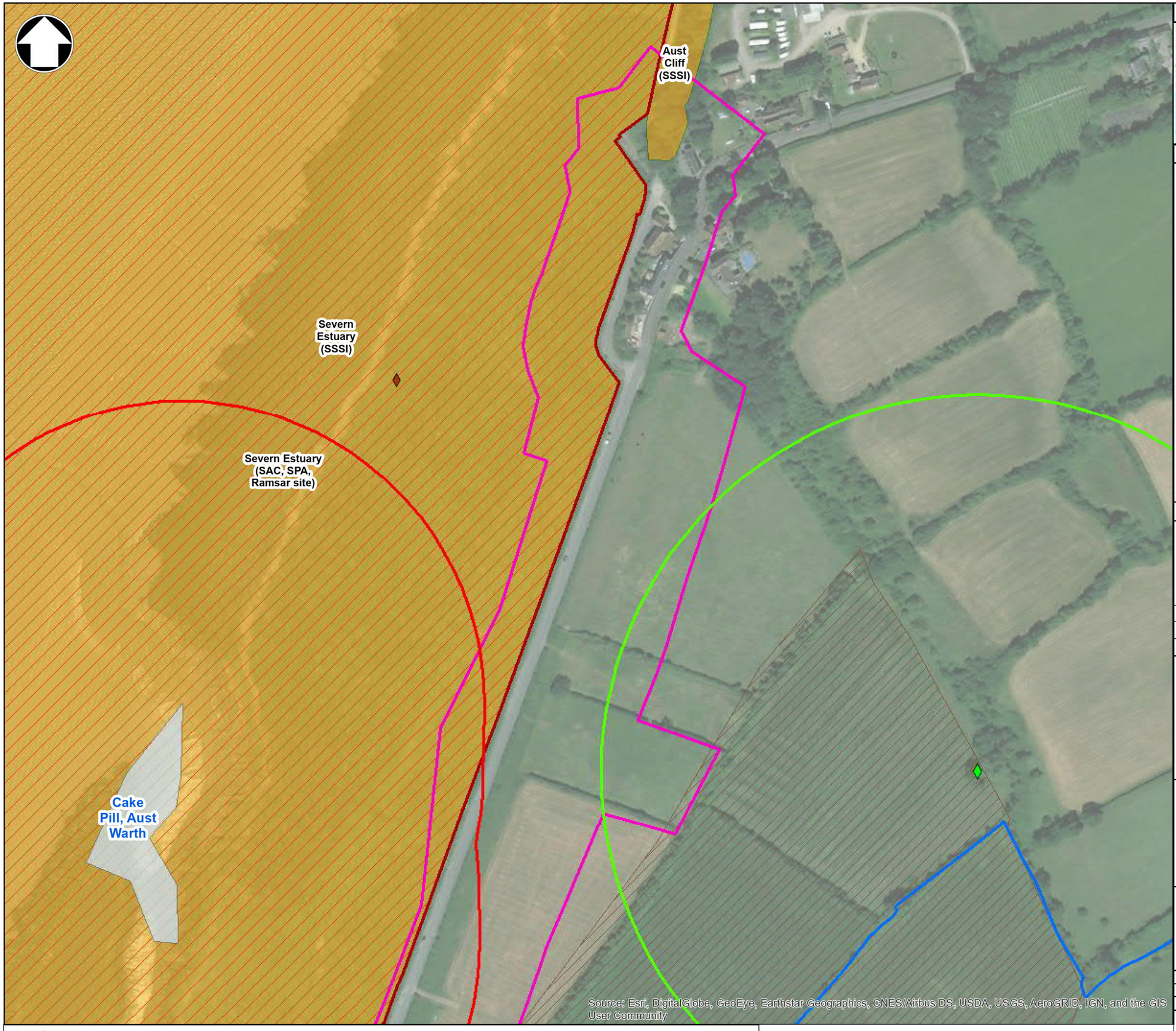
Drawing
ASEA WORKS INFORMATION
AREA 1 (SEVERNSIDE)
ADDITIONAL CROSS SECTIONS

Drawn by:	PG	Date:	06/07/17
Checked by:	CAG	Date:	24/05/18
Approved by:	LL	Date:	25/05/18

Drawing No.: ENVIMSW002194-CH2-Z00-A10-DR-C-1250
Revision: D2

Drawing Scale: AS SHOWN

Appendix B: Environmental Constraints plan



Key plan

Key to symbols

- Ridge and Furrow
- Area 1 boundary
- Area 5 boundary
- Bat record
- Confirmed great crested newt pond
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- 250m buffer around Great Crested Newt ponds
- High tide roost site
- 200m buffer around high tide roost sites

Notes

1. For information only, not for construction.
2. Proposed scheme layout is representative at the date of drawing issue. Drawing will be revised, if required, following design updates.
3. Contains, or is based on, information supplied by Natural England.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 1 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202400

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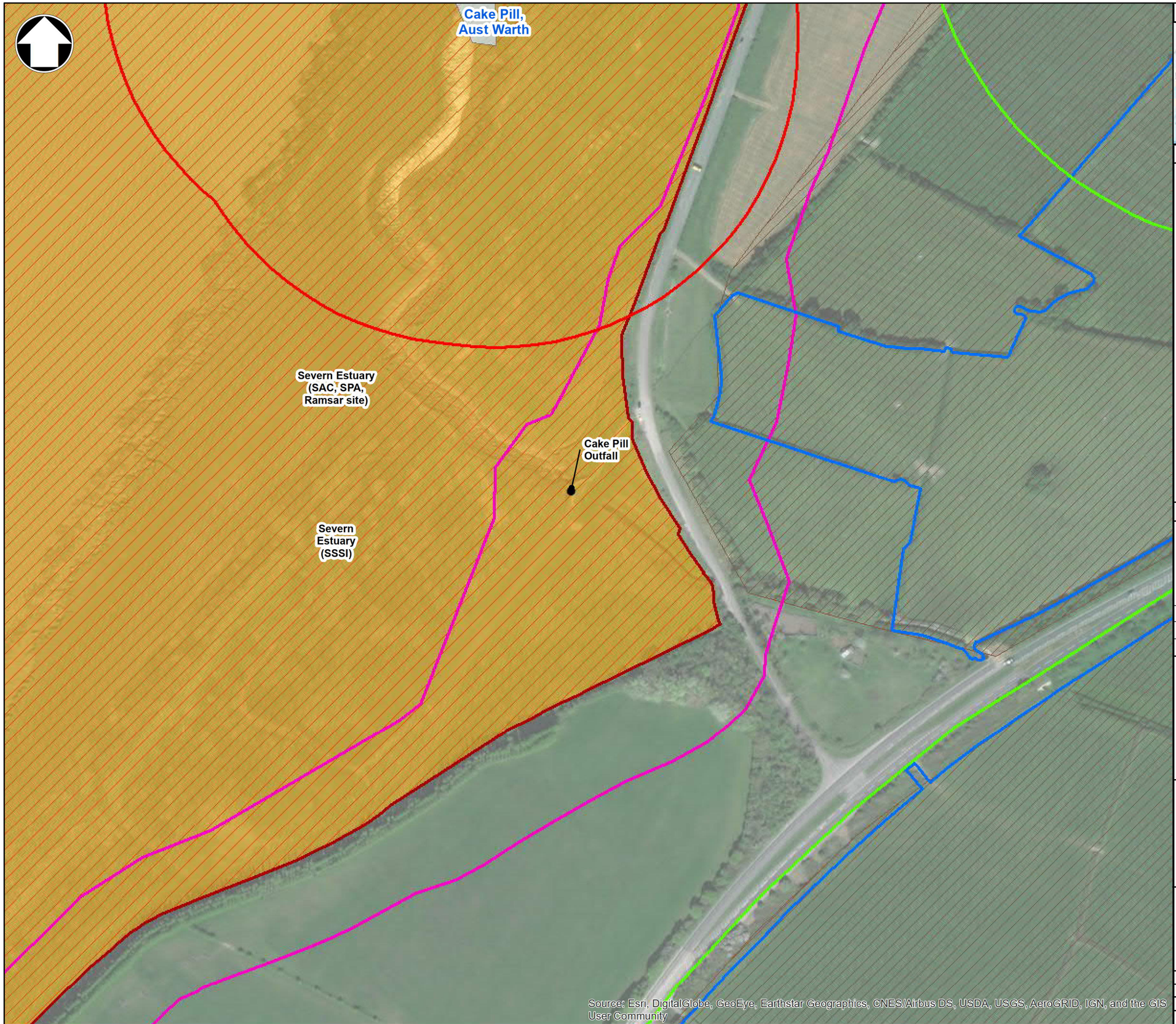

Key plan

Key to symbols

- Ridge and Furrow
- Area 1 boundary
- Area 5 boundary
- Outfalls
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- 250m buffer around Great Crested Newt ponds
- High tide roost site
- 200m buffer around high tide roost sites

Notes

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bmmjv
bam nuttall
MOTT MACDONALD

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Bristol City Council
Environment Agency
South Gloucestershire Council

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 2 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202401

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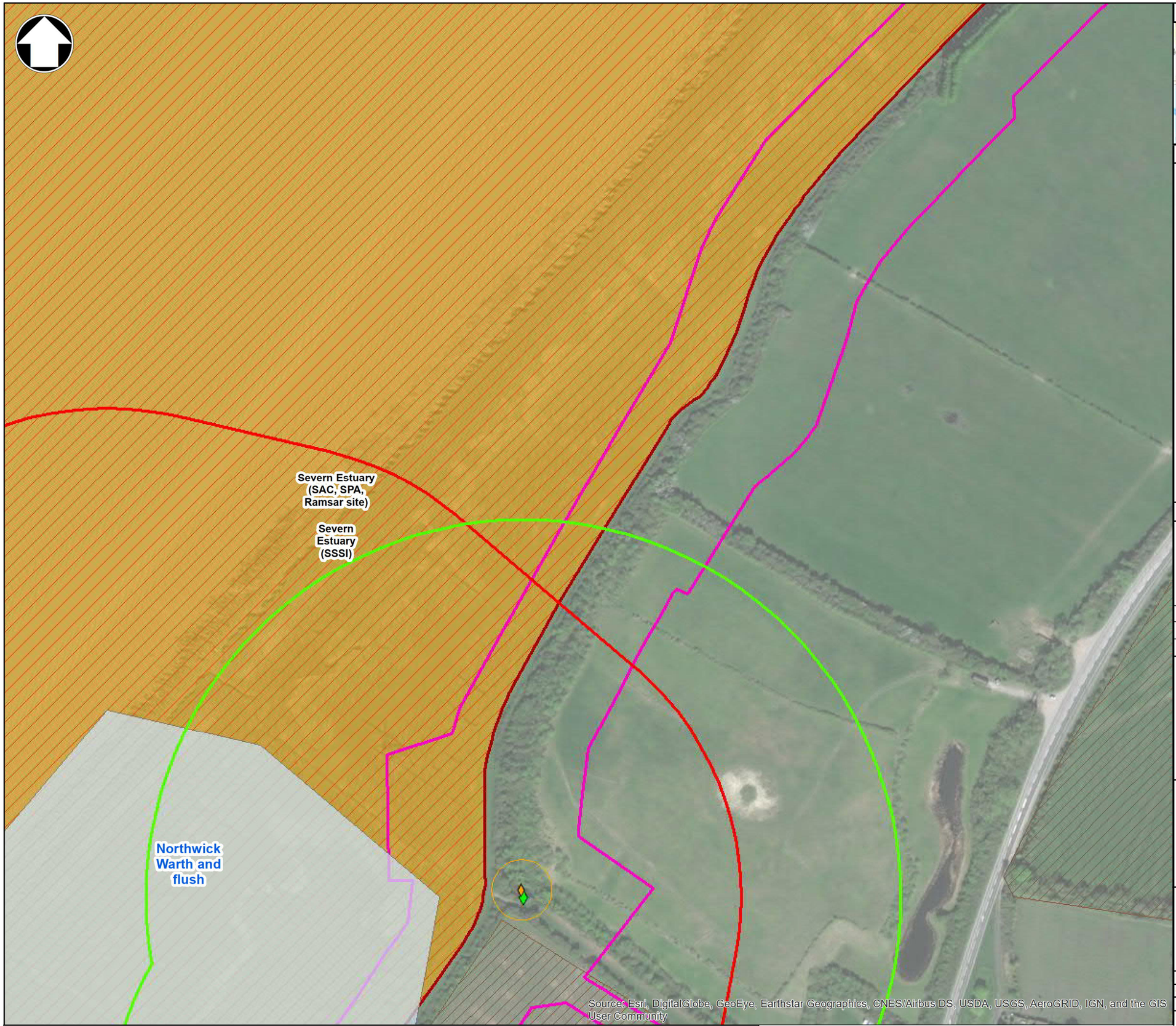
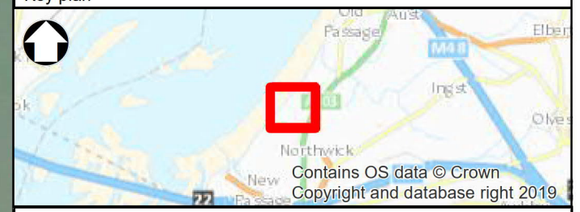


Key plan



Key to symbols

- Ridge and Furrow
- Area 1 boundary
- Bat roost
- Confirmed great crested newt pond
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- 250m buffer around Great Crested Newt ponds
- High tide roost site
- 200m buffer around high tide roost sites
- 20m buffer around bat roost

Notes

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Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Bristol City Council
Environment Agency
South Gloucestershire Council

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 3 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202402

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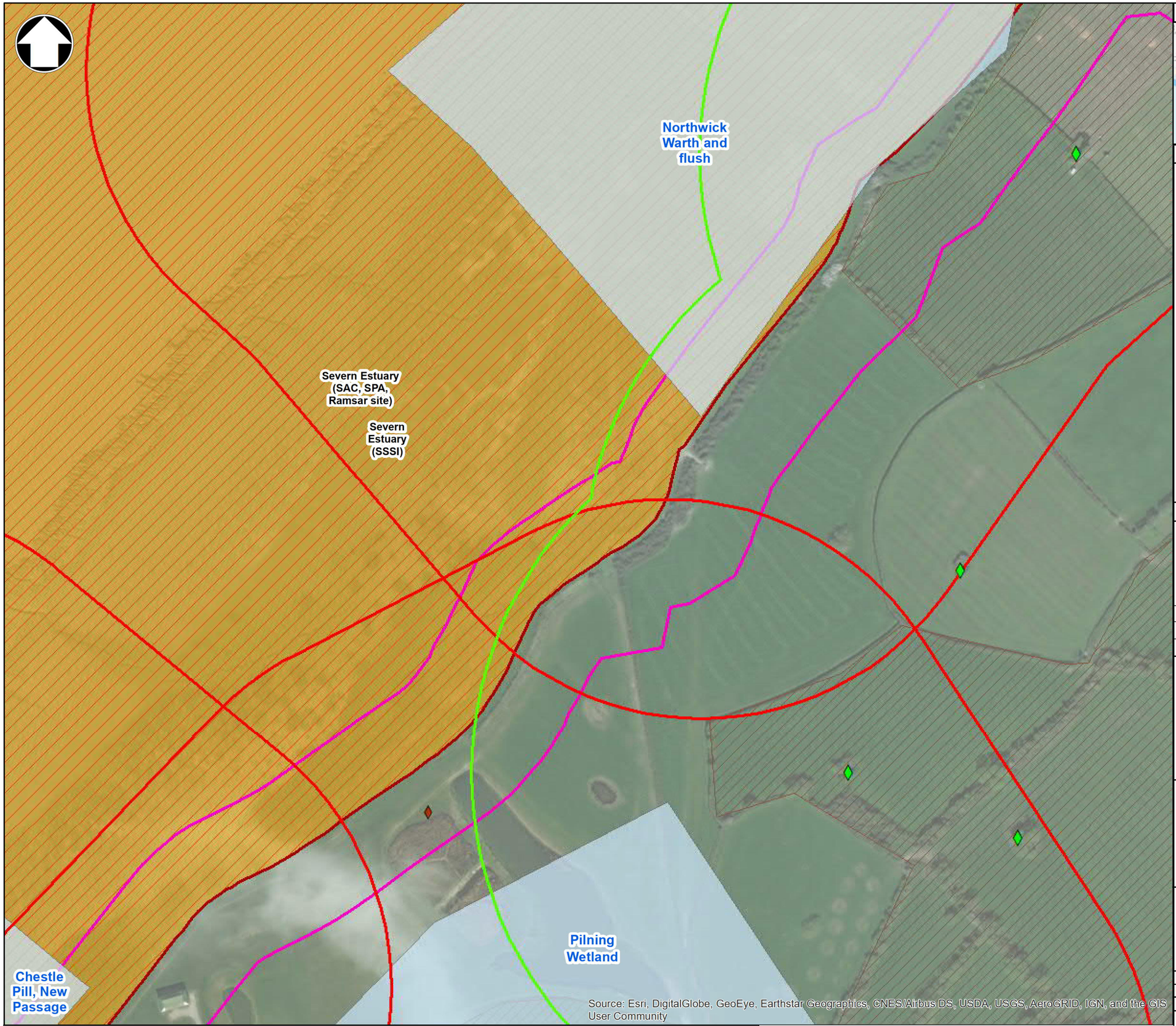

Key plan

Key to symbols

- Ridge and Furrow
- Area 1 boundary
- Bat record
- Confirmed great crested newt pond
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- 250m buffer around Great Crested Newt ponds
- High tide roost site
- 200m buffer around high tide roost sites

Notes

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3. Contains, or is based on, information supplied by Natural England.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Bristol City Council; Environment Agency; South Gloucestershire Council

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 4 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202403

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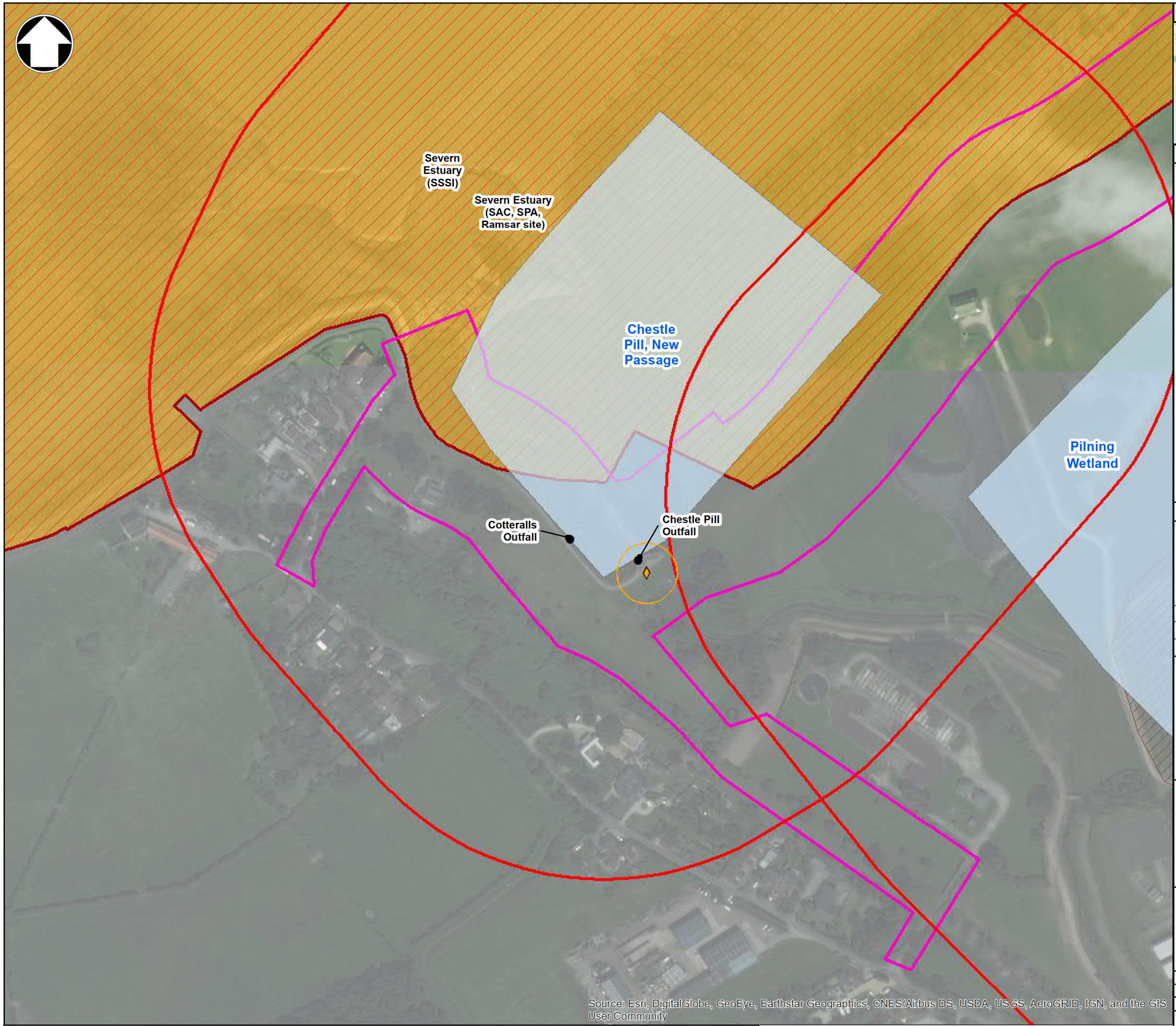
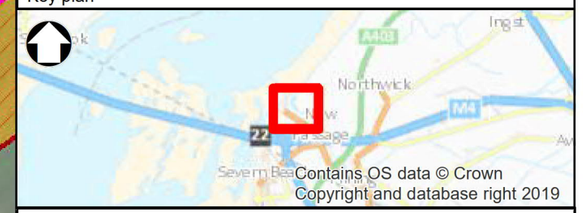


Key plan



Key to symbols

- Ridge and Furrow
- Area 1 boundary
- Outfalls
- Bat roost
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- High tide roost site
- 200m buffer around high tide roost sites
- 20m buffer around bat roost

Notes

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2. Proposed scheme layout is representative at the date of drawing issue. Drawing will be revised, if required, following design updates.
3. Contains, or is based on, information supplied by Natural England.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 5 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202404

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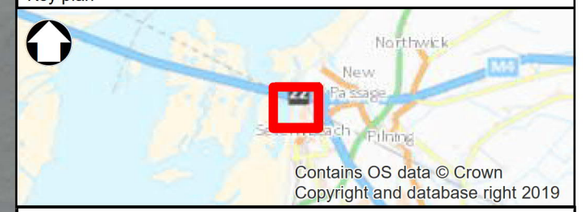
Key plan



Key to symbols

- Area 1 boundary
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- High tide roost site
- 200m buffer around high tide roost sites

Notes

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2. Proposed scheme layout is representative at the date of drawing issue. Drawing will be revised, if required, following design updates.
3. Contains, or is based on, information supplied by Natural England.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 6 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202405

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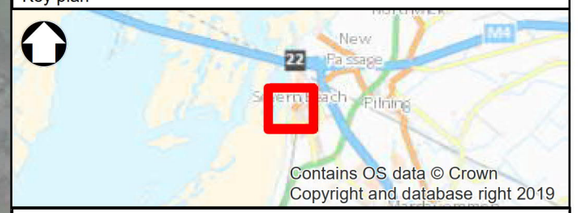
C:\Users\gri79305\Mott MacDonald\ASEA - External Working Area - 2.3.9 GIS\Workspaces\Env Constraints Plan\ASEA_Env_Constraints_Plan_Area1_2_3_4.mxd

Key plan



Key to symbols

- Area 1 boundary
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- 200m buffer around high tide roost sites

Notes

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2. Proposed scheme layout is representative at the date of drawing issue. Drawing will be revised, if required, following design updates.
3. Contains, or is based on, information supplied by Natural England.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Bristol City Council
Environment Agency
South Gloucestershire Council

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 7 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202406

0 25 50 75 100 Meters

C:\Users\gri79305\Mott MacDonald\ASEA - External Working Area - 2.3.9 GIS\Workspaces\Env Constraints Plan\ASEA_Env_Constraints_Plan_Area1_2_3_4.mxd

Key plan

Key to symbols

- Area 1 boundary
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- High tide roost site
- 200m buffer around high tide roost sites

Notes

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Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Bristol City Council; Environment Agency; South Gloucestershire Council

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 8 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202407

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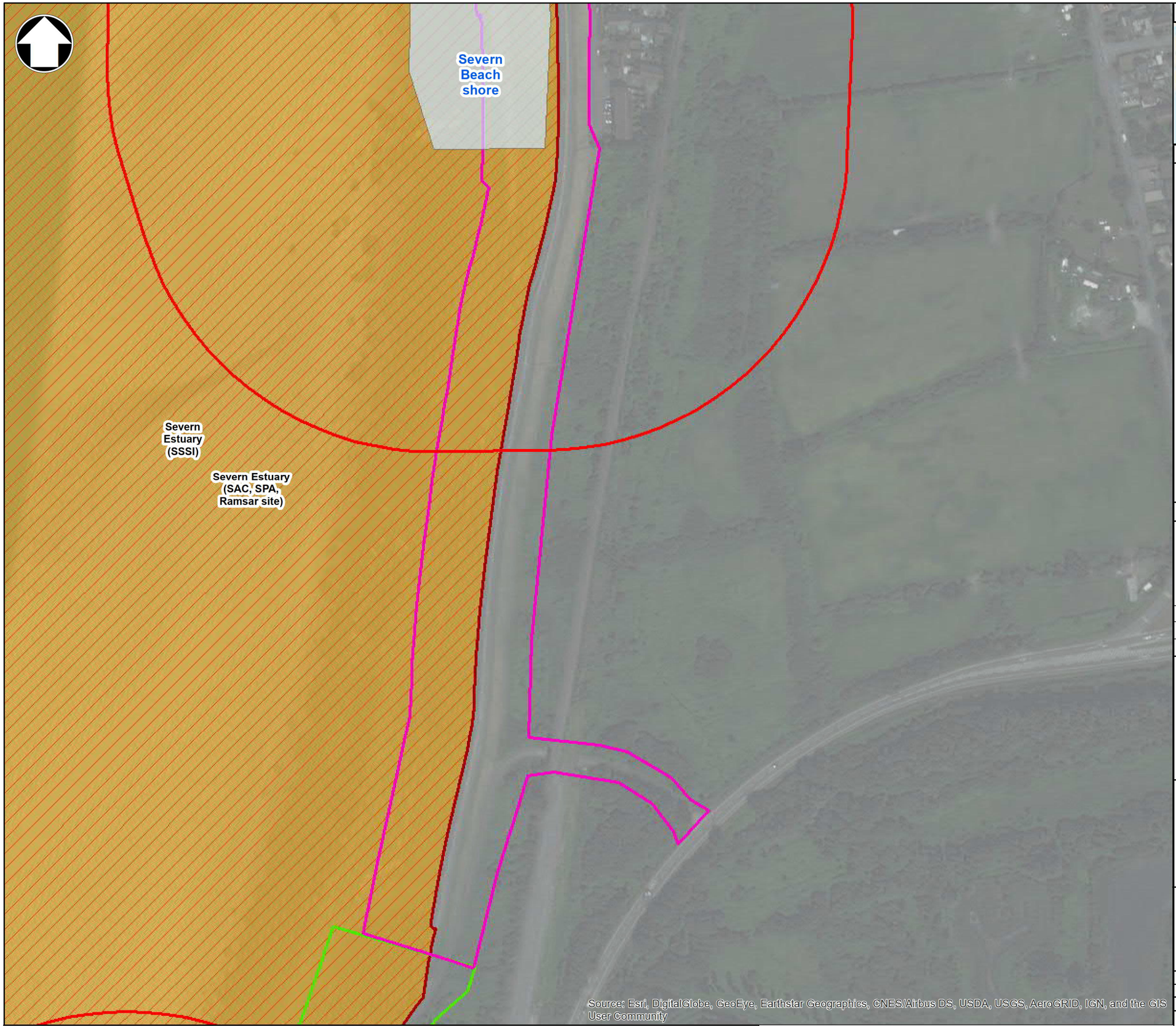
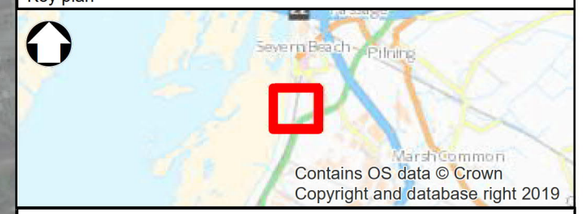


Key plan



Key to symbols

- Area 1 boundary
- Area 3A boundary
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- High tide roost site
- 200m buffer around high tide roost sites

Notes

1. For information only, not for construction.
2. Proposed scheme layout is representative at the date of drawing issue. Drawing will be revised, if required, following design updates.
3. Contains, or is based on, information supplied by Natural England.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 1
Sheet 9 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A10-DR-EN-0202408

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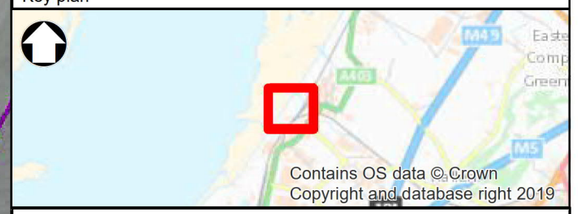
Key plan



Key to symbols

- Area 2 boundary
- Area 3B boundary
- Outfalls
- Site of Special Scientific Interest (SSSI)
- Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar site (shared boundaries with project area)
- High tide roost site
- 200m buffer around high tide roost sites

Notes

1. For information only, not for construction.
2. Proposed scheme layout is representative at the date of drawing issue. Drawing will be revised, if required, following design updates.
3. Contains, or is based on, information supplied by Natural England.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/08/19	JG	For Information	CP	MS

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA Ecology & Flood Mitigation Scheme
Environmental Constraints Plan
Area 2
Sheet 1 of 9

Originator	J Griffiths	JG	Tech Check	C Postlethwaite	CP
Content Check	E Haggett	EH	Coordination	J Orr	JO
GIS Check	T Ruff	TR	Approved	M Secker	MS

Scale at A3	Status	Rev	Security
1:2,500	S2	P1	STD

Drawing number
ENVIMSW002194-BMM-000-A20-DR-EN-0202409

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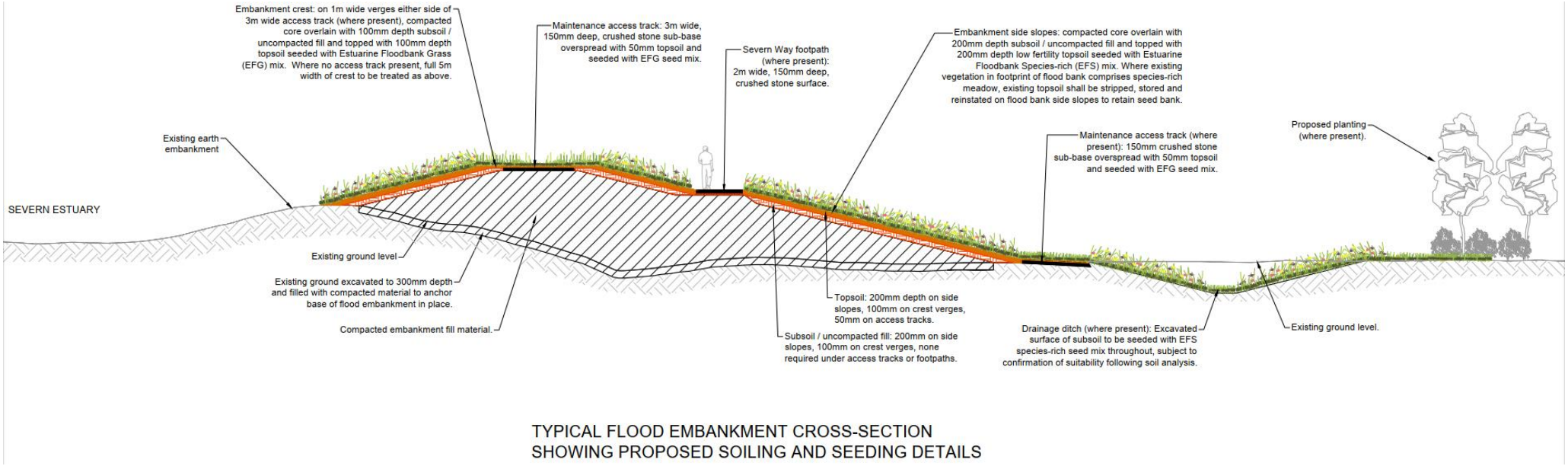
Appendix C: Restoration details



TYPICAL FLOOD EMBANKMENT CROSS-SECTION
SHOWING PROPOSED SOILING AND SEEDING DETAILS

Appendix D: Waste reuse risk assessment report

Project:	Avonmouth Severnside Enterprise Area (ASEA) Ecology Mitigation and Flood Defence Scheme		
Revision:	P01	Status:	A4 – Published Design
Prepared by:	V Sin / L Bethell	Date:	3rd April 2020
Approved by:	A Lawrance	Checked by:	B Marrinan
			N Reid
			C Postlethwaite
Subject:	Briefing Note for Materials Management and Acceptability Criteria		

EA file naming and file metadata

BS1192 file name	ENVIMSW002194-BMM-XX-Z00-TN-EN-0109022
BS1192 suitability	A4 – Published Design
Revision	P01
EA deliverable reference	B0200
EA work stage	EA4
Level of Development	LOD4
Title	Briefing Note for Materials Management and Acceptability Criteria

Information class:	Standard

1 Background

This Technical Note aims to summarise the works undertaken at 'Area 1', 'Area 3A', 'Area 4' and 'Area 5' of the Avonmouth Severnside Enterprise Area (ASEA) Ecological Mitigation and Flood Defence Scheme (hereafter referred to as 'the Scheme') to date, to inform a discussion on risk to controlled waters and materials reuse. Since the initial meeting on 30th July 2019 regarding the Scheme, ground investigation has been completed in Area 1, Area 3A, Area 4 and Area 5.

The ASEA Scheme comprises the improvement of flood defences for the ASEA and the creation of ecological mitigation habitats for important wildlife species. The Scheme is made up of six areas lying across the boundary of two Local Planning Authorities; South Gloucestershire Council (SGC) and Bristol City Council (BCC).

A brief summary of works in each area is presented below.

In SGC:

- **Area 1 Scheme**: Aust to Severn Beach (Severnside) – Design and construction of the following: new flood defence walls, embankments and flood gates; raising of existing flood defence walls and embankments; raising of New Passage Road; and improvements to the Cake Pill Outfall, Chestle Pill Outfall, and Cotteralls Pill Outfall, on land from Aust to Severn Beach, South Gloucestershire.
- **Area 3A Scheme**: Severn Beach Railway (North) – Design and construction of the following: new flood defence walls and embankments; raising of existing flood defence walls; and improvements to the New Pill Outfall, on land adjacent to the Severn View Industrial Park, South Gloucestershire.
- **Area 5 Scheme**: Northwick - Construction of an ecological mitigation area comprising 41.9ha freshwater, seasonally (winter months) wet grassland habitat and 14.49ha of permanent open water in the form of ponds, on land at Northwick, South Gloucestershire.

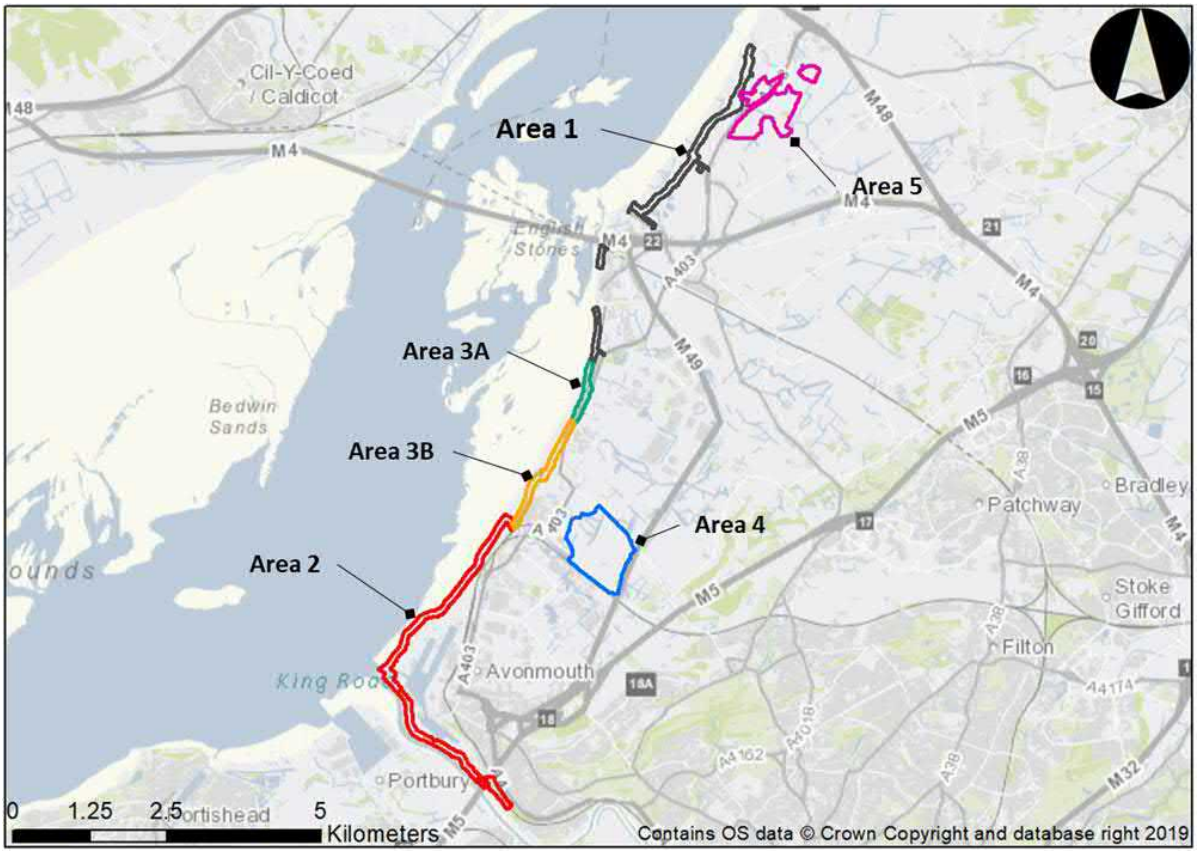
In BCC:

- **Area 2 Scheme**: Avonmouth Docks – Design and construction of the following: new flood defence walls; improvements to the Mitchells Salt Outfall, Holes Mouth Outfall, and Kings Weston Outfall; provision of a maintenance access track within Bristol Port; and design and construction of a new flood defence wall within the Lamplighters Marsh Local Nature Reserve and a new flood gate at the entrance to the open space area, on land from Bristol Port to Lamplighters Marsh, Avonmouth, Bristol.
- **Area 3B Scheme**: Severn Beach Railway (South) – Design and construction of the following: new flood defence walls and embankments; raising of existing flood defence walls and embankment; and improvements to the Stup Pill Outfall, on land adjacent to the Chittening Industrial Estate, Bristol.

- **Area 4 Scheme**: Hallen Marsh - Construction of an ecological mitigation area comprising 97ha freshwater seasonally (winter months) wet grassland habitat, on land off Washingpool Lane and Severn Road, Bristol.

The subject of this Technical Note will be Area 1, Area 3A, Area 4 and Area 5. Ground investigation is Due to commence in Area 2 and Area 3B in due course. A sketch map of the areas is shown in Figure 1-1.

Figure 1-1: ASEA Areas



2 Objectives

Bam Mott MacDonald joint venture (BMMJV) is currently in the process of producing Contaminated Land Risk Assessments (CLRA) for Area 1, Area 3A, Area 4 and Area 5. BMMJV has been in regular liaison with Dinah Wooley, the Contaminated Land Officer from SGC, regarding the discharge of planning conditions for Area 1, Area 3A and Area 5. Following recent consultation on a related planning application, Dinah has requested liaison with the Environment Agency be undertaken to discuss the findings of the ground investigation and the proposals for the most appropriate acceptability criteria for the import of material to the site, particularly in regard to the protection of controlled waters.

The objective of this briefing note is to summarise the findings, conceptual ground model and present the proposed materials reuse criteria for the Scheme.

3 Works Undertaken to Date

Ground investigation was undertaken by Structural Soils Limited (SSL) on the instructions of BMMJV, with fieldwork in the areas of interest undertaken between September 2019 and November 2019. A brief summary of the intrusive works undertaken for the purposes of contamination assessment is presented in Table 3-1. Soil, surface water and groundwater samples were collected and tested for a range of contamination suites, with testing largely undertaken between October 2019 and January 2020. Exploratory hole location plans are presented in Appendix A.

Table 3-1: Intrusive Investigative Works

Exploratory Method	Number of Locations			
	Area 1	Area 3A	Area 4	Area 5
Cable percussive borehole	16		-	-
Cable percussive / dynamic sampling borehole with rotary follow-on	4	1	-	-
Window sample borehole	11	1	5	5
Hand dug trial-pits	7	6	15	-
Machine excavated trial-pits	-	-	5	5

The screening of soil data against the generic screening criteria (GSC) for a 'Public Open Space (park)' land use undertaken in the CLRAs for the four areas recorded exceedances of three polycyclic aromatic hydrocarbon (PAH) compounds from one location in Area 1. No other exceedances were observed or recorded. The long-term risk to human health was assessed to be **Very Low**, or considered to be no longer present. The risk to human health is not discussed further in this Technical Note.

4 Conceptual Ground Model

Based on data from the British Geological Survey and the recent SSL ground investigation, the Areas were generally found to be underlain by Tidal Flat Deposits (classified as an Unproductive Strata) overlying the Mercia Mudstone Group bedrock (classified as a Secondary B Aquifer).

During a review of available historical mapping records, the 'Severn Way' footpath is shown along the length of Area 1 and Area 3A generally sited on an embankment that has been in place since the earliest available reviewed mapping (late 19th century). Similarly, much of the existing flood defence structures and outfalls have also been present since this time. The existing embankment on-site is reflected in the Made Ground and embankment fill encountered during the recent investigation, overlying the Tidal Flat Deposits. Whilst limited anthropogenic inclusions of asphalt, brick, ceramics, clinker, coal, concrete and mortar were recorded, no indication of contamination was observed.

In Area 4 and Area 5 the historical mapping has shown the areas to have been used for agricultural purposes, with little change evident demonstrating the greenfield nature of the areas. Localised areas of Made Ground were recorded in Area 4, with anthropogenic inclusions of brick and cement. However, no indication of contamination was observed.

The identified controlled waters receptors are the underlying Mercia Mudstone Group aquifer, the surface water drains (rhines) which are prevalent across Area 4 and Area 5, and the Severn Estuary. The rhines drain into the Severn Estuary via the outfalls located along Area 1, Area 2, Area 3A and Area 3B. The potential risk to the Mercia Mudstone aquifer on-site is considered be negligible, due to the presence of overlying Tidal Flat Deposits which is a predominantly low permeability clay material.

A brief summary of the encountered ground conditions is presented in Table 4-1.

Table 4-1: Encountered Ground Conditions

Exploratory method	Depth Range (metres below ground level (m bgl))			
	Area 1	Area 3A	Area 4	Area 5
Topsoil	0.0 – 0.8	0.0 – 0.2	0.0 – 0.3	0.0 – 0.5
Made Ground	0.0 – 7.8	0.0 – 3.0	0.0 – 0.7	N/A
Embankment Fill	0.0 – 5.0	0.0 – 3.5	N/A	N/A
Tidal Flat Deposits	0.0 – 28.6	0.1 – 16.7	0.1 – 5.5*	0.1 – 5.0*
Mercia Mudstone Group	2.0 – 38.9*	16.7 – 28.1*	N/A	N/A

*Unproven

The depths to the top and base of the Tidal Flat Deposits vary between the areas. In Area 1 and Area 3A along the Severn Estuary varying thicknesses were recorded, with proven thicknesses ranging

between 1.8m and 28.6m (Area 1), and 5.0m and 13.7m (Area 3A). In Area 4 and Area 5 where the thickness is unproven, it was encountered to the full depth of the available investigation techniques (approximately 5.0mbgl).

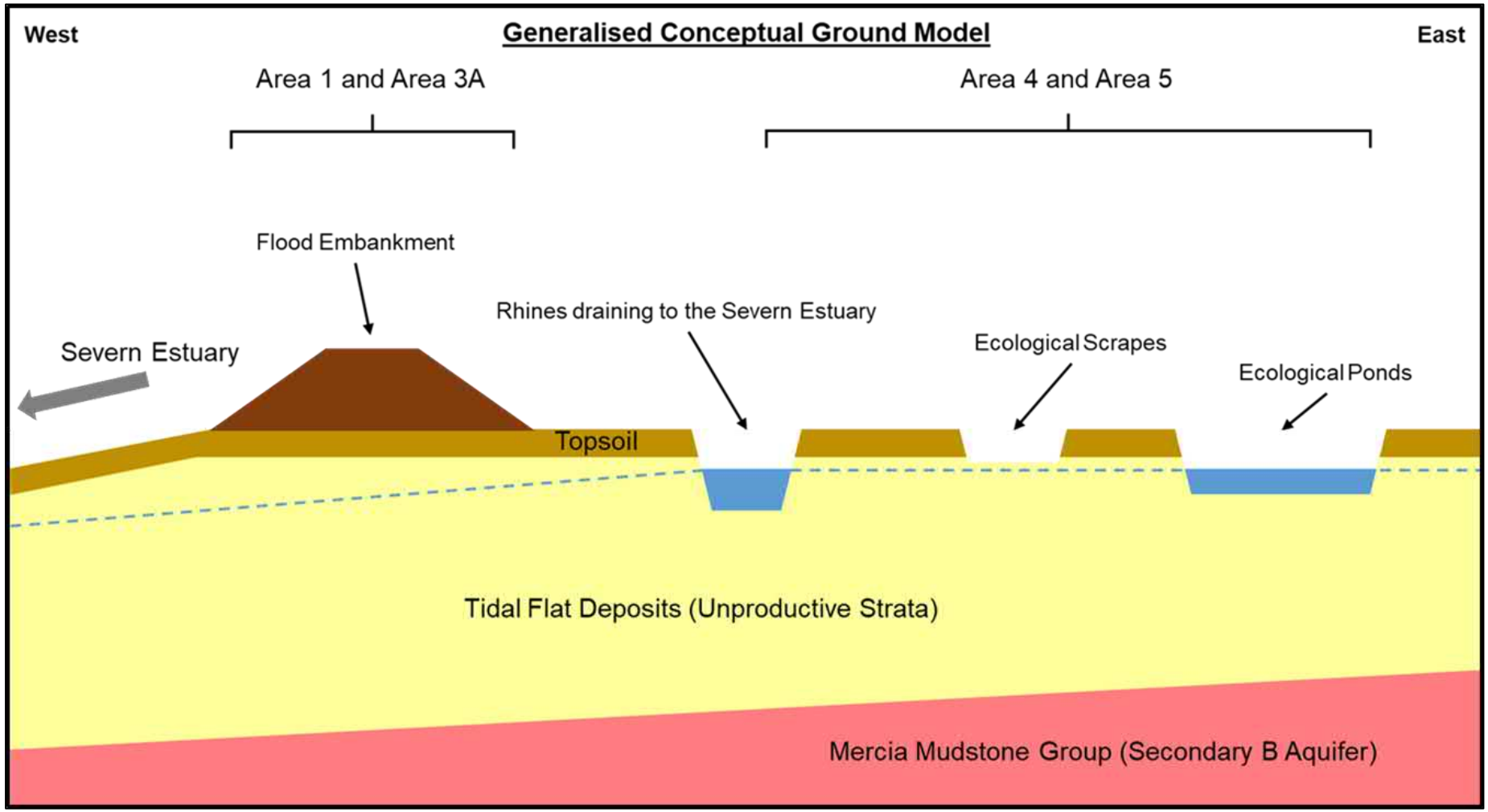
Groundwater monitoring wells were installed in Area 1, Area 4 and Area 5 and screened in the Tidal Flat Deposits. Recorded water levels range between:

- 0.2m and 7.1m bgl (8.9m and 2.1m AOD) in Area 1
- 0.3m and 0.9m bgl (6.2m and 4.4m AOD) in Area 4
- 0.0m and 1.1m bgl (6.9m and 5.4m AOD) in Area 5

Recorded water levels in Area 1 had a greater range than those in Area 4 and Area 5. This is likely to be reflective of its proximity to the Severn Estuary, where the tidal influence is better reflected than in the inland monitoring wells in Area 4 and Area 5.

A generalised conceptual ground model cross section is presented in Figure 4-1.

Figure 4-1: Generalised Conceptual Ground Model



5 Controlled Waters Risk Assessment of Existing Ground

The following assessments are based on soil, leachate, groundwater and surface water data which is presented in Appendix B to Appendix E. Results were screened against the Water Framework Directive Environmental Quality Standards for surface waters (EQS_{FRESH}), and for coastal and transitional waters ($EQS_{COASTAL}$). Although $EQS_{COASTAL}$ are considered to be the most relevant due to the proximity of the site to the Severn Estuary and the known large tidal range, the EQS_{FRESH} are also used as at low tide, when flow from land to the estuary is more prevalent, some of the more landward rhines may be freshwater dominated.

There are no source protection zones or drinking water safeguard zones within the site. Groundwater in the Tidal Flat Deposits is not considered to be a sensitive receptor. Whilst these deposits vary in depth across the four areas, there is generally a reasonable thickness (>5m) which is considered to act as an aquitard; protecting the underlying Mercia Mudstone Group Secondary B Aquifer. Therefore, the bedrock aquifer is considered to not be at a significant risk from surface pollutants. Existing surface waters at the site (rhines) and the Severn Estuary, which they drain to, are considered to be sensitive receptors.

Soil tests undertaken in Area 1 and Area 3A were generally for samples of Made Ground, including embankment fill. In Area 4 and Area 5 soil samples were generally taken from the Topsoil and Tidal Flat Deposits. Low-level concentrations of total petroleum hydrocarbons (TPH) were detected, which generally ranged between 2mg/kg and 151mg/kg. One location (CP1002) recorded a concentration of 1760mg/kg for TPH at the boundary of Made Ground and Tidal Flat Deposits (at 0.5m depth).

CP1002 was located on Aust Wharf Road and progressed through the asphalt road surface. The borehole log did not record visual or olfactory evidence of contamination, or the inclusion of anthropogenic material. The elevated TPH may be attributed to inclusions of some road surface material, or residual contamination associated with an historical spill. The closest proposed development at the location is the construction of reinforced concrete walls along the seaward side of the road, with the road to be retained. The presence of the underlying Tidal Flat Deposits will mitigate downward movement to the water table, and the deeper Secondary B Aquifer, a significant risk is therefore considered to be unlikely. As the road is to be retained, additional investigation is unlikely to be possible but if any significant hydrocarbon contamination is identified during construction in this area, additional sampling and appropriate mitigation will be undertaken.

As with soil testing, soil leaching tests undertaken in Area 1 and Area 3A were generally for near surface samples of Made Ground (including embankment fill), whereas in Area 4 and Area 5 they were for Topsoil and Tidal Flat Deposits. Test results recorded several determinant concentrations to be elevated above the EQS values, these are summarised in Table 5-1.

Table 5-1: Leachate Elevated Result Summary

Determinant	EQS_{FRESH} (mg/l)	$EQS_{COASTAL}$ (mg/l)	Minimum and Maximum of Elevated Concentrations (mg/l)			
			Area 1	Area 3A	Area 4	Area 5
Cadmium (non-hazardous pollutant)	0.00008	0.0002	N/A	N/A	0.001 – 0.023	0.001
Chromium	0.005	0.015	N/A	N/A	0.006 – 0.009	0.007
Copper (non-hazardous pollutant)	0.001	0.00376	0.002 – 0.02	0.002 – 0.005	0.002 – 0.034	0.002 – 0.015
Iron	1	1	1.87	N/A	1.01 – 2.28	1.51 – 1.76
Lead (hazardous substance)	0.0012	0.0013	0.002 – 0.03	0.003 – 0.006	0.002 – 0.128	0.002 – 0.034
Manganese	0.22	-	N/A	N/A	0.246	N/A
Nickel (non-hazardous pollutant)	0.004	0.0086	N/A	N/A	0.005 – 0.02	0.01 – 0.012
Zinc (non-hazardous pollutant)	0.0109	0.0068	0.007 – 0.031	0.008 – 0.01	0.008 – 1.52	0.01 – 0.158
Ammoniacal Nitrogen as N (non-hazardous pollutant)	0.2	-	0.39	N/A	0.21 – 0.57	0.23 – 0.26
Cyanide (non-hazardous pollutant)	0.001	0.001	0.006 – 0.007	N/A	0.005	N/A

Water chemistry testing was undertaken on groundwater samples from the Tidal Flat Deposits in Area 1, Area 4 and Area 5, and surface water samples from drains across the four Areas. The concentrations of several determinants from groundwater and surface water data were recorded to be elevated above the EQS values. These represent existing (baseline) water conditions and are summarised in Table 5-2 and Table 5-3.

Table 5-2: Groundwater Elevated Result Summary

Determinant	EQS_{FRESH} (mg/l)	$EQS_{COASTAL}$ (mg/l)	Minimum and Maximum of Elevated Concentrations (mg/l)		
			Area 1	Area 4	Area 5
Arsenic (hazardous substance)	0.05	0.025	0.037	0.037	0.026 – 0.048
Boron (non-hazardous pollutant)	2	7	2.61	N/A	N/A
Cadmium (non-hazardous pollutant	0.00008	0.0002	N/A	0.0003 – 0.0017	0.0003 – 0.0067
Chromium	0.005	0.015	0.007 – 0.008	0.006	0.006 – 0.023
Trivalent chromium	0.0047	-	N/A	N/A	0.02

Determinant	EQS$_{FRESH}$ (mg/l)	EQS$_{COASTAL}$ (mg/l)	Minimum and Maximum of Elevated Concentrations (mg/l)		
			Area 1	Area 4	Area 5
Copper (non-hazardous substance)	0.001	0.00376	0.007 – 0.016	0.003 – 0.077	0.002 – 0.018
Iron	1	1	2.89 – 19.7	1.49 – 31.6	2.14 – 36
Lead (hazardous substance)	0.0012	0.0013	0.009 – 0.041	0.011 – 0.036	0.005 – 0.065
Manganese	0.22	-	0.258 – 1.75	0.28 – 8.85	0.499 – 3.15
Mercury (hazardous substance)	0.00007	0.00007	0.0005 – 0.0006	N/A	0.0001
Nickel (non-hazardous pollutant)	0.004	0.0086	0.006 – 0.092	0.009 – 1.96	0.029 – 0.707
Vanadium	0.02	0.1	N/A	0.048	0.035 – 0.066
Zinc (non-hazardous pollutant)	0.0109	0.0068	0.059 – 0.205	0.033 – 0.869	0.01 – 0.377
Ammoniacal Nitrogen as N	0.2	-	0.23 – 26.1	0.67 – 1.55	0.24 – 3.09
Chloride	250	-	4380 – 4980	N/A	N/A

Table 5-3: Surface Water Elevated Result Summary

Determinant	EQS$_{FRESH}$ (mg/l)	EQS$_{COASTAL}$ (mg/l)	Minimum and Maximum of Elevated Concentrations (mg/l)			
			Area 1	Area 3A	Area 4	Area 5
Cadmium (non-hazardous pollutant)	0.00008	0.0002	0.0002 – 0.0006	0.0002 – 0.0003	0.0009 – 0.0016	N/A
Copper (non-hazardous substance)	0.001	0.00376	0.002 – 0.007	0.004 – 0.006	0.003 – 0.009	0.003 – 0.008
Iron	1	1	1.15 – 3.02	N/A	1.74	2.53
Lead (hazardous substance)	0.0012	0.0013	0.002 – 0.024	0.002 – 0.005	0.002 – 0.021	0.002 – 0.005
Manganese	0.22	-	0.258 – 1.64	N/A	0.855	0.629
Nickel (non-hazardous pollutant)	0.004	0.0086	0.005 – 0.006	N/A	0.007	N/A
Zinc (non-hazardous pollutant)	0.0109	0.0068	0.007 – 0.136	0.03 – 0.075	0.036 – 0.253	0.013 – 0.035
Benzo(a)pyrene (hazardous substance)	0.00000017	0.00000017	0.00004	N/A	N/A	0.00002
Fluoranthene (hazardous substance)	0.0000063	0.0000063	0.00005	0.00002	N/A	0.00001 - 0.00008
Ammoniacal Nitrogen as N	0.2	-	0.27 – 1.44	0.59 – 3.47	0.41	0.47 – 1.58

Determinant	EQS$_{FRESH}$ (mg/l)	EQS$_{COASTAL}$ (mg/l)	Minimum and Maximum of Elevated Concentrations (mg/l)			
			Area 1	Area 3A	Area 4	Area 5
Cyanide (non-hazardous pollutant)	0.001	0.001	0.005	N/A	N/A	N/A
Chloride	250	-	859 – 5580	348	N/A	N/A

Groundwater and surface water data indicates elevated concentrations of mainly metals above the EQS values. Other determinants include PAH compounds, ammoniacal nitrogen, cyanide and chloride. Leachate data show similar determinants elevated above the EQS values, these being mainly metals, along with ammoniacal nitrogen and cyanide.

In all three datasets identified determinant concentrations elevated above the EQS values can generally be considered low-level, with most slightly above (within an order of magnitude) their respective thresholds. The concentrations for determinants are also similar across the different areas. A review of exploratory hole logs did not record any evidence of gross contamination or an identifiable anthropogenic source. In Area 1 and Area 3A samples for leachate testing were largely obtained from Made Ground and embankment fill, results of which are consistent with the results of natural ground material obtained in Area 4 and Area 5.

Elevated concentrations were found across the four ASEA areas, with no geospatial link. Area 1 and Area 3A have had little significant historical development, and Area 4 and Area 5 have been undeveloped over the last Century.

A comparison of the elevated leachate metal soil concentration was made against the National Soil Inventory (NSI) topsoil concentrations (0 - 0.15m depth)[1]. This is to compare soil data of the natural ground at Area 4 and Area 5 against the published geochemical atlas. Whilst soil testing in these areas were generally undertaken on samples deeper than topsoil depth, this comparison provides a high-level view of how the published topsoil chemistry compares against site data. A summary of this comparison is presented in Table 5-4. Note that soil concentrations for iron and manganese were unavailable.

Table 5-4: NSI Geochemical Atlas Comparison

Determinant	Area	NSI Value Range (mg/kg)	Soil Results Range (mg/kg)
Cadmium	Area 4	>1.77	0.5 – 20.8
	Area 5	0.41 – 0.69	0.5 – 1.7
Chromium	Area 4	66 – 73	27 – 47
	Area 5	59.6 – 66.3	31 – 50
Copper	Area 4	25.2 – 37.3	4 – 41
	Area 5	13.1 – 17.1	2 – 16

[1] British Geological Survey. 2020. UK Soil Observatory Map Viewer [Online]. Available at http://mapapps2.bgs.ac.uk/ukso/home.html (accessed February 2020)

Determinant	Area	NSI Value Range (mg/kg)	Soil Results Range (mg/kg)
Lead	Area 4	136 – 257	12 – 353
	Area 5	43.9 – 74.2	17 – 51
Nickel	Area 4	24 – 35	22 – 39
	Area 5	9.9 – 18.5	22 – 44
Zinc	Area 4	>150	59 – 1580
	Area 5	47 – 96	75 -154

The comparison between NSI topsoil values against site data show that whilst some determinant ranges are greater than published topsoil values, most are within or below NSI ranges. This suggest that the recorded chemistry of site soils (therefore the elevated metals in leachate) are reasonably in-line with published soil samples across England and Wales.

Correspondence with the Environment Agency (dated 25th March 2020) noted that there is the potential for aerial deposition of metals (particularly zinc and possibly copper) from a former zinc smelter, the 'Britannia / Imperial Smelting Works' in Avonmouth. The former smelting works was located approximately 1.4km south-west of Area 4, between Kings Weston Lane and the A403. It has since been redeveloped into a series of commercial warehouse units. According to the Met Office[2] the prevailing wind in Avonmouth is from the south-west, which supports the potential for aerial deposition in Scheme areas, particularly Area 4. Smelter waste is also noted to have been widely disposed of and used in the surrounding area of Avonmouth, and for land raising in some cases. Reviewed historical mapping available for Area 4 did not show a clear indication of smelter waste deposition to have occurred.

Given the information presented in this Section, it is considered that the elevated concentrations represent a diffuse background source. An on-site anthropogenic contaminant source was not identified during the recent investigation or from the chemical test results; which could indicate a diffuse natural source. However, correspondence with the Environment Agency noted that the aerial deposition of metals from the former smelting works, and the deposition or use of smelter waste could have impacted the Scheme areas. Regardless of the potential source of these contaminants, the concentrations recorded are not considered to pose a significant adverse impact to receptors. In the context of the proposed development being a flood defence scheme, there is no requirement for 'remediation'. This data can be used as a baseline for future monitoring.

[2] Met Office. October 2016. South West England: Climate

6 Controlled Waters Risk Assessment for Materials Reuse

In Area 4 and Area 5, the creation of ecological mitigation areas will involve the construction of ecological scrapes and newt ponds. This will generate a volume of natural material which is envisaged to be reused under a CLAIRE Definition of Waste Construction Industry Code of Practice – "Reuse of Site Won Material" via a Materials Management Plan in Area 1 and Area 3A as embankment fill.

Additionally, approximately 80,000m^3 of cohesive material from will be imported from a local quarry (Durnford Quarry) to the Scheme for use under an Environmental Permit. The material is reported to be natural cohesive material derived from weathered mudstone and was originally imported to the quarry from a development at Cribbs Causeway, Bristol.

Soil leachate results are available for 55 samples collected during the recent SSL investigation on the ASEA Scheme. Of the ten determinants recorded to be elevated above the EQS values, determinant concentrations for the following were recorded to be above the EQS values in less than 25% of the samples:

- ammoniacal nitrogen;
- cadmium;
- chromium;
- cyanide;
- iron;
- manganese; and
- nickel.

Whilst the above determinants are considered to be reflective of a diffuse source, elevated concentrations based on these are not considered further as the elevated readings are not likely to be reflective of the general condition of the ground.

For copper, 84% of the samples recorded concentrations were above the EQS values, 51% for zinc and 42% for lead. As these determinants are considered to be reflective of diffuse slightly elevated concentrations at the sites, it may be reasonable to use the 95th percentile concentration value for these determinants as the screening criteria, in place of published EQS values.

The calculated 95th percentile concentration value are:

- 0.0165mg/l for copper;
- 0.0312mg/l for lead; and
- 0.1139mg/l for zinc.

7 Acceptability Criteria

7.1 Selection of Determinants

The laboratory analysis for the previous ground investigation has included a suite of determinants including:

- Soils comprehensive analysis: antimony, arsenic, asbestos, barium, beryllium, boron, BTEX, cadmium, chromium (iii), chromium (vi), copper, cyanide (free), fraction of organic carbon, iron, lead, manganese, mercury, molybdenum, nickel, pH, phenols, speciated PAH (USEPA 16), selenium, sulphate (water soluble), sulphur (total), TPHCWG, vanadium, VOC (speciated USEPA) and zinc.
- Natural material soil analysis: antimony, arsenic, asbestos, barium, beryllium, boron, cadmium, chromium (iii), chromium (vi), copper, cyanide (free), fraction of organic carbon, iron, lead, manganese, mercury, molybdenum, nickel, pH, selenium, sulphate (water soluble), sulphur (total), total TPH, vanadium, zinc and speciated PAH (USEPA 16).
- Leachate analysis: ammoniacal nitrogen, antimony, arsenic, barium, beryllium, boron, cadmium, chloride, chromium (iii), chromium (vi), copper, cyanide (free), cyanide (complex), fluoride, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, pH, phenols, selenium, sulphate, vanadium and zinc.
- Water comprehensive analysis: ammoniacal nitrogen, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chloride, chromium (iii), chromium (vi), copper, cyanide (free), cyanide (total), fluoride, hardness (CaCO3), iron, lead, manganese, magnesium, mercury, molybdenum, nickel, nitrate as NO3, pH, phenols, PAH (USEPA 16 speciated), selenium, sodium, sulphate (water soluble), sulphur (total), TPH, vanadium, volatile organic compounds (speciated USEPA), zinc, total dissolved solids, alkalinity – bicarbonate.
- Water reduced analysis: ammoniacal nitrogen, antimony, arsenic, barium, beryllium, boron, cadmium, chloride, chromium (iii), chromium (vi), copper, cyanide (free), cyanide (total), fluoride, hardness (CaCO3), iron, lead, manganese, magnesium, mercury, molybdenum, nickel, nitrate as NO3, pH, selenium, sodium, sulphate (water soluble), sulphur (total), total PAH, total phenol, total TPH, vanadium, zinc, total dissolved solids, alkalinity - bicarbonate, biochemical oxygen demand, chemical oxygen demand, dissolved organic carbon, phosphates and total suspended solids.

For the protection of human health, acceptability criteria have been defined for a suite of metals, TPH, PAH and cyanide and will be tested for based on soils analysis, as shown in Appendix F.

For the protection of controlled waters, the criteria will be derived based on leachate analysis, rather than total soils, to assess potential leaching into controlled waters. The selected determinants are listed in Table 7-1 and a comment on those which will not be tested for is also included.

PAHs and VOCs will not be included in the analysis due to the loss of volatiles during the sample preparation, which could lead to inaccurate results. It is understood that the material to be reused is natural reworked material, with limited construction waste inclusions and thus there should be no

significant source of PAH or VOCs. In addition, the material has been in a quarry for over two years and therefore mobile organic determinants are likely to have been lost to volatilisation or migration via leaching and not be a significant source. The testing undertaken to date on the stockpiled material supports these assumptions. Although this rationale can apply to TPH, in order to be protective of controlled waters speciated TPH will be included in the leachate analysis.

Table 7-1: Selected determinants for controlled waters acceptability criteria derivation

Determinants	Included as determinant?	Comments
Metals		
Arsenic	Y	-
Boron	Y	-
Cadmium	Y	-
Chromium	Y	-
Chromium - Hexavalent	Y	-
Chromium - Trivalent	Y	-
Copper	Y	-
Iron	N	Iron is an abundant earth mineral. Not included as iron is present in the natural environment at elevated concentrations. Background concentrations in groundwater are elevated above stockpile leachate concentrations therefore not considered to present an unacceptable risk.
Lead	Y	-
Manganese	N	Manganese is an abundant earth mineral. Not included as manganese is present in the natural environment at elevated concentrations. Background concentrations in groundwater are elevated above stockpile leachate concentrations therefore not considered to present an unacceptable risk.
Mercury	Y	-
Nickel	Y	-
Vanadium	Y	-
Zinc	Y	-
BTEX		
Benzene	N	Unreliable results due to the loss of volatiles during the sample preparation
Ethylbenzene	N	
O-Xylene	N	
Toluene	N	
Total Petroleum Hydrocarbon		
Speciated TPH	Y	Although the preparation method can lead to unreliable results, in order to be protective of controlled waters, TPH analysis will be included.
Polycyclic Aromatic Hydrocarbons		

Determinants	Included as determinant?	Comments
Anthracene	N	Unreliable results due to the loss of volatiles during the sample preparation
Benzo(a)pyrene	N	
Fluoranthene	N	
Naphthalene	N	
Miscellaneous		
Ammoniacal Nitrogen	N	Background concentrations in groundwater are elevated (likely due to diffuse agricultural inputs) above stockpile leachate concentrations therefore not considered to present an unacceptable risk.
Chloride	Y	-
Cyanide	N	Analytical testing indicates cyanides are not present in stockpile material.
Cyanide Free	N	
Phenol	N	Unreliable results due to the loss of volatiles during the sample preparation.

7.2 Acceptability Criteria

The conceptual ground model based on recent investigation data shows a thickness of Tidal Flat Deposits (Unproductive Strata) overlying the Mercia Mudstone Group (Secondary B Aquifer). Whilst the thickness of the Tidal Flat Deposits varies, groundwater within it is not considered to be a sensitive receptor, and the deposits will limit the effects of surface pollutants.

The recent ground investigation at the Scheme did not record gross contamination within the ground or identify a clear anthropogenic source of contamination. Elevated concentrations of determinants were generally low-level and only slightly above the EQS threshold values, with locations geospatially spread across the four Areas.

Taking into account the points discussed in previous sections, the acceptability criteria for reuse of material in the Scheme imported under an Environmental Permit (from Durnford Quarry) and under a Materials Management Plan (source to be confirmed) are presented in Appendix F. These are taken as the EQS (lowest of freshwater and coastal) except for copper, lead and zinc where the 95th percentile of the measured concentration in leachate is used, due to the elevated background concentrations. The threshold for TPH will use the former drinking water standard as stated in The Water Supply (Water Quality) Regulations 1989.

Soil and soil leachate testing was undertaken for the material at Durnford Quarry in August 2019, a few months prior to the recent SSL ground investigation at the Scheme. A comparison of soil results for Durnford Quarry stockpiled material against the selected GSC used in the CLRAs did not record any elevated concentrations of determinants. Tested organic determinants recorded the presence of long chain petroleum hydrocarbons (aliphatics C21-C35 and aromatics C21-C35), with concentrations above the laboratory limit of detection to range between 10.96 and 31.4mg/kg; which is within the range recorded for the four ASEA areas investigated. PAH Compounds (maximum concentration of

0.62mg/kg) and methylphenols (maximum concentration of 0.14mg/kg)were also recorded above the relevant laboratory limit of detection in three samples and four samples, respectively.

Available leachate data for the Durnford Quarry material records several exceedances of the EQS values for ammoniacal nitrogen, cadmium, chromium (hexavalent), copper, manganese, nickel and zinc. These determinants are consistent with what was recorded for leachate results from the four ASEA areas; generally low-level and limited in determinants. Elevated concentrations of cadmium, chromium (hexavalent), and copper were limited to two out of the ten samples tested, and zinc for one sample. These are summarised in Table 7-2.

Table 7-2: Leachate Elevated Result Summary

Determinant	EQS_{FRESH} (mg/l)	$EQS_{COASTAL}$ (mg/l)	Minimum and Maximum of Elevated Concentrations (mg/l)	
			Durnford Quarry	ASEA Areas
Cadmium (non-hazardous pollutant	0.00008	0.0002	0.0002	0.001 – 0.023
Chromium – hexavalent (hazardous substance)	0.0034	0.0006	0.003 – 0.004	0.005 – 0.009
Copper (non-hazardous substance)	0.001	0.00376	0.002	0.002 – 0.031
Manganese	0.22	-	0.368 – 2.851	0.246
Nickel (non-hazardous substance)	0.004	0.0086	0.006 – 0.008	0.004 – 0.012
Zinc (non-hazardous pollutant)	0.0109	0.0068	0.008	0.007 – 0.158
Ammoniacal Nitrogen as N (non-hazardous substance)	0.2	-	0.8 – 1.9	0.21 – 0.57

Based on the assessment of soil and leachate data from Durnford Quarry, the material does not show indications of gross contamination. Leachate data shows it is consistent with the ASEA results, which are generally low-level for a limited number of determinants. Given the data, it is considered that the reuse of the material from Durnford Quarry in the ASEA Scheme will not pose a significant risk.

7.3 Analytical Testing for Material Reuse Verification

For the protection of human health, the criteria will include a suite of metals, TPH, PAH and cyanide as presented in Appendix F.

For the protection of controlled waters, the criteria will include a suite of metals and TPH, as presented in Appendix F.

To date, 25 soil and 10 soil leachate samples have been analysed from the stockpile material at Durnford Quarry (undertaken in August 2019). These samples were obtained from five trial pits to a maximum depth of 5.0m bgl. A review of soil and leachate test results show the material to be reasonably consistent. At the time of writing it is estimated that approximately 80,000m^3 of this material will be reused in the ASEA Scheme. Originally only approximately 30,000m^3 of material from the quarry was proposed to be imported, and testing was undertaken accordingly; one sample per

1,200m^3 for soil and one sample per 3,000m^3 for leachate. In order to confirm the suitability of the entire 80,000m^3 a visual inspection and confirmatory testing will be undertaken on all imported material at the point of receipt onto the Scheme stockpiling area. If inconsistencies arises, further testing will be undertaken as necessary.

8 Conclusion

This Technical Note summarises the work undertaken to date in Area 1, Area 3A, Area 4 and Area 5 of the Scheme, and to set out acceptability criteria for material reuse in-relation to the protection of controlled waters. Proposed works in Area 1 and Area 3A will generally involve the construction of a flood embankment. Material for the embankment will be sourced from excavated natural ground material in Area 4 and Area 5 under a Material Management Plan, and imported material currently stockpiled at a local source (Durnford Quarry) under an Environmental Permit.

A recent ground investigation was carried out in the four areas, which collected soil and water samples for chemical testing against soil, soil leachate and water suites. No visual or olfactory indications of contamination were recorded during fieldwork. Chemical testing results were assessed against relevant screening thresholds protective of human health and controlled waters. Soil results were screened against the generic screening criteria for a 'Public Open Space (Park)' land use; exceedances of PAH compounds were recorded in one location only. The long-term risk to human health is assessed to be **Very Low** or are no longer considered to be present; it has not been discussed further in this Technical Note.

The recent investigation generally encountered Topsoil or Made Ground (mainly in Area 1 and Area 3A) overlying Tidal Flat Deposits (Unproductive Strata). Where the base of the Tidal Flat Deposits was proven, it was found to overlie the Mercia Mudstone Group bedrock (Secondary B Aquifer). The bedrock along with the numerous surface water drains across the areas are identified as potential controlled waters receptors.

Soil leachate and water results were screened against the Water Framework Directive Environmental Quality Standards for surface waters, and coastal and transitional waters, given the proximity to the Severn Estuary. No source protection zones or drinking water safeguard zones are within the Scheme areas.

Results of soil leachate testing recorded elevated concentrations of mainly metals over the EQS values, along with ammoniacal nitrogen and cyanide. Surface water and groundwater testing which represent existing water conditions recorded elevated concentrations of mainly metals, along with PAH compounds, ammoniacal nitrogen, cyanide and chloride.

All three datasets recorded the elevated concentrations to be generally low-level, with most within an order of magnitude greater than their respective thresholds. Concentrations of determinants were also similar across the different areas, with soil leachate concentrations of determinants between Made Ground and natural material being consistent.

The Area 4 and Area 5 soil concentrations of metals which were elevated in leachate results were compared against the National Soil Inventory Topsoil Geochemical Maps, to see how site data compares against published data. The comparison shows that whilst some metal ranges were greater than published topsoil values, most were within or below the published ranges.

Based on the above, the reviewed data and the lack of gross contamination, an identifiable contaminant source, and historical development in the ASEA areas, it is considered that the elevated concentrations are from a diffuse background source which does not pose a significant adverse impact to receptors.

A review of existing soil and leachate data for the stockpiled material at Durnford Quarry show it to be consistent with ASEA results, which is generally low-level for a limited number of determinants. Whilst elevated concentrations of metals and ammoniacal nitrogen were recorded in leachate results, available data does not indicate the material to be grossly contaminated, and its reuse on the Scheme will not pose a significant risk.

The acceptability criteria for material reuse are largely based on the GSC for a 'Public Open Space park' land use for the protection of human health, and the Environmental Quality Standards for the protection of controlled waters. For the determinants of copper, lead and zinc which were elevated in more than 25% of soil leachate samples, the 95th percentile concentration value has been used as the acceptability criteria, in place of published EQS values. For TPH the former drinking water standard has been used as the most appropriate acceptability criteria.

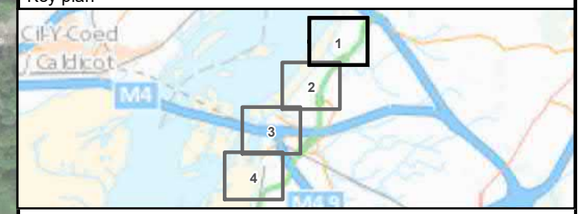
Prior to the placement of material from Durnford Quarry within the Scheme, a visual inspection and confirmatory testing will be undertaken to confirm its suitability. If inconsistencies arises, further testing will be undertaken as necessary.

Appendix A. Drawings

Exploratory Hole Location Plan

CP1001
CP1002
WS1007
CP1003
WS1008
D WS1
ST58NE10
CP1004
ST58NE96
CP1005
ST58NE12
ST58NE16
ST58NE11
D WS2
ST58NE13
CP1006
ST58NE17
E_BH201
ST58NE15
CP1007
ST58NE14
D WS3
HP1001
D BH1A
SW14
RC1001
D BH1
CP1009

Key plan



Key to symbols

Historical exploratory hole location

- CP (Cable percussion borehole)
- WS (Window sample)

Ground investigation location

- CP (Cable percussive)
- CP+RC (Cable percussive with rotary follow-on)
- SW (Surface water sample)
- TP (Trial pit)
- WS (Window sample)
- Area 1 boundary
- Area 5 boundary
- No proposed works in this area

Notes

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Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA ecology & flood defence scheme
Area 1
Exploratory hole location plan
Sheet 1 of 4

Designed	M Barker	MB	Eng Check	N Reid	NR
Drawn	H Wheldon	HW	Coordination	C Postlethwaite	CL
GIS Check	S Anstice	SA	Approved	A Lawrance	AL

Scale at A3	Status	Rev	Security
1:5,000	PRE	P1	STD

Drawing number
ENVIMSW002194-BMM-XX-A10-DR-EN-0109012

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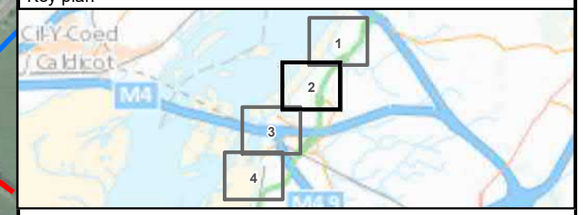
D WS4
CP1010
E_BH202
HP1002
SW13
D WS5
CP1011
D WS6
SW12
CP1014
ST58NE188
HP1003
E_BH203
HP1004
ST58NE189
ST58NE176
ST58NE177
ST58NE191
D WS7
SW11
SW10
HP1005
ST58NE190
CP1012
E_BH204
HP1006
SW9
D WS8
E_BH205
CP1013

Key plan



Key to symbols

Historical exploratory hole location

- CP (Cable percussion borehole)
- WS (Window sample)

Ground investigation location

- CP (Cable percussive)
- SW (Surface water sample)
- TP (Trial pit)
- Area 1 boundary
- Area 5 boundary
- No proposed works in this area

Notes

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Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

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Area 1
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Sheet 2 of 4

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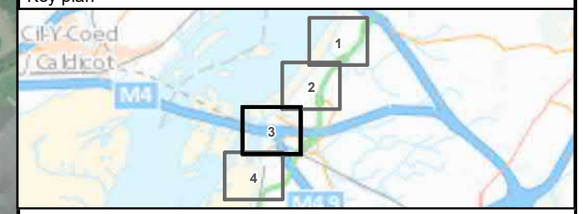
Key plan



Key to symbols

Historical exploratory hole location

- CP (Cable percussion borehole)
- CP+RC (Cable percussion and rotary cored)
- WS (Window sample)

Ground investigation location

- CP (Cable percussive)
- CP+RC (Cable percussive with rotary follow-on)
- DS+RC+DS (Dynamic sampling with rotary follow-on)
- SW (Surface water sample)
- TP (Trial pit)
- WS (Window sample)
- Area 1 boundary

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Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

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Area 1
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Sheet 3 of 4

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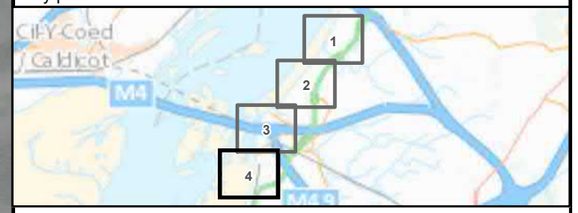
Key plan



Key to symbols

Historical exploratory hole location

WS (Window sample)

Ground investigation location

WS (Window sample)

Area 1 boundary

Area 3A boundary

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10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

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ASEA ecology & flood defence scheme
Area 1
Exploratory hole location plan
Sheet 4 of 4

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HP3001
CPT519
CPT518
HP3002
CPT517
CPT517A
CPT517B
CPT516
CPT514
HP3003
CPT513
TP2
HP3005
CPT511
CPT510
HP3004
CPT506
CPT507
HP3006
BH503
CPT505
CPT503
CPT504
CPT504BH
CPT502
BH502
CPT501
BH501
CPT521
CPT522
SW5
RC3001
WS3001

Key plan

Key to symbols

Historical exploratory hole location

- SCP (Static cone penetrometer)
- CP (Cable percussion borehole)
- TP (Trial pit)

Ground investigation location

- CP+RC (Cable percussive with rotary follow-on)
- SW (Surface water sample)
- TP (Trial pit)
- WS (Window sample)
- Area 1 boundary
- Area 3A boundary
- Area 3B boundary

Notes

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10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

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ASEA ecology & flood defence scheme
Area 3A
Exploratory hole location plan
Sheet 1 of 1

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Scale at A3	Status	Rev	Security
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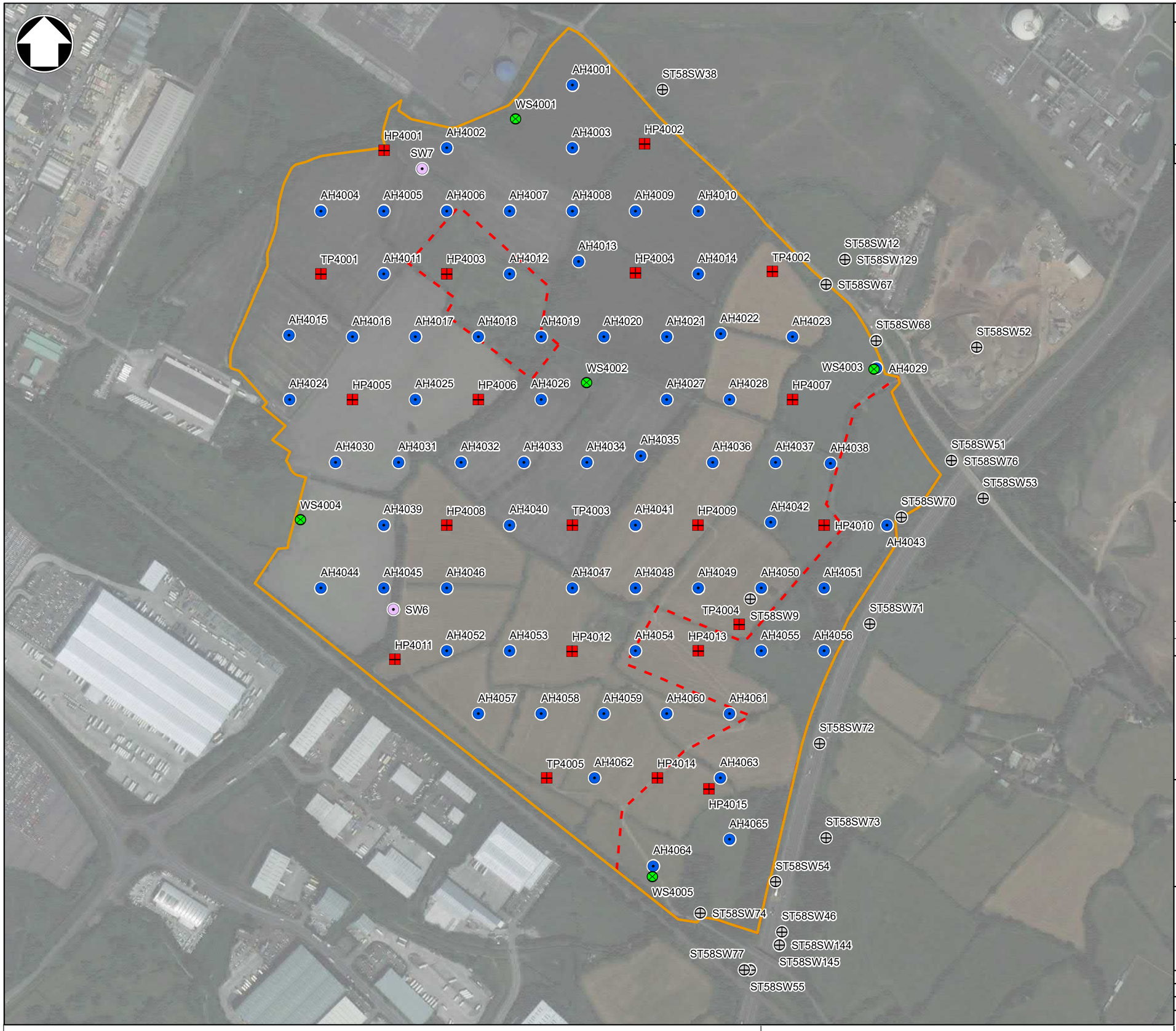
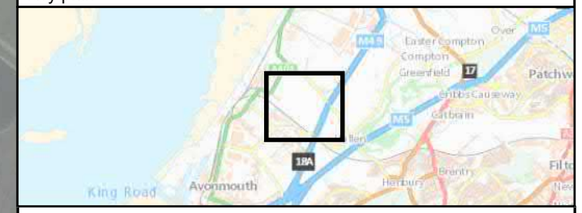


Key plan



Key to symbols

Historical exploratory hole location

- CP (Cable percussion borehole)

Ground investigation location

- AH (Auger hole)
- SW (Surface water sample)
- TP (Trial pit)
- WS (Window sample)
- Area 4 boundary
- No proposed works in this area

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10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

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ASEA ecology & flood defence scheme
Area 4
Exploratory hole location plan
Sheet 1 of 1

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0 100 200 300 400 500 Meters

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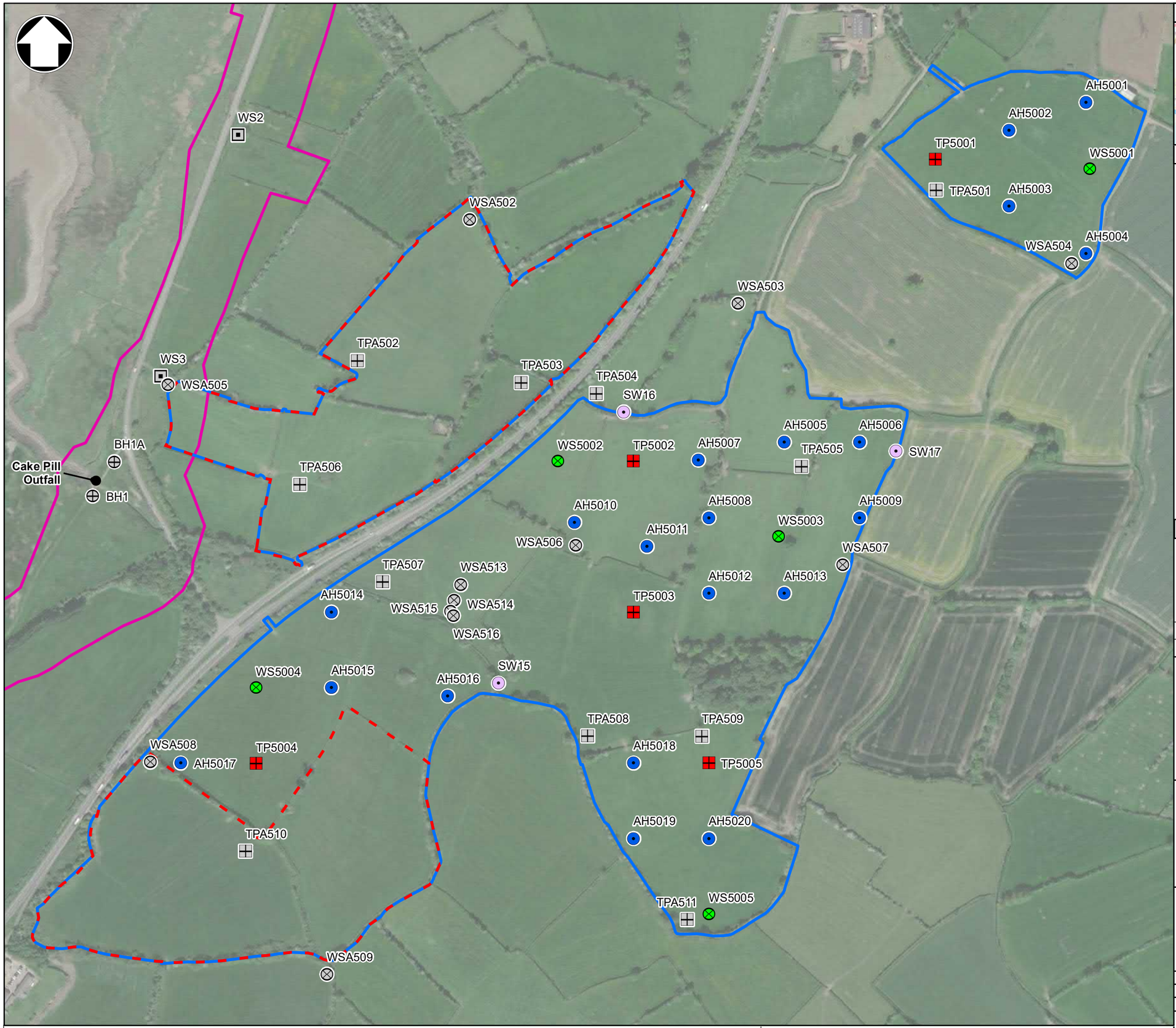

Key plan

Key to symbols

Historical exploratory hole location

- CP (Cable percussion borehole)
- TP (Trial pit)
- WLS (Dynamic (windowless) borehole)
- WS (Window sample)

Ground investigation location

- AH (Auger hole)
- SW (Surface water sample)
- TP (Trial pit)
- WS (Window sample)

- Area 1 boundary
- Area 5 boundary
- Investigation exclusion zone

Notes

1. For information only, not for construction.
2. Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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3. Due to the presence of archaeologically significant ridge and furrows, ground investigation is not permitted in two zones of Area 5, these are labelled as “Investigation Exclusion Zone”.

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	18/03/20	HW	Preliminary issue	NR	AL

Mott MacDonald
10 Temple Back
Bristol
BS1 6FL
United Kingdom
T (0) 117 906 9500
W mottmac.com

Client

Title

ASEA ecology & flood defence scheme
Area 5
Exploratory hole location plan
Sheet 1 of 1

Designed	B Marrinan	BM	Eng Check	N Reid	NR
Drawn	H Wheldon	HW	Coordination	C Postlethwaite	CL
GIS Check	S Anstice	SA	Approved	A Lawrance	AL

Scale at A3	Status	Rev	Security
1:5,000	PRE	P1	STD

Drawing number
ENVIMSW002194-BMM-XX-A50-DR-EN-0109009

0 50 100 150 200 250 Meters

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Appendix B. Soil Results Assessment

Area 1

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																								
Area 1 Soil Laboratory Analysis Table		Location ID	CP1002	CP1002	CP1005	CP1005	CP1007	CP1007	CP1009	CP1009	CP1010	CP1010	CP1011	CP1011	CP1012	CP1012	CP1013	CP1013	CP1017	CP1017	CP1020	CP1020	HP1002	HP1002	HP1003
Project Number: ENVIMSW002194		Sample Depth	0.5	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.5	1	0.5	1	0.5	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1
		Geology Code	TFD	TFD	EMBF	EMBF	MGR	MGR	TFD	TFD	Topsoil	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	Topsoil	MGR	Topsoil	TFD	EMBF
Determinant Name	PoS(park) 2.5% SOM	Units																							
% Stones >10mm*	-	% w/w	19	2.6	22.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5	<0.1	42.5	<0.1	18.3	<0.1	<0.1	<0.1	<0.1
1,1,1,2-Tetrachloroethane	1800	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,1,1-Trichloroethane	76000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,1,2,2-Tetrachloroethane	2100	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,1,2-Trichloroethane	1300	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,1-Dichloroethane	25000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,1-Dichloroethene	4400	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,1-Dichloropropene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,2,3 Trichlorobenzene	1100	mg/kg	<0.003	<0.003	-	-	-	-	-	-	-	<0.003	<0.003	0.011	-	-	-	-	<0.003	<0.003	-	<0.003	-	-	-
1,2,3-Trichloropropane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,2,4-Trichlorobenzene	2600	mg/kg	<0.003	<0.003	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	-	-	-	-	<0.003	<0.003	-	<0.003	-	-	-
1,2,4-Trimethylbenzene	360	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,2-Dibromo-3-Chloropropane	-	mg/kg	<0.002	<0.002	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	-	-	-	-	<0.002	<0.002	-	<0.002	-	-	-
1,2-Dibromoethane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,2-Dichlorobenzene	36000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,2-Dichloroethane	24	mg/kg	<0.002	<0.002	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	-	-	-	-	<0.002	<0.002	-	<0.002	-	-	-
1,2-Dichloropropane	210	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,3,5-Trimethylbenzene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,3-Dichlorobenzene	440	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,3-Dichloropropane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
1,4-Dichlorobenzene	36000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
2,2-Dichloropropane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
2-Chlorotoluene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
4-Chlorotoluene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
4-Isopropyltoluene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Acenaphthene	30000	mg/kg	0.48	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	30000	mg/kg	5.65	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics & Aromatics >C5-35	-	mg/kg	1760	11	-	-	-	-	-	-	-	8	15	57	-	-	-	-	8	5	-	2	-	-	-
Aliphatics >C10-12	23000	mg/kg	<5	<1	-	-	-	-	-	-	-	<1	<1	2	-	-	-	-	<1	<1	-	<1	-	-	-
Aliphatics >C12-16	25000	mg/kg	8	<1	-	-	-	-	-	-	-	<1	<1	15	-	-	-	-	<1	<1	-	<1	-	-	-
Aliphatics >C16-21	480000	mg/kg	13	<1	-	-	-	-	-	-	-	<1	<1	19	-	-	-	-	<1	<1	-	<1	-	-	-
Aliphatics >C21-35	480000	mg/kg	46	2	-	-	-	-	-	-	-	1	5	6	-	-	-	-	2	1	-	<1	-	-	-
Aliphatics >C5-35	-	mg/kg	67	2	-	-	-	-	-	-	-	1	5	42	-	-	-	-	2	1	-	<1	-	-	-
Aliphatics >C5-6	130000	mg/kg	<0.01	<0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01	-	-	-
Aliphatics >C6-8	220000	mg/kg	<0.01	<0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01	-	-	-
Aliphatics >C8-10	18000	mg/kg	<5	<1	-	-	-	-	-	-	-	<1	<1	<1	-	-	-	-	<1	<1	-	<1	-	-	-
Anthracene	150000	mg/kg	7.28	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	3300	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >C10-12	9700	mg/kg	7	<1	-	-	-	-	-	-	-	<1	<1	<1	-	-	-	-	<1	<1	-	<1	-	-	-
Aromatics >C12-16	10000	mg/kg	38	<1	-	-	-	-	-	-	-	<1	<1	5	-	-	-	-	<1	<1	-	<1	-	-	-
Aromatics >C16-21	7700	mg/kg	257	<1	-	-	-	-	-	-	-	<1	<1	6	-	-	-	-	<1	<1	-	<1	-	-	-
Aromatics >C21-35	7800	mg/kg	1390	9	-	-	-	-	-	-	-	6	11	4	-	-	-	-	5	2	-	2	-	-	-
Aromatics >C5-35	-	mg/kg	1690	9	-	-	-	-	-	-	-	6	11	15	-	-	-	-	6	2	-	2	-	-	-
Aromatics >C5-7	84000	mg/kg	<0.01	<0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01	-	-	-
Aromatics >C7-8	95000	mg/kg	<0.01	<0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01	-	-	-
Aromatics >C8-10	8500	mg/kg	<5	<1	-	-	-	-	-	-	-	<1	<1	<1	-	-	-	-	<1	<1	-	<1	-	-	-
Arsenic	170	mg/kg	10	<1	12	5	9	6	7	19	14	7	8	6	5	10	9	7	10	8	23	16	14	11	11
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Chrysotile	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cement & Loose Fibres	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.077	-	-	-
Barium	5800	mg/kg	154	74	97	61	53	57	56	78	62	41	41	29	52	48	30	42	114	72	410	428	55	89	54
Benzene	100	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Benzo (g,h,i) perylene	1500	mg/kg	17.1	<0.5	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	56	mg/kg	33.7	<0.4	0.12	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	0.07	<0.04	<0.04
Benzo(a)pyrene	12	mg/kg	27.3	<0.4	0.15	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	0.05	0.07	<0.04	<0.04
Benzo(b)fluoranthene	15	mg/kg	35.9	<0.5	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	0.06	0.09	<0.05	<0.05
Benzo(k)fluoranthene	410	mg/kg	13.7	<0.7	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Beryllium	63	mg/kg	0.6	1.1	0.9	1.2	1.1	1.2	1	1.2	1.1	1.1	1.1	1	0.9	0.9	0.9	1.1	<0.5	1	0.9	0.8	1.3	1.2	1.1

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																								
Area 1 Soil Laboratory Analysis Table		Location ID	CP1002	CP1002	CP1005	CP1005	CP1007	CP1007	CP1009	CP1009	CP1010	CP1010	CP1011	CP1011	CP1012	CP1012	CP1013	CP1013	CP1017	CP1017	CP1020	CP1020	HP1002	HP1002	HP1003
Project Number: ENVIMSW002194		Sample Depth	0.5	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.5	1	0.5	1	0.5	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1
		Geology Code	TFD	TFD	EMBF	EMBF	MGR	MGR	TFD	TFD	Topsoil	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	Topsoil	MGR	Topsoil	TFD	EMBF
Determinant Name	PoS(park) 2.5% SOM	Units																							
Boron	46000	mg/kg	1.9	1.6	1.3	1.7	2.5	2.7	4	2	2.7	2.4	2	1.7	2.1	3.1	1.8	2.8	<1	<1	<1	<1	1.8	1.9	1.7
Bromobenzene	2500	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Bromochloromethane	-	mg/kg	<0.005	<0.005	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-	<0.005	-	-	-
Bromodichloromethane	67	mg/kg	<0.01	<0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01	-	-	-
Bromomethane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Cadmium	560	mg/kg	1.1	1	1	0.8	1.1	0.7	0.8	3.4	2.6	1.2	0.6	<0.5	1.2	1.4	1	1.1	0.6	0.9	1.6	1.5	2.3	1.8	2.2
Carbon Disulphide	1900	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Chlorobenzene	2000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Chloroethane	176000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Chloroethene	5	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Chloroform	2800	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Chloromethane	150	mg/kg	<0.01	<0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01	-	-	-
Chromium	33000	mg/kg	19	28	26	39	34	41	37	47	39	37	31	29	38	35	27	35	11	29	30	22	42	39	40
Chromium - Hexavalent	220	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III) Oxide	33000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	110	mg/kg	43.8	<0.6	0.14	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.1	<0.06	0.1	<0.06	<0.06
cis-1,2-Dichloroethene	840	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
cis-1,3-Dichloropropene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Copper	44000	mg/kg	17	19	37	8	13	8	8	38	30	7	7	9	6	13	12	11	5	6	32	13	27	17	23
Cyanide Free	18	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenz-a-h-anthracene	1.3	mg/kg	4.64	<0.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	-	mg/kg	<0.003	<0.003	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	-	-	-	-	<0.003	<0.003	-	<0.003	-	-	-
Dibromomethane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Dichlorodifluoromethane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Dichloromethane	1500	mg/kg	<0.005	<0.005	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-	<0.005	-	-	-
Ethylbenzene	22000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Fluoranthene	6300	mg/kg	45.8	<0.8	0.16	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.09	<0.08	0.12	<0.08	<0.08
Fluorene	20000	mg/kg	0.96	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fraction Organic Carbon (FOC)	-	N/A	0.0277	0.0052	0.0153	0.0061	0.0247	0.01	0.0061	0.0419	0.0406	0.0065	0.0092	0.0054	0.0083	0.0145	0.0151	0.0132	0.0387	0.006	0.0235	0.0592	0.0218	0.0175	0.0294
Hexachlorobutadiene (HCBD)	50	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Indeno(1,2,3-cd)pyrene	170	mg/kg	19.4	<0.3	0.11	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	0.04	0.05	<0.03	<0.03
Iron	-	mg/kg	17700	30000	21800	29900	28100	28800	32500	34800	34300	31800	27400	25100	30400	31500	26700	29600	7990	26800	18100	16900	34900	32600	30300
Isopropylbenzene	28000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Lead	1300	mg/kg	40	21	79	24	33	19	17	112	83	21	22	17	20	31	44	31	24	18	99	94	66	47	68
m,p xylenes	23000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Manganese	-	mg/kg	606	706	602	671	481	533	798	917	725	708	838	694	832	654	532	703	164	786	564	443	774	731	593
Mercury	29	mg/kg	0.67	0.35	<0.17	<0.17	<0.17	0.17	<0.17	0.29	0.23	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	0.21	0.32	0.33	0.34	<0.17	<0.17	<0.17
Methyl tert-butyl ether (MTBE)	-	mg/kg	<0.01	<0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01	-	-	-
Methylphenols	48000	mg/kg	<0.2	<0.2	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	-	<0.2	<0.2	-	<0.2	-	-	-
Molybdenum	2900	mg/kg	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	1900	mg/kg	0.41	<0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
n-Butylbenzene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Nickel	800	mg/kg	19	28	23	31	30	32	30	38	32	28	28	26	32	34	25	30	7	27	27	23	39	34	35
n-propylbenzene	40000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Organic matter	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O-Xylene	24000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
PAH 16 Total	-	mg/kg	309	<0.8	1.15	<0.08	<0.08	<0.08	<0.08	<0.08	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.64	0.15	0.58	<0.08	<0.08
pH	-	pH	8.69	9.48	7.87	8.2	8.23	8.76	9.27	8.69	8.46	8.9	8.76	8.93	8.1	8.07	8.17	8.21	9.09	9.24	8.13	8.25	8.63	8.69	8.5
Phenanthrene	6200	mg/kg	8.01	<0.3	0.05	<0.03	<0.03	<0.03	0.07	<0.03	0.08	<0.03	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.06	<0.03	0.08	<0.03	<0.03
Phenol	690	mg/kg	<0.2	<0.2	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	-	<0.2	<0.2	-	<0.2	-	-	-
Phenol (Monohydric)	690	mg/kg	<0.2	<0.2	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	-	<0.2	<0.2	-	<0.2	-	-	-
Pyrene	15000	mg/kg	44.9	<0.7	0.14	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.08	<0.07	<0.07	<0.07	<0.07
Resorcinol	-	mg/kg	<0.2	<0.2	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	-	<0.2	<0.2	-	<0.2	-	-	-
Sec-Butylbenzene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Selenium	1800	mg/kg	<1	<1	2	1	2	2	<1	<1	2	2	1	<1	<1	<1	<1	<1	<1	1	<1	2	<1	<1	<1
Styrene	6000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Sulphate	-	g/l	0.11	0.03	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphur	-	mg/kg	1090	206	247	163	363	236	236	568	56	174	232	168	213	351	238	285	251	177	599	392	355	431	443

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																								
Area 1 Soil Laboratory Analysis Table		Location ID	CP1002	CP1002	CP1005	CP1005	CP1007	CP1007	CP1009	CP1009	CP1010	CP1010	CP1011	CP1011	CP1012	CP1012	CP1013	CP1013	CP1017	CP1017	CP1020	CP1020	HP1002	HP1002	HP1003
Project Number: ENVIMSW002194		Sample Depth	0.5	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.5	1	0.5	1	0.5	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1
		Geology Code	TFD	TFD	EMBF	EMBF	MGR	MGR	TFD	TFD	Topsoil	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	EMBF	Topsoil	MGR	Topsoil	TFD	EMBF
Determinant Name	PoS(park) 2.5% SOM	Units																							
Tert-Butylbenzene	-	mg/kg	<0.002	<0.002	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	-	-	-	-	<0.002	<0.002	-	<0.002	-	-	-
Tetrachloroethene	1100	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Tetrachloromethane (Carbon Tetra Chloride)	270	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Toluene	95000	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
TPH/EPH >C6-40	-	mg/kg	-	-	13	<10	<10	<10	64	<10	45	-	-	-	<10	16	<10	17	-	-	51	-	17	<10	<10
trans-1,2-Dichloroethene	2100	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
trans-1,3-Dichloropropene	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Tribromomethane	4600	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Trichloroethene	91	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Trichlorofluoromethane	-	mg/kg	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001	-	-	-
Trivalent Chromium	33000	mg/kg	19	28	26	39	34	41	37	47	39	37	31	29	38	35	27	35	11	29	30	22	42	39	40
Vanadium	5000	mg/kg	27	34	36	49	46	54	46	50	48	48	42	40	49	46	33	43	11	33	34	30	49	48	45
Xylenols	-	mg/kg	<0.2	<0.2	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	-	<0.2	<0.2	-	<0.2	-	-	-
Zinc	170000	mg/kg	80	58	297	99	112	81	74	335	249	89	84	66	89	113	97	99	74	80	212	202	206	158	218

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme															
Area 1 Soil Laboratory Analysis Table		Location ID	HP1003	HP1004	HP1004	HP1007	HP1007	RC1001	RC1001	RC1003	RC1003	WS1004	WS1004	WS1008	WS1008
Project Number: ENVIMSW002194		Sample Depth	1	0.1	0.5	0.1	0.5	0.1	0.5	0.5	2	0.1	0.5	0.1	1.3
		Geology Code	EMBF	Topsoil	TFD	EMBF	TFD	EMBF	EMBF	EMBF	EMBF	Topsoil	TFD	Topsoil	MGR
Determinant Name	PoS(park) 2.5% SOM	Units													
% Stones >10mm*	-	% w/w	5.8	<0.1	<0.1	<0.1	<0.1	<0.1	50	19.4	<0.1	<0.1	<0.1	<0.1	<0.1
1,1,1,2-Tetrachloroethane	1800	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,1,1-Trichloroethane	76000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,1,2,2-Tetrachloroethane	2100	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,1,2-Trichloroethane	1300	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,1-Dichloroethane	25000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,1-Dichloroethene	4400	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,1-Dichloropropene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,2,3 Trichlorobenzene	1100	mg/kg	-	-	-	<0.003	<0.003	<0.003	<0.003	-	-	<0.003	<0.003	-	-
1,2,3-Trichloropropane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,2,4-Trichlorobenzene	2600	mg/kg	-	-	-	<0.003	<0.003	<0.003	<0.003	-	-	<0.003	<0.003	-	-
1,2,4-Trimethylbenzene	360	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,2-Dibromo-3-Chloropropane	-	mg/kg	-	-	-	<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	-	-
1,2-Dibromoethane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,2-Dichlorobenzene	36000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,2-Dichloroethane	24	mg/kg	-	-	-	<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	-	-
1,2-Dichloropropane	210	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,3,5-Trimethylbenzene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,3-Dichlorobenzene	440	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,3-Dichloropropane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
1,4-Dichlorobenzene	36000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
2,2-Dichloropropane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
2-Chlorotoluene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
4-Chlorotoluene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
4-Isopropyltoluene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Acenaphthene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01
Acenaphthylene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics & Aromatics >C5-35	-	mg/kg	-	-	-	2	<1	30	3	-	-	27	3	-	-
Aliphatics >C10-12	23000	mg/kg	-	-	-	<1	<1	<1	<1	-	-	<1	<1	-	-
Aliphatics >C12-16	25000	mg/kg	-	-	-	<1	<1	<1	<1	-	-	<1	<1	-	-
Aliphatics >C16-21	480000	mg/kg	-	-	-	<1	<1	<1	<1	-	-	<1	<1	-	-
Aliphatics >C21-35	480000	mg/kg	-	-	-	<1	<1	2	1	-	-	7	<1	-	-
Aliphatics >C5-35	-	mg/kg	-	-	-	<1	<1	2	1	-	-	7	<1	-	-
Aliphatics >C5-6	130000	mg/kg	-	-	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-
Aliphatics >C6-8	220000	mg/kg	-	-	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-
Aliphatics >C8-10	18000	mg/kg	-	-	-	<1	<1	<1	<1	-	-	<1	<1	-	-
Anthracene	150000	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02
Antimony	3300	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
Aromatics >C10-12	9700	mg/kg	-	-	-	<1	<1	<1	<1	-	-	<1	<1	-	-
Aromatics >C12-16	10000	mg/kg	-	-	-	<1	<1	<1	<1	-	-	<1	<1	-	-
Aromatics >C16-21	7700	mg/kg	-	-	-	<1	<1	2	<1	-	-	1	<1	-	-
Aromatics >C21-35	7800	mg/kg	-	-	-	2	<1	26	2	-	-	16	3	-	-
Aromatics >C5-35	-	mg/kg	-	-	-	2	<1	27	2	-	-	20	3	-	-
Aromatics >C5-7	84000	mg/kg	-	-	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-
Aromatics >C7-8	95000	mg/kg	-	-	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-
Aromatics >C8-10	8500	mg/kg	-	-	-	<1	<1	<1	<1	-	-	1	<1	-	-
Arsenic	170	mg/kg	8	12	7	7	5	6	14	8	7	8	1	16	2
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	5800	mg/kg	52	59	49	44	40	90	366	64	49	60	164	129	56
Benzene	100	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Benzo (g,h,i) perylene	1500	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	<0.05
Benzo(a)anthracene	56	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	0.33	<0.04	<0.04	<0.04	<0.04	<0.04	0.18	<0.04
Benzo(a)pyrene	12	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	0.31	<0.04	<0.04	<0.04	<0.04	<0.04	0.18	<0.04
Benzo(b)fluoranthene	15	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.44	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	<0.05
Benzo(k)fluoranthene	410	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	0.19	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Beryllium	63	mg/kg	1.1	1.3	1.1	1.1	0.9	1.1	<0.5	1.3	1	<0.5	1.1	1.3	1.2

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme															
Area 1 Soil Laboratory Analysis Table		Location ID	HP1003	HP1004	HP1004	HP1007	HP1007	RC1001	RC1001	RC1003	RC1003	WS1004	WS1004	WS1008	WS1008
Project Number: ENVIMSW002194		Sample Depth	1	0.1	0.5	0.1	0.5	0.1	0.5	0.5	2	0.1	0.5	0.1	1.3
		Geology Code	EMBF	Topsoil	TFD	EMBF	TFD	EMBF	EMBF	EMBF	EMBF	Topsoil	TFD	Topsoil	MGR
Determinant Name	PoS(park) 2.5% SOM	Units													
Boron	46000	mg/kg	2.5	2	2.4	2.2	1.6	1.4	<1	1.1	2.2	1.1	1.5	3.5	1.6
Bromobenzene	2500	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Bromochloromethane	-	mg/kg	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005	<0.005	-	-
Bromodichloromethane	67	mg/kg	-	-	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-
Bromomethane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Cadmium	560	mg/kg	1.3	2.3	1.3	1.5	1.4	0.6	<0.5	0.6	<0.5	2.4	1	3.2	1.3
Carbon Disulphide	1900	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Chlorobenzene	2000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Chloroethane	176000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Chloroethene	5	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Chloroform	2800	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Chloromethane	150	mg/kg	-	-	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-
Chromium	33000	mg/kg	37	41	36	36	31	36	10	37	33	18	31	49	27
Chromium - Hexavalent	220	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III) Oxide	33000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	110	mg/kg	<0.06	<0.06	<0.06	<0.06	<0.06	0.47	<0.06	<0.06	<0.06	<0.06	<0.06	0.26	<0.06
cis-1,2-Dichloroethene	840	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
cis-1,3-Dichloropropene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Copper	44000	mg/kg	10	22	8	10	8	5	3	11	11	12	15	44	15
Cyanide Free	18	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenz-a-h-anthracene	1.3	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	-	mg/kg	-	-	-	<0.003	<0.003	<0.003	<0.003	-	-	<0.003	<0.003	-	-
Dibromomethane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Dichlorodifluoromethane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Dichloromethane	1500	mg/kg	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005	<0.005	-	-
Ethylbenzene	22000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Fluoranthene	6300	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08	0.6	<0.08	<0.08	<0.08	<0.08	<0.08	0.4	<0.08
Fluorene	20000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01
Fraction Organic Carbon (FOC)	-	N/A	0.0154	0.0315	0.0111	0.019	0.0166	0.008	0.0054	0.0125	0.0224	0.0345	0.0051	0.049	0.0052
Hexachlorobutadiene (HCBD)	50	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Indeno(1,2,3-cd)pyrene	170	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	0.27	<0.03	<0.03	<0.03	<0.03	<0.03	0.17	<0.03
Iron	-	mg/kg	31100	32500	27800	34500	26300	28100	6350	24900	22900	18800	25900	35700	30500
Isopropylbenzene	28000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Lead	1300	mg/kg	26	67	24	29	26	24	27	41	30	57	13	133	17
m,p xylenes	23000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Manganese	-	mg/kg	544	685	728	746	627	724	237	687	600	306	518	668	655
Mercury	29	mg/kg	<0.17	<0.17	<0.17	<0.17	0.21	0.24	0.65	0.26	0.25	<0.17	0.26	0.53	<0.17
Methyl tert-butyl ether (MTBE)	-	mg/kg	-	-	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-
Methylphenols	48000	mg/kg	-	-	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	-
Molybdenum	2900	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2
Naphthalene	1900	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
n-Butylbenzene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Nickel	800	mg/kg	32	37	33	32	26	29	8	30	25	12	27	38	27
n-propylbenzene	40000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Organic matter	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-
O-Xylene	24000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
PAH 16 Total	-	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08	3.56	<0.08	<0.08	<0.08	<0.08	<0.08	2.16	<0.08
pH	-	pH	8.19	8.59	8.88	8.47	8.56	8.33	8.49	8.38	8.34	7.09	8.99	7.95	8.57
Phenanthrene	6200	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	0.17	<0.03	<0.03	<0.03	<0.03	<0.03	0.2	<0.03
Phenol	690	mg/kg	-	-	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	-
Phenol (Monohydric)	690	mg/kg	-	-	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	-
Pyrene	15000	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	0.49	<0.07	<0.07	<0.07	<0.07	<0.07	0.3	<0.07
Resorcinol	-	mg/kg	-	-	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	-
Sec-Butylbenzene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Selenium	1800	mg/kg	<1	<1	<1	<1	1	1	<1	<1	<1	<1	1	1	2
Styrene	6000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Sulphate	-	g/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.19	<0.01	0.05	0.1	0.04
Sulphur	-	mg/kg	267	472	243	340	369	204	191	885	1360	390	1080	886	717

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme															
Area 1 Soil Laboratory Analysis Table		Location ID	HP1003	HP1004	HP1004	HP1007	HP1007	RC1001	RC1001	RC1003	RC1003	WS1004	WS1004	WS1008	WS1008
Project Number: ENVIMSW002194		Sample Depth	1	0.1	0.5	0.1	0.5	0.1	0.5	0.5	2	0.1	0.5	0.1	1.3
		Geology Code	EMBF	Topsoil	TFD	EMBF	TFD	EMBF	EMBF	EMBF	EMBF	Topsoil	TFD	Topsoil	MGR
Determinant Name	PoS(park) 2.5% SOM	Units													
Tert-Butylbenzene	-	mg/kg	-	-	-	<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	-	-
Tetrachloroethene	1100	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Tetrachloromethane (Carbon Tetra Chloride)	270	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Toluene	95000	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
TPH/EPH >C6-40	-	mg/kg	<10	30	<10	-	-	-	-	25	15	-	-	151	<10
trans-1,2-Dichloroethene	2100	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
trans-1,3-Dichloropropene	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Tribromomethane	4600	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Trichloroethene	91	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Trichlorofluoromethane	-	mg/kg	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	-
Trivalent Chromium	33000	mg/kg	37	41	36	36	31	36	10	37	33	18	31	49	27
Vanadium	5000	mg/kg	48	49	45	44	40	51	14	40	35	29	29	48	40
Xylenols	-	mg/kg	-	-	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	-
Zinc	170000	mg/kg	104	212	93	111	100	90	70	92	85	190	37	340	62

Area 3A

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme													
Area 3A Soil Laboratory Analysis Table		Location ID	HP3001	HP3001	HP3002	HP3002	HP3003	HP3003	HP3004	HP3004	WS3001	WS3001
Project Number: ENVIMSW002194		Sample Depth	0.5	1	0.1	0.5	0.1	0.5	0.5	1	0.1	0.5
		Geology Code	MGR	MGR	MGR	MGR	MGR	MGR	TFD	TFD	EMBF	EMBF
Determinant Name	PoS(park) 2.5% SOM	Units										
% Stones >10mm*	-	% w/w	30.1	<0.1	53.4	33.4	17.3	7.7	3.2	<0.1	23.6	<0.1
1,1,1,2-Tetrachloroethane	1800	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,1,1-Trichloroethane	76000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,1,2,2-Tetrachloroethane	2100	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,1,2-Trichloroethane	1300	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,1-Dichloroethane	25000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,1-Dichloroethene	4400	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,1-Dichloropropene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,2,3 Trichlorobenzene	1100	mg/kg	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	-
1,2,3-Trichloropropane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,2,4-Trichlorobenzene	2600	mg/kg	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	-
1,2,4-Trimethylbenzene	360	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,2-Dibromo-3-Chloropropane	-	mg/kg	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-
1,2-Dibromoethane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,2-Dichlorobenzene	36000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,2-Dichloroethane	24	mg/kg	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-
1,2-Dichloropropane	210	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,3,5-Trimethylbenzene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,3-Dichlorobenzene	440	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,3-Dichloropropane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
1,4-Dichlorobenzene	36000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
2,2-Dichloropropane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
2-Chlorotoluene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
4-Chlorotoluene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
4-Isopropyltoluene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Acenaphthene	30000	mg/kg	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics & Aromatics >C5-35	-	mg/kg	4	17	10	3	30	6	<1	<1	-	-
Aliphatics >C10-12	23000	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	-	-
Aliphatics >C12-16	25000	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	-	-
Aliphatics >C16-21	480000	mg/kg	<1	<1	<1	<1	4	1	<1	<1	-	-
Aliphatics >C21-35	480000	mg/kg	<1	1	3	1	8	1	<1	<1	-	-
Aliphatics >C5-35	-	mg/kg	<1	1	3	1	14	2	<1	<1	-	-
Aliphatics >C5-6	130000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Aliphatics >C6-8	220000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Aliphatics >C8-10	18000	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	-	-
Anthracene	150000	mg/kg	<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	3300	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >C10-12	9700	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	-	-
Aromatics >C12-16	10000	mg/kg	<1	3	<1	<1	2	<1	<1	<1	-	-
Aromatics >C16-21	7700	mg/kg	<1	5	<1	<1	3	<1	<1	<1	-	-
Aromatics >C21-35	7800	mg/kg	3	8	4	1	10	3	<1	<1	-	-
Aromatics >C5-35	-	mg/kg	3	15	6	1	16	3	<1	<1	-	-
Aromatics >C5-7	84000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Aromatics >C7-8	95000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Aromatics >C8-10	8500	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	-	-
Arsenic	170	mg/kg	15	6	42	44	7	6	7	15	26	10
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-	-	-	-
Barium	5800	mg/kg	983	75	182	347	244	241	115	260	1140	164
Benzene	100	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Benzo (g,h,i) perylene	1500	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	56	mg/kg	<0.04	0.09	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(a)pyrene	12	mg/kg	<0.04	0.1	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(b)fluoranthene	15	mg/kg	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	410	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Beryllium	63	mg/kg	<0.5	0.7	<0.5	<0.5	<0.5	0.6	1.2	1.2	0.6	1.1
Boron	46000	mg/kg	<1	2.1	<1	<1	<1	2	1.3	1.3	<1	<1
Bromobenzene	2500	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Bromochloromethane	-	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-
Bromodichloromethane	67	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Bromomethane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Cadmium	560	mg/kg	1.3	1.4	0.8	0.9	12	1.8	2.5	3.3	1.8	1.6
Carbon Disulphide	1900	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Chlorobenzene	2000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Chloroethane	176000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Chloroethene	5	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Chloroform	2800	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Chloromethane	150	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Chromium	33000	mg/kg	6	30	8	12	27	20	39	38	15	31
Chromium - Hexavalent	220	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chrysene	110	mg/kg	<0.06	0.1	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
cis-1,2-Dichloroethene	840	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
cis-1,3-Dichloropropene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Copper	44000	mg/kg	3	9	3	4	18	16	9	9	11	17
Cyanide Free	18	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenz-a-h-anthracene	1.3	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	-	mg/kg	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	-
Dibromomethane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Dichlorodifluoromethane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Dichloromethane	1500	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	-	-
Ethylbenzene	22000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Fluoranthene	6300	mg/kg	<0.08	0.33	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Fluorene	20000	mg/kg	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fraction Organic Carbon (FOC)	-	N/A	0.0303	0.012	0.0125	0.0286	0.0308	0.0191	0.0133	0.0139	0.0131	0.0084
Hexachlorobutadiene (HCBD)	50	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Indeno(1,2,3-cd)pyrene	170	mg/kg	<0.03	0.08	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme												
Area 3A Soil Laboratory Analysis Table		Location ID	HP3001	HP3001	HP3002	HP3002	HP3003	HP3003	HP3004	HP3004	WS3001	WS3001
Project Number: ENVIMSW002194		Sample Depth	0.5	1	0.1	0.5	0.1	0.5	0.5	1	0.1	0.5
		Geology Code	MGR	MGR	MGR	MGR	MGR	MGR	TFD	TFD	EMBF	EMBF
Determinant Name	PoS(park) 2.5% SOM	Units										
Iron	-	mg/kg	4810	29600	3920	5400	15000	20100	25900	29600	10400	26500
Isopropylbenzene	28000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Lead	1300	mg/kg	30	28	51	53	321	76	40	47	138	32
m,p xylenes	23000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Manganese	-	mg/kg	275	612	156	229	460	560	483	652	508	436
Mercury	29	mg/kg	0.76	<0.17	0.67	0.81	0.47	0.18	<0.17	<0.17	0.75	<0.17
Methyl tert-butyl ether (MTBE)	-	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Methylphenols	48000	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-
Molybdenum	2900	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	1900	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
n-Butylbenzene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Nickel	800	mg/kg	5	30	5	8	17	24	28	30	18	29
n-propylbenzene	40000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
O-Xylene	24000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
PAH 16 Total	-	mg/kg	<0.08	1.66	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
pH	-	pH	8.69	7.86	9.06	9.34	8.2	8.12	8.68	8.58	7.8	7.93
Phenanthrene	6200	mg/kg	<0.03	0.37	<0.03	<0.03	0.05	<0.03	<0.03	<0.03	<0.03	<0.03
Phenol	690	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-
Phenol (Monohydric)	690	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-
Pyrene	15000	mg/kg	<0.07	0.29	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Resorcinol	-	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-
Sec-Butylbenzene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Selenium	1800	mg/kg	<1	1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	6000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Sulphate	-	g/l	<0.01	0.08	<0.01	<0.01	<0.01	0.1	<0.01	0.02	<0.01	0.02
Sulphur	-	mg/kg	552	764	130	182	522	539	269	333	867	506
Tert-Butylbenzene	-	mg/kg	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-
Tetrachloroethene	1100	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Tetrachloromethane (Carbon Tetra Chloride)	270	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Toluene	95000	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
TPH/EPH >C6-40	-	mg/kg	-	-	-	-	-	-	-	-	19	<10
trans-1,2-Dichloroethene	2100	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
trans-1,3-Dichloropropene	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Tribromomethane	4600	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Trichloroethene	91	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Trichlorofluoromethane	-	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Trivalent Chromium	33000	mg/kg	6	30	8	12	27	20	39	38	15	31
Vanadium	5000	mg/kg	7	39	9	12	29	27	48	48	21	35
Xylenols	-	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-
Zinc	170000	mg/kg	201	112	95	109	417	360	168	192	306	100

Area 4

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																							
Area 4 Soil Laboratory Analysis Table		Location ID	HP4001	HP4001	HP4001	HP4002	HP4002	HP4003	HP4003	HP4004	HP4004	HP4005	HP4005	HP4006	HP4006	HP4007	HP4007	HP4008	HP4008	HP4009	HP4009	HP4011	HP4011
Project Number: ENVIMSW002194		Sample Depth	0	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1	1	0.1	0.5	0.1	0.5	0.1	1
		Geology Code	Topsoil	Topsoil	TFD	TFD	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	MGR	TFD	Topsoil	TFD	Topsoil	TFD
Determinant Name	PoS(park) 2.5% SOM	Units																					
% Stones >10mm*	-	% w/w	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1
Acenaphthene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	150000	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	3300	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Arsenic	170	mg/kg	10	10	5	10	8	9	7	11	9	9	6	9	8	9	4	13	6	7	6	9	12
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	5800	mg/kg	66	66	49	111	75	81	63	77	50	75	47	65	49	124	30	80	62	98	54	49	73
Benzo (g,h,i) perylene	1500	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	56	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(a)pyrene	12	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(b)fluoranthene	15	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	410	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Beryllium	63	mg/kg	1.2	1.2	1.3	1.4	1.5	1.3	1.3	1.6	1.4	1.2	1.3	1.2	1.3	1.4	1.1	1.1	1.5	1.3	1.3	1.4	1
Boron	46000	mg/kg	1.8	1.8	2.6	1.3	1.5	1.3	1	1.4	1.5	1.2	<1	1.4	1.3	1.2	1.6	1.4	1.5	1.8	1.3	1.9	1.3
Cadmium	560	mg/kg	6.4	6.4	1.2	4.9	0.8	5.8	1.5	5.1	0.8	8	0.9	5.7	1.3	5.3	0.8	9.2	1.2	7.7	2.4	0.8	12.1
Chromium	33000	mg/kg	39	39	41	40	44	39	36	46	39	38	39	33	37	46	36	35	47	44	39	42	32
Chromium - Hexavalent	220	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chrysene	110	mg/kg	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Copper	44000	mg/kg	15	15	6	13	5	12	8	12	6	14	6	13	6	19	5	21	7	18	9	5	19
Cyanide Free	18	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenz-a-h-anthracene	1.3	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Fluoranthene	6300	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Fluorene	20000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fraction Organic Carbon (FOC)	-	N/A	0.0256	0.0256	0.0083	0.024	0.0058	0.0234	0.0089	0.0276	0.0041	0.0208	0.0056	0.0189	0.0061	0.0291	0.0039	0.0308	0.0061	0.027	0.009	0.0034	0.0242
Indeno(1,2,3-cd)pyrene	170	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Iron	-	mg/kg	29400	29400	34800	34100	36400	29900	32400	31600	30900	28800	31200	28800	33600	34700	33700	31900	38600	27300	30700	19700	27400
Lead	1300	mg/kg	118	118	27	93	28	86	31	99	21	112	20	80	31	104	19	182	31	125	47	26	159
Manganese	-	mg/kg	696	696	509	613	1200	581	1080	540	1260	624	787	442	883	529	296	480	728	467	629	1480	459
Mercury	29	mg/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Molybdenum	2900	mg/kg	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	1900	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	800	mg/kg	31	31	31	31	39	27	35	31	36	27	32	26	32	30	29	25	36	28	29	39	24
Organic matter	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAH 16 Total	-	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
pH	-	pH	7.14	7.14	7.74	7.26	7.63	6.03	6.88	6.62	8.23	7.29	8.13	6.46	7.86	7.03	8.69	6.53	7.53	6.91	8.28	8.35	6.52
Phenanthrene	6200	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Pyrene	15000	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Selenium	1800	mg/kg	1	1	2	1	1	<1	1	1	<1	1	2	1	1	<1	<1	2	1	2	<1	2	2
Sulphate	-	g/l	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	0.02
Sulphur	-	mg/kg	359	359	172	331	140	322	149	420	150	315	147	272	143	382	90	433	136	455	232	110	330
TPH/EPH >C6-40	-	mg/kg	15	15	<10	<10	<10	15	<10	<10	<10	<10	<10	<10	<10	24	<10	18	<10	20	<10	<10	15
Trivalent Chromium	33000	mg/kg	39	39	41	40	44	39	36	46	39	38	39	33	37	46	36	35	47	44	39	42	32
Vanadium	5000	mg/kg	54	54	54	51	58	53	48	61	51	50	48	43	47	59	39	49	62	58	50	50	43
Zinc	170000	mg/kg	401	401	116	338	107	406	136	345	100	556	108	392	131	384	93	620	133	527	199	117	850

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																							
Area 4 Soil Laboratory Analysis Table		Location ID	HP4012	HP4012	HP4014	HP4014	HP4015	HP4015	TP4001	TP4001	TP4002	TP4002	TP4003	TP4003	TP4004	TP4004	TP4005	TP4005	WS4001	WS4001	WS4002	WS4002	WS4003
Project Number: ENVIMSW002194		Sample Depth	0.1	0.5	0.1	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1	1	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1
		Geology Code	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	MGR	TFD	TFD	TFD	Topsoil	TFD	MGR
Determinant Name	PoS(park) 2.5% SOM	Units																					
% Stones >10mm*	-	% w/w	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	150000	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	3300	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Arsenic	170	mg/kg	8	5	5	5	10	6	7	2	10	8	7	7	8	6	12	5	8	4	10	8	14
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	5800	mg/kg	95	41	67	38	103	41	68	50	138	71	78	41	104	56	107	60	95	31	253	65	57
Benzo (g,h,i) perylene	1500	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07
Benzo(a)anthracene	56	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.1
Benzo(a)pyrene	12	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.11
Benzo(b)fluoranthene	15	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12
Benzo(k)fluoranthene	410	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Beryllium	63	mg/kg	1.1	1	1.1	1.3	1.2	0.9	1	1.1	1.2	1.4	1.6	1.1	1	1.2	1.2	1.4	1	0.8	0.9	1.1	1.2
Boron	46000	mg/kg	1.4	1.2	2.2	2.3	1.2	<1	1.4	1	1.4	1.4	1.4	1.4	1.1	1.3	1	1.7	1.3	<1	1.7	1.8	1.6
Cadmium	560	mg/kg	7.8	1.1	4.2	0.7	11.4	1.2	7.3	2.4	5.6	1.3	1.3	1	7.8	2.1	14	3.3	4.9	0.6	6.9	1.9	1.4
Chromium	33000	mg/kg	34	32	37	37	38	29	36	39	37	40	44	32	37	39	41	44	34	27	27	33	38
Chromium - Hexavalent	220	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chrysene	110	mg/kg	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.16
Copper	44000	mg/kg	17	8	11	7	17	6	11	6	14	6	6	6	41	8	23	9	14	4	37	11	24
Cyanide Free	18	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenz-a-h-anthracene	1.3	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Fluoranthene	6300	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.2
Fluorene	20000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Fraction Organic Carbon (FOC)	-	N/A	0.0202	0.0071	0.0126	0.0038	0.0208	0.0059	0.0218	0.0083	0.025	0.0068	0.005	0.0039	0.0339	0.0047	0.0331	0.0082	0.0257	0.0034	0.0499	0.0086	0.0337
Indeno(1,2,3-cd)pyrene	170	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1
Iron	-	mg/kg	26500	28900	22000	33000	24400	24300	31200	30100	30300	35100	38600	33100	23000	26300	26400	33300	27300	21800	24100	30500	27500
Lead	1300	mg/kg	76	28	58	23	125	24	106	35	76	27	25	21	157	30	184	38	94	12	151	38	71
Manganese	-	mg/kg	665	484	364	588	584	648	714	541	448	1010	1240	633	435	830	498	342	576	427	716	547	645
Mercury	29	mg/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	0.19	<0.17	0.29
Molybdenum	2900	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	1900	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	800	mg/kg	27	27	27	30	27	27	28	29	27	35	37	29	25	31	25	31	26	22	28	29	31
Organic matter	-	% w/w	-	-	-	-	-	-	-	0.8	-	-	-	0.7	-	2.5	-	-	-	0.7	-	0.8	-
PAH 16 Total	-	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	1.11
pH	-	pH	7.02	7.92	7.2	8.64	7.25	8.16	6.7	8.3	7.66	8.72	9.06	9.22	7.03	8.23	6.83	7.36	7.96	9.05	8.26	8.59	8.6
Phenanthrene	6200	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.11
Pyrene	15000	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.13
Selenium	1800	mg/kg	<1	<1	1	2	2	<1	2	<1	<1	<1	<1	<1	2	<1	<1	<1	2	<1	1	1	<1
Sulphate	-	g/l	<0.01	<0.01	0.02	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Sulphur	-	mg/kg	321	136	238	203	336	176	297	155	331	142	139	189	490	166	459	165	342	133	536	166	449
TPH/EPH >C6-40	-	mg/kg	17	<10	24	<10	<10	<10	18	<10	22	<10	<10	<10	33	<10	44	19	15	<10	18	<10	33
Trivalent Chromium	33000	mg/kg	34	32	37	37	38	29	36	39	37	40	44	32	37	39	41	44	34	27	27	33	38
Vanadium	5000	mg/kg	44	39	49	45	53	37	45	45	45	48	54	37	51	52	55	55	46	34	36	44	50
Zinc	170000	mg/kg	505	121	279	99	745	112	432	159	348	97	95	85	514	90	868	170	317	59	470	152	204

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme							
Area 4 Soil Laboratory Analysis Table		Location ID	WS4003	WS4004	WS4004	WS4005	WS4005
Project Number: ENVIMSW002194		Sample Depth	0.5	0.1	0.5	0.1	0.5
		Geology Code	MGR	TFD	TFD	MGR	TFD
Determinant Name	PoS(park) 2.5% SOM	Units					
% Stones >10mm*	-	% w/w	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	150000	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	3300	mg/kg	<5	<5	<5	<5	<5
Arsenic	170	mg/kg	4	9	5	17	5
Asbestos	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-
Barium	5800	mg/kg	52	53	44	212	61
Benzo (g,h,i) perylene	1500	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	56	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(a)pyrene	12	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(b)fluoranthene	15	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	410	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07
Beryllium	63	mg/kg	1.3	0.8	1.1	1.5	1.3
Boron	46000	mg/kg	1.6	1.3	1.2	2	1.8
Cadmium	560	mg/kg	0.5	8	1.4	20.8	2.3
Chromium	33000	mg/kg	39	29	34	42	41
Chromium - Hexavalent	220	mg/kg	<1	<1	<1	<1	<1
Chrysene	110	mg/kg	<0.06	<0.06	<0.06	<0.06	<0.06
Copper	44000	mg/kg	7	18	7	41	7
Cyanide Free	18	mg/kg	<1	<1	<1	<1	<1
Dibenz-a-h-anthracene	1.3	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04
Fluoranthene	6300	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08
Fluorene	20000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Fraction Organic Carbon (FOC)	-	N/A	0.0101	0.0224	0.007	0.0501	0.0067
Indeno(1,2,3-cd)pyrene	170	mg/kg	<0.03	<0.03	<0.03	0.04	<0.03
Iron	-	mg/kg	25400	25200	30600	26100	29200
Lead	1300	mg/kg	22	159	26	353	28
Manganese	-	mg/kg	713	508	782	391	542
Mercury	29	mg/kg	<0.17	<0.17	<0.17	<0.17	<0.17
Molybdenum	2900	mg/kg	<1	<1	<1	<1	<1
Naphthalene	1900	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	800	mg/kg	30	23	32	29	30
Organic matter	-	% w/w	-	-	-	-	-
PAH 16 Total	-	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08
pH	-	pH	9.01	6.72	7.61	6.84	7.98
Phenanthrene	6200	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Pyrene	15000	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07
Selenium	1800	mg/kg	<1	1	1	2	1
Sulphate	-	g/l	0.08	<0.01	<0.01	<0.01	<0.01
Sulphur	-	mg/kg	316	315	135	660	159
TPH/EPH >C6-40	-	mg/kg	<10	18	<10	146	<10
Trivalent Chromium	33000	mg/kg	39	29	34	42	41
Vanadium	5000	mg/kg	50	41	43	58	52
Zinc	170000	mg/kg	86	522	123	1580	112

Area 5

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																					
Area 5 Soil Laboratory Analysis Table		Location ID	TP5001	TP5001	TP5002	TP5002	TP5003	TP5003	TP5004	TP5004	TP5005	TP5005	WS5001	WS5001A	WS5002	WS5002	WS5003	WS5003A	WS5004	WS5005	WS5005
Project Number: ENVIMSW002194		Sample Depth	0.1	0.5	0.1	0.5	0.1	1	0.1	0.5	0.1	1	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
		Geology Code	MGR	TFD	TFD	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	TFD	(blank)	TFD	TFD	TFD	(blank)	Topsoil	Topsoil	TFD
Determinant Name	PoS(park) 2.5% SOM	Units																			
% Stones >10mm*	-	% w/w	29.4	<0.1	<0.1	5.8	<0.1	<0.1	1.6	<0.1	<0.1	1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	30000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics & Aromatics >C5-35	-	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	16	<1	-	-	4	4	-
Aliphatics >C10-12	23000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	<1	<1	-
Aliphatics >C12-16	25000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	<1	<1	-
Aliphatics >C16-21	480000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	<1	<1	-
Aliphatics >C21-35	480000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	5	<1	-	-	1	<1	-
Aliphatics >C5-35	-	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	5	<1	-	-	1	<1	-
Aliphatics >C5-6	130000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Aliphatics >C6-8	220000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Aliphatics >C8-10	18000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	<1	<1	-
Anthracene	150000	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	3300	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >C10-12	9700	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	<1	<1	-
Aromatics >C12-16	10000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	1	<1	-	-	<1	<1	-
Aromatics >C16-21	7700	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	<1	<1	-
Aromatics >C21-35	7800	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	10	<1	-	-	3	4	-
Aromatics >C5-35	-	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	11	<1	-	-	3	4	-
Aromatics >C5-7	84000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Aromatics >C7-8	95000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Aromatics >C8-10	8500	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	<1	<1	-
Arsenic	170	mg/kg	4	3	8	7	5	6	7	6	7	7	<1	<1	9	7	2	2	6	7	4
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	5800	mg/kg	73	71	66	60	71	41	57	41	55	33	69	69	69	80	74	74	49	68	57
Benzene	100	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Benzo (g,h,i) perylene	1500	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	56	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(a)pyrene	12	mg/kg	0.04	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(b)fluoranthene	15	mg/kg	0.06	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	410	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Beryllium	63	mg/kg	1.1	1.2	1.1	1.1	0.9	0.7	1	1.2	0.7	0.6	1.3	1.3	1.2	1.6	1.5	1.5	1.2	1.1	1.3
Boron	46000	mg/kg	1.8	2	1.6	1.3	1.9	1.5	<1	2	1.9	1.4	1.6	1.6	2.2	3	2.5	2.5	1.8	1.4	1.3
Cadmium	560	mg/kg	1.1	0.9	1.3	0.9	0.5	<0.5	1.6	0.9	0.8	<0.5	1.2	1.2	1.7	0.6	1.3	1.3	1.1	1.1	<0.5
Chromium	33000	mg/kg	31	41	36	36	41	33	33	37	36	31	35	35	39	50	40	40	39	35	38
Chromium - Hexavalent	220	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chrysene	110	mg/kg	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Copper	44000	mg/kg	16	7	12	10	5	4	13	6	8	4	10	10	12	6	2	2	6	10	6
Cyanide Free	18	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenz-a-h-anthracene	1.3	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylbenzene	22000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Fluoranthene	6300	mg/kg	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Fluorene	20000	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fraction Organic Carbon (FOC)	-	N/A	0.0272	0.0071	0.0312	0.0152	0.0238	0.0082	0.0458	0.0082	0.0286	0.0034	0.0171	0.0171	0.0411	0.008	0.0136	0.0136	0.0162	0.0239	0.0115
Indeno(1,2,3-cd)pyrene	170	mg/kg	0.04	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Iron	-	mg/kg	22900	31400	27600	29000	27500	32100	25500	33300	28900	33000	30000	30000	26800	35400	36500	36500	29100	26100	30000
Lead	1300	mg/kg	30	17	40	27	26	20	51	21	36	23	26	26	51	26	26	26	26	38	19
m,p xylenes	23000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Manganese	-	mg/kg	310	711	473	509	358	679	364	485	299	680	739	739	265	1570	1260	1260	398	781	853
Mercury	29	mg/kg	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	0.47
Methyl tert-butyl ether (MTBE)	-	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Molybdenum	2900	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	1900	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	800	mg/kg	22	30	26	28	27	30	25	32	25	31	29	29	24	44	35	35	27	30	31
Organic matter	-	% w/w	-	1.5	-	-	-	1.2	-	-	-	0.6	-	-	-	-	-	-	-	-	-
O-Xylene	24000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																					
Area 5 Soil Laboratory Analysis Table		Location ID	TP5001	TP5001	TP5002	TP5002	TP5003	TP5003	TP5004	TP5004	TP5005	TP5005	WS5001	WS5001A	WS5002	WS5002	WS5003	WS5003A	WS5004	WS5005	WS5005
Project Number: ENVIMSW002194		Sample Depth	0.1	0.5	0.1	0.5	0.1	1	0.1	0.5	0.1	1	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
		Geology Code	MGR	TFD	TFD	TFD	Topsoil	TFD	Topsoil	TFD	Topsoil	TFD	TFD	(blank)	TFD	TFD	TFD	(blank)	Topsoil	Topsoil	TFD
Determinant Name	PoS(park) 2.5% SOM	Units																			
PAH 16 Total	-	mg/kg	0.14	<0.08	0.18	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
pH	-	pH	7.41	8.82	6.44	6.83	6.87	8.73	6.75	7.54	6.32	7.88	7.28	7.28	6.99	7.72	7.77	7.77	7.06	7.57	8.73
Phenanthrene	6200	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Pyrene	15000	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Selenium	1800	mg/kg	2	2	2	3	<1	<1	2	2	<1	<1	1	1	<1	2	1	1	1	2	2
Sulphate	-	g/l	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.02	<0.01	<0.01
Sulphur	-	mg/kg	438	244	451	213	364	181	568	147	440	80	294	294	645	222	278	278	280	353	191
Toluene	95000	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
TPH/EPH >C6-40	-	mg/kg	22	<10	68	<10	<10	<10	72	<10	<10	<10	<10	<10	29	43	14	14	13	23	<10
Trivalent Chromium	33000	mg/kg	31	41	36	36	41	33	33	37	36	31	35	35	39	50	40	40	39	35	38
Vanadium	5000	mg/kg	35	48	49	48	50	42	47	50	47	40	45	45	53	61	53	53	51	45	49
Zinc	170000	mg/kg	100	75	126	87	91	79	154	88	119	84	91	91	143	105	86	86	87	143	87

Durnford Quarry Stockpile Material

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																				
Durnford Quarry Soil Laboratory Analysis Table		Location ID	TP1-DURN	TP1-DURN	TP1-DURN	TP1-DURN	TP1-DURN	TP2-DURN	TP2-DURN	TP2-DURN	TP2-DURN	TP2-DURN	TP3-DURN	TP3-DURN	TP3-DURN	TP3-DURN	TP3-DURN	TP4-DURN	TP4-DURN	TP4-DURN
Project Number: ENVIMSW002194		Sample Depth	0.5	1.5	2.5	3.5	5	0.1	1	2	3	4	0.5	1.5	3	4	4.8	0.1	1	2
		Geology Code	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
Determinant Name	PoS(park) 2.5% SOM	Units																		
Acenaphthene	30000	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Acenaphthylene	30000	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Aliphatics >C10-12	23000	mg/kg	<5.17	<5.15	<5.28	<5.41	<5.22	<5.04	<5.36	<5.24	<5.13	<5.25	<5.13	<5.24	<5.13	<5.19	<5.33	<4.85	<5.06	<5.02
Aliphatics >C12-16	25000	mg/kg	<5.17	<5.15	<5.28	<5.41	<5.22	<5.04	<5.36	<5.24	<5.13	<5.25	<5.13	<5.24	<5.13	<5.19	<5.33	<4.85	<5.06	<5.02
Aliphatics >C16-21	480000	mg/kg	<5.17	<5.15	<5.28	<5.41	<5.22	<5.04	<5.36	<5.24	<5.13	<5.25	<5.13	<5.24	<5.13	<5.19	<5.33	<4.85	<5.06	<5.02
Aliphatics >C21-35	480000	mg/kg	<11.33	<11.29	<11.57	<11.85	<11.44	<11.05	<11.74	<11.47	<11.23	<11.5	<11.25	<11.47	<11.23	<11.36	<11.66	<10.62	11.64	25.8
Aliphatics >C5-6	130000	mg/kg	<0.259	<0.258	<0.264	<0.271	<0.261	<0.252	<0.268	<0.262	<0.256	<0.262	<0.257	<0.262	<0.256	<0.259	<0.266	<0.242	<0.253	<0.251
Aliphatics >C8-10	18000	mg/kg	<0.259	<0.258	<0.264	<0.271	<0.261	<0.252	<0.268	<0.262	<0.256	<0.262	<0.3	<0.3	<0.3	<0.3	<0.3	<0.2	<0.3	<0.251
Aliphatics >C8-40	-	mg/kg	<25.9	<25.8	<26.4	<27.1	<26.1	<25.2	<26.8	<26.2	<25.6	<26.2	<25.7	<26.2	<25.6	<25.9	<26.6	<24.2	<25.3	38.1
Anthracene	150000	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Antimony	3300	mg/kg	0.6	0.4	0.4	0.6	0.6	0.4	0.6	0.4	0.4	0.4	0.5	0.4	0.5	0.6	0.4	0.4	0.4	0.4
Aromatics >C10-12	9700	mg/kg	<5.17	<5.26	<5.39	<5.41	<5.33	<5.15	<5.36	<5.24	<5.13	<5.25	<5.13	<5.34	<5.13	<5.19	<5.33	<4.85	<5.06	<5.02
Aromatics >C12-16	10000	mg/kg	<5.17	<5.26	<5.39	<5.41	<5.33	<5.15	<5.36	<5.24	<5.13	<5.25	<5.13	<5.34	<5.13	<5.19	<5.33	<4.85	<5.06	<5.02
Aromatics >C16-21	7700	mg/kg	<5.17	<5.26	<5.39	<5.41	<5.33	<5.15	<5.36	<5.24	<5.13	<5.25	<5.13	<5.34	<5.13	<5.19	<5.33	<4.85	<5.06	<5.02
Aromatics >C21-35	7800	mg/kg	<11.33	11.96	<11.81	<11.85	11.75	<11.27	<11.74	12.74	12.8	11.51	13.5	14	16.4	17.4	<11.66	15.4	14.7	31.4
Aromatics >C8-10	8500	mg/kg	<5.17	<5.26	<5.39	<5.41	<5.33	<5.15	<5.36	<5.24	<5.13	<5.25	<5.13	<5.34	<5.13	<5.19	<5.33	<4.85	<5.06	<5.02
Aromatics >C8-40	-	mg/kg	<25.9	<26.3	<26.9	<27.1	<26.6	<25.7	<26.8	<26.2	<25.6	<26.2	<25.7	<26.7	<25.6	<25.9	<26.6	<24.2	<25.3	57.7
Arsenic	170	mg/kg	7.8	5.2	7.5	8.3	9.4	11	10.6	10.7	9	9.4	9	12.3	10	12.1	9.1	12.5	11	13.6
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Matrix (visual)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification (Total %)	-	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	5800	mg/kg	259	143	202	285	213	171	320	146	153	133	216	181	249	451	339	215	172	186
Benzene	100	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo (g,h,i) perylene	1500	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Benzo(a)anthracene	56	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Benzo(a)pyrene	12	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	15	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	410	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Beryllium	63	mg/kg	0.682	0.596	0.678	0.309	0.646	0.53	0.708	0.64	0.69	0.358	0.657	0.64	0.568	0.474	0.498	0.712	0.732	0.756
Boron	46000	mg/kg	1.8	1.4	2	1.7	1.7	1.3	1.5	1.3	1.5	1.5	1.2	1.4	1.4	1.3	1.4	1.3	1.3	1.3
Cadmium	560	mg/kg	0.47	0.28	0.47	0.78	0.74	0.38	0.49	0.46	0.65	0.58	0.54	0.43	0.67	0.58	0.55	0.42	0.48	0.48
Chromium	33000	mg/kg	30	24.4	25.7	22.3	26.2	24	24.4	24.2	30.8	22.8	27	27	27	24.6	22.1	29	27.4	28.6
Chromium - Hexavalent	220	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (III) Oxide	33000	mg/kg	<30.2	<24.4	<25.7	<22.3	<26.2	<23.9	<24.4	<24.2	<30.8	<22.8	<27	<27	<27.1	<24.6	<22.1	<29	<27.4	<28.6
Chrysene	110	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Copper	44000	mg/kg	26.2	22	24.9	28.4	30.6	25.6	28	27.5	25.2	24.9	26.8	28.4	24.5	21.8	22.7	25.9	28.2	23.7
Cyanide Free as CN	18	mg/kg	<0.6	<0.6	<0.7	<0.7	<0.7	<0.6	<0.7	<0.7	<0.6	<0.7	<0.6	<0.7	<0.6	<0.6	<0.7	<0.6	<0.6	<0.6
Dibenz-a-h-anthracene	1.3	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Elemental Sulphur	-	%	0.143	0.096	0.133	0.099	0.223	0.195	0.308	0.396	0.284	0.362	0.256	0.414	0.342	0.169	0.155	0.195	0.288	0.726
Ethylbenzene	22000	mg/kg	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.003	<0.003
F.O.C.*	-	N/A	0.01	0.0068	0.009	0.0131	0.0125	0.0084	0.0125	0.0129	0.0136	0.0128	0.0098	0.0108	0.0099	0.0095	0.0088	0.0092	0.01	0.0118
Fluoranthene	6300	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	0.13	0.12	<0.1	<0.1	<0.11	<0.1	<0.1	0.25
Fluorene	20000	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Fraction of non-crushable material %*	-	%	0	0	-	-	-	-	0	-	-	0	-	-	0	-	0	0	-	0
Fraction of sample above 4 mm %*	-	%	23.5	11	-	-	-	-	25	-	-	20.3	-	-	17.9	-	26.8	20.3	-	20.3
GRO >C5-10	-	mg/kg	<0.259	<0.258	<0.264	<0.271	<0.261	<0.252	<0.268	<0.262	<0.256	<0.262	<0.257	<0.262	<0.256	<0.259	<0.266	<0.242	<0.253	<0.251
GRO >C5-6	-	mg/kg	<0.259	<0.258	<0.264	<0.271	<0.261	<0.252	<0.268	<0.262	<0.256	<0.262	<0.257	<0.262	<0.256	<0.259	<0.266	<0.242	<0.253	<0.251
GRO >C6-7	-	mg/kg	<0.259	<0.258	<0.264	<0.271	<0.261	<0.252	<0.268	<0.262	<0.256	<0.262	<0.257	<0.262	<0.256	<0.259	<0.266	<0.2	<0.253	<0.251
GRO >C7-8	-	mg/kg	<0.259	<0.258	<0.264	<0.271	<0.261	<0.252	<0.268	<0.262	<0.256	<0.262	<0.257	<0.262	<0.256	<0.259	<0.266	<0.2	<0.253	<0.251
GRO >C8-10	-	mg/kg	<0.259	<0.258	<0.264	<0.271	<0.261	<0.252	<0.268	<0.262	<0.256	<0.262	<0.257	<0.262	<0.256	<0.259	<0.266	<0.242	<0.253	<0.251
Indeno(1,2,3-cd)pyrene	170	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Iron	-	mg/kg	27400	23900	28200	25900	28200	24500	29300	28600	27300	22800	27800	26800	24000	23300	23000	27500	28300	28500
Lead	1300	mg/kg	32.5	19.9	26	40.3	36.7	33.7	37.9	36.8	39.9	41	29.3	33.2	39.2	38	31.9	33	31.5	34.1
Loss on ignition	-	%	4.1	3.4	4	5	4.6	3.5	4.5	4.1	4.7	4.3	3.9	3.6	3.1	3.5	3.6	3.3	3.5	3.7
m,p xylenes	23000	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	-	mg/kg	975.9	652.8	555.9	826.5	745.7	635.6	499.3	530.8	791.4	672.1	608	570.9	539.8	655.2	636	667.6	484.6	529.3

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																				
Durnford Quarry Soil Laboratory Analysis Table		Location ID	TP1-DURN	TP1-DURN	TP1-DURN	TP1-DURN	TP1-DURN	TP2-DURN	TP2-DURN	TP2-DURN	TP2-DURN	TP2-DURN	TP3-DURN	TP3-DURN	TP3-DURN	TP3-DURN	TP3-DURN	TP4-DURN	TP4-DURN	TP4-DURN
Project Number: ENVIMSW002194		Sample Depth	0.5	1.5	2.5	3.5	5	0.1	1	2	3	4	0.5	1.5	3	4	4.8	0.1	1	2
		Geology Code	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
Determinant Name	PoS(park) 2.5% SOM	Units																		
Mercury	29	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylphenols	48000	mg/kg	<0.13	<0.13	<0.13	<0.14	<0.13	<0.13	<0.13	<0.13	0.13	<0.13	<0.13	<0.13	<0.13	0.14	<0.13	<0.12	<0.13	<0.13
Molybdenum	2900	mg/kg	0.9	0.8	1	1.3	1.3	1.3	1	1.4	0.9	1	1.8	1.3	1.1	0.9	1	1.2	1	0.8
Naphthalene	1900	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1
Natural Moisture Content 105C	-	%	22.7	22.4	24.3	26.1	23.4	20.7	25.4	23.6	22	23.8	22.1	23.6	22	22.9	24.9	17.5	20.9	20.3
Nickel	800	mg/kg	34	28.1	28.8	35.6	33	33.8	32.2	33.2	29	30.4	29.9	31	29	27.2	28.5	33.7	32	31.7
O-Xylene	24000	mg/kg	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.003	<0.003
PAH,Total	-	mg/kg	<1.66	<1.65	<1.69	<1.73	<1.67	<1.61	<1.72	<1.68	<1.64	<1.68	<1.7	<1.75	<1.64	<1.66	<1.7	<1.55	<1.62	<1.93
pH	-	pH Units	8.2	8.5	8.4	8.2	8	8.5	8	8.2	8	8	7.9	8.1	8.3	8.4	8.4	8.5	8.2	7.9
Phenanthrene	6200	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	<0.11	<0.1	<0.1	0.18
Phenol	690	mg/kg	<0.13	<0.13	<0.13	<0.14	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.12	<0.13	<0.13
Pyrene	15000	mg/kg	<0.1	<0.1	<0.11	<0.11	<0.1	<0.1	<0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.11	<0.1	<0.1	0.19
Selenium	1800	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5
SO4-- (H2O sol) mg/l*	-	mg/l	-	-	-	-	1120	-	-	-	-	-	-	-	-	-	-	1370	-	-
Sulphate as SO4	-	mg/kg	2260	1550	2090	1360	4880	2720	4220	5180	3370	4320	3180	3670	3070	1590	1520	2940	3150	4470
Toluene	95000	mg/kg	<0.006	<0.006	<0.007	<0.007	<0.007	<0.006	<0.007	<0.007	<0.006	<0.007	<0.006	<0.007	<0.006	<0.006	<0.007	<0.006	<0.006	<0.006
Total Organic Carbon	-	% M/M	1	0.68	0.9	1.31	1.25	0.84	1.25	1.29	1.36	1.28	0.98	1.08	0.99	0.95	0.88	0.92	1	1.18
Total Phenols*	-	mg/kg	<0.52	<0.52	<0.53	<0.54	<0.52	<0.5	<0.54	<0.52	<0.51	<0.52	<0.51	<0.52	<0.51	<0.53	<0.53	<0.48	<0.51	<0.5
Trimethylphenol	-	mg/kg	<0.13	<0.13	<0.13	<0.14	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.12	<0.13	<0.13
Vanadium	5000	mg/kg	31.4	24.4	27.2	25.2	29.7	26.3	27.7	26.9	31.9	25	30.6	29.6	30.5	27.7	24.1	29.4	29.5	29.7
Xylene	23000	mg/kg	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.007	<0.008	<0.008
Xylenols	-	mg/kg	<0.13	<0.13	<0.13	<0.14	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.12	<0.13	<0.13
Zinc	170000	mg/kg	93.9	53.2	98.3	120	126.3	100	117.9	117.8	119.7	113.4	127	120.6	136.3	113	97.2	119.7	134.2	104.8

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme									
Durnford Quarry Soil Laboratory Analysis Table		Location ID	TP4-DURN	TP4-DURN	TP5-DURN	TP5-DURN	TP5-DURN	TP5-DURN	TP5-DURN
Project Number: ENVIMSW002194		Sample Depth	3.5	4.5	0.5	1.5	2	3	4
		Geology Code	FILL	FILL	FILL	FILL	FILL	FILL	FILL
Determinant Name	PoS(park) 2.5% SOM	Units							
Acenaphthene	30000	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	30000	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aliphatics >C10-12	23000	mg/kg	<5.19	<4.98	<5.16	<5.08	<5.13	<4.98	<5.08
Aliphatics >C12-16	25000	mg/kg	<5.19	<4.98	<5.16	<5.08	<5.13	<4.98	<5.08
Aliphatics >C16-21	480000	mg/kg	<5.19	<4.98	<5.16	<5.08	<5.13	<4.98	<5.08
Aliphatics >C21-35	480000	mg/kg	<11.36	<10.9	<11.3	<11.12	<11.25	10.96	12.42
Aliphatics >C5-6	130000	mg/kg	<0.3	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3
Aliphatics >C8-10	18000	mg/kg	<0.3	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3
Aliphatics >C8-40	-	mg/kg	<25.9	<24.9	<25.8	<25.4	<25.7	<24.9	<25.4
Anthracene	150000	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Antimony	3300	mg/kg	3.2	0.5	0.4	0.4	0.4	0.4	0.5
Aromatics >C10-12	9700	mg/kg	<5.19	<4.98	<5.16	<5.08	<5.13	<4.98	<5.08
Aromatics >C12-16	10000	mg/kg	<5.19	<4.98	<5.16	<5.08	<5.13	<4.98	<5.08
Aromatics >C16-21	7700	mg/kg	<5.19	<4.98	<5.16	<5.08	<5.13	<4.98	<5.08
Aromatics >C21-35	7800	mg/kg	19.2	22.6	16.6	20.8	18	19.3	21.2
Aromatics >C8-10	8500	mg/kg	<5.19	<4.98	<5.16	<5.08	<5.13	<4.98	<5.08
Aromatics >C8-40	-	mg/kg	27.6	35.1	<25.8	31.6	<25.7	26	31.9
Arsenic	170	mg/kg	9.9	12.3	11.2	9.7	9.9	11	11.7
Asbestos	-	-	-	-	-	-	-	-	-
Asbestos Matrix (microscope)	-	-	-	-	-	-	-	-	-
Asbestos Matrix (visual)	-	-	-	-	-	-	-	-	-
Asbestos Quantification (Total %)	-	%	-	-	-	-	-	-	-
Asbestos Quantification Stage 2	-	% w/w	-	-	-	-	-	-	-
Barium	5800	mg/kg	172	166	177	143	151	314	197
Benzene	100	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo (g,h,i) perylene	1500	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	56	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	12	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	15	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	410	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beryllium	63	mg/kg	0.552	0.631	0.527	0.524	0.516	0.54	0.541
Boron	46000	mg/kg	1.5	1.2	1.1	1.2	1.2	1.2	1.3
Cadmium	560	mg/kg	0.5	0.4	0.39	0.44	0.5	0.61	0.6
Chromium	33000	mg/kg	27.1	32.5	30.3	27.1	27.2	28.2	28.4
Chromium - Hexavalent	220	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (III) Oxide	33000	mg/kg	<27.1	<32.5	<30.3	<27.1	<27.2	<28.2	<28.4
Chrysene	110	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	44000	mg/kg	164	35.2	27.3	26.1	26.2	25.1	37.6
Cyanide Free as CN	18	mg/kg	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Dibenz-a-h-anthracene	1.3	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Elemental Sulphur	-	%	0.263	0.165	0.197	0.243	0.329	0.294	0.372
Ethylbenzene	22000	mg/kg	<0.003	<0.002	<0.003	<0.003	<0.003	<0.002	<0.003
F.O.C.*	-	N/A	0.0108	0.0089	0.0082	0.0085	0.01	0.0116	0.0126
Fluoranthene	6300	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	20000	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fraction of non-crushable material %*	-	%	-	-	0	-	0	-	-
Fraction of sample above 4 mm %*	-	%	-	-	11.9	-	16.8	-	-
GRO >C5-10	-	mg/kg	<0.3	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3
GRO >C5-6	-	mg/kg	<0.3	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3
GRO >C6-7	-	mg/kg	<0.3	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3
GRO >C7-8	-	mg/kg	<0.3	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3
GRO >C8-10	-	mg/kg	<0.3	<0.2	<0.3	<0.3	<0.3	<0.2	<0.3
Indeno(1,2,3-cd)pyrene	170	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Iron	-	mg/kg	26100	26000	22800	23100	20900	20900	24300
Lead	1300	mg/kg	35.1	34	31.4	29.5	32.9	36.9	34.8
Loss on ignition	-	%	4.1	3.7	3.4	3.5	3.8	3.8	3.7
m,p xylenes	23000	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	-	mg/kg	480	543.9	764.2	989.7	877.4	538.8	709.1

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme									
Durnford Quarry Soil Laboratory Analysis Table		Location ID	TP4-DURN	TP4-DURN	TP5-DURN	TP5-DURN	TP5-DURN	TP5-DURN	TP5-DURN
Project Number: ENVIMSW002194		Sample Depth	3.5	4.5	0.5	1.5	2	3	4
		Geology Code	FILL	FILL	FILL	FILL	FILL	FILL	FILL
Determinant Name	PoS(park) 2.5% SOM	Units							
Mercury	29	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylphenols	48000	mg/kg	<0.13	<0.12	0.13	<0.13	<0.13	0.12	<0.13
Molybdenum	2900	mg/kg	1.2	1.4	1.2	1	1	1	1
Naphthalene	1900	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Natural Moisture Content 105C	-	%	22.9	19.6	22.5	21.2	22.1	19.6	21.2
Nickel	800	mg/kg	32.7	34	31.3	29.5	30.6	31	31.2
O-Xylene	24000	mg/kg	<0.003	<0.002	<0.003	<0.003	<0.003	<0.002	<0.003
PAH,Total	-	mg/kg	<1.66	<1.59	<1.65	<1.62	<1.64	<1.59	<1.62
pH	-	pH Units	8.4	8.2	8.2	8.2	8	8	8.1
Phenanthrene	6200	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	690	mg/kg	<0.13	<0.12	<0.13	<0.13	<0.13	<0.12	<0.13
Pyrene	15000	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Selenium	1800	mg/kg	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5
SO4-- (H2O sol) mg/l*	-	mg/l	-	-	-	-	264	-	-
Sulphate as SO4	-	mg/kg	3190	2320	2760	3460	6280	4580	3980
Toluene	95000	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Total Organic Carbon	-	% M/M	1.08	0.89	0.82	0.85	1.04	1.16	1.26
Total Phenols*	-	mg/kg	<0.52	<0.5	<0.52	<0.51	<0.51	<0.5	<0.51
Trimethylphenol	-	mg/kg	<0.13	<0.12	<0.13	<0.13	<0.13	<0.12	<0.13
Vanadium	5000	mg/kg	27	32.5	30.6	30.1	29.5	29	29
Xylene	23000	mg/kg	<0.008	<0.005	<0.008	<0.008	<0.008	<0.007	<0.008
Xylenols	-	mg/kg	<0.13	<0.12	<0.13	<0.13	<0.13	<0.12	<0.13
Zinc	170000	mg/kg	152.2	127.2	100.6	90.7	93.2	116.1	145.3

Appendix C. Soil Leachate Assessment

Area 1

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																				
Area 1 Soil Leachate Laboratory Analysis Table			Location ID	CP1002	CP1005	CP1007	CP1009	CP1010	CP1011	CP1012	CP1013	CP1017	CP1020	HP1002	HP1003	HP1004	HP1007	RC1001	RC1003	WS1004	WS1008
Project Number: ENVIMSW002194			Sample Depth	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.1	0.5	0.5	0.5	1.3
			Geology Code	TFD	EMBF	MGR	TFD	EMBF	EMBF	EMBF	EMBF	EMBF	MGR	TFD	EMBF	TFD	EMBF	EMBF	EMBF	TFD	MGR
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$																		
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/l	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/l	0.4	0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3 Trichlorobenzene	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,3-Trichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,4-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dibromoethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/l	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.03	<0.02	<0.02	0.1	<0.02	<0.02	<0.02	0.02	0.17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.39	0.03	0.08
Antimony	mg/l	-	-	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006
Arsenic	mg/l	0.05	0.025	0.003	<0.001	0.002	0.002	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.001	<0.001	0.018
Barium	mg/l	-	-	0.121	0.002	0.002	0.009	0.001	0.279	0.003	0.004	0.005	0.25	0.002	0.002	0.003	0.004	0.308	0.006	0.047	0.046
Benzene	mg/l	0.01	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	mg/l	2	7	0.295	0.09	0.108	0.372	0.17	0.302	0.063	0.14	0.07	0.034	0.106	0.164	0.145	0.071	0.146	0.036	0.114	0.135
Bromobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane	mg/l	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/l	0.00008	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium	mg/l	-	-	91	32	26	14	21	37	23	31	22	48	32	25	29	34	17	20	35	15
Carbon Disulphide	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloride	mg/l	250	-	34.49	<1	1.16	4.67	2.96	2.79	<1	10.43	1.25	1.2	1.76	<1	<1	1.33	<1	2.29	8.3	46.01
Chlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	mg/l	0.0025	0.0025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/l	0.005	0.015	<0.001	0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Complex Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	mg/l	0.001	0.00376	0.002	0.002	0.004	0.005	0.002	0.002	0.004	0.007	0.001	0.007	0.003	0.004	0.003	0.003	<0.001	0.002	0.002	0.02
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dibromochloromethane	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Dibromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichloromethane	mg/l	0.02	0.02	0.016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.015	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	0.007	<0.005	<0.005
Ethylbenzene	mg/l	0.02	0.02	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoride	mg/l	-	-	0.24	0.9	0.84	2.36	1.4	0.96	1	0.83	1.1	0.62	0.81	0.77	0.8	0.64	0.47	0.97	0.92	1.2

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																				
Area 1 Soil Leachate Laboratory Analysis Table			Location ID	CP1002	CP1005	CP1007	CP1009	CP1010	CP1011	CP1012	CP1013	CP1017	CP1020	HP1002	HP1003	HP1004	HP1007	RC1001	RC1003	WS1004	WS1008
Project Number: ENVIMSW002194			Sample Depth	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.1	0.5	0.5	0.5	1.3
			Geology Code	TFD	EMBF	MGR	TFD	EMBF	EMBF	EMBF	EMBF	EMBF	MGR	TFD	EMBF	TFD	EMBF	EMBF	EMBF	TFD	MGR
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$																		
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	mg/l	1	1	<0.01	0.104	0.215	1.87	0.072	0.012	0.239	0.083	0.047	0.439	0.032	0.064	0.035	0.099	0.024	0.067	<0.01	0.832
Isopropylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/l	0.0012	0.0013	<0.001	<0.001	0.005	0.003	<0.001	<0.001	0.002	0.003	<0.001	0.03	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.01
m,p xylenes	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/l	-	-	18	8	9	22	6	8	5	7	5	6	8	10	8	5	2	4	6	25
Manganese	mg/l	0.22	-	0.19	0.002	0.003	0.015	0.002	<0.001	0.002	0.002	0.002	0.031	0.003	0.003	0.003	0.002	<0.001	0.001	0.002	0.126
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methylphenols	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/l	-	-	0.07	0.002	<0.001	0.011	0.004	0.002	0.004	0.003	0.008	0.005	0.003	0.001	0.003	<0.001	0.003	0.003	0.002	0.048
n-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/l	0.004	0.0086	0.003	<0.001	0.002	0.002	<0.001	<0.001	0.001	0.002	<0.001	0.002	0.001	0.002	0.001	0.001	<0.001	<0.001	<0.001	0.003
n-propylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
O-Xylene	mg/l	0.03	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
pH	pH	-	-	7.7	6.98	6.93	8.23	8.03	8.13	8.03	8.06	8.03	7.8	7.97	7.94	7.99	6.8	7.43	7.95	8.14	7.72
Phenol	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Resorcinol	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sec-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Styrene	mg/l	0.05	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulphate	mg/l	-	-	164.06	1.38	9.6	34.11	4.76	1.41	3.5	2.72	7.83	4.57	<1	2.26	<1	9.87	4.61	5.66	29.2	22.56
Tert-Butylbenzene	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/l	0.074	0.074	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tribromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium	mg/l	0.0047	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vanadium	mg/l	0.02	0.1	0.001	<0.001	0.002	0.004	<0.001	<0.001	0.002	0.001	<0.001	0.002	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	0.018
Xylenols	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/l	0.0109	0.0068	0.01	0.003	0.004	0.014	0.004	0.022	0.004	0.007	0.004	0.031	0.007	0.007	0.01	0.01	0.014	0.005	0.004	0.008

Area 3A

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme								
Area 3A Soil Leachate Laboratory Analysis Table		Location ID	HP3001	HP3002	HP3003	HP3004	WS3001
Project Number: ENVIMSW002194		Sample Depth	0.5	0.5	0.5	0.5	0.5
		Geology Code	MGR	MGR	MGR	TFD	EMBF
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$					
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/l	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/l	0.4	0.3	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3 Trichlorobenzene	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,3-Trichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,4-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dibromoethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/l	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
2,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Ammoniacal Nitrogen as N	mg/l	0.2	-	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/l	0.05	0.025	0.003	0.002	0.002	0.001	<0.001
Barium	mg/l	-	-	0.409	0.358	0.029	0.045	0.039
Benzene	mg/l	0.01	0.008	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	mg/l	2	7	<0.01	0.015	0.25	0.053	0.022
Bromobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane	mg/l	-	-	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Bromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/l	0.00008	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium	mg/l	-	-	38	28	88	43	36
Carbon Disulphide	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Chloride	mg/l	250	-	1.48	<1	2.16	10.54	3.6
Chlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	mg/l	0.0025	0.0025	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/l	0.005	0.015	<0.001	0.001	<0.001	<0.001	<0.001
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Complex Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	mg/l	0.001	0.00376	0.005	0.004	0.002	0.003	0.002
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Dibromochloromethane	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003
Dibromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Dichloromethane	mg/l	0.02	0.02	<0.005	<0.005	0.005	<0.03	<0.005
Ethylbenzene	mg/l	0.02	0.02	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoride	mg/l	-	-	0.39	0.24	1.74	1.83	1.36
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	mg/l	1	1	<0.01	0.031	0.011	0.208	0.07
Isopropylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/l	0.0012	0.0013	0.001	0.006	<0.001	0.003	<0.001
m,p xylenes	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/l	-	-	4	2	22	6	3
Manganese	mg/l	0.22	-	<0.001	0.01	0.003	0.004	<0.001
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methylphenols	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/l	-	-	0.002	0.004	0.006	0.003	0.002
n-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/l	0.004	0.0086	<0.001	0.001	0.002	0.002	<0.001
n-propylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
O-Xylene	mg/l	0.03	-	<0.001	<0.001	<0.001	<0.001	<0.001
pH	pH	-	-	7.82	7.83	8.12	8.12	8.16
Phenol	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01
Resorcinol	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Sec-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Styrene	mg/l	0.05	0.05	<0.001	<0.001	<0.001	<0.001	<0.001
Sulphate	mg/l	-	-	7.64	4.71	162.32	31.14	15.1
Tert-Butylbenzene	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/l	0.074	0.074	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Tribromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme								
Area 3A Soil Leachate Laboratory Analysis Table			Location ID	HP3001	HP3002	HP3003	HP3004	WS3001
Project Number: ENVIMSW002194			Sample Depth	0.5	0.5	0.5	0.5	0.5
			Geology Code	MGR	MGR	MGR	TFD	EMBF
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$					
Trichlorofluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium	mg/l	0.0047	-	<0.05	<0.05	<0.05	<0.05	<0.05
Vanadium	mg/l	0.02	0.1	<0.001	<0.001	<0.001	0.001	<0.001
Xylenols	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/l	0.0109	0.0068	0.008	0.01	0.005	0.006	0.004

Area 4

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																										
Area 4 Soil Leachate Laboratory Analysis Table			Location ID	HP4001	HP4002	HP4003	HP4004	HP4005	HP4006	HP4007	HP4008	HP4009	HP4011	HP4012	HP4014	HP4015	TP4001	TP4002	TP4003	TP4004	TP4005	WS4001	WS4002	WS4003	WS4004	WS4005
Project Number: ENVIMSW002194			Sample Depth	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	1	0.5	1	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.1	0.5	0.5
			Geology Code	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	MGR	TFD	TFD
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$																							
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/l	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/l	0.4	0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3 Trichlorobenzene	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,3-Trichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,4-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dibromoethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/l	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.21	<0.02	0.04	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	0.17	0.02	<0.02	<0.02	<0.02	0.04	0.03	<0.02	<0.02	<0.02	<0.02	0.03	0.05	0.57
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/l	0.05	0.025	0.005	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.003	0.002	0.002
Barium	mg/l	-	-	0.562	0.002	0.408	<0.001	0.001	0.002	<0.001	0.002	0.002	0.141	0.015	0.002	0.004	0.002	0.004	0.002	0.002	0.006	0.001	0.006	0.032	0.346	1.45
Benzene	mg/l	0.01	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium	mg/l	-	-	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
Boron	mg/l	2	7	0.22	0.048	0.163	0.072	0.04	0.064	0.099	0.044	0.108	0.043	0.042	0.257	0.044	0.058	0.088	0.097	0.054	0.081	0.053	0.071	0.068	0.181	0.419
Bromobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane	mg/l	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/l	0.00008	0.0002	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.016
Calcium	mg/l	-	-	25	33	32	32	31	43	25	36	37	17	23	18	33	44	38	35	26	28	24	36	33	15	10
Carbon Disulphide	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloride	mg/l	250	-	18.82	<1	1.16	1.68	1.79	<1	<1	<1	<1	8.11	<1	1.34	<1	1.74	<1	<1	<1	<1	<1	1.91	<1	7.85	41.47
Chlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	mg/l	0.0025	0.0025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/l	0.005	0.015	0.009	0.001	0.005	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.002	0.002	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.002	0.002
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Complex Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	mg/l	0.001	0.00376	0.006	0.001	0.012	0.001	0.002	0.002	<0.001	0.003	0.001	0.031	0.006	0.002	0.003	0.002	0.002	0.001	0.003	0.003	<0.001	0.003	0.015	0.008	0.034
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dibromochloromethane	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Dibromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichloromethane	mg/l	0.02	0.02	0.008	0.007	0.01	0.006	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.006	<0.005	0.005	<0.005
Ethylbenzene	mg/l	0.02	0.02	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoride	mg/l	-	-	0.92	0.6	0.46	0.74	1.24	0.58	1.17	0.69	1	<0.1	0.67	1.33	1.5	0.67	0.79	0.97	1.12	1.23	1.1	0.65	0.92	0.81	0.41

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																										
Area 4 Soil Leachate Laboratory Analysis Table			Location ID	HP4001	HP4002	HP4003	HP4004	HP4005	HP4006	HP4007	HP4008	HP4009	HP4011	HP4012	HP4014	HP4015	TP4001	TP4002	TP4003	TP4004	TP4005	WS4001	WS4002	WS4003	WS4004	WS4005
Project Number: ENVIMSW002194			Sample Depth	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	1	0.5	1	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.1	0.5	0.5
			Geology Code	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	TFD	MGR	TFD	TFD
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$																							
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	mg/l	1	1	2.28	0.145	0.719	0.015	0.055	0.012	0.016	0.243	0.079	1.23	0.369	0.265	0.152	0.07	0.108	0.027	0.027	0.12	0.013	0.033	0.5	0.891	1.01
Isopropylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/l	0.0012	0.0013	0.015	0.001	0.014	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	0.128	0.009	<0.001	0.001	<0.001	0.002	<0.001	0.001	0.003	<0.001	<0.001	0.024	0.01	0.076
m,p xylenes	mg/l	-	-	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/l	-	-	52	6	70	9	4	9	5	8	8	26	8	11	5	7	7	8	6	5	4	4	15	20	12
Manganese	mg/l	0.22	-	0.032	<0.001	0.015	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.03	0.008	0.003	0.001	<0.001	0.004	0.002	<0.001	0.003	<0.001	<0.001	0.051	0.007	0.246
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methylphenols	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.006	<0.001	<0.001	<0.001
n-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/l	0.004	0.0086	0.006	<0.001	0.008	<0.001	<0.001	0.001	<0.001	0.001	<0.001	0.01	0.005	0.001	0.002	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001	0.004	0.004	0.02
n-propylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
O-Xylene	mg/l	0.03	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
pH	pH	-	-	6.8	7.36	7.25	7.42	7.33	7.56	8.07	8.03	8.08	7.22	7.66	8.14	7.96	7.6	8.16	8.16	7.9	7.83	7.11	7.08	7.9	6.97	7.17
Phenol	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Resorcinol	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sec-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Styrene	mg/l	0.05	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulphate	mg/l	-	-	33.14	9	3.34	7.37	5.33	2.28	2.64	2.4	1.34	<1	11.18	32.28	2.06	4.55	3.19	6.96	2.94	7.79	4.3	22.69	1.01	53.39	196.8
Tert-Butylbenzene	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/l	0.074	0.074	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tribromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium	mg/l	0.0047	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vanadium	mg/l	0.02	0.1	0.016	<0.001	0.007	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.003	0.004	0.003	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	0.008	0.003	0.013
Xylenols	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/l	0.0109	0.0068	0.077	0.004	0.095	0.006	0.004	0.003	0.006	0.012	0.008	1.52	0.024	0.009	0.013	0.005	0.005	0.003	0.005	0.005	<0.001	0.004	0.056	0.091	0.995

Area 5

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme												
Area 5 Soil Leachate Laboratory Analysis Table			Location ID	TP5001	TP5002	TP5003	TP5004	TP5005	WS5001	WS5001A	WS5002	WS5005
Project Number: ENVIMSW002194			Sample Depth	0.5	0.5	0.1	0.5	1	0.5	0.5	0.5	0.5
			Geology Code	TFD	TFD	Topsoil	TFD	TFD	TFD	(blank)	TFD	TFD
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$									
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/l	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/l	0.4	0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3 Trichlorobenzene	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,3-Trichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,4-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dibromoethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/l	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,2-Dichloropropane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ammoniacal Nitrogen as N	mg/l	0.2	-	<0.02	0.1	0.26	0.08	0.05	<0.02	<0.02	0.23	<0.02
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/l	0.05	0.025	<0.001	0.002	0.002	0.003	<0.001	<0.001	<0.001	0.003	<0.001
Barium	mg/l	-	-	0.005	0.018	0.103	0.019	0.001	0.002	0.002	0.377	0.002
Benzene	mg/l	0.01	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium	mg/l	-	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001
Boron	mg/l	2	7	0.122	0.079	0.103	0.103	0.119	0.081	0.081	0.366	0.059
Bromobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane	mg/l	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/l	0.00008	0.0002	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium	mg/l	-	-	38	15	24	21	16	33	33	32	28
Carbon Disulphide	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloride	mg/l	250	-	3.39	7.91	14.05	5.1	<1	<1	<1	7.39	<1
Chlorobenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	mg/l	0.0025	0.0025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/l	0.005	0.015	0.001	0.002	0.005	0.004	<0.001	<0.001	<0.001	0.007	<0.001
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium (III) Oxide	mg/l	0.0047	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Complex Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	mg/l	0.001	0.00376	0.004	0.006	0.007	0.006	<0.001	0.002	0.002	0.015	0.002
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free as CN	mg/l	0.001	0.001	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/l	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Dibromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichloromethane	mg/l	0.02	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	mg/l	0.02	0.02	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoride	mg/l	-	-	0.81	0.23	<0.1	0.32	0.68	0.71	0.71	0.38	0.61
Hardness,Total as CaC03	mg/l	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	mg/l	1	1	0.277	0.951	0.526	1.51	0.052	0.061	0.061	1.76	0.078
Isopropylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/l	0.0012	0.0013	0.002	0.007	0.011	0.01	<0.001	<0.001	<0.001	0.034	<0.001
m,p xylenes	mg/l	-	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/l	-	-	7	15	38	25	5	6	6	117	5
Manganese	mg/l	0.22	-	0.003	0.011	0.034	0.019	<0.001	0.001	0.001	0.172	0.001
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methylphenols	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
n-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/l	0.004	0.0086	0.001	0.003	0.012	0.004	<0.001	<0.001	<0.001	0.01	0.001
n-propylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
O-Xylene	mg/l	0.03	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
pH	pH Units	-	-	-	-	-	-	-	-	-	-	-
pH	pH	-	-	7.63	7.36	7.43	6.44	7.56	8.01	8.01	7.96	7.63
Phenol	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Resorcinol	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sec-Butylbenzene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001
Styrene	mg/l	0.05	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulphate	mg/l	-	-	13.73	45.75	121.84	2.9	5.68	1.59	1.59	46.6	2.03
Sulphate as SO4	mg/l	-	-	-	-	-	-	-	-	-	-	-
Tert-Butylbenzene	mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme												
Area 5 Soil Leachate Laboratory Analysis Table			Location ID	TP5001	TP5002	TP5003	TP5004	TP5005	WS5001	WS5001A	WS5002	WS5005
Project Number: ENVIMSW002194			Sample Depth	0.5	0.5	0.1	0.5	1	0.5	0.5	0.5	0.5
			Geology Code	TFD	TFD	Topsoil	TFD	TFD	TFD	(blank)	TFD	TFD
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$									
Toluene	mg/l	0.074	0.074	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001
Total Organic Carbon	mg/l	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tribromomethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trimethylphenol	mg/l	-	-	-	-	-	-	-	-	-	-	-
Trivalent Chromium	mg/l	0.0047	-	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vanadium	mg/l	0.02	0.1	0.001	0.004	0.007	0.011	<0.001	<0.001	<0.001	0.017	<0.001
Xylenols	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/l	0.0109	0.0068	0.002	0.01	0.035	0.015	0.003	0.004	0.004	0.158	0.003

Durnford Quarry Stockpile Material

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme													
Durnford Quarry Soil Leachate Laboratory Analysis Table			Location ID	TP1-DURN	TP1-DURN	TP2-DURN	TP2-DURN	TP3-DURN	TP3-DURN	TP4-DURN	TP4-DURN	TP5-DURN	TP5-DURN
Project Number: ENVIMSW002194			Sample Depth	0.5	1.5	1	4	3	4.8	0.1	2	0.5	2
			Geology Code	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$										
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.03	0.02	0.04	1.1	0.8	0.12	0.03	1.9	0.8	1.1
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/l	0.05	0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	mg/l	-	-	0.06	0.05	0.06	0.08	0.06	0.06	0.05	0.07	0.05	0.05
Beryllium	mg/l	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	mg/l	2	7	0.1	0.04	0.05	0.04	0.05	0.06	0.04	0.07	0.04	0.04
Cadmium	mg/l	0.00008	0.0002	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002
Calcium	mg/l	-	-	177	172	495	597	256	161	302	518	432	450
Chloride	mg/l	250	-	46	6	8	9	6	4	4	7	7	8
Chromium	mg/l	0.005	0.015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.003	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	0.003	<0.003
Chromium (III) Oxide	mg/l	0.0047	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Complex Cyanide	mg/l	0.001	0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Copper	mg/l	0.001	0.00376	0.002	0.001	0.001	0.001	0.001	0.002	0.001	<0.001	0.001	<0.001
Cyanide	mg/l	0.001	0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cyanide Free as CN	mg/l	0.001	0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoride	mg/l	-	-	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.4	0.4	0.5
Hardness,Total as CaC03	mg/l	-	-	508	487	1350	1620	730	451	820	1420	1180	1240
Iron	mg/l	1	1	0.13	0.12	0.24	0.24	0.15	0.12	0.19	0.21	0.22	0.2
Isopropylbenzene	mg/l	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/l	0.0012	0.0013	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/l	-	-	16	14	27	32	22	12	16	30	24	28
Manganese	mg/l	0.22	-	<0.002	0.025	0.142	2.851	1.226	0.368	0.002	2.021	0.463	1.688
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methylphenols	mg/l	0.1	0.1	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	mg/l	-	-	0.001	<0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.001
Nickel	mg/l	0.004	0.0086	0.001	0.003	0.007	0.007	0.004	0.004	0.001	0.007	0.006	0.008
pH	pH Units	-	-	7.2	7.3	7.4	7.3	7.3	7.6	7.3	7.3	7.4	7.3
Phenol	mg/l	0.0077	0.0077	<0.0005	0.0006	<0.0005	<0.0005	0.0006	0.0017	<0.0005	<0.0005	0.0005	<0.0005
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001
Sulphate as SO4	mg/l	-	-	442	365	1060	1310	601	257	703	1120	942	1050
Total Organic Carbon	mg/l	-	-	3.3	3.4	4.3	9.2	7.4	7.3	3.3	7.8	6.1	5
Trimethylphenol	mg/l	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/l	0.02	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Xylenols	mg/l	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/l	0.0109	0.0068	0.002	0.004	0.008	0.006	0.003	0.004	0.002	0.004	0.003	0.005

Appendix D. Surface Water Assessment

Area 1

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme																
Area 1 Surface Water Laboratory Analysis Table			Location ID	SW10	SW11	SW11	SW12	SW12	SW13	SW13	SW14	SW14	SW8	SW8	SW9
Project Number: ENVIMSW002194															
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Jan	Nov	Jan	Nov	Jan	Nov	Jan	Nov	Jan	Nov	Jan	Jan
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,1,1-Trichloroethane	mg/l	0.1	0.1	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,1,2-Trichloroethane	mg/l	0.4	0.3	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,1-Dichloroethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,1-Dichloroethene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,1-Dichloropropene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,2,3 Trichlorobenzene	mg/l	-	-	-	<0.003	-	<0.003	-	<0.003	-	<0.003	-	<0.003	-	-
1,2,3-Trichloropropane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	-	<0.003	-	<0.003	-	<0.003	-	<0.003	-	<0.003	-	-
1,2,4-Trimethylbenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,2-Dibromo-3-Chloropropane	mg/l	-	-	-	<0.002	-	<0.002	-	<0.002	-	<0.002	-	<0.002	-	-
1,2-Dibromoethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,2-Dichlorobenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,2-Dichloroethane	mg/l	0.01	0.01	-	<0.002	-	<0.002	-	<0.002	-	<0.002	-	<0.002	-	-
1,2-Dichloropropane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,3,5-Trimethylbenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,3-Dichlorobenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,3-Dichloropropane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
1,4-Dichlorobenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
2,2-Dichloropropane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
2-Chlorotoluene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
4-Chlorotoluene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
4-Isopropyltoluene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Acenaphthene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001
Acenaphthylene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001
Aliphatics & Aromatics >C5-35	mg/l	-	-	-	0.017	-	0.04	-	0.034	-	0.036	-	0.031	-	-
Aliphatics >C10-12	mg/l	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Aliphatics >C12-16	mg/l	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Aliphatics >C16-21	mg/l	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Aliphatics >C21-35	mg/l	-	-	-	<0.005	-	0.007	-	0.006	-	0.009	-	0.006	-	-
Aliphatics >C5-35	mg/l	-	-	-	<0.005	-	0.007	-	0.006	-	0.009	-	0.006	-	-
Aliphatics >C5-6	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Aliphatics >C6-8	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Aliphatics >C8-10	mg/l	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Alkalinity (Bicarbonate)	mg/l CaCO3	-	-	195	290	415	280	595	430	730	370	370	275	130	310
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.92	0.14	0.32	0.15	0.65	0.34	0.06	0.27	0.14	0.16	0.32	1.44
Anthracene	mg/l	0.0001	0.0001	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aromatics >C10-12	mg/l	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Aromatics >C12-16	mg/l	-	-	-	<0.005	-	0.006	-	0.006	-	0.006	-	0.005	-	-
Aromatics >C16-21	mg/l	-	-	-	<0.005	-	0.006	-	<0.005	-	<0.005	-	<0.005	-	-
Aromatics >C21-35	mg/l	-	-	-	<0.01	-	0.011	-	0.013	-	0.012	-	0.012	-	-
Aromatics >C5-35	mg/l	-	-	-	0.017	-	0.033	-	0.028	-	0.027	-	0.024	-	-
Aromatics >C5-7	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Aromatics >C7-8	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Aromatics >C8-10	mg/l	-	-	-	0.008	-	0.01	-	0.009	-	0.009	-	0.007	-	-
Arsenic	mg/l	0.05	0.025	0.007	0.003	0.002	0.004	<0.001	0.002	<0.001	0.002	0.002	0.003	<0.001	0.013
Barium	mg/l	-	-	0.012	0.016	0.016	0.036	<0.001	0.012	<0.001	0.064	0.075	0.092	<0.001	0.007
Benzene	mg/l	0.01	0.008	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Benzo (g,h,i) perylene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00002	-	<0.00001	<0.00001
Benzo(a)anthracene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00003	-	<0.00001	<0.00001
Benzo(a)pyrene	mg/l	1.7E-07	1.7E-07	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00004	-	<0.00001	<0.00001
Benzo(b)fluoranthene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00006	-	<0.00001	<0.00001
Benzo(k)fluoranthene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00002	-	<0.00001	<0.00001
Beryllium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BOD (settled, 5 day)*	mg/l	-	-	2	-	1	-	1	-	35	-	4	-	<1	3
Boron	mg/l	2	7	0.414	0.136	0.165	0.183	<0.01	0.334	<0.01	0.137	0.12	0.107	0.142	0.361
Bromobenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Bromochloromethane	mg/l	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Bromodichloromethane	mg/l	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Bromomethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Cadmium	mg/l	0.00008	0.0002	0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Calcium	mg/l	-	-	44	110	135	126	103	116	289	111	118	101	167	56
Carbon Disulphide	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Chemical oxygen demand	mg/l	-	-	-	-	40	-	374	-	112	-	29	-	134	76
Chloride	mg/l	250	-	865	24	43	22	2830	151	3209	84	61	40	5580	859
Chlorobenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Chloroethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Chloroethene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Chloroform	mg/l	0.0025	0.0025	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Chloromethane	mg/l	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Chromium	mg/l	0.005	0.015	0.004	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00004	-	<0.00001	<0.00001
cis-1,2-Dichloroethene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
cis-1,3-Dichloropropene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Copper	mg/l	0.001	-	0.007	0.002	0.001	0.007	<0.001	0.003	<0.001	0.003	0.003	0.003	<0.001	0.002
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dibenz-a-h-anthracene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001
Dibromochloromethane	mg/l	-	-	-	<0.003	-	<0.003	-	<0.003	-	<0.003	-	<0.003	-	-
Dibromomethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Dichlorodifluoromethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Dichloromethane	mg/l	0.02	0.02	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Ethylbenzene	mg/l	0.02	0.02	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Fluoranthene	mg/l	0.0000063	0.0000063	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00005	-	<0.00001	<0.00001
Fluorene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme															
Area 1 Surface Water Laboratory Analysis Table			Location ID	SW10	SW11	SW11	SW12	SW12	SW13	SW13	SW14	SW14	SW8	SW8	SW9
Project Number: ENVIMSW002194															
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Jan	Nov	Jan	Nov	Jan	Nov	Jan	Nov	Jan	Nov	Jan	Jan
Fluoride	mg/l	-	-	0.21	<0.1	0.3	<0.1	0.38	<0.1	0.4	<0.1	0.28	<0.1	0.23	0.25
Hardness,Total as CaC03	mg/l CaCO3	-	-	320	363	453	408	673	476	1740	401	421	358	1923	383
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Indeno(1,2,3-cd)pyrene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00003	-	<0.00001	<0.00001
Iron	mg/l	1	1	3.02	0.119	0.276	2.54	<0.01	0.391	0.842	0.159	0.332	0.206	<0.01	1.15
Isopropylbenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Lead	mg/l	0.0012	0.0013	0.024	<0.001	<0.001	0.014	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.006
m,p xylenes	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Magnesium	mg/l	-	-	51	22	28	23	101	45	247	30	31	26	366	59
Manganese	mg/l	0.22	-	0.195	0.149	0.258	0.391	0.18	0.3	0.691	0.047	0.091	0.042	<0.001	1.64
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methyl tert-butyl ether (MTBE)	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Methylphenols	mg/l	0.1	0.1	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Molybdenum	mg/l	-	-	0.001	0.0008	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	0.0009	<0.0005	0.001	<0.0005	0.0013
Naphthalene	mg/l	0.002	0.002	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001
n-Butylbenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Nickel	mg/l	0.004	0.0086	0.005	0.002	0.002	0.006	<0.001	0.003	<0.001	0.002	0.002	0.002	<0.001	0.005
Nitrate as NO3	mg/l	-	-	0.2	0.5	0.2	<0.1	<0.1	0.4	1.6	6.4	12.1	13.6	15	<0.1
n-propylbenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Ortho Phosphate as PO4	mg/l	-	-	0.15	-	0.99	-	0.75	-	8.09	-	0.61	-	0.09	3.66
O-Xylene	mg/l	0.03	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
PAH 16 Total	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00036	-	<0.00001	<0.00001
PAH 16 Total	-	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
pH	pH	-	-	7.75	7.86	7.76	7.7	7.5	7.74	7.09	7.84	7.85	7.96	7.42	7.75
Phenanthrene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00003	-	<0.00001	<0.00001
Phenol	mg/l	0.0077	0.0077	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Pyrene	mg/l	-	-	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	-	0.00004	-	<0.00001	<0.00001
Resorcinol	mg/l	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Sec-Butylbenzene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Settled COD	mg/l	-	-	73	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/l	-	-	518	24	35	24	833	122	1870	55	40	31	3050	522
Solids, Suspended	mg/l	-	-	230	-	<10	-	22	-	314	-	32	-	42	266
Styrene	mg/l	0.05	0.05	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Sulphate	mg/l	-	-	66	72	79	35	134	65	366	65	54	64	707	62
Sulphur	mg/l	-	-	22	24	27	12	43	27	139	19	17	21	257	21
Tert-Butylbenzene	mg/l	-	-	-	<0.002	-	<0.002	-	<0.002	-	<0.002	-	<0.002	-	-
Tetrachloroethene	mg/l	0.01	0.01	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
TOC (filtered)	mg/l	-	-	7.8	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/l	0.074	0.074	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Total dissolved solids	mg/l	-	-	1468	465	296	428	5484	726	6023	628	565	461	9500	1817
TPH/EPH >C6-40	mg/l	-	-	<0.04	-	<0.04	-	<0.04	-	<0.04	-	<0.04	-	<0.04	<0.04
trans-1,2-Dichloroethene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
trans-1,3-Dichloropropene	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Tribromomethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Trichloroethene	mg/l	0.01	0.01	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Trichlorofluoromethane	mg/l	-	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	<0.001	-	-
Trivalent Chromium	mg/l	0.0047	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/l	0.02	0.1	0.012	<0.001	<0.001	0.008	<0.001	0.002	<0.001	0.001	0.001	0.001	<0.001	0.009
Xylenols	mg/l	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Zinc	mg/l	0.0109	0.0068	0.048	0.007	0.003	0.136	<0.001	0.017	<0.001	0.017	0.02	0.024	<0.001	0.013

Area 3A

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme					
Area 3A Surface Water Laboratory Analysis Table			Location ID	SW5	SW5
Project Number: ENVIMSW002194			Sample Depth		
			Geology Code		
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Jan
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	<0.001	-
1,1,1-Trichloroethane	mg/l	0.1	0.1	<0.001	-
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	<0.001	-
1,1,2-Trichloroethane	mg/l	0.4	0.3	<0.001	-
1,1-Dichloroethane	mg/l	-	-	<0.001	-
1,1-Dichloroethene	mg/l	-	-	<0.001	-
1,1-Dichloropropene	mg/l	-	-	<0.001	-
1,2,3 Trichlorobenzene	mg/l	-	-	<0.003	-
1,2,3-Trichloropropane	mg/l	-	-	<0.001	-
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	<0.003	-
1,2,4-Trimethylbenzene	mg/l	-	-	<0.001	-
1,2-Dibromo-3-Chloropropane	mg/l	-	-	<0.002	-
1,2-Dibromoethane	mg/l	-	-	<0.001	-
1,2-Dichlorobenzene	mg/l	-	-	<0.001	-
1,2-Dichloroethane	mg/l	0.01	0.01	<0.002	-
1,2-Dichloropropane	mg/l	-	-	<0.001	-
1,3,5-Trimethylbenzene	mg/l	-	-	<0.001	-
1,3-Dichlorobenzene	mg/l	-	-	<0.001	-
1,3-Dichloropropane	mg/l	-	-	<0.001	-
1,4-Dichlorobenzene	mg/l	-	-	<0.001	-
2,2-Dichloropropane	mg/l	-	-	<0.001	-
2-Chlorotoluene	mg/l	-	-	<0.001	-
4-Chlorotoluene	mg/l	-	-	<0.001	-
4-Isopropyltoluene	mg/l	-	-	<0.001	-
Acenaphthene	mg/l	-	-	-	<0.00001
Acenaphthylene	mg/l	-	-	-	<0.00001
Aliphatics & Aromatics >C5-35	mg/l	-	-	<0.01	-
Aliphatics >C10-12	mg/l	-	-	<0.005	-
Aliphatics >C12-16	mg/l	-	-	<0.005	-
Aliphatics >C16-21	mg/l	-	-	<0.005	-
Aliphatics >C21-35	mg/l	-	-	<0.005	-
Aliphatics >C5-35	mg/l	-	-	<0.005	-
Aliphatics >C5-6	mg/l	-	-	<0.001	-
Aliphatics >C6-8	mg/l	-	-	<0.001	-
Aliphatics >C8-10	mg/l	-	-	<0.005	-
Alkalinity (Bicarbonate)	mg/l CaCO3	-	-	220	260
Ammoniacal Nitrogen as N	mg/l	0.2	-	3.47	0.59
Ammoniacal Nitrogen as NH4	mg/l	-	-	-	-
Anthracene	mg/l	0.0001	0.0001	-	<0.00001
Antimony	mg/l	-	-	0.001	0.002
Aromatics >C10-12	mg/l	-	-	<0.005	-
Aromatics >C12-16	mg/l	-	-	<0.005	-
Aromatics >C16-21	mg/l	-	-	<0.005	-
Aromatics >C21-35	mg/l	-	-	<0.01	-
Aromatics >C5-35	mg/l	-	-	<0.01	-
Aromatics >C5-7	mg/l	-	-	<0.001	-
Aromatics >C7-8	mg/l	-	-	<0.001	-
Aromatics >C8-10	mg/l	-	-	<0.005	-
Arsenic	mg/l	0.05	0.025	0.008	0.007
Barium	mg/l	-	-	0.079	0.076
Benzene	mg/l	0.01	0.008	<0.001	-
Benzo (g,h,i) perylene	mg/l	-	-	-	<0.00001
Benzo(a)anthracene	mg/l	-	-	-	<0.00001
Benzo(a)pyrene	mg/l	1.7E-07	0.00000017	-	<0.00001
Benzo(b)fluoranthene	mg/l	-	-	-	<0.00001
Benzo(k)fluoranthene	mg/l	-	-	-	<0.00001
Beryllium	mg/l	-	-	<0.001	<0.001
BOD (settled, 5 day)*	mg/l	-	-	-	<1
Boron	mg/l	2	7	0.143	0.234
Bromobenzene	mg/l	-	-	<0.001	-
Bromochloromethane	mg/l	-	-	<0.005	-
Bromodichloromethane	mg/l	-	-	<0.01	-
Bromomethane	mg/l	-	-	<0.001	-
Cadmium	mg/l	0.00008	0.0002	0.0003	0.0002
Calcium	mg/l	-	-	161	176
Carbon Disulphide	mg/l	-	-	<0.001	-
Chemical oxygen demand	mg/l	-	-	-	35
Chloride	mg/l	250	-	197	348
Chlorobenzene	mg/l	-	-	<0.001	-
Chloroethane	mg/l	-	-	<0.001	-
Chloroethene	mg/l	-	-	<0.001	-
Chloroform	mg/l	0.0025	0.0025	<0.001	-
Chloromethane	mg/l	-	-	<0.01	-
Chromium	mg/l	0.005	0.015	<0.001	<0.001
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.01	<0.01
Chrysene	mg/l	-	-	-	<0.00001
cis-1,2-Dichloroethene	mg/l	-	-	<0.001	-
cis-1,3-Dichloropropene	mg/l	-	-	<0.001	-
Copper	mg/l	0.001	-	0.004	0.006
Cyanide	mg/l	0.001	0.001	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005
Dibenz-a-h-anthracene	mg/l	-	-	-	<0.00001
Dibromochloromethane	mg/l	-	-	<0.003	-
Dibromomethane	mg/l	-	-	<0.001	-
Dichlorodifluoromethane	mg/l	-	-	<0.001	-
Dichloromethane	mg/l	0.02	0.02	<0.005	-
Ethylbenzene	mg/l	0.02	0.02	<0.001	-
Fluoranthene	mg/l	0.0000063	0.0000063	-	0.00002

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme					
Area 3A Surface Water Laboratory Analysis Table			Location ID	SW5	SW5
Project Number: ENVIMSW002194			Sample Depth		
			Geology Code		
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Jan
Fluorene	mg/l	-	-	-	<0.00001
Fluoride	mg/l	-	-	<0.1	0.17
Hardness,Total as CaC03	mg/l CaCO3	-	-	507	659
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	<0.001	-
Indeno(1,2,3-cd)pyrene	mg/l	-	-	-	<0.00001
Iron	mg/l	1	1	0.222	0.414
Isopropylbenzene	mg/l	-	-	<0.001	-
Lead	mg/l	0.0012	0.0013	0.002	0.005
m,p xylenes	mg/l	-	-	<0.001	-
Magnesium	mg/l	-	-	26	53
Manganese	mg/l	0.22	-	0.097	0.161
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001
Methyl tert-butyl ether (MTBE)	mg/l	-	-	<0.001	-
Methylphenols	mg/l	0.1	0.1	<0.01	-
Molybdenum	mg/l	-	-	0.0034	0.0031
Naphthalene	mg/l	0.002	0.002	-	0.00021
n-Butylbenzene	mg/l	-	-	<0.001	-
Nickel	mg/l	0.004	0.0086	0.003	0.003
Nitrate as NO3	mg/l	-	-	10.6	12.4
n-propylbenzene	mg/l	-	-	<0.001	-
Ortho Phosphate as PO4	mg/l	-	-	-	0.57
O-Xylene	mg/l	0.03	-	<0.001	-
PAH 16 Total	mg/l	-	-	-	0.00026
PAH 16 Total	-	-	-	<0.01	-
pH	pH	-	-	7.83	7.58
Phenanthrene	mg/l	-	-	-	0.00001
Phenol	mg/l	0.0077	0.0077	<0.01	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	-
Pyrene	mg/l	-	-	-	0.00002
Resorcinol	mg/l	-	-	<0.01	-
Sec-Butylbenzene	mg/l	-	-	<0.001	-
Selenium	mg/l	-	-	<0.001	<0.001
Settled COD	mg/l	-	-	-	-
Sodium	mg/l	-	-	86	285
Solids, Suspended	mg/l	-	-	-	28
Styrene	mg/l	0.05	0.05	<0.001	-
Sulphate	mg/l	-	-	160	234
Sulphur	mg/l	-	-	57	82
Tert-Butylbenzene	mg/l	-	-	<0.002	-
Tetrachloroethene	mg/l	0.01	0.01	<0.001	-
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	<0.001	-
TOC (filtered)	mg/l	-	-	-	-
Toluene	mg/l	0.074	0.074	<0.001	-
Total dissolved solids	mg/l	-	-	916	1188
TPH/EPH >C6-40	mg/l	-	-	-	<0.04
trans-1,2-Dichloroethene	mg/l	-	-	<0.001	-
trans-1,3-Dichloropropene	mg/l	-	-	<0.001	-
Tribromomethane	mg/l	-	-	<0.001	-
Trichloroethene	mg/l	0.01	0.01	<0.001	-
Trichlorofluoromethane	mg/l	-	-	<0.001	-
Trivalent Chromium	mg/l	0.0047	-	<0.01	<0.01
Vanadium	mg/l	0.02	0.1	0.002	0.003
Xylenols	mg/l	-	-	<0.01	-
Zinc	mg/l	0.0109	0.0068	0.075	0.03

Area 4

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme							
Area 4 Surface Water Laboratory Analysis Table			Location ID	SW6	SW6	SW7	SW7
Project Number: ENVIMSW002194							
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Jan	Nov	Jan
Acenaphthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Acenaphthylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Alkalinity (Bicarbonate)	mg/l CaCO3	-	-	200	195	340	180
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.41	0.14	0.1	0.12
Anthracene	mg/l	0.0001	0.0001	<0.00001	<0.00001	<0.00001	<0.00001
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/l	0.05	0.025	0.003	0.002	0.006	0.004
Barium	mg/l	-	-	0.028	0.016	0.065	0.066
Benzo (g,h,i) perylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)pyrene	mg/l	1.7E-07	1.7E-07	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(b)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(k)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Beryllium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001
BOD (settled, 5 day)*	mg/l	-	-	20	<1	<1	1
Boron	mg/l	2	7	0.082	0.083	0.182	0.093
Cadmium	mg/l	0.00008	0.0002	0.0095	0.0016	0.0009	0.0014
Calcium	mg/l	-	-	63	70	175	94
Chemical oxygen demand	mg/l	-	-	65	72	37	40
Chloride	mg/l	250	-	34	29	43	62
Chromium	mg/l	0.005	0.015	0.001	<0.001	<0.001	0.002
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.01	<0.01	<0.01	<0.01
Chrysene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Copper	mg/l	0.001	-	0.009	0.004	0.003	0.007
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005
Dibenz-a-h-anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Fluoranthene	mg/l	0.0000063	0.0000063	<0.00001	<0.00001	<0.00001	<0.00001
Fluorene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Fluoride	mg/l	-	-	0.55	0.4	0.33	0.27
Hardness,Total as CaC03	mg/l CaCO3	-	-	222	239	633	333
Indeno(1,2,3-cd)pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Iron	mg/l	1	1	1	0.481	0.186	1.74
Lead	mg/l	0.0012	0.0013	0.017	0.004	0.002	0.021
Magnesium	mg/l	-	-	16	16	48	24
Manganese	mg/l	0.22	-	0.855	0.136	0.049	0.08
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	mg/l	-	-	<0.0005	<0.0005	<0.0005	<0.0005
Naphthalene	mg/l	0.002	0.002	<0.00001	<0.00001	<0.00001	<0.00001
Nickel	mg/l	0.004	0.0086	0.007	0.003	0.002	0.004
Nitrate as NO3	mg/l	-	-	0.1	2.9	7.8	9.6
Ortho Phosphate as PO4	mg/l	-	-	1.71	0.65	0.63	0.4
O-Xylene	mg/l	0.03	-	-	-	-	-
PAH 16 Total	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
pH	pH	-	-	8.15	7.44	8.46	7.56
Phenanthrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Phenol	mg/l	0.0077	0.0077	-	<0.01	-	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	-	<0.01	-
Pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001
Sodium	mg/l	-	-	19	17	31	35
Solids, Suspended	mg/l	-	-	52	15	11	196
Sulphate	mg/l	-	-	35	14	336	153
Sulphur	mg/l	-	-	15	5	115	49
TOC (filtered)	mg/l	-	-	19.7	-	6.1	-
Total dissolved solids	mg/l	-	-	313	256	902	417
TPH/EPH >C6-40	mg/l	-	-	<0.04	<0.04	<0.04	<0.04
Trivalent Chromium	mg/l	0.0047	-	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/l	0.02	0.1	0.002	0.002	0.003	0.005
Zinc	mg/l	0.0109	0.0068	0.253	0.05	0.036	0.112

Area 5

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme								
Area 5 Surface Water Laboratory Analysis Table			Location ID	SW15	SW15	SW16	SW16	SW17
Project Number: ENVIMSW002194			Sample Depth					
			Geology Code					
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Jan	Nov	Jan	Jan
Acenaphthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Acenaphthylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Alkalinity (Bicarbonate)	mg/l CaCO3	-	-	330	290	345	315	330
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.47	0.15	0.19	0.14	1.58
Anthracene	mg/l	0.0001	0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/l	0.05	0.025	0.002	0.002	0.002	0.002	0.002
Barium	mg/l	-	-	0.009	0.057	0.066	0.071	0.025
Benzo (g,h,i) perylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	0.00002	<0.00001
Benzo(a)anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	0.00002	<0.00001
Benzo(a)pyrene	mg/l	1.7E-07	0.00000017	<0.00001	<0.00001	<0.00001	0.00002	<0.00001
Benzo(b)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	0.00004	<0.00001
Benzo(k)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	0.00001	<0.00001
Beryllium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
BOD (settled, 5 day)*	mg/l	-	-	2	3	<1	3	2
Boron	mg/l	2	7	0.2	0.12	0.072	0.06	0.172
Cadmium	mg/l	0.00008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Calcium	mg/l	-	-	82	98	138	122	83
Chemical oxygen demand	mg/l	-	-	52	25	25	51	83
Chloride	mg/l	250	-	34	53	38	37	26
Chromium	mg/l	0.005	0.015	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	mg/l	-	-	<0.00001	<0.00001	<0.00001	0.00004	<0.00001
Copper	mg/l	0.001	-	0.005	0.003	0.005	0.008	0.006
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Dibenz-a-h-anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Fluoranthene	mg/l	0.0000063	0.0000063	<0.00001	0.00001	<0.00001	0.00008	<0.00001
Fluorene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Fluoride	mg/l	-	-	0.39	0.28	0.19	0.17	0.29
Hardness,Total as CaC03	mg/l CaCO3	-	-	299	351	424	373	295
Indeno(1,2,3-cd)pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	0.00002	<0.00001
Iron	mg/l	1	1	2.53	0.27	0.209	0.41	0.492
Lead	mg/l	0.0012	0.0013	0.002	0.002	0.001	0.005	0.002
Magnesium	mg/l	-	-	23	26	19	16	21
Manganese	mg/l	0.22	-	0.629	0.068	0.042	0.088	0.168
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	mg/l	-	-	<0.0005	<0.0005	0.0008	0.0006	0.0007
Naphthalene	mg/l	0.002	0.002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Nickel	mg/l	0.004	0.0086	0.004	0.002	0.002	0.003	0.004
Nitrate as NO3	mg/l	-	-	0.2	14.2	6.7	4.8	0.8
Ortho Phosphate as PO4	mg/l	-	-	0.53	0.72	0.74	0.76	3.35
PAH 16 Total	mg/l	-	-	<0.00001	0.00002	<0.00001	0.00036	<0.00001
pH	pH	-	-	8.41	7.69	8.47	7.81	7.65
Phenanthrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	0.00004	<0.00001
Phenol	mg/l	0.0077	0.0077	-	<0.01	-	<0.01	-
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	-	<0.01	-	<0.01
Pyrene	mg/l	-	-	<0.00001	0.00001	<0.00001	0.00007	<0.00001
Selenium	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Settled COD	mg/l	-	-	-	-	-	-	83
Sodium	mg/l	-	-	34	36	26	24	27
Solids, Suspended	mg/l	-	-	17	52	31	24	620
Sulphate	mg/l	-	-	13	39	95	66	15
Sulphur	mg/l	-	-	4	12	34	21	5
TOC (filtered)	mg/l	-	-	14.6	-	5.8	-	10.7
Total dissolved solids	mg/l	-	-	277	407	478	454	522
TPH/EPH >C6-40	mg/l	-	-	<0.04	<0.04	<0.04	<0.04	<0.04
Trivalent Chromium	mg/l	0.0047	-	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/l	0.02	0.1	0.002	0.002	0.001	0.002	0.001
Zinc	mg/l	0.0109	0.0068	0.019	0.016	0.028	0.035	0.013

Appendix E. Groundwater Assessment

Area 1

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme							
Area 1 Groundwater Laboratory Analysis Table			Location ID	CP1006	CP1011	CP1011	CP1019
Project Number: ENVIMSW002194							
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Nov	Dec	Nov
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	<0.001	-	-	<0.001
1,1,1-Trichloroethane	mg/l	0.1	0.1	<0.001	-	-	<0.001
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	<0.001	-	-	<0.001
1,1,2-Trichloroethane	mg/l	0.4	0.3	<0.001	-	-	<0.001
1,1-Dichloroethane	mg/l	-	-	<0.001	-	-	<0.001
1,1-Dichloroethene	mg/l	-	-	<0.001	-	-	<0.001
1,1-Dichloropropene	mg/l	-	-	<0.001	-	-	<0.001
1,2,3 Trichlorobenzene	mg/l	-	-	<0.003	-	-	<0.003
1,2,3-Trichloropropane	mg/l	-	-	<0.001	-	-	<0.001
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	<0.003	-	-	<0.003
1,2,4-Trimethylbenzene	mg/l	-	-	<0.001	-	-	<0.001
1,2-Dibromo-3-Chloropropane	mg/l	-	-	<0.002	-	-	<0.002
1,2-Dibromoethane	mg/l	-	-	<0.001	-	-	<0.001
1,2-Dichlorobenzene	mg/l	-	-	<0.001	-	-	<0.001
1,2-Dichloroethane	mg/l	0.01	0.01	<0.002	-	-	<0.002
1,2-Dichloropropane	mg/l	-	-	<0.001	-	-	<0.001
1,3,5-Trimethylbenzene	mg/l	-	-	<0.001	-	-	<0.001
1,3-Dichlorobenzene	mg/l	-	-	<0.001	-	-	<0.001
1,3-Dichloropropane	mg/l	-	-	<0.001	-	-	<0.001
1,4-Dichlorobenzene	mg/l	-	-	<0.001	-	-	<0.001
2,2-Dichloropropane	mg/l	-	-	<0.001	-	-	<0.001
2-Chlorotoluene	mg/l	-	-	<0.001	-	-	<0.001
4-Chlorotoluene	mg/l	-	-	<0.001	-	-	<0.001
4-Isopropyltoluene	mg/l	-	-	<0.001	-	-	<0.001
Acenaphthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Acenaphthylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Aliphatics & Aromatics >C5-35	mg/l	-	-	0.031	-	-	-
Aliphatics >C10-12	mg/l	-	-	<0.005	-	-	-
Aliphatics >C12-16	mg/l	-	-	<0.005	-	-	-
Aliphatics >C16-21	mg/l	-	-	<0.005	-	-	-
Aliphatics >C21-35	mg/l	-	-	<0.005	-	-	-
Aliphatics >C5-35	mg/l	-	-	<0.005	-	-	-
Aliphatics >C5-6	mg/l	-	-	<0.001	<0.001	-	<0.001
Aliphatics >C6-8	mg/l	-	-	<0.001	<0.001	-	<0.001
Aliphatics >C8-10	mg/l	-	-	<0.005	-	-	-
Alkalinity (Bicarbonate)	mg/l CaCO3	-	-	415	965	825	1295
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.23	1.06	0.63	26.1
Anthracene	mg/l	0.0001	0.0001	<0.00001	<0.00001	<0.00001	<0.00001
Antimony	mg/l	-	-	<0.001	<0.005	<0.001	<0.001
Aromatics >C10-12	mg/l	-	-	<0.005	-	-	-
Aromatics >C12-16	mg/l	-	-	0.005	-	-	-
Aromatics >C16-21	mg/l	-	-	0.01	-	-	-
Aromatics >C21-35	mg/l	-	-	0.016	-	-	-
Aromatics >C5-35	mg/l	-	-	0.031	-	-	-
Aromatics >C5-7	mg/l	-	-	<0.001	<0.001	-	<0.001
Aromatics >C7-8	mg/l	-	-	<0.001	<0.001	-	<0.001
Aromatics >C8-10	mg/l	-	-	<0.005	-	-	-
Arsenic	mg/l	0.05	0.025	0.002	0.007	0.01	0.037
Barium	mg/l	-	-	0.035	0.1	0.043	0.412
Benzene	mg/l	0.01	0.008	<0.001	<0.001	-	<0.001
Benzo (g,h,i) perylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)pyrene	mg/l	1.7E-07	0.00000017	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(b)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(k)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Beryllium	mg/l	-	-	<0.001	<0.005	<0.001	<0.001
BOD (settled, 5 day)*	mg/l	-	-	<1	-	<1	9
Boron	mg/l	2	7	0.311	1.63	1.93	2.61
Bromobenzene	mg/l	-	-	<0.001	-	-	<0.001
Bromochloromethane	mg/l	-	-	<0.005	-	-	<0.005
Bromodichloromethane	mg/l	-	-	<0.01	-	-	<0.01
Bromomethane	mg/l	-	-	<0.001	-	-	<0.001
Cadmium	mg/l	0.00008	0.0002	<0.0002	<0.001	<0.0002	<0.0002
Calcium	mg/l	-	-	121	247	338	354
Carbon Disulphide	mg/l	-	-	<0.001	-	-	<0.001
Chemical oxygen demand	mg/l	-	-	21	106	122	168
Chloride	mg/l	250	-	54	4380	4450	4980
Chlorobenzene	mg/l	-	-	<0.001	-	-	<0.001
Chloroethane	mg/l	-	-	<0.001	-	-	<0.001
Chloroethene	mg/l	-	-	<0.001	-	-	<0.001
Chloroform	mg/l	0.0025	0.0025	<0.001	-	-	<0.001
Chloromethane	mg/l	-	-	<0.01	-	-	<0.01
Chromium	mg/l	0.005	0.015	0.002	0.007	0.007	0.008
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.01	<0.01	<0.01	<0.01
Chrysene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
cis-1,2-Dichloroethene	mg/l	-	-	<0.001	-	-	<0.001
cis-1,3-Dichloropropene	mg/l	-	-	<0.001	-	-	<0.001
Copper	mg/l	0.001	-	0.012	0.009	0.007	0.016
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005
Dibenz-a-h-anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Dibromochloromethane	mg/l	-	-	<0.003	-	-	<0.003
Dibromomethane	mg/l	-	-	<0.001	-	-	<0.001
Dichlorodifluoromethane	mg/l	-	-	<0.001	-	-	<0.001
Dichloromethane	mg/l	0.02	0.02	<0.005	-	-	<0.005
Ethylbenzene	mg/l	0.02	0.02	<0.001	<0.001	-	<0.001
Fluoranthene	mg/l	0.0000063	0.0000063	<0.00001	<0.00001	<0.00001	<0.00001
Fluorene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme							
Area 1 Groundwater Laboratory Analysis Table			Location ID	CP1006	CP1011	CP1011	CP1019
Project Number: ENVIMSW002194							
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Nov	Dec	Nov
Fluoride	mg/l	-	-	0.59	0.38	0.44	0.54
Hardness,Total as CaC03	mg/l CaCO3	-	-	439	1780	1980	2320
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	<0.001	-	-	<0.001
Indeno(1,2,3-cd)pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Iron	mg/l	1	1	2.89	12.7	8.53	19.7
Isopropylbenzene	mg/l	-	-	<0.001	-	-	<0.001
Lead	mg/l	0.0012	0.0013	0.009	0.009	0.041	0.01
m,p xylenes	mg/l	-	-	<0.001	<0.001	-	<0.001
Magnesium	mg/l	-	-	33	268	276	350
Manganese	mg/l	0.22	-	0.258	0.746	0.912	1.75
Mercury	mg/l	0.00007	0.00007	<0.0001	0.0005	<0.0001	0.0006
Methyl tert-butyl ether (MTBE)	mg/l	-	-	<0.001	<0.001	-	<0.001
Methylphenols	mg/l	0.1	0.1	<0.01	-	-	<0.01
Molybdenum	mg/l	-	-	0.0007	<0.0025	0.0008	0.0101
Naphthalene	mg/l	0.002	0.002	<0.00001	0.00008	<0.00001	<0.00001
n-Butylbenzene	mg/l	-	-	<0.001	-	-	<0.001
Nickel	mg/l	0.004	0.0086	0.022	0.006	0.012	0.092
Nitrate as NO3	mg/l	-	-	1.1	<0.1	0.2	0.2
n-propylbenzene	mg/l	-	-	<0.001	-	-	<0.001
Ortho Phosphate as PO4	mg/l	-	-	<0.02	<0.02	<0.02	0.05
O-Xylene	mg/l	0.03	-	<0.001	<0.001	-	<0.001
PAH 16 Total	mg/l	-	-	<0.00001	0.00008	<0.00001	<0.00001
pH	pH	-	-	8.3	7.79	8.01	8.13
Phenanthrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Phenol	mg/l	0.0077	0.0077	<0.01	-	-	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01
Pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001
Resorcinol	mg/l	-	-	<0.01	-	-	<0.01
Sec-Butylbenzene	mg/l	-	-	<0.001	-	-	<0.001
Selenium	mg/l	-	-	0.001	<0.005	0.001	0.017
Sodium	mg/l	-	-	61	2410	2730	3250
Solids, Suspended	mg/l	-	-	616	368	110	57
Styrene	mg/l	0.05	0.05	<0.001	-	-	<0.001
Sulphate	mg/l	-	-	28	571	591	539
Sulphur	mg/l	-	-	9	196	225	194
Tert-Butylbenzene	mg/l	-	-	<0.002	-	-	<0.002
Tetrachloroethene	mg/l	0.01	0.01	<0.001	-	-	<0.001
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	<0.001	-	-	<0.001
TOC (filtered)	mg/l	-	-	6.4	4.6	4.3	10.3
Toluene	mg/l	0.074	0.074	<0.001	<0.001	-	<0.001
Total dissolved solids	mg/l	-	-	516	7906	8657	8942
TPH/EPH >C6-40	mg/l	-	-	<0.04	0.299	<0.04	<0.04
trans-1,2-Dichloroethene	mg/l	-	-	<0.001	-	-	<0.001
trans-1,3-Dichloropropene	mg/l	-	-	<0.001	-	-	<0.001
Tribromomethane	mg/l	-	-	<0.001	-	-	<0.001
Trichloroethene	mg/l	0.01	0.01	<0.001	-	-	<0.001
Trichlorofluoromethane	mg/l	-	-	<0.001	-	-	<0.001
Trivalent Chromium	mg/l	0.0047	-	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/l	0.02	0.1	0.005	0.009	0.02	0.014
Xylenols	mg/l	-	-	<0.01	-	-	<0.01
Zinc	mg/l	0.0109	0.0068	0.059	0.162	0.09	0.205

Area 4

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme													
Area 4 Groundwater Laboratory Analysis Table			Location ID	WS4001	WS4001	WS4002	WS4002	WS4003	WS4003	WS4004	WS4004	WS4005
Project Number: ENVIMSW002194												
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Dec	Nov	Dec	Nov	Dec	Nov	Dec	Dec
Acenaphthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Acenaphthylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Aliphatics & Aromatics >C5-35	mg/l	-	-	-	0.145	-	-	-	-	-	-	0.721
Aliphatics >C10-12	mg/l	-	-	-	0.005	-	-	-	-	-	-	<0.005
Aliphatics >C12-16	mg/l	-	-	-	<0.005	-	-	-	-	-	-	0.016
Aliphatics >C16-21	mg/l	-	-	-	<0.005	-	-	-	-	-	-	0.025
Aliphatics >C21-35	mg/l	-	-	-	0.009	-	-	-	-	-	-	0.587
Aliphatics >C5-35	mg/l	-	-	-	0.037	-	-	-	-	-	-	0.628
Aliphatics >C5-6	mg/l	-	-	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
Aliphatics >C6-8	mg/l	-	-	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
Aliphatics >C8-10	mg/l	-	-	-	0.023	-	-	-	-	-	-	<0.005
Alkalinity (Bicarbonate)	mg/l CaCO3	-	-	550	365	495	335	565	490	280	310	450
Ammoniacal Nitrogen as N	mg/l	0.2	-	0.86	1.55	0.09	0.07	0.67	0.09	0.74	0.03	0.71
Anthracene	mg/l	0.0001	0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Antimony	mg/l	-	-	<0.001	<0.001	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
Aromatics >C10-12	mg/l	-	-	-	0.013	-	-	-	-	-	-	<0.005
Aromatics >C12-16	mg/l	-	-	-	0.015	-	-	-	-	-	-	0.018
Aromatics >C16-21	mg/l	-	-	-	0.033	-	-	-	-	-	-	0.028
Aromatics >C21-35	mg/l	-	-	-	0.032	-	-	-	-	-	-	0.047
Aromatics >C5-35	mg/l	-	-	-	0.108	-	-	-	-	-	-	0.093
Aromatics >C5-7	mg/l	-	-	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
Aromatics >C7-8	mg/l	-	-	-	<0.001	-	-	0.009	-	<0.001	-	<0.001
Aromatics >C8-10	mg/l	-	-	-	0.015	-	-	-	-	-	-	<0.005
Arsenic	mg/l	0.05	0.025	0.009	0.014	0.009	0.02	0.037	0.003	0.003	0.001	0.01
Barium	mg/l	-	-	0.126	0.04	0.176	0.128	0.311	0.04	0.007	0.037	0.111
Benzene	mg/l	0.01	0.008	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
Benzo (g,h,i) perylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)pyrene	mg/l	1.7E-07	1.7E-07	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(b)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(k)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Beryllium	mg/l	-	-	0.003	<0.001	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
BOD (settled, 5 day)*	mg/l	-	-	-	10	-	<1	-	<1	-	<1	4
Boron	mg/l	2	7	0.555	0.313	0.295	0.166	0.444	0.211	0.63	0.173	0.483
Cadmium	mg/l	0.00008	0.0002	0.0011	0.0005	0.0007	0.0005	<0.0004	0.0003	<0.0002	0.0003	0.0017
Calcium	mg/l	-	-	691	82	970	108	912	105	348	94	141
Chemical oxygen demand	mg/l	-	-	114	74	45	35	110	72	69	27	-
Chloride	mg/l	250	-	72	52	22	18	61	8	22	18	43
Chromium	mg/l	0.005	0.015	0.006	0.003	<0.002	0.006	<0.002	0.002	<0.001	0.001	0.002
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Copper	mg/l	0.001	-	0.005	0.077	0.003	0.01	0.003	0.013	<0.001	0.011	0.018
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dibenz-a-h-anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Ethylbenzene	mg/l	0.02	0.02	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
Fluoranthene	mg/l	0.0000063	0.0000063	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Fluorene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Fluoride	mg/l	-	-	0.71	0.83	0.41	0.32	0.22	<0.1	0.59	0.42	0.26
Hardness,Total as CaC03	mg/l CaCO3	-	-	2090	332	2630	381	2540	373	1120	362	487
Indeno(1,2,3-cd)pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Iron	mg/l	1	1	22	6.81	0.181	2.8	31.6	7.71	31.1	1.49	3.83
Lead	mg/l	0.0012	0.0013	0.044	0.036	<0.002	0.031	<0.002	0.014	<0.001	0.011	0.036
m,p xylenes	mg/l	-	-	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
Magnesium	mg/l	-	-	89	31	49	27	62	27	61	31	32
Manganese	mg/l	0.22	-	5.8	0.321	5.99	0.99	8.85	0.28	2.44	0.185	1.07
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Methyl tert-butyl ether (MTBE)	mg/l	-	-	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
Molybdenum	mg/l	-	-	<0.0005	0.0034	0.0038	0.0009	0.0121	0.0027	0.0075	0.001	0.0016
Naphthalene	mg/l	0.002	0.002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Nickel	mg/l	0.004	0.0086	0.036	0.039	0.022	0.02	0.037	0.015	1.96	0.009	0.012
Nitrate as NO3	mg/l	-	-	<0.1	0.4	1.6	34.3	<0.1	0.5	<0.1	28.2	<0.1
Ortho Phosphate as PO4	mg/l	-	-	0.02	<0.02	<0.02	0.86	<0.02	<0.02	0.04	<0.02	0.06
O-Xylene	mg/l	0.03	-	-	<0.001	-	-	<0.001	-	<0.001	-	<0.001
PAH 16 Total	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002
pH	pH	-	-	8.12	8.8	7.84	8.37	7.48	7.92	8.02	8.17	7.37
Phenanthrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002
Selenium	mg/l	-	-	0.003	0.01	<0.002	0.001	<0.002	0.007	<0.001	0.003	<0.001
Settled COD	mg/l	-	-	-	-	-	-	-	-	-	-	224
Sodium	mg/l	-	-	100	179	17	11	81	11	168	12	93
Solids, Suspended	mg/l	-	-	5162	19	2118	127	10908	<10	1514	152	34
Sulphate	mg/l	-	-	216	123	48	15	<1	2	65	54	47
Sulphur	mg/l	-	-	86	45	19	5	4	5	48	19	16
TOC (filtered)	mg/l	-	-	8.3	19.1	8.2	6.5	24.1	6.3	12.9	4.1	7.7
Toluene	mg/l	0.074	0.074	-	<0.001	-	-	0.009	-	<0.001	-	<0.001
Total dissolved solids	mg/l	-	-	5297	3865	5303	683	2800	531	8300	538	639
TPH/EPH >C6-40	mg/l	-	-	<0.04	0.055	<0.04	<0.04	0.254	<0.04	0.062	<0.04	1.44
Trivalent Chromium	mg/l	0.0047	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/l	0.02	0.1	0.047	0.048	0.003	0.013	0.002	0.005	0.001	0.002	0.004
Zinc	mg/l	0.0109	0.0068	1.043	0.255	0.037	0.204	0.033	0.083	0.869	0.188	0.172

Area 5

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme										
Area 5 Groundwater Laboratory Analysis Table			Location ID	WS5001	WS5001	WS5002	WS5002	WS5003	WS5004	WS5005
Project Number: ENVIMSW002194										
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Dec	Nov	Dec	Dec	Dec	Dec
1,1,1,2-Tetrachloroethane	mg/l	0.14	-	-	-	-	-	<0.001	-	<0.001
1,1,1-Trichloroethane	mg/l	0.1	0.1	-	-	-	-	<0.001	-	<0.001
1,1,2,2-Tetrachloroethane	mg/l	0.14	-	-	-	-	-	<0.001	-	<0.001
1,1,2-Trichloroethane	mg/l	0.4	0.3	-	-	-	-	<0.001	-	<0.001
1,1-Dichloroethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,1-Dichloroethene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,1-Dichloropropene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,2,3 Trichlorobenzene	mg/l	-	-	-	-	-	-	<0.003	-	<0.003
1,2,3-Trichloropropane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,2,4-Trichlorobenzene	mg/l	0.0004	0.0004	-	-	-	-	<0.003	-	<0.003
1,2,4-Trimethylbenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,2-Dibromo-3-Chloropropane	mg/l	-	-	-	-	-	-	<0.002	-	<0.002
1,2-Dibromoethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,2-Dichlorobenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,2-Dichloroethane	mg/l	0.01	0.01	-	-	-	-	<0.002	-	<0.002
1,2-Dichloropropane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,3,5-Trimethylbenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,3-Dichlorobenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,3-Dichloropropane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
1,4-Dichlorobenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
2,2-Dichloropropane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
2-Chlorotoluene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
4-Chlorotoluene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
4-Isopropyltoluene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Acenaphthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Acenaphthylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Aliphatics & Aromatics >C5-35	mg/l	-	-	-	-	-	-	0.037	-	<0.01
Aliphatics >C10-12	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Aliphatics >C12-16	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Aliphatics >C16-21	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Aliphatics >C21-35	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Aliphatics >C5-35	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Aliphatics >C5-6	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Aliphatics >C6-8	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Aliphatics >C8-10	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Alkalinity (Bicarbonate)	mg/l CaCO3	-	-	430	480	515	420	535	430	475
Ammoniacal Nitrogen as N	mg/l	0.2	-	3.07	0.86	0.24	0.38	0.53	0.31	3.09
Anthracene	mg/l	0.0001	0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Antimony	mg/l	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aromatics >C10-12	mg/l	-	-	-	-	-	-	0.006	-	<0.005
Aromatics >C12-16	mg/l	-	-	-	-	-	-	0.008	-	<0.005
Aromatics >C16-21	mg/l	-	-	-	-	-	-	0.009	-	<0.005
Aromatics >C21-35	mg/l	-	-	-	-	-	-	0.015	-	<0.01
Aromatics >C5-35	mg/l	-	-	-	-	-	-	0.037	-	<0.01
Aromatics >C5-7	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Aromatics >C7-8	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Aromatics >C8-10	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Arsenic	mg/l	0.05	0.025	0.048	0.026	0.038	0.026	0.038	0.018	0.023
Barium	mg/l	-	-	0.108	0.057	0.081	0.024	0.053	0.029	0.046
Benzene	mg/l	0.01	0.008	-	-	-	-	<0.001	-	<0.001
Benzo (g,h,i) perylene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)pyrene	mg/l	1.7E-07	1.7E-07	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(b)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(k)fluoranthene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Beryllium	mg/l	-	-	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BOD (settled, 5 day)*	mg/l	-	-	-	4	-	<1	2	<1	<1
Boron	mg/l	2	7	1.01	0.838	0.488	0.487	0.867	0.536	0.774
Bromobenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Bromochloromethane	mg/l	-	-	-	-	-	-	<0.005	-	<0.005
Bromodichloromethane	mg/l	-	-	-	-	-	-	<0.01	-	<0.01
Bromomethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Cadmium	mg/l	0.00008	0.0002	0.0026	0.0003	0.0067	<0.0002	0.0008	<0.0002	0.0003
Calcium	mg/l	-	-	190	139	164	73	93	77	125
Carbon Disulphide	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Chemical oxygen demand	mg/l	-	-	56	35	60	60	36	34	24
Chloride	mg/l	250	-	166	53	67	64	178	30	210
Chlorobenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Chloroethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Chloroethene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Chloroform	mg/l	0.0025	0.0025	-	-	-	-	<0.001	-	<0.001
Chloromethane	mg/l	-	-	-	-	-	-	<0.01	-	<0.01
Chromium	mg/l	0.005	0.015	0.023	0.006	0.017	0.001	0.003	<0.001	0.005
Chromium - Hexavalent	mg/l	0.0034	0.0006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
cis-1,2-Dichloroethene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
cis-1,3-Dichloropropene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Copper	mg/l	0.001	-	0.014	0.001	0.012	0.002	0.018	0.002	0.011
Cyanide	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide Free	mg/l	0.001	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dibenz-a-h-anthracene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dibromochloromethane	mg/l	-	-	-	-	-	-	<0.003	-	<0.003
Dibromomethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Dichlorodifluoromethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Dichloromethane	mg/l	0.02	0.02	-	-	-	-	<0.005	-	<0.005
Ethylbenzene	mg/l	0.02	0.02	-	-	-	-	<0.001	-	<0.001
Fluoranthene	mg/l	0.0000063	0.0000063	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Fluorene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001

Avonmouth Severn Side Enterprise Area Ecology Mitigation and Flood Defence Scheme										
Area 5 Groundwater Laboratory Analysis Table			Location ID	WS5001	WS5001	WS5002	WS5002	WS5003	WS5004	WS5005
Project Number: ENVIMSW002194										
Determinant Name	Units	$EQS_{(FRESH)}$	$EQS_{(COASTAL)}$	Nov	Dec	Nov	Dec	Dec	Dec	Dec
Fluoride	mg/l	-	-	0.53	0.46	0.63	0.55	0.63	0.7	0.66
Hardness,Total as CaC03	mg/l CaCO3	-	-	734	531	620	344	399	332	486
Hexachlorobutadiene (HCBD)	mg/l	0.0001	0.0001	-	-	-	-	<0.001	-	<0.001
Indeno(1,2,3-cd)pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Iron	mg/l	1	1	36	11.1	19.1	3.91	16.3	2.14	5.47
Isopropylbenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Lead	mg/l	0.0012	0.0013	0.065	0.012	0.028	0.001	0.01	<0.001	0.005
m,p xylenes	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Magnesium	mg/l	-	-	63	45	51	40	40	34	45
Manganese	mg/l	0.22	-	2.12	1.56	3.15	2.06	1.83	0.499	1.23
Mercury	mg/l	0.00007	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Methyl tert-butyl ether (MTBE)	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Methylphenols	mg/l	0.1	0.1	-	-	-	-	<0.01	-	<0.01
Molybdenum	mg/l	-	-	<0.0005	0.0016	0.0011	0.0058	0.0063	0.0103	0.01
Naphthalene	mg/l	0.002	0.002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
n-Butylbenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Nickel	mg/l	0.00588	0.0086	0.195	0.042	0.707	0.029	0.085	0.14	0.127
Nitrate as NO3	mg/l	-	-	<0.1	0.2	0.1	<0.1	0.3	<0.1	2
n-propylbenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Ortho Phosphate as PO4	mg/l	-	-	2.34	<0.02	<0.02	<0.02	<0.02	<0.02	0.03
O-Xylene	mg/l	0.03	-	-	-	-	-	<0.001	-	<0.001
PAH 16 Total	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001
pH	pH	-	-	8.53	8.24	8.31	8.06	8.26	8.2	8.08
Phenanthrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Phenol	mg/l	0.0077	0.0077	-	-	-	-	<0.01	-	<0.01
Phenol (Monohydric)	mg/l	0.0077	0.0077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	mg/l	-	-	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001
Resorcinol	mg/l	-	-	-	-	-	-	<0.01	-	<0.01
Sec-Butylbenzene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Selenium	mg/l	-	-	0.002	0.001	0.002	<0.001	<0.001	<0.001	0.003
Sodium	mg/l	-	-	237	98	108	88	279	87	208
Solids, Suspended	mg/l	-	-	385	591	376	265	308	321	189
Styrene	mg/l	0.05	0.05	-	-	-	-	<0.001	-	<0.001
Sulphate	mg/l	-	-	28	42	80	45	107	87	122
Sulphur	mg/l	-	-	9	18	31	16	37	43	43
Tert-Butylbenzene	mg/l	-	-	-	-	-	-	<0.002	-	<0.002
Tetrachloroethene	mg/l	0.01	0.01	-	-	-	-	<0.001	-	<0.001
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	0.012	-	-	-	-	<0.001	-	<0.001
TOC (filtered)	mg/l	-	-	9.2	8.7	8.6	14.3	11.1	9	8
Toluene	mg/l	0.074	0.074	-	-	-	-	<0.001	-	<0.001
Total dissolved solids	mg/l	-	-	657	748	650	662	857	655	873
TPH/EPH >C6-40	mg/l	-	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
trans-1,2-Dichloroethene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
trans-1,3-Dichloropropene	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Tribromomethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Trichloroethene	mg/l	0.01	0.01	-	-	-	-	<0.001	-	<0.001
Trichlorofluoromethane	mg/l	-	-	-	-	-	-	<0.001	-	<0.001
Trivalent Chromium	mg/l	0.0047	-	0.02	<0.01	0.02	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/l	0.02	0.1	0.066	0.015	0.035	0.003	0.008	0.001	0.006
Xylenols	mg/l	-	-	-	-	-	-	<0.01	-	<0.01
Zinc	mg/l	0.0109	0.0068	0.266	0.096	0.377	0.01	0.135	0.016	0.063

Appendix F. Acceptability Criteria

The following tables present the reuse criteria of material on-site for the protection of human health (Table F.1) and to controlled waters (Table F.2).

Table F.1: Acceptability Criteria for the Protection of Human Health

Determinants	Threshold (mg/kg)
Metals	
Antimony	3300
Arsenic	170
Barium	5800
Beryllium	63
Boron	46000
Cadmium	560
Chromium (III)	33000
Chromium (VI)	220
Copper	44000
Nickel	800
Elemental Mercury (Hg)	29
Inorganic Mercury (Hg^{2+})	240
Methyl Mercury (Hg^{+})	66
Molybdenum	2900
Selenium	1800
Vanadium	5000
Zinc	170000
Lead	1300
Petroleum Hydrocarbons	
Mineral oil (C10 to C40)	500*
Polycyclic Aromatic Hydrocarbons	
Acenaphthene	30000
Acenaphthylene	30000
Anthracene	150000
Benz[a]anthracene	56
Benzo[a]pyrene	12
Benzo[b]fluoranthene	15

Benzo[ghi]perylene	1500
Benzo(k)fluoranthene	410
Chrysene	110
Dibenz[ah]anthracene	1.3
Fluoranthene	6300
Fluorene	20000
Indeno[123-cd]pyrene	170
Naphthalene	1900
Phenanthrene	6200
Pyrene	15000
Miscellaneous	
Cyanide (free)	18

Largely based on the GSC for a Public Open Space (park) land use.

*Based on the waste acceptance criteria limit value for inert waste material.

Table F.2: Acceptability Criteria for the Protection of Controlled Waters

Determinants	Thresholds (mg/l)
Metals	
Arsenic	0.025
Boron	2
Cadmium	0.00008
Chromium	0.005
Chromium - Hexavalent	0.0006
Chromium - Trivalent	0.0047
Copper	0.0165*
Lead	0.0312*
Mercury	0.00007
Nickel	0.00588
Vanadium	0.02
Zinc	0.1139*
Total Petroleum Hydrocarbon	
Speciated TPH	0.01±

Largely based on the EQS values for fresh water or coastal and transitional waters.

*Calculated 95th percentile thresholds.

±Based on the threshold value for drinking water as stated in The Water Supply (Water Quality) Regulations 1989.