REPORT 3

EPS MR LTD ENVIRONMENTAL PERMIT VARIATION

UPDATED ENVIRONMENTAL RISK ASSESSMENT

Report Number 1469r31v1d0316

Commissioned by

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1 INTRODUCTION

1.1 Scope of Report

Geotechnology has been commissioned by EPS MR Ltd to prepare a Permit Variation application for their scrap metal export facility at Swansea Docks. The Site Location is outlined on Figures 1 and 2.

The variation of the existing Standard Rules Environmental Permit (Ref: EPR/JB3135RA/T001) to a bespoke environmental Permit would help enable EPS MR to bring their current operation into regulatory compliance as they are operating outside the boundary of the current Standard Rules Permit. The Variation also enables the existing T9 Exemption held by EPS MR (Ref: EPR/AF0132VC/A001) for the recovery of scrap metal to be consolidated in a modern Permit. A separate Permit Surrender application will be submitted for the Standard Rules Environmental Permit EPR/HB3932RS/A001.

The principle reason that a bespoke application is required is because the new proposed Permit boundary is <500m from a designated site and EPS MR proposes to discharge treated drainage to the adjacent King's Dock.

This report provides an assessment of the environmental risks potentially posed by the Variation.

2 SITE SETTING

2.1 Current Site Use and Access

The current site is located south of Kings Dock, Swansea at Ordnance Survey Grid Reference SN 6807 9265. Its location is shown on Figure 1 and in the aerial photograph provided in Appendix 1.

2.2 Current Surrounding Land Use

The site is located within the Port of Swansea just southeast of the city centre and forms part of Dockland. The surrounding Quaysides are used by a range of business including several waste operations. The waste operations include temporary storage of RDF for export, inert and non-hazardous soil transfer, glass recycling, wood export and a dry dock for dismantling end of life ships. Other (non-waste) commercial operations include coal and cement handling, and fertiliser production and handling. In addition to these fixed position activities, births in Kings Dock are also used to take delivery of a range of varied goods. Queens Dock, to the south, is solely used for the farming of mussels.

Several rail tracks traverse the area surrounding the site and a landing stage and jetties extend into Queens Dock to the south.

Swansea City Centre is located 2km to the northwest of the site and the River Tawe enters Swansea Bay through a barrage system some 1.5km west of the site. Extensive residential and commercial redevelopment of the formers docks area to the west of the site is ongoing.

The A483 traverses west-east some 0.5km north of the site.

The nearest residential housing is situated 0.5km north of the site in the Port Tennant area of Swansea.

2.3 Environmental Setting

2.3.1 Superficial Deposits and Geology

The site is underlain by thick marine beach deposits which have largely obscured the solid geology beneath. The geological sheet records data from a number of boreholes in the vicinity of the site which have encountered made ground overlying thick sequences of clay, sand and gravel with some peat bands to in excess of 84 feet. Some 1.2km northwest of the site at Dan-y-Graig Engine Sheds a grey sandstone with underlying mudstone, coal and seatearth beds were encountered at 76 feet depth which are likely to be strata belonging to the Middle Coal Measures, Carboniferous in age.

The area to the north of the site is indicated to lie within a fault bounded block between the Swansea Valley Fault to the west and the Pwll Mawr Fault to the east. The proven east-west trending Tormynydd coal seam crops some 850m north of the site which is shown to have been accessed via an adit. The strata in this area are dipping northwards at around 40^0 and the area to the north of this seam exhibits many coal seams, several of which are known to have been worked.

South of the Tormynydd coal seam and in the vicinity of the site there is very little information shown on the Geological Sheet with regard to the solid geology and mining. It is considered unlikely; however, that coal mining would have taken place beneath the site due to accessibility constraints, the large thicknesses of superficial cover and the historical site use as a port facility.

2.3.2 Surface Water

The site lies between the catchments of the River Tawe to the West and the River Neath to the East. The site is southwest of Crymlyn Bog.

The Port Tennant Canal which traverses east-northeast to west-southwest terminates some 570m northeast of the site.

There are no River Quality Biology or Chemistry Sampling points within either of the above watercourses within 1km of the site although the River Quality in the Port Tennant Canal 820m northeast of the site was recorded as GQA River Quality E in 2000.

The directly adjacent Kings Dock and adjoining Docks are part of the Tawe Transitional Waterbody (GB541005900900). The Queens Docks, which is connected to Kings Dock is a Shellfish Water Protected Area (SWPA). The 2015 Water Framework Directive Overall Waterbody Status for the Tawe Transitional Water is Moderate with Moderate Ecological Potential (driven by a failures for Zn) and at Good Chemical Status. The objectives for this waterbody are to achieve Good Overall Waterbody Status by 2027, Good Ecological Potential by 2027 and Good Chemical Status by 2015.

Swansea Bay coastal waterbody is downstream of TTW and includes Swansea Bay East SWPA, Swansea Bay West SWPA and Swansea Bay South SWPA. The 2015 WFD Overall Waterbody Status is Moderate with Moderate Ecological Potential and Failed Chemical Status. The objectives for this waterbody are to achieve Good Overall Waterbody Status by 2027, Good Ecological Potential by 2021 and Good Chemical Status by 2027.

Queens Dock is designated a Bivalve Mollusc Production Area as Thomas Shellfish farm Rope Grown Mussels. This area is currently classified as Long Term Class B.

Monitoring of water quality, and other parameters, in the TTW and the BMPA, is undertaken by a range of organisations including NRW, the Port Health Authority, CEFAS and Thomas Shellfish.

2.3.3 Flood Potential

The site lies within Flood Zone 2 which means that the site is at risk of Extreme Flooding from Rivers or Sea without Defences.

2.3.4 Hydrogeology

The site is not located in a groundwater protection zone.

The site is located in the Western Wales River Basin. Locally, the EA refers to the groundwater body as the Swansea Carboniferous Coal Measures (Waterbody ID GB41002G201000).

The area within which the site is located is considered to have poor groundwater quality and to be a minor aquifer. Unlike principal aquifers which offer significant groundwater resources and which need to be managed through abstraction licensing within a Catchment Abstraction Management Strategy (CAMS), minor aquifers also have significant resources but with hydraulic properties which limit over-exploitation. Minor secondary aquifers would not normally warrant special consideration for CAMS but may still support important abstractions and dependent ecosystems which may be subject to risks associated with pollution pressures.

On the basis of available geological records, and without site specific information, the Envirocheck vulnerability map indicates that the site soils overlying the aquifer beneath the site are classified as having a high leaching potential. Soils of high leaching potential are soils that readily transmit liquid discharges because they are either shallow or susceptible to rapid by-pass flow directly to rock, gravel or groundwater.

Groundwater beneath the site is likely to exist within the coal measures bedrock. This groundwater may be in continuity with groundwater that may exist within the overlying superficial deposits, although this will depend upon local geological controls. Given the proximity of Swansea Bay to the south, it is likely that a component of tidal influence will affect the groundwater flow beneath the site.

2.3.5 Sensitive Land Uses

According to the Protected Sites and Landscapes map on the CCW website and the Sensitive Land Uses map in the Envirocheck Report, the Crymlyn Bog Site of Special Scientific Interest (SSSI Ref: 47433wwp) is located some 500m north of the centre of the site. The SSSI is designated on the basis of its biological significance. Crymlyn Bog is also classified as a Ramsar Site and a Special Area of Conservation.

The water within Queen's Dock is designated a BMPA.

2.4 Historical Land Use

Until 1918 the site was situated on the shingle beach just off the Swansea coastline. In 1918 the Swansea Docks were under construction and the northern boundary of the site was traversed by railway lines with mooring posts just to the north.

By 1921 the Prince of Wales Dock and Kings Dock were constructed with associated hoisting machinery. At the time, other industrial developments included Graigola Merthyr Patent Fuel Works 630m to the southeast of the site, an Arsenic Works 420m north, Spelter Works 480m north, Wagon Works 630m to the north-northeast and Crymlyn Chemical Works some 1.5km to the northeast. Throughout this time the site was undeveloped apart from the rail link traversing the northern part of the site. By 1938 however, a warehouse is shown on the southern half of the site and is evident on the plans until 1989.

On the 1951 plan, Queens Dock is labelled and is shown extending seawards as far as the High Water Mark in Ordinary Time. Further works include an Aluminium Wire and Cable Works 400m north of the site and a Chemical Works 640m northeast of the site.

By 1979 the Arsenic works, Spelter Works and the Wagon Works are just labelled as "works" which could suggest a change in the industrial use of the buildings and the Graigola Patent Fuel works and Crymlyn Chemical Works are no longer mapped.

By 1989 the Warehouse is no longer present on the site, only the railway lines are evident. On later plans, from 1999 to 2010 the site is then shown to be occupied by a travelling crane along the quayside of Kings Dock.

In the past decade, Kings Dock has been utilised as wharfage for several different types of commodities including coal and steel and parts of the site have also been granted Permits for waste management activities.

3 PROPOSED VARIATION

3.1 Overview

Operations undertaken at the site include the receipt, inspection and storage of waste ferrous and non-ferrous metal, cutting, grinding, shearing and baling for recovery. The currently permitted operations may be observed as:

- Receipt, inspection and unloading of waste metal from transporter vehicles and transfer to storage
- using on-site plant;
- Cutting, grinding and shearing of waste metal to reduce its size;
- Baling of waste metal to facilitate recovery and transport;
- Loading and transfer of baled or loose metals into articulated or hook-lift vehicles for dispatch to
- recycling facilities for recovery; and
- Loading and transfer of small volumes of residual waste into hook-lift vehicles for dispatch to recycling facilities for recovery/disposal.

Waste operations are currently performed outside of the Standard Rules Permit boundary but within designated areas within the large yard, or within site buildings (see drawings in Appendix 2).

To comply with the terms of the standard permit the following conditions should be met:

- Uncontaminated ferrous metal wastes or alloys and uncontaminated non-ferrous metal wastes should be stored on hardstanding or an impermeable surface.
- All other wastes should be stored on an impermeable surface with sealed drainage system.
- All wastes should be treated on an impermeable surface with sealed drainage system.
- Lead acid batteries are stored in containers with an impermeable, acid resistant base and a cover to prevent ingress of water.

The site is currently non-compliant with the above conditions and in response NRW has issued an Enforcement Notice.

Part of the non-compliance relates to EPS MR storing and treating waste outside of the permitted boundary. The Operator is also taking steps to address other non-compliances and sampling surface water run-off with a view to using this data to design a new site drainage scheme.

Site areas not currently serviced by a sealed drainage system currently drain by infiltration and as overland flow. At this stage, proposals to improve the site's existing drainage by directing rainfall dependent surface run-off via drainage ditches and kerbs to two class 1 full retention interceptors are being reviewed.

The Operator will implement further measures and resources necessary to ensure its future compliance with any conditions of a bespoke permit granted by NRW.

3.2 Site Layout

The proposed revised Permit boundary is shown on Figure 2. The site occupies a total of ~31,000m^2 although only part of this is used for storage with the rest being open for vehicle and plant movements. On the southern side is a 1.5-2m high bund shielding the operation from the access road to the western part of Kings Dock. Directly to the north is Kings Dock. Block plans of the existing and proposed site layout is provided in Appendix 2.

The proposed layout (describing the site in an approximate east to west direction) comprises the following primary areas:

- Two weighbridges and separate accesses for ingress to and egress from the site;
- A single storey building incorporating the Weighbridge Office, administrative offices and staff welfare facilities (including kitchen and toilet facilities);
- An area for storage, processing and bulking of non-ferrous metals which includes:
- A building for reception, inspection, processing and storage of non-ferrous wastes; and
- A bunded storage area for non-ferrous pucks that are contaminated with soluble cutting oils; and
- Designated external storage areas for bagged/containerised non-ferrous wastes awaiting
- dispatch;
- Areas for equipment storage.
- An area for storage, processing and bulking of ferrous metals occupying the majority of the remainder of the site which includes:
- An area for the reception and inspection of non-ferrous wastes;
- Designated storage areas for accepted waste awaiting processing;
- Areas for the processing of ferrous waste by cutting, grinding, shearing and baling; and
- Designated storage areas for ferrous wastes awaiting dispatch.
- A quarantine area and area for storage of hazardous wastes; and
- A storage area for non-hazardous waste residual waste.

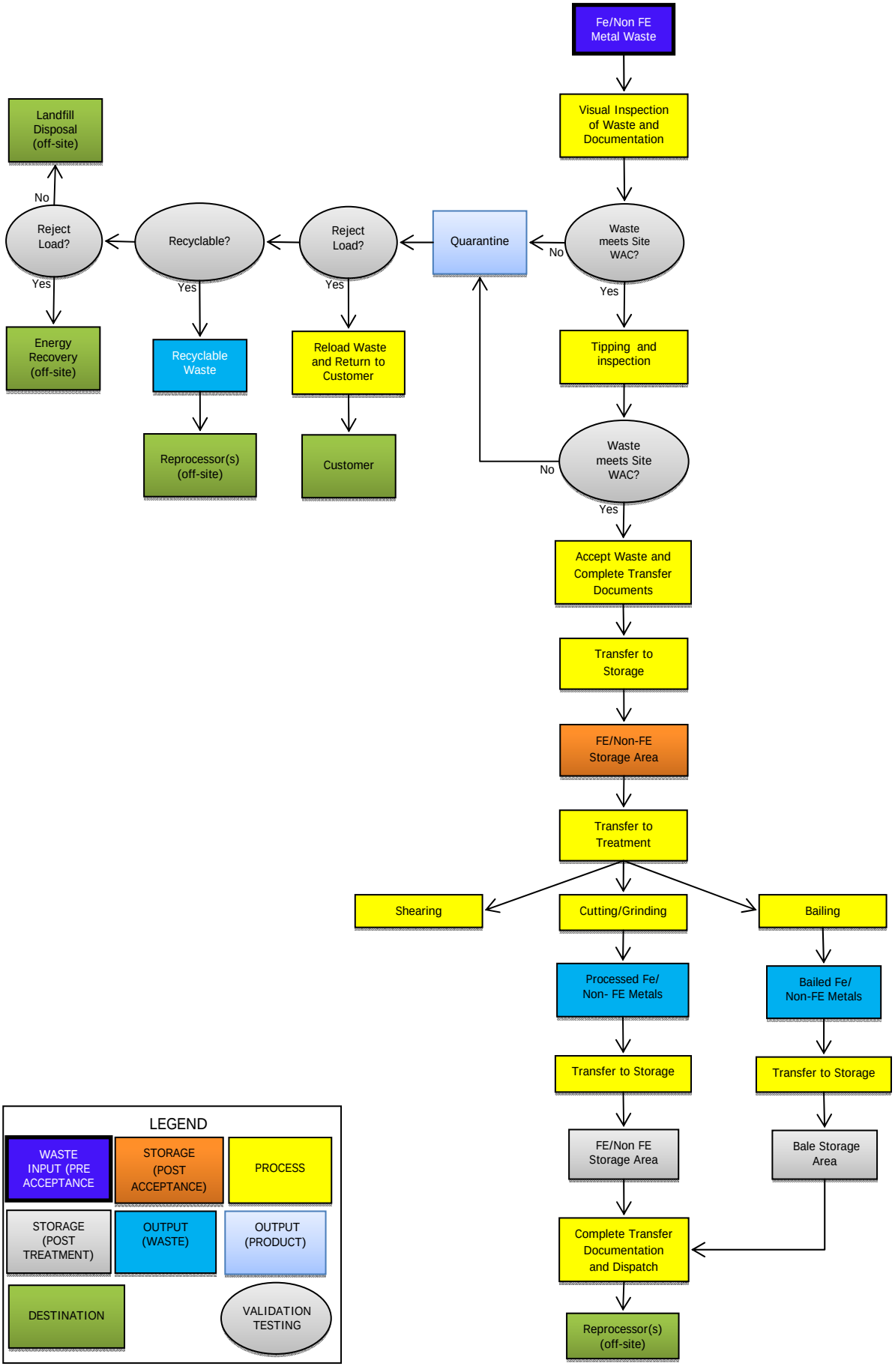
3.3 Proposed Activities

EPS MR propose to undertake the activities summarised in Table 3-1.

Table 3-1 Scope of Proposed Activities

Description of Activities	Limits of Activities
R13: Storage of wastes pending any of the operations numbered R1 to R12 (**excluding** temporary storage, pending collection, on the site where it is produced) **R4** Recycling/reclamation of metals and metal compounds.	Treatment consisting only of sorting, separation, grading, shearing, shredding, baling, compacting, crushing, granulating and cutting of ferrous metals or alloys and non-ferrous metals into different components for recovery. There shall be no treatment of lead acid batteries. Wastes shall be stored for no longer than 3 years prior to recovery.

A process flowchart (provided by TEP) outlining the proposed operation is provided below.


Fe/Non FE Metal Waste
Visual Inspection of Waste and Documentation
Waste meets Site WAC?
No
Yes
Quarantine
Reject Load?
Yes
Reload Waste and Return to Customer
Customer
Recyclable?
Yes
Recyclable Waste
Reprocessor(s) (off-site)
Reject Load?
No
Landfill Disposal (off-site)
Yes
Energy Recovery (off-site)
Tipping and inspection
Waste meets Site WAC?
No
Yes
Accept Waste and Complete Transfer Documents
Transfer to Storage
FE/Non-FE Storage Area
Transfer to Treatment
Shearing
Cutting/Grinding
Bailing
Processed Fe/ Non- FE Metals
Bailed Fe/ Non-FE Metals
Transfer to Storage
Transfer to Storage
FE/Non FE Storage Area
Bale Storage Area
Complete Transfer Documentation and Dispatch
Reprocessor(s) (off-site)
LEGEND
WASTE INPUT (PRE ACCEPTANCE
STORAGE (POST ACCEPTANCE)
PROCESS
STORAGE (POST TREATMENT)
OUTPUT (WASTE)
OUTPUT (PRODUCT)
DESTINATION
VALIDATION TESTING

3.4 Permitted Wastes

The wastes that EPS MR would accept at the site are the same as those currently listed in the Standard Rules Permit.

4 UPDATED RISK ASSESSMENT

4.1 Existing Risk Assessment

The current Permit is underpinned by NRWs Generic Risk Assessment, a copy of which is provided in Appendix 3. Due to the proposed Permit Variation several criteria in the GRA are no longer valid. These criteria are:

Parameter 6:
All waste shall be stored on an impermeable surface with sealed drainage system, except for uncontaminated ferrous metals wastes or alloys and uncontaminated non-ferrous metal wastes which shall be stored on hardstanding or an impermeable surface with sealed drainage system.

Parameter 7:
The only point source discharges to controlled waters or groundwater are surface water from the roofs of buildings and from areas of the facility not used for the storage or treatment of wastes.

Parameter 8:
The permitted activities shall not be carried out within 500m of a European Site (candidate or Special Area of Conservation, proposed or Special Protection Area or Ramsar site) or a Site of Special Scientific Interest (SSSI).

The other criteria will still be satisfied once the management controls documented in the EMS (see Report 3) are fully implemented.

This risk assessment therefore focusses on the new risks associated with the proposals:

1. Proposed discharge to Kings Dock
2. Proposed site boundary being with 500m of Crymlyn Bog

4.2 Proposed Discharge to Kings Dock

4.2.1 Existing Waterbody

Kings Dock is connected to Queens Dock to the south, Prince of Wales Dock to the North and Swansea Bay via a lock system the southwest. The lock system comprises three locks; an outer lock, a mid lock and an inner lock. In combination, these allow the control of waterlevels within the dock to enable ships to enter or leave the dock during a two hour window either side of high tide. During this period, only relatively small volumes of dock water for short periods of time are thought to exchange with the seawater of Swansea bay. As noted by CEFAS in the 2011 Sanitary survey, in the absence of significant tidal currents wind driven currents are likely to be operating and a major mechanism in the transport and distribution of certain potential contaminants. Buoyant contaminants would presumably be susceptible to such dispersion. Observational evidence, as confirmed by the Port Health Authority and CEFAS, for this mechanism occurring is the accumulation of surface debris, foam and oil films in the eastern parts of the docks due to the prevailing southwesterly wind direction.

In addition to the exchange with seawater via the lock system, Geotechnology understands that the Dock also sometimes receives inputs from the quaysides as overland flow and infiltration through the walls, the River Tawe (when Dock levels need to be topped up) and that the Prince of Wales Dock receives a small freshwater input. Despite these limited inputs, CEFAS noted that the salinity in the Docks is similar to that recorded at Mumbles Head and concluded that this suggests the Dock is subject to tidal flushing similar to that typical of many estuaries and bays.

Each of the Docks has had a long industrial heritage and recent (within past ten years or so) operations include bulk commodity/product handling and waste handling and processing. Specific operations include:

- Coal and coke handling and processing
- Cement handling and processing
- Scrap metal handling and export
- Inert and non-hazardous waste soil transfer
- Glass recycling (indoors)
- Unprocessed glass storage outdoors
- Wood storage and export
- RDF storage and export
- End of life ship dismantling in a dry dock
- Fertiliser handling
- Loading and unloading of bulk carriers

Several of these operations were occurring when the 2011 CEFAS Sanitary survey was undertaken and the BMPA subsequently designated. Some of the waste operations have been Permitted since the Queens Dock was designated a BMPA. As far as Geotechnology is aware, all of the operations, and any inputs to Kings Dock, or adjoining waterbodies, either from point source discharge, runoff, infiltration via the wharfes and aerial deposition have been ongoing since the BMPA was designated.

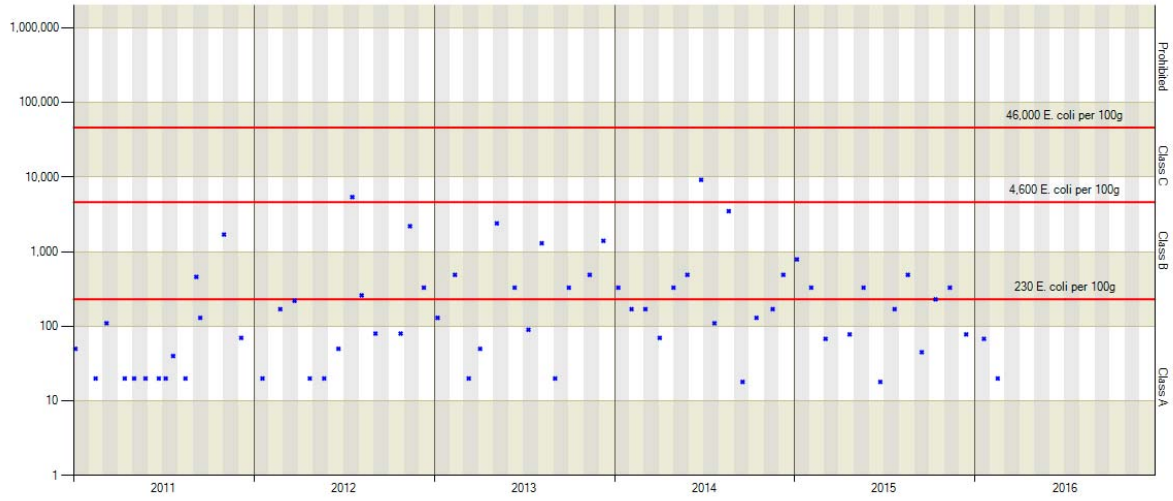
Given the potential sensitivity of the BMPA, the water quality of the docks, and particularly Queen's Dock, continues to be the subject of scrutiny by several regulatory bodies relating to the protection of the environment and food production. These organisations include NRW, FSA, CEFAS and the Port Health Authority. As far as Geotechnology is aware, no unacceptable risks have been identified in the water quality monitoring data or in the mussels themselves during recent years despite the proximity of the above ongoing operations and frequency of the monitoring. As the proposed bespoke Permit would be aimed at improving the quality of runoff, this situation is not predicted to change.

Some of the monitoring data gathered by NRW is summarised in Table 4-1. Also included in this table are relevant Environmental Quality Standards (EQS) and the approved Permit consent limits Swansea Dry Dock Ltd must apply to one of their point sources discharges according to the Permit issued December 2011. The comparison indicates that the dock water has been found to contain a range of trace metals at low levels and that oil has been visibly observed during the monitoring period. Given the objective driving this monitoring, the designation of the BMPA and the reduction in monitoring this water quality is presumably acceptable to the regulatory bodies. The Permitted discharge limits for Swansea Dry Docks Ltd are higher than the concentrations detected in the dock water and the relevant EQS values.

Table 4-1 Comparison of Inorganic Parameters

		Recent NRW Monitoring in Docks (based on last decade)	Dry Dock Permit	Relevant EQS
pH	pH Units	7.7 - 8.7		6.5 - 8.5
EC	microS/cm	45000		
Sulphate	mg/l			
Chloride	mg/l	16000		
Alkalinity	mg/l			
Al	µg/l	No data available	2000	
Sb	µg/l			
As	µg/l	1.1 - 1.6		25
Ba	µg/l			
Be	µg/l			
B	µg/l	No data available		7000
Fe	mg/l	No data available	2000	1000
Cd	µg/l	0.09 - 0.19	5	0.2 (AA), 0.45 - 1.5 (MAC)
Cr	µg/l	<0.5	33	0.6 (AA Cr VI) / 32 (MAC Cr VI)
Cu	µg/l	1.6 - 2.5	190	3.7 where DOC <1mg/l.
Pb	µg/l	No data available	10	1.2 (AA) / 14 (MAC)
Hg	µg/l	<0.01	0.7	0.07
Ni	µg/l	No data available	103	8.6 (AA) / 34 (MAC)
Ag	µg/l	<1		10 (MAC)
Ti	µg/l			
V	µg/l	No data available		100
Zn	µg/l	16 – 33	418	6.8 + ambient

Monthly microbiological monitoring data is also available online on the CEFAS website. An extract of the results graphically displayed on 1 March 2016 is reproduced below for reference.



The similarity of the data between the start and the end of the monitoring period presented suggests that the monitored microbiological components in Queen's Dock have not significantly changed (based on visual graphical evaluation) despite the presence of several activities in King's Dock that might influence microbiological quality.

4.2.2 Proposed Discharge

The current scrap metal operation is occurring outside of the controls set out in the Permit. As part of the works being undertaken to bring the site into compliance EPS MR will not significantly alter the layout of the current operation but will modify the Permit boundary to encompass the operational area and improve the management of surface runoff.

At this stage, the proposal is to implement the outline drainage design detailed in Appendix 4. The system proposed is very similar to that previously used at Graigola West for the scrap metal operation that previously operated here where the discharge would have been subject to initial dilution and secondary mixing in the Dock. The system at Graigola appeared to be operating when the CEFAS sanitary survey was undertaken.

The system relies upon passing the bulk of surface runoff through alarmed Class 1 full retention interceptors with silt traps prior to discharge to the docks. As run-off from some areas is not suited for passage through such interceptors specific areas will be served by dedicated sealed sumps, as shown on the drawing provided in Appendix 4.

On-going monitoring commissioned by EPS MR suggests that the system will be effective in treating the key contaminants of concern (hydrocarbons) as shown by the comparison of samples of run-off water quality with the relevant EQS (Tables 4-2 and 4-3). This is because the concentration of most trace metals in run-off is low and below the relevant EQS and the Permitted discharge limits at Swansea Dry Docks. Further, based on the available data, the conservatively calculated average effective volume flux is estimated to be significantly below the allowable effective volume flux for all metals apart from zinc. This latter analysis, summarised in Table 4-4 is conservatively based on the dock water being only 3.5m deep (and therefore capable of accepting a $3.5m^3$/sec allowable effective flux) and a storm rainfall event of 65mm/hr producing a run-off rate of 380 l/sec from the $21,000m^2$ of utilised yard (conservatively derived using Rational method and run-off coefficient of 1).

At this stage, the analysis suggests that the load of most metals in the modelled run-off are likely to be at levels not liable to cause pollution. With the benefit of further monitoring the analysis will be re-visited. However, given the conservative assumptions made, the dispersion mechanisms considered to be operating in the Docks and the margin of exceedance calculated for zinc the risks to the BMPA are considered to be low. The samples of dock water presented in Table 4-2 would also tend to support this conclusion.

During phased construction and full operation, the proposed drainage system and discharge would be subject to performance monitoring in a framework agreed with NRW. The approved performance would enable the risk assessment predictions to be validated and an integrated approach to storm water management developed, if necessary, based on actual performance monitoring. For instance, some of the metal removal techniques commercially available, such as those included in Appendix 5, would be utilised as the system has been designed to be flexible. Within this context, the risks to the BMPA are considered low, an approved monitoring programme will be in place during construction and operation and if necessary, the proposed drainage system can incorporate in-line metal removal technologies.

Table 4-2 Comparison of Inorganic Parameters

		Dock Water	Dock Water	Runoff A	Runoff B	Runoff 1	Runoff 2	Runoff	Runoff	Dry Dock Permit	Relevant EQS
		05/15	02/16	05/15	05/15	02/16	02/16	Average	Maximum		
pH	pH Units		7.7			7.51	7.63				6.5 - 8.5
EC	microS/ cm		31900								
Sulphate	mg/l	2390	1670	53	22.6	57.2	67.5	50.1	67.5		
Chloride	mg/l	20900	13900	81.1	152	380	371	246.0	380.0		
Alkalinity	mg/l		136			100	160		160.0		
TOC	mg/l		14								
Al	µg/l	<2.9	40	<2.9	<2.9	121	48.6	84.8	121.0	2000	
Sb	µg/l	2.6		0.176	1.07	0.641	2.12	1.0	2.1		
As	µg/l	0.814	2	0.763	1.67	0.839	0.74	1.0	1.7		25
Ba	µg/l	29.9		149	124	361	224	214.5	361.0		
Be	µg/l	<0.07		<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		
B	µg/l	54.3		176	806	114	144	310.0	806.0		7000
Fe	mg/l	<0.1	0.21	<0.1	<0.1	0.0295	0.0648	0.0	0.1	2000	1000
Cd	µg/l	<0.1	0.1	0.539	0.385	0.23	0.277	0.4	0.5	5	0.2 (AA), 0.45 - 1.5 (MAC)
Cr	µg/l	1.58	<1	1.88	4.04	1.03	1.17	2.0	4.0	33	0.6 (AA VI)/ 32 (MAC VI)
Cu	µg/l	1.67	<1	6.13	16.1	13.6	4.96	10.2	16.1	190	3.7 where DOC <1mg/l.
Pb	µg/l	0.06	<0.1	0.086	0.238	1.39	2.26	1.0	2.3	10	1.2 (AA)/ 14 (MAC)
Hg	µg/l		<0.1			<0.01	<0.01			0.7	0.07
Ni	µg/l	4.15	2	25.6	34.2	3.59	6.46	17.5	34.2	103	8.6 (AA)/ 34 (MAC)
Ag	µg/l		<2			<1.5	<1.5				10 (MAC)
Ti	µg/l	3.18		<1.5	2.13				2.1		
V	µg/l	0.828	1	0.726	1.03	0.342	<0.24	0.7	1.0		100
Zn	µg/l	6.2	61	222	28.5	36.4	52.4	84.8	222.0	418	6.8 + ambient

Table 4-3 Comparison of Hydrocarbons

		Dock Water	Dock Water	Runoff A	Runoff B	Runoff 1	Runoff 2	Dry Dock Permit	Relevant EQS
		05/15	02/16	05/15	05/15	02/16	02/16		
Oil and Grease visible									Not visible
GRO >C5-C10	µg/l	<10		<10	<10				
EPH (C6-C10)	µg/l	<100		<100	<100				
TPH / Oil & Greases	mg/l		0.1			95.2	247		
EPH Range >C10 - C40	µg/l	<46		6980	1520				
MTBE	µg/l	<3		<3	<3				
Benzene	µg/l	<1		<1	<1				
Toluene	µg/l	<1		<1	<1				
Ethylbenzene	µg/l	<1		<1	<1				
m,p-Xylene	µg/l	<1		<1	<1				
o-Xylene	µg/l	<1		<1	<1				
Naphthalene	µg/l					<2	<12.5		2 (AA) 130 (MAC)
Acenaphthene	µg/l					0.38	5.51		
Acenaphthylene	µg/l					<0.22	2.58		
Fluoranthene	µg/l					5.08	49.3		
Anthracene	µg/l					0.355	5.15		0.1 (AA & MAC)
Phenanthrene	µg/l					3.02	20.8		
Fluorene	µg/l					0.606	4.97		
Chrysene	µg/l					2.5	29.5		
Pyrene	µg/l					5.12	43		
Benzo(a)anthracene	µg/l					1.41	16.4		
Dibenzo(a,h)anthracene	µg/l					0.478	7.49		
Benzo(b)fluoranthene	µg/l					3.54	42.9		
Benzo(k)fluoranthene	µg/l					1.35	19.7		
Benzo(a)pyrene	µg/l					1.62	28		
Benzo(g,h,i)perylene	µg/l					1.93	23.6		
Indeno(1,2,3-cd)pyrene	µg/l					1.11	27.3		
Sum of 5 specific PAHs (1-5)	µg/l					9.55	141.5		0.00017

Table 4-4 Effective Volume Flux

		Runoff		Recent NRW Monitoring	Modified EQS AA (EQS - minimum background)	Av. Loading (L) (Flow x Av Runoff conc.)	Effective Volume Flux for AA (L/ModEQSAA)
		Average	Maximum				
As	µg/l	1.0	1.7	1.1 - 1.6	23.9	0.4	0.02
B	µg/l	310.0	806.0	No data available	7000.0	117.8	0.02
Fe	mg/l	0.0	0.1	No data available	1000.0	0.0	0.00002
Cd	µg/l	0.4	0.5	0.09 - 0.19	0.1	0.1	1.24
Cr	µg/l	2.0	4.0	<0.5	0.6	0.8	1.29
Cu	µg/l	10.2	16.1	1.6 - 2.5	2.1	3.9	1.85
Pb	µg/l	1.0	2.3	No data available	1.2	0.4	0.31
Ni	µg/l	17.5	34.2	No data available	8.6	6.6	0.77
V	µg/l	0.7	1.0	No data available	100.0	0.3	0.00266
Zn	µg/l	84.8	222.0	16 - 33	6.8	32.2	4.74

4.3 Site boundary within 500m of Crymlyn Bog

4.3.1 Existing Conditions

The perimeter of the existing Permit is located further than 500m form the perimeter of the SSSI at Crymlyn Bog. This is shown on Figure 2. As a consequence, the Generic Risk Assessment applies to the operation provided EMS MR implement the document EMS.

According to the Protected Sites and Landscapes map on the CCW website and the Sensitive Land Uses map in the Envirocheck Report, the Crymlyn Bog Site of Special Scientific Interest (SSSI Ref: 47433wwp) is designated on the basis of its biological significance. Crymlyn Bog is also classified as a Ramsar Site and a Special Area of Conservation. The site comprises inland water bodies (Standing water and Running water) Bogs, Marshes, Water fringed vegetation, Fens Heath, Scrub, Maquis and Garrigue, Phygrana Humid grassland, Mesophile grassland Broad-leaved deciduous woodland. The primary reasons that the site is designated a SSSI is due to the transition mires, quaking bogs and calcareous fens together with the vegetation habitat they provide.

The permitted site is not hydraulically linked to the waters of the SSSI and the only exposure pathway that could connect the site with the SSSI is aerial deposition, as noted in the GRA. Such aerial deposition could cause smothering or particulate fall-out leading to changes in chemical components.

4.3.2 Proposed New Boundary

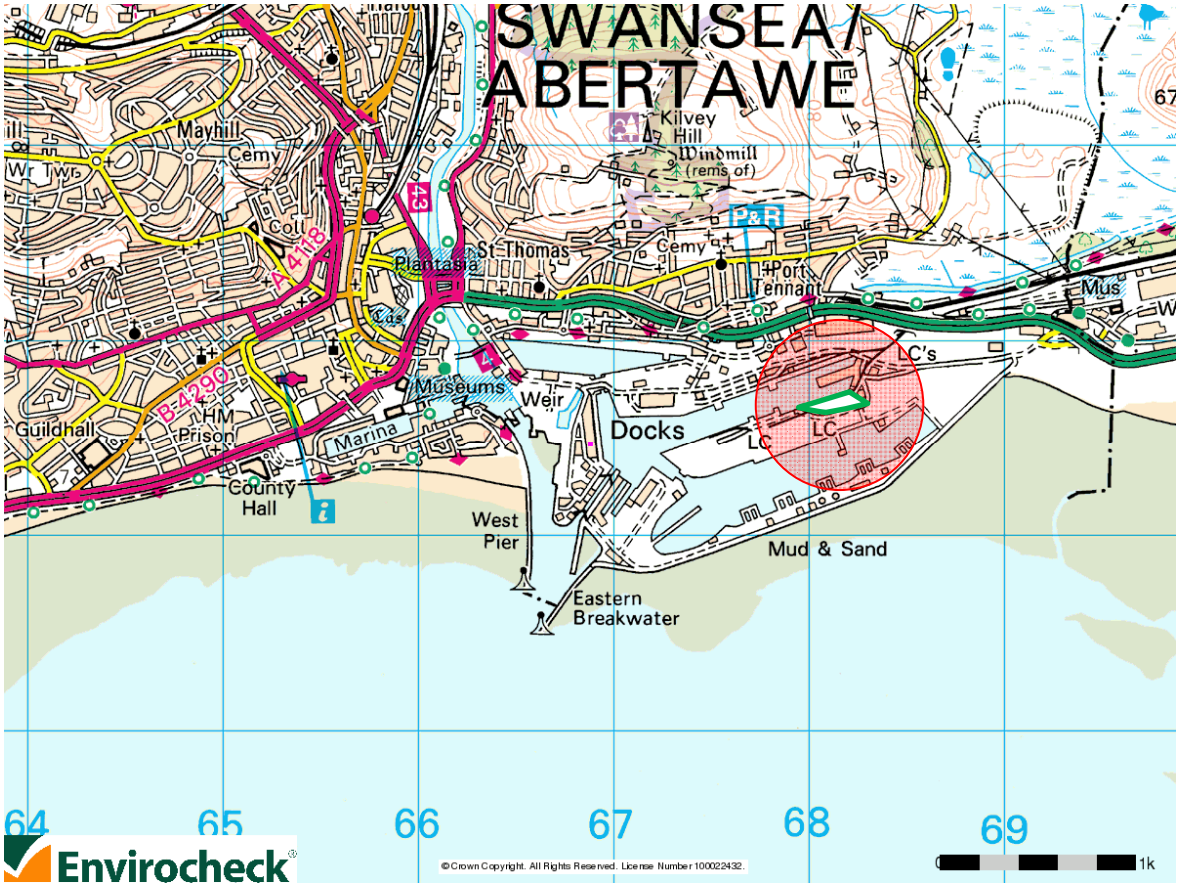
The proposed boundary change would mean that the perimeter of the facility is now within 500m of the edge of the SSSI. This is shown on Figure 2.

Despite the change in Permit boundary, the risks to the identified receptors should not be significantly changed as there is still several hundred metres between the site boundary and the SSSI and the activities are not typically sources of airborne particulates. Specific control measures are also detailed in the EMS. Provided these controls and waste acceptance procedures are implemented, the risks of the proposed boundary change will not significantly alter the risk profile set out in the generic risk assessment.

5 SUMMARY

An assessment of environmental risks associated with bringing the EPS MR operation into accordance with the proposed Permit variation by altering the Permit boundary and implementing an integrated storm water drainage system has been made. Based on the available information and methodologies adopted, the risks to the key identified receptors, the designated BMPA in Queen's Dock and Crymlyn Bog SSSI, are considered to be low. Pollution control measures detailed in the EMS and implementation of the performance monitoring programme will enable these predictions to be evaluated within a regulatory framework.

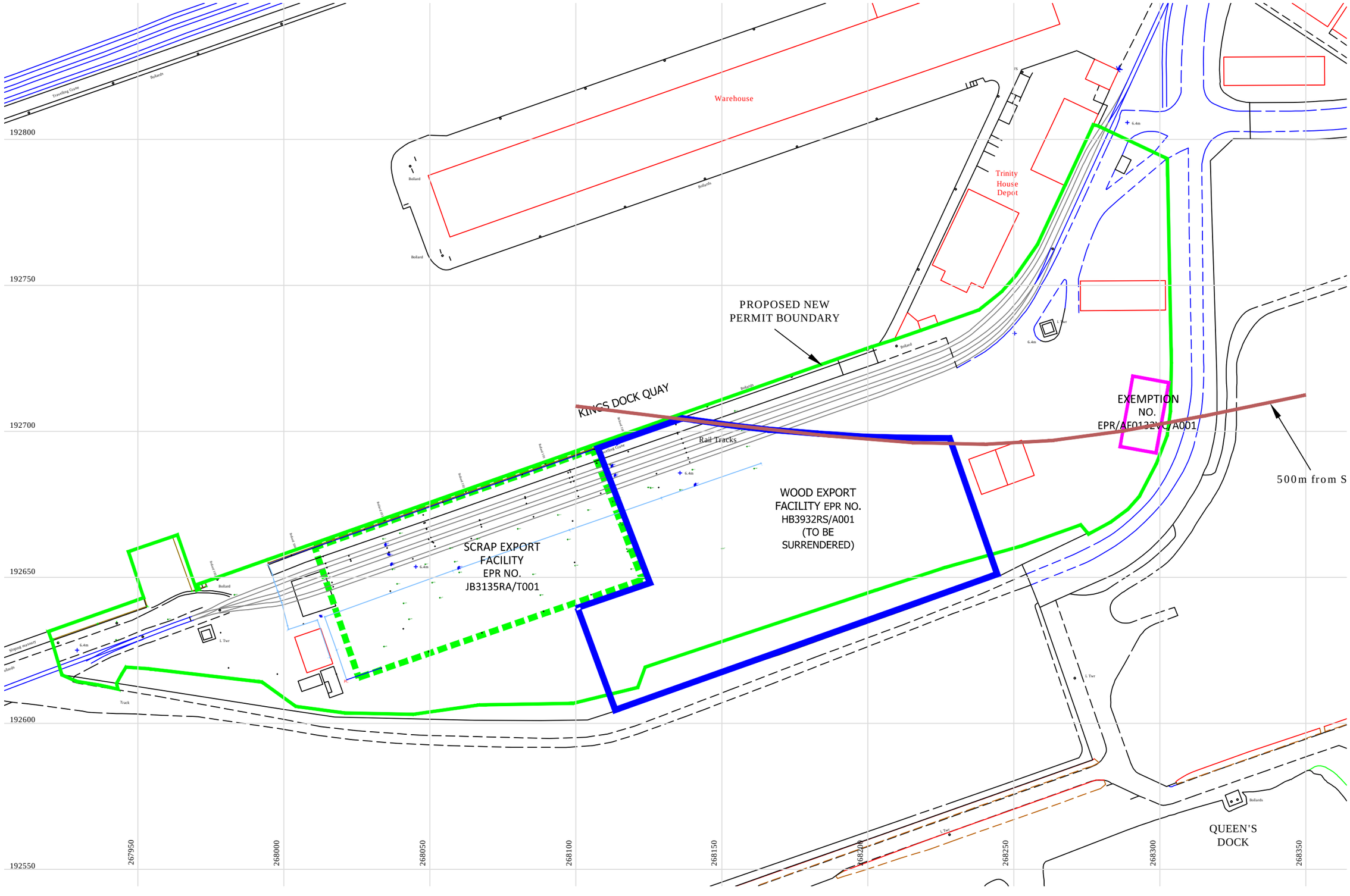
Figure 1 Site Location Plan



LEGEND

PERMIT BOUNDARY

Figure 2 Proposed Permit Boundary



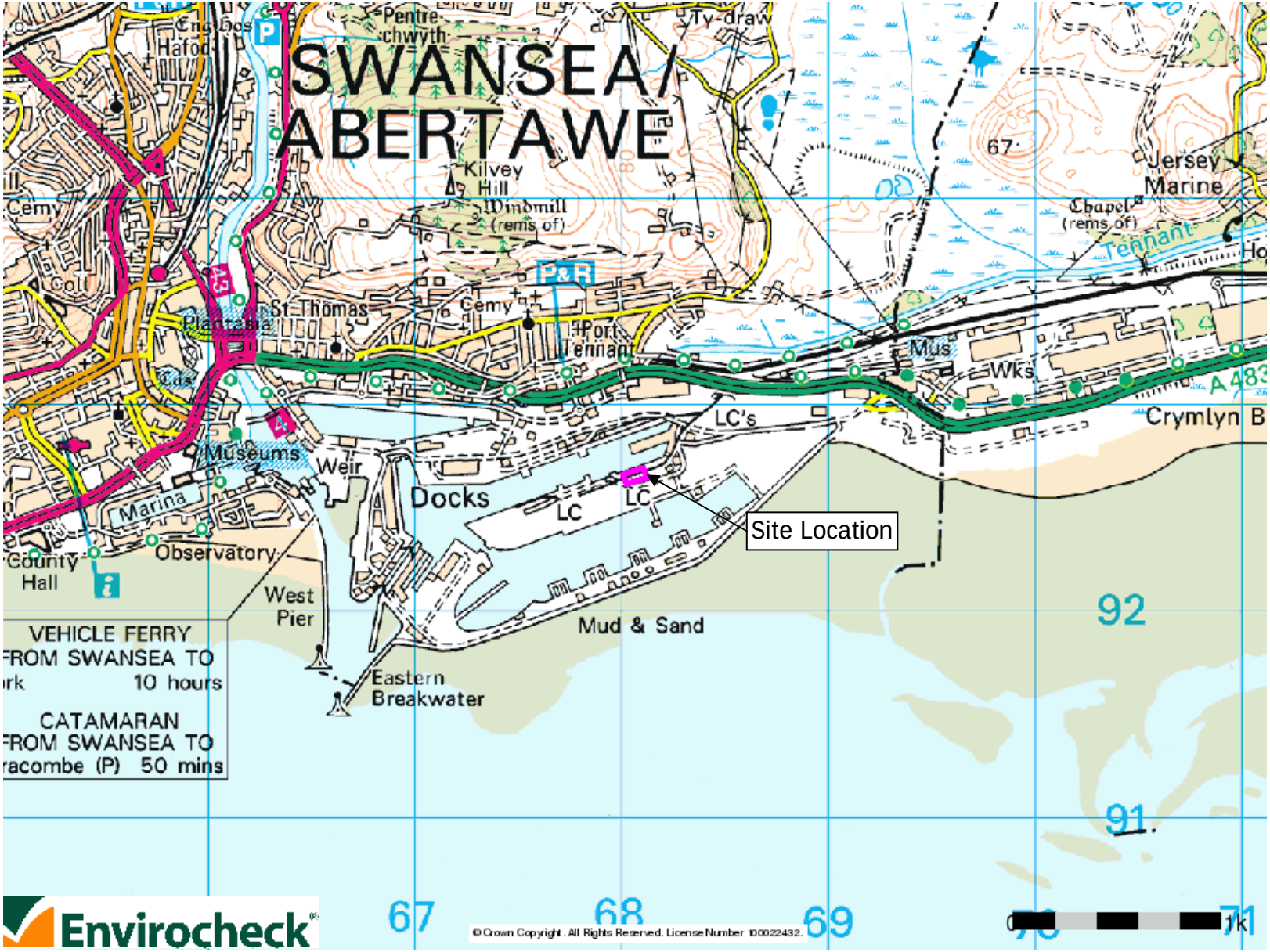
REPORT 3

EPS MR LTD ENVIRONMENTAL PERMIT VARIATION

UPDATED ENVIRONMENTAL RISK ASSESSMENT

Appendix 1
Site Plans

Report Number 1469r3v1d0316


SWANSEA/
ABERTAWE
Pentre-chwyth
Ty-draw
Hafod
Kilvey Hill
Windmill (rems of)
Jersey Marine
Chapel (rems of)
Tennant
Cemy
Coll
St Thomas
Plantasia
Cas
Cemy
Port Tennant
Mus
Wks
A483
Crymlyn B
LC's
Museums
Weir
Docks
LC
LC
Site Location
Marina
Observatory
County Hall
West Pier
Mud & Sand
Eastern Breakwater
VEHICLE FERRY
FROM SWANSEA TO
ork 10 hours
CATAMARAN
FROM SWANSEA TO
racombe (P) 50 mins
92
91
67
68
69
71
1k
Envirocheck
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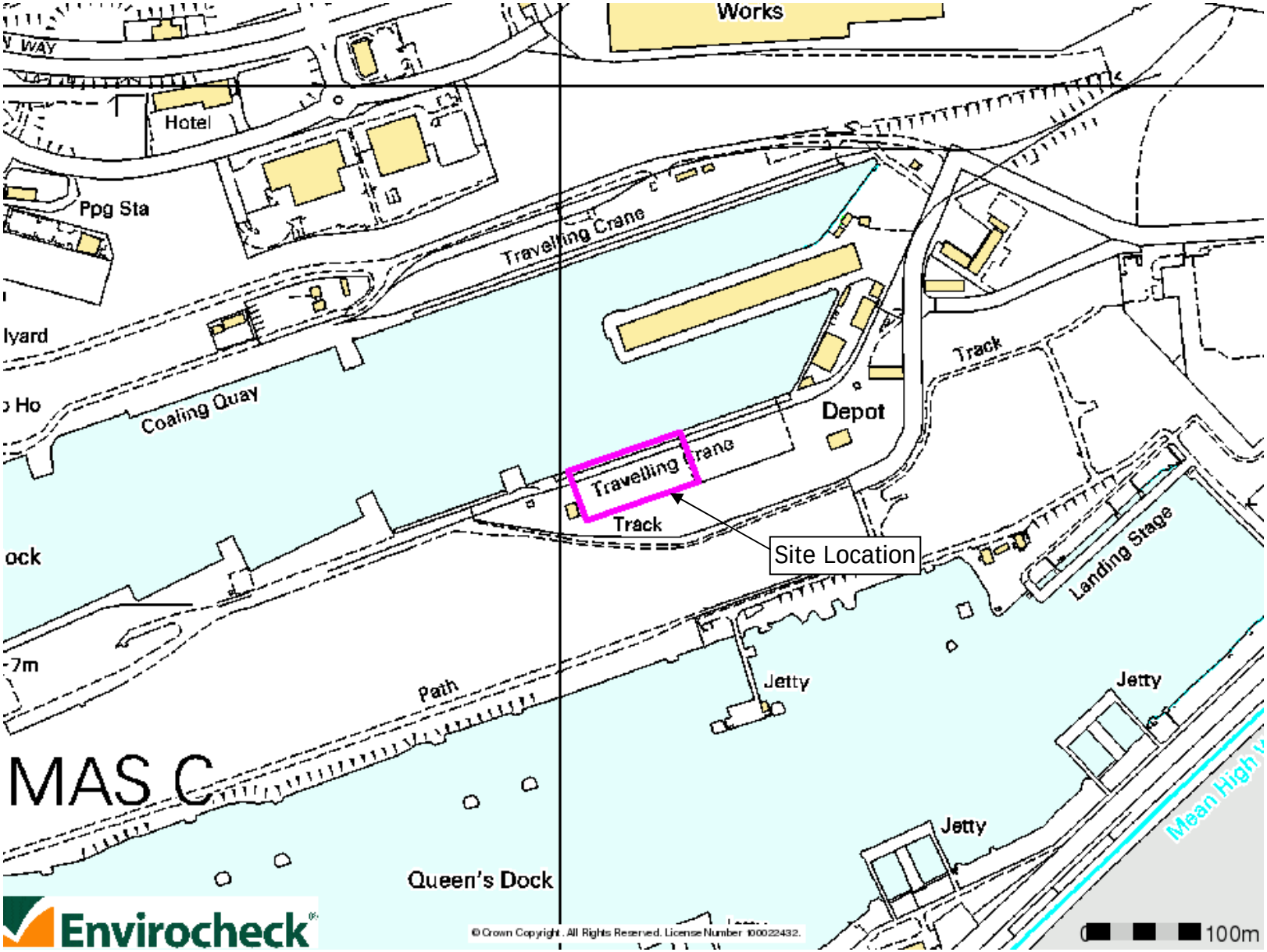
Works
Hotel
Ppg Sta
Travelling Crane
Coaling Quay
Depot
Track
Travelling Crane
Track
Site Location
Landing Stage
Jetty
Jetty
Jetty
Path
Queen's Dock
Mean High
100m
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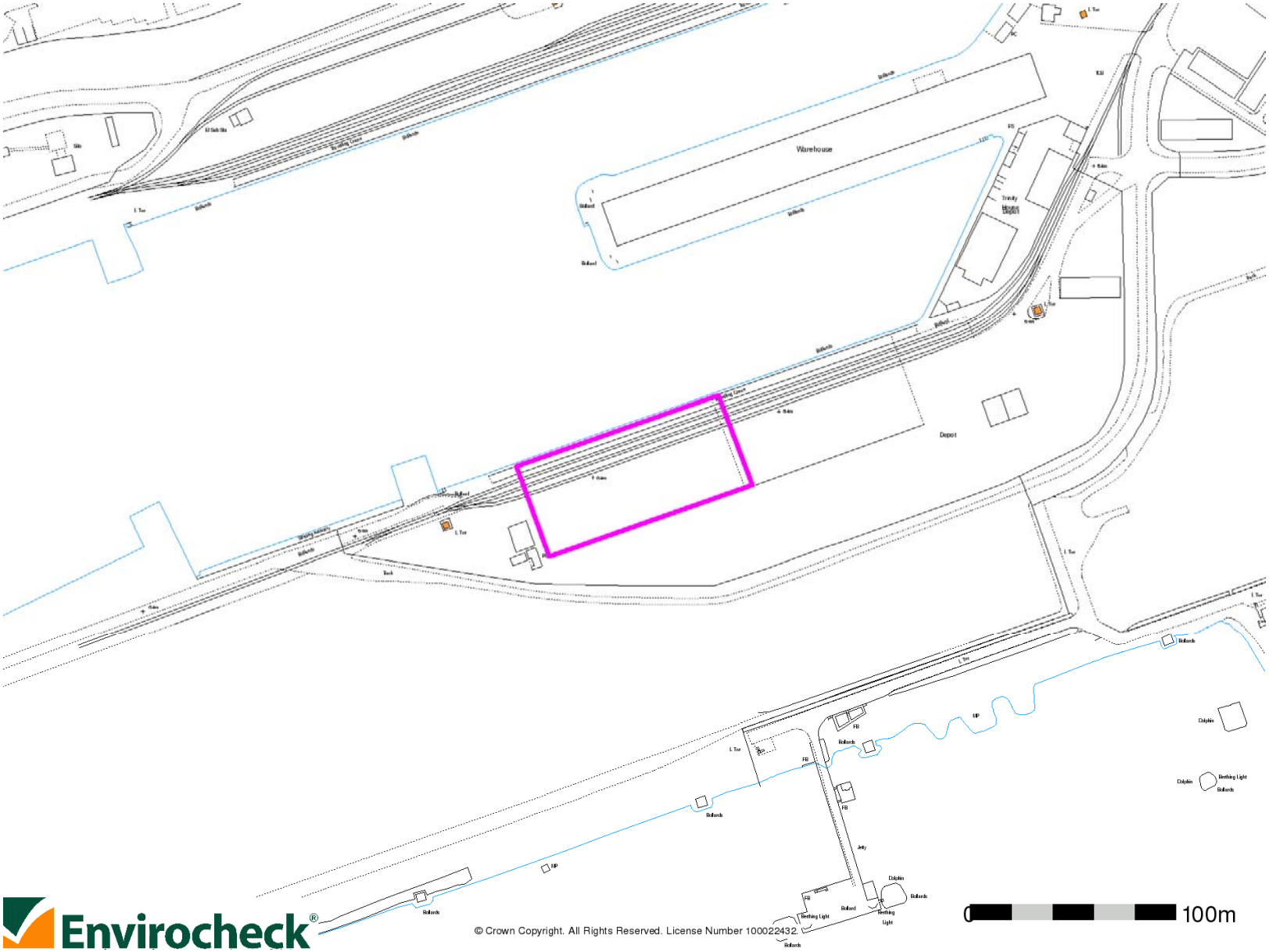
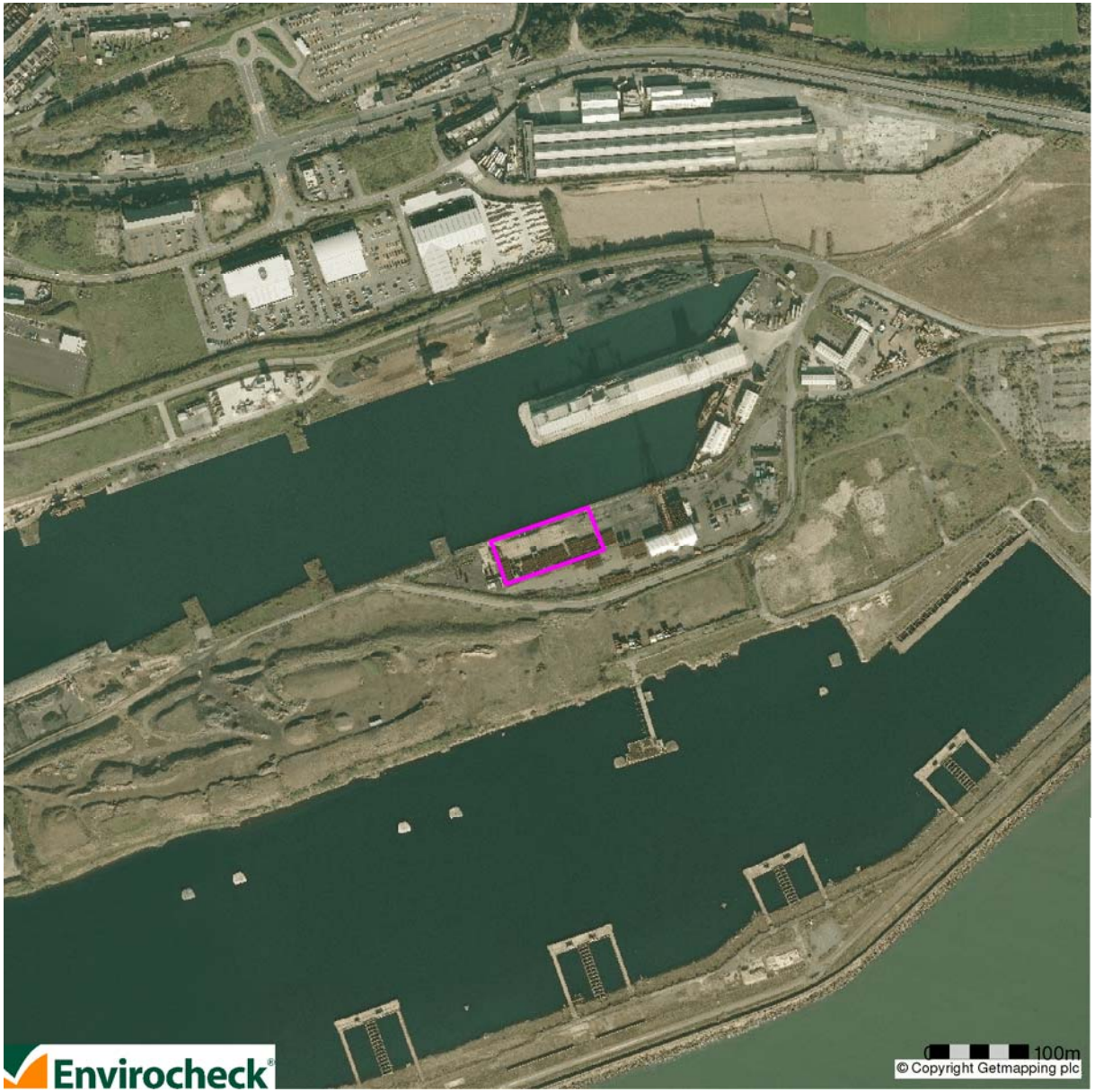
Envirocheck



Envirocheck®


Envirocheck
100m
© Copyright Getmapping plc

REPORT 3

EPS MR LTD ENVIRONMENTAL PERMIT VARIATION

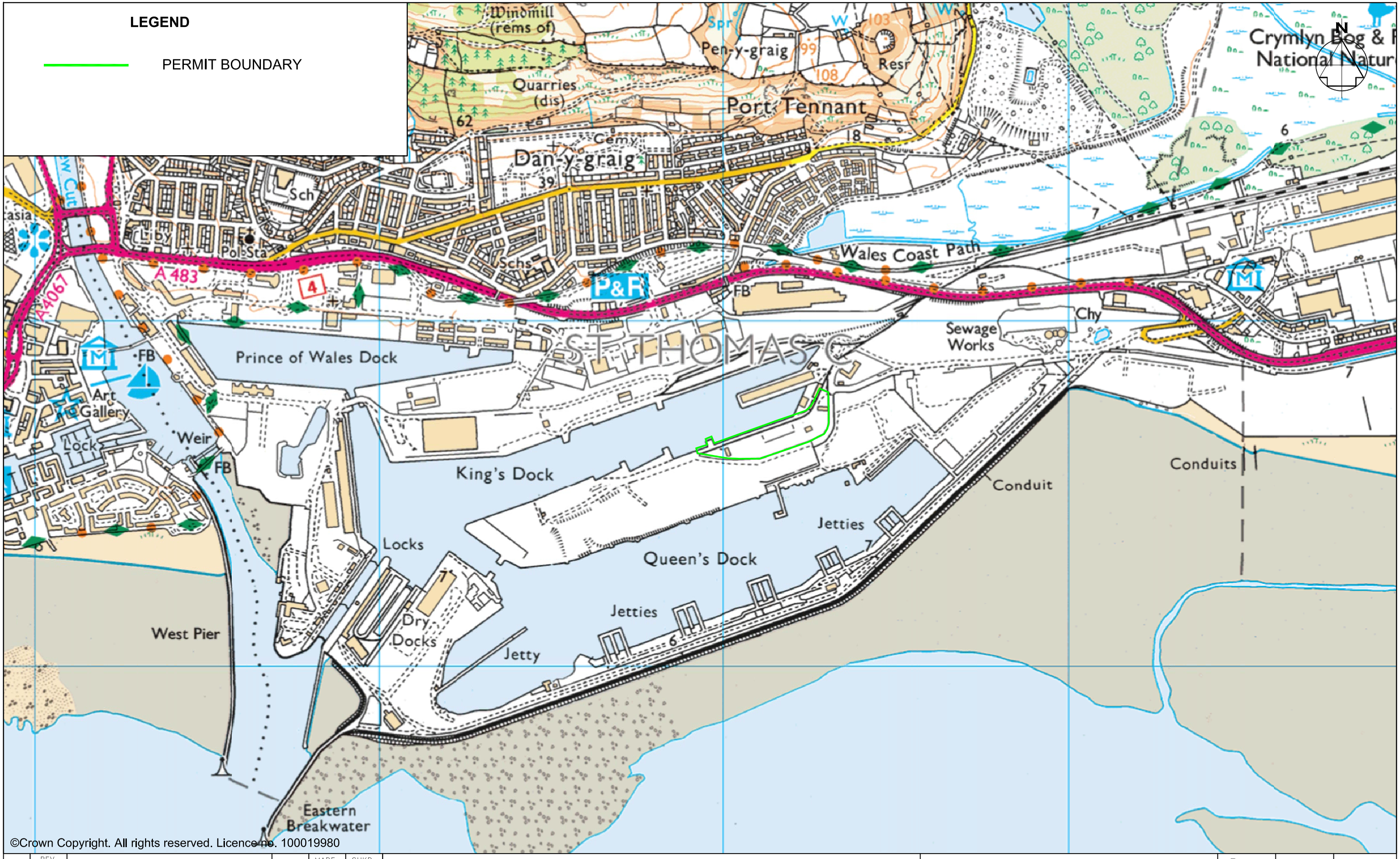
UPDATED ENVIRONMENTAL RISK ASSESSMENT

Appendix 2
Layout Plans

Report Number 1469r3v1d0316

LEGEND

PERMIT BOUNDARY



AMENDMENTS

REV REF	DETAILS	DATE	MADE BY	CHKD BY
A	UPDATED SITE BOUNDARY FOR PERMIT VARIATION	20/02/16	SCW	AS

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD	Drawn	SW	Scale
	Ch'kd	BS	1:10,000
SITE AND SURROUNDING AREA	Appr'd	BS	@A3
	Date	08/12/15	
Job No. EPS	Drg No.	10934 - 000 - A	

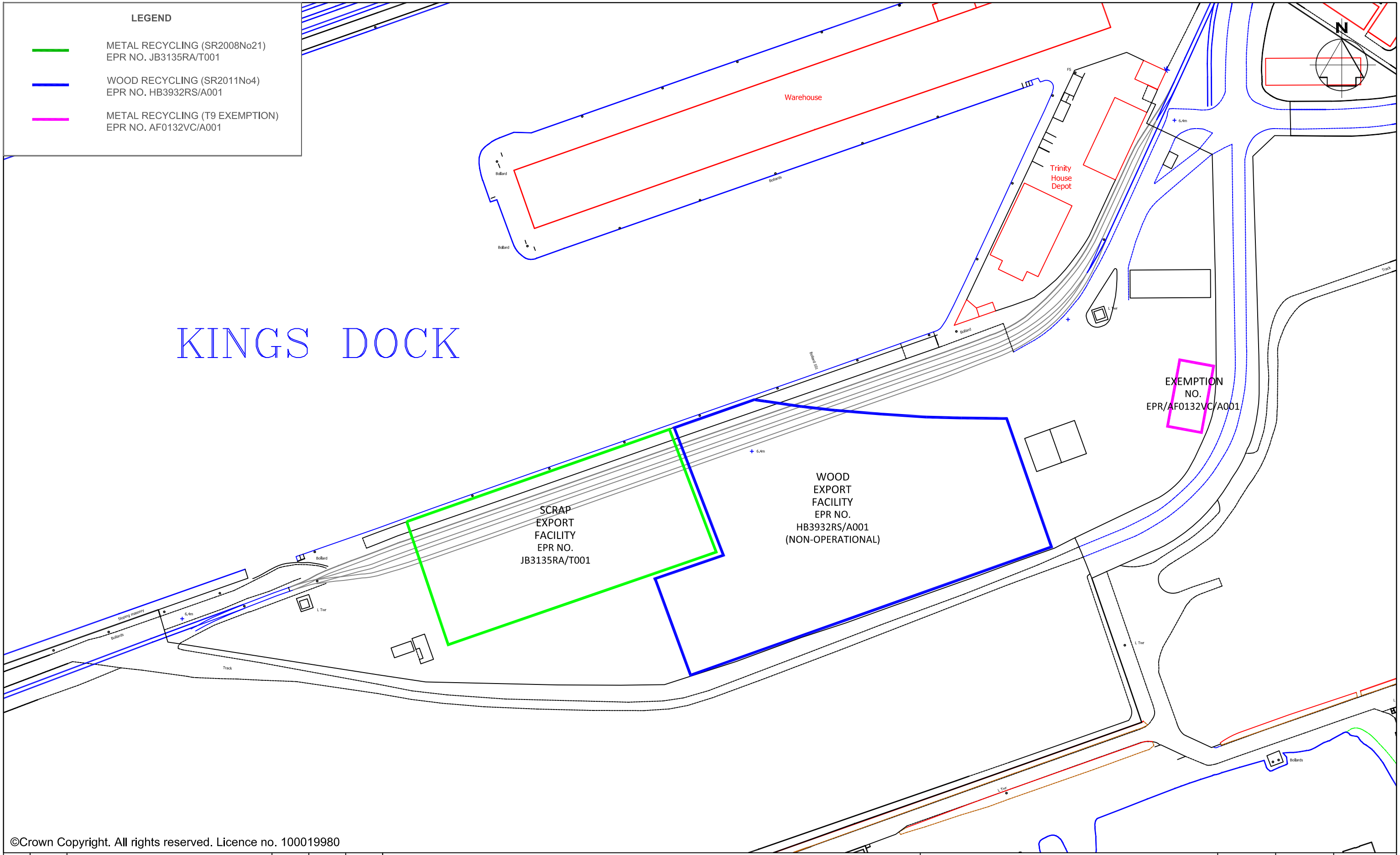
LEGEND

METAL RECYCLING (SR2008No21)
EPR NO. JB3135RA/T001

WOOD RECYCLING (SR2011No4)
EPR NO. HB3932RS/A001

METAL RECYCLING (T9 EXEMPTION)
EPR NO. AF0132VC/A001

KINGS DOCK



AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD			
	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
SITE (PERMITTED AREA) PLAN	Appr'd	BS	@A3
	Date	08/12/15	
Job No. EPS	Drg No.	10934 - 000 - B	

LEGEND

- OWNERSHIP BOUNDARY
- METAL RECYCLING (PERMIT)
- METALS PROCESSING (EXEMPT ACTIVITY)
- 220MM CONCRETE
- ASPHALT ON CONCRETE
- 180MM ASPHALT HARDSTAND
- STONE HARDSTAND
- UNSURFACED
- BUND
- BUILDINGS
- 500M FROM SAC
- STORAGE AREA
- TREATMENT AREA

GS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

OFFICE

EQUIPMENT STORAGE

EXEMPTION EPR/AE0132VC/A001

TREATMENT/STORAGE BUILDING

NON-FERROUS STORAGE

FERROUS STORAGE

SCRAP EXPORT FACILITY EPR NO. JB3135RA/T001

BALER

BALER CONTROLS

GENERATOR

SHEARS

CUTTING/ GRINDING

STORAGE AREA 1

STORAGE AREA 2

STORAGE AREA 3

STORAGE AREA 4

STORAGE AREA 5

TREATMENT AREA 1

TREATMENT AREA 2

TREATMENT AREA 3

TREATMENT AREA 4

Bollards

Track

AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD	Drawn	SW	Scale
	Ch'kd	**BS**	1:1,250
BLOCK PLAN (SITE AT 22/01/16)	Appr'd	BS	@A3
	Date	22/01/16	
Job No. EPS	Drg No.	10934 - 000 - C	

LEGEND

- PERMIT BOUNDARY
- 220MM CONCRETE
- ASPHALT ON CONCRETE
- 180MM ASPHALT
- STONE HARDSTAND
- UNSURFACED
- BUILDINGS
- 500M FROM SAC
- STORAGE AREA
- TREATMENT AREA

KINGS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

OFFICE

EQUIPMENT STORAGE

NON-FERROUS PROCESSING (GRADING)

NON-FERROUS STORAGE

FERROUS STORAGE

FERROUS RECEPTION AND INSPECTION

BALER

BALER CONTROLS

GENERATOR

SHEARS

CUTTING AREA

TREATMENT/STORAGE BUILDING

STORAGE AREA 1

STORAGE AREA 2

STORAGE AREA 3

STORAGE AREA 4

TREATMENT AREA 1

TREATMENT AREA 2

TREATMENT AREA 3

TREATMENT AREA 4

Bollards

Track

AMENDMENTS

REV REF	DETAILS	DATE	MADE BY	CHKD BY
A	UPDATED LAYOUT AND SITE BOUNDARY FOR PERMIT VARIATION	20/02/16	SCW	AS

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD

BLOCK PLAN (PROPOSED)

Drawn	SW	Scale	
Ch'kd	BS	1:1,250	
Appr'd	BS	@A3	
Date	08/12/15		

Job No.	EPS	Drg No.	10934 - 000 - C

LEGEND

- PERMITTED AREA
- EXEMPT AREA
- 220MM CONCRETE
- ASPHALT ON CONCRETE
- 180MM ASPHALT HARDSTAND
- STONE HARDSTAND
- UNSURFACED
- BUILDINGS
- DRAIN
- UNDERGROUND PIPE CONNECTION
- CUT-OFF DRAIN/DITCH
- KERB (EXISTING)
- BUND
- SOAKAWAY
- RUN-OFF DIRECTION
- FOUL DRAIN
- SURFACE WATER SEWER

GS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

OFFICE

NON-FERROUS STORAGE

EQUIPMENT STORAGE

NON-FERROUS PROCESSING AREA

FERROUS STORAGE

BALER

BALER CONTROLS

GENERATOR

SHEARS

TREATMENT AREA

CUTTING/ TRIMMING

SUMP

Surface Water Sewer

Surface water drains

Soakaway

Septic Tank

Roof water drains

Graded slab with internal containment

Graded/kerbed surface to retain run-off within the site

Kerbed, graded processing area to sealed sump

Infiltration into bund

Infiltration into unsurfaced area

Bollards

Track

Sloping masonry

This drawing is not intended to represent detailed design

AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD			
	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
DRAINAGE PLAN (SITE AT 22/01/16)	Appr'd	BS	@A3
	Date	22/01/16	
Job No. EPS	Drg No.	10934 - 000 - D	

LEGEND

- EXISTING/NEW DRAIN
- EXISTING/NEW CUT-OFF DITCH/DRAIN
- EXISTING/NEW UNDERGROUND PIPE
- EXISTING/NEW KERB
- EXISTING/NEW BUND
- EXISTING/NEW SOAKAWAY
- RUN-OFF DIRECTION
- EXISTING/PROPOSED TREATMENT/STORAGE
- FOUL DRAIN
- SURFACE WATER SEWER
- DRAINED AREAS

KINGS DOCK

Warehouse
Trinity House Depot
Surface Water Sewer
Surface water drains
Drain and sump
Kerbed storage area
Bunded heating oil tank
Soakaway
Septic Tank
Roof water drains
Graded slab with internal containment
Bunded diesel storage tank
Bunded storage of contaminated surface water, or new sealed sump
Storage area graded slab with internal containment
Kerbed processing area to sealed sump
Bunded diesel tank
Kerb processing area and new sump
KINGS DOCK QUAY
Drained area = 3,810m2
Drained area = 9,335m2
Localised kerbing improvements may be required
Graded/kerbed surface to retain run-off within the site
Kerbed processing area to sealed sump
New kerbs for processing area and drain to existing or new sealed sump
Pre-treatment (if required for heavy metals)
Attenuation (if required)
Discharge to dock
2 x Class 1 Full Retention Interceptors Klargester NSFA200 or equivalent
Cut off ditches – design TBC
Replace 200M3 attenuation with high level overflow and use cut-off drain volume as attenuation???
Drained area = 7,237m2
EQUIPMENT STORAGE
FERROUS STORAGE
NON-FERROUS STORAGE
OFFICE
TREATMENT AREA 1
TREATMENT AREA 2
TREATMENT AREA 3
TREATMENT AREA 4
SUMP
BUND
Bollards
Track
N

This drawing is not intended to represent detailed design

AMENDMENTS

REV REF	DETAILS	DATE	MADE BY	CHKD BY
A	FOR PERMIT VARIATION. UPDATED BOUNDARY AND LAYOUT. PROPOSED DRAINAGE SCHEME ADDED (SUBJECT TO DETAILED DESIGN)	20/02/16	SCW	AS

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
DRAINAGE PLAN (PROPOSED)	Appr'd	BS	@A3
	Date	08/12/15	
Job No. EPS	Drg No.	10934 - 000 - D (Rev. A)	

LEGEND

- SITE BOUNDARY
- METAL RECYCLING (PERMIT)
- METALS PROCESSING (EXEMPT ACTIVITY)
- 220MM CONCRETE
- ASPHALT ON CONCRETE
- 180MM ASPHALT HARDSTAND
- STONE HARDSTAND
- UNSURFACED
- BUND
- BUILDINGS
- WASTE STOCKPILE
- BALED/BAGGED WASTE

KINGS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

OFFICE

EQUIPMENT STORAGE

NON-FERROUS STORAGE

NON-FERROUS PROCESSING (EXEMPTION)

FERROUS STORAGE

SHEARS

CUTTING/ GRINDING

BALER

BALER CONTROLS

GENERATOR

Bollard

Bollards

Track

Sloping masonry

AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD			
	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
STORAGE PLAN (SITE AT 22/01/16)	Appr'd	BS	@A3
	Date	22/01/16	
Job No. EPS	Drg No.	10934 - 000 - E	

LEGEND

- PERMIT BOUNDARY
- 220MM CONCRETE
- ASPHALT ON CONCRETE
- 180MM ASPHALT HARDSTAND
- STONE HARDSTAND
- UNSURFACED
- BUND
- BUILDINGS
- WASTE STOCKPILE
- BALED/BAGGED WASTE

KINGS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

OFFICE

EQUIPMENT STORAGE

NON-FERROUS STORAGE

NON-FERROUS PROCESSING (EXEMPTION)

NON-FERROUS STORAGE

NON-FERROUS STORAGE

FERROUS STORAGE

FERROUS STORAGE

FERROUS STORAGE

FERROUS STORAGE

BALER

BALER CONTROLS

GENERATOR

SHEARS

SHEARS

CUTTING/ GRINDING

FE AWAITING CUTTING

Bollard

Bollards

Sloping masonry

Track

FS

+ 6.4m

N

AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY
	A	UPDATED LAYOUT FOR PERMIT VARIATION	20/02/16	SCW	AS

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
STORAGE PLAN (PROPOSED)	Appr'd	BS	@A3
	Date	08/12/15	
Job No. EPS	Drg No.	10934 - 000 - E	

LEGEND

- OWNERSHIP BOUNDARY
- METAL RECYCLING (PERMIT)
- METALS PROCESSING (EXEMPT ACTIVITY)
- WATER MAIN
- HV ELECTRICAL RING MAIN
- LV ELECTRICITY
- TELEPHONE
- SURFACE WATER DRAIN
- FOUL DRAIN

KINGS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

OFFICE

EQUIPMENT STORAGE

NON-FERROUS PROC./STORE (EXEMPTION)

EQUIPMENT STORAGE

Bollard

Bollards

Track

Stepping masonry

L Twr

GE01

N

Based on ABP Services Plan – not verified on-site
This drawing is not intended to represent detailed design

AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY

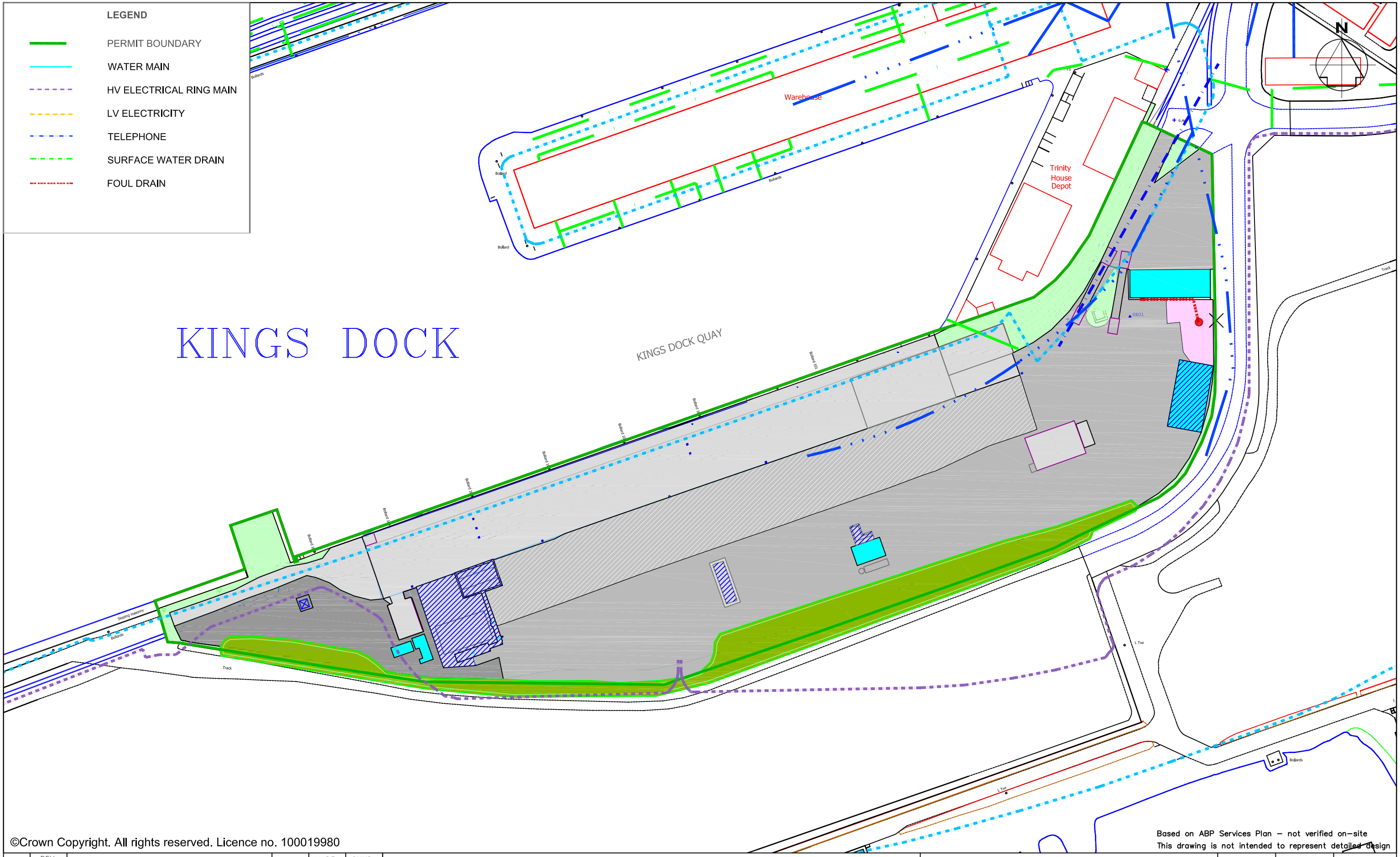
TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD			
	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
SERVICES PLAN (EXISTING)	Appr'd	BS	@A3
	Date	08/12/15	
Job No. EPS	Drg No.	10934 - 000 - F	

LEGEND

- PERMIT BOUNDARY
- WATER MAIN
- HV ELECTRICAL RING MAIN
- LV ELECTRICITY
- TELEPHONE
- SURFACE WATER DRAIN
- FOUL DRAIN

KINGS DOCK



Based on ABP Services Plan – not verified on-site
This drawing is not intended to represent detailed design

AMENDMENTS

REV REF	DETAILS	DATE	MADE BY	CHKD BY
A	UPDATED LAYOUT FOR PERMIT VARIATION	20/02/16	SCW	AS

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
SERVICES PLAN	Appr'd	BS	@A3
	Date	08/12/15	
Job No. EPS	Drg No.	10934 - 000 - F	

LEGEND

- WATER MAIN
- HV ELECTRICAL RING MAIN
- LV ELECTRICITY
- TELEPHONE
- SURFACE WATER DRAIN
- FOUL DRAIN
- INTERNAL SURFACE WATER DRAINS
- FE — FIRE ESCAPE
- ASSEMBLY — FIRE ASSEMBLY POINT
- HAZARDOUS MATERIALS
- FIRE EXTINGUISHER (WATER)
- FIRE EXTINGUISHER (DRY POWDER)
- FIRE EXTINGUISHER (CO2)
- FIRE EXTINGUISHER (FOAM)
- FIRST AID KIT
- MAIN ELECTRICAL BREAKER
- MAINS WATER STOPCOCK

GS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

OFFICE

EQUIPMENT STORAGE

NON-FERROUS PROC./STORE (EXEMPTION)

Assembly Area

Internal Stopcock

Surface Water Sewer

Water Main

Diesel

Fire Hydrant

Site Entrance and Exit

Main Stopcock

Fire Extinguishers

Main Electrical Switch Panel/ Isolator

Heating Oil

Fire Extinguishers

Spill Kit

Diesel

Diesel

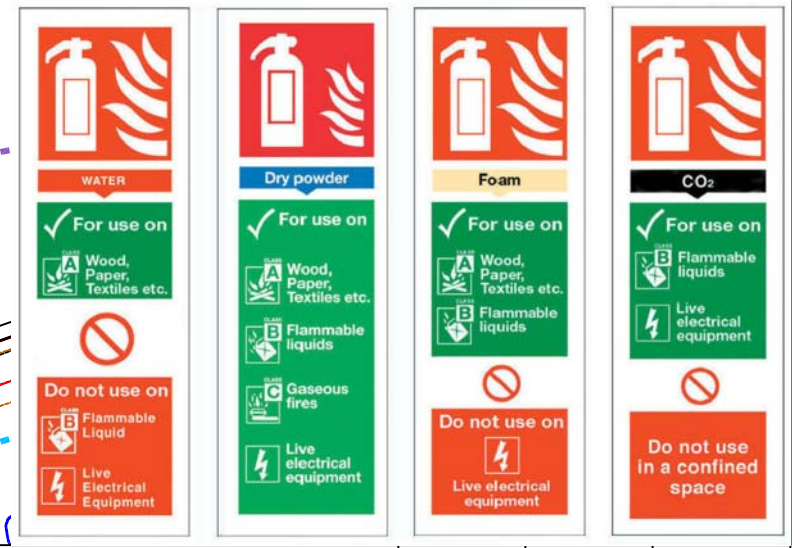
Diesel

Oxygen/Acetylene Gas Storage

Fire Extinguishers

Sealed Sump

Based on ABP Services Plan – not verified on-site
This drawing is not intended to represent detailed design



AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY

TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

EPS MR LTD				
	Drawn	SW	Scale	1:1,250
	Ch'kd	BS		
EMERGENCY PLAN	Appr'd	BS		@A3
	Date	08/12/15		
Job No. EPS	Drg No.	10934 - 000 - H		

LEGEND

- WATER MAIN
- HV ELECTRICAL RING MAIN
- LV ELECTRICITY
- TELEPHONE
- SURFACE WATER DRAIN
- FOUL DRAIN
- INTERNAL SURFACE WATER DRAINS
- FE — FIRE ESCAPE
- ASSEMBLY — FIRE ASSEMBLY POINT
- HAZARDOUS MATERIALS
- FIRE EXTINGUISHER (WATER)
- FIRE EXTINGUISHER (DRY POWDER)
- FIRE EXTINGUISHER (CO2)
- FIRE EXTINGUISHER (FOAM)
- FIRST AID KIT
- MAIN ELECTRICAL BREAKER
- MAINS WATER STOPCOCK
- DISCHARGE PENSTOCK
- FH — FIRE HYDRANT

GS DOCK

KINGS DOCK QUAY

Warehouse

Trinity House Depot

Assembly Area

Internal Stopcock

Surface Water Sewer

Water Main

Diesel

Fire Hydrant

Site Entrance and Exit

Main Stopcock

Fire Extinguishers

Main Electrical Switch Panel/ Isolator

Heating Oil

Fire Extinguishers

Spill Kit

Bunded storage of contaminated surface water, or new sealed sump

Diesel

Discharge to dock

Flow control chamber/penstock

2 x Class 1 Full Retention Interceptors Klargester NSFA200 or equivalent

Attenuation (if required)

Pre-treatment (if required)

Fire Extinguishers

Sealed Sump

Oxygen/Acetylene Gas Storage

Diesel

Diesel

Based on ABP Services Plan – not verified on-site
This drawing is not intended to represent detailed design

AMENDMENTS

REV REF	DETAILS	DATE	MADE BY	CHKD BY
A	UPDATED LAYOUT, DRAINAGE AND BOUNDARY FOR PERMIT VARIATION	20/02/16	SCW	AS

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EPS MR LTD

EMERGENCY PLAN (EXISTING)

Drawn	SW	Scale	
Ch'kd	BS	1:1,250	
Appr'd	BS	@A3	
Date	08/12/15		

Job No.	EPS	Drg No.	10934 - 000 - H

REPORT 3

EPS MR LTD ENVIRONMENTAL PERMIT VARIATION

UPDATED ENVIRONMENTAL RISK ASSESSMENT

Appendix 3
NRW Generic Risk Assessment

Report Number 1469r3v1d0316

Generic risk assessment for standard rules set number SR2008No21 v3.0

Standard Facility: Waste Operation: Metals Recycling Site

Location: Applies to all potential locations.

Location of environmentally sensitive sites (km / m): Greater than 200m (see below)

Risk assessment carried out by: Environment Agency

Date: 16-Mar-10

The scope of the permit and associated rules is defined by the following risk criteria:

Parameter 1	Permitted activities - The storage of waste (R13) and treatment consisting only of sorting, separation, grading, shearing, shredding, baling, compacting, crushing, granulating and cutting ferrous metals or alloys and non-ferrous metals . into different components for recovery (R4)
Parameter 2	Permitted waste types - Ferrous metals or alloys and non-ferrous metals
Parameter 3	Quantity of waste accepted at the facility: <75,000 tonnes per annum.
Parameter 4	Lead acid batteries shall be stored in containers with an impermeable, acid resistant base and a lid to prevent ingress of water.
Parameter 5	All waste shall be treated on an impermeable surface with sealed drainage system.
Parameter 6	All waste shall be stored on an impermeable surface with sealed drainage system, except for uncontaminated ferrous metals wastes or alloys and uncontaminated non-ferrous metal wastes which shall be stored on hardstanding or an impermeable surface with sealed drainage system.
Parameter 7	The only point source discharges to controlled waters or groundwater, are surface water from the roofs of buildings and from areas of the facility not used for the storage or treatment of wastes.
Parameter 8	The permitted activities shall not be carried out within 500m of a European Site (candidate or Special Area of Conservation, proposed or Special Protection Area or Ramsar site) or a Site of Special Scientific Interest (SSSI).

Abbreviations: SR - Standard Rule
SR (emissions of substances not controlled by emission limits) - emissions of substances .... shall not cause pollution…., with appropriate measures:
all treatment …. on an impermeable surface with sealed drainage system;
all storage …. on an impermeable surface with sealed drainage system, except for uncontaminated …..metals….
on hard standing or on impermeable surface with sealed drainage;
lead acid batteries …. in containers with an impermeable, acid resistant base and a lid ....

Data and information				Judgement				Action (by permitting)	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).

Local human population	Releases of particulate matter (dusts) and micro-organisms (bioaerosols).	Harm to human health - respiratory irritation and illness.	Air transport then inhalation.	Medium	Medium	**Medium**	Permitted waste types do not include …. dusts, powders or loose fibres so only a medium magnitude risk is estimated. There is potential for exposure if anyone is living or working close to the site (apart from the operator and employees)	SR - emissions of substances not controlled by emission limits.... SR (if required) - emissions management plan.	Low
Local human population	As above	Nuisance - dust on cars, clothing etc.	Air transport then deposition	Medium	Low	**Low**	Local residents often sensitive to dust.	As above	Very low
Local human population, livestock and wildlife.	Litter	Nuisance, loss of amenity and harm to animal health	Air transport then deposition	Medium	Medium	**Medium**	Local residents often sensitive to litter.	As above. Appropriate measures could include clearing litter arising from the activities from affected areas outside the site.	Very low
Local human population	Waste, litter and mud on local roads	Nuisance, loss of amenity, road traffic accidents.	Vehicles entering and leaving site.	Medium	Medium	**Medium**	Road safety, local residents often sensitive to mud on roads.	As above. Appropriate measures could include clearing waste, litter and mud arising from the activities from affected areas outside the site.	Low
Local human population	Odour	Nuisance, loss of amenity	Air transport then inhalation.	Low	Low	**Low**	Local residents often sensitive to odour, however permitted waste types have low odour potential.	SR - emissions shall be free from odour…. SR (if required) - odour management plan.	Low
Local human population	Noise and vibration	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	Medium	Medium	**Medium**	Local residents often sensitive to noise and vibration	SR - emissions shall be free from noise and vibration..... SR (if required) - noise and vibration management plan.	Low
Local human population	Scavenging animals and scavenging birds	Harm to human health - from waste carried off site and faeces. Nuisance and loss of amenity.	Air transport and over land	Low	Medium	**Low**	Permitted wastes unlikely to attract scavenging animals and birds but may become nesting / breeding sites.	SR - emissions of substances not controlled by emission limits (including those from scavenging animals, scavenging birds and other pests) shall not cause pollution.	Very low
Local human population	Pests (e.g. flies)	Harm to human health, nuisance, loss of amenity	Air transport and over land	Low	Medium	**Low**	Permitted wastes unlikely to attract pests.	As above	Very low

Local human population and local environment	Flooding of site	If waste is washed off site it may contaminate buildings / gardens / natural habitats downstream.	Flood waters	Low	Medium	**Low**	Permitted waste types washed off site will add to the volume of the local post-flood clean up workload, rather than the hazard.	SR - management system (will include flood risk management).	Very low
Local human population and / or livestock after gaining unauthorised access to the waste operation	All on-site hazards: wastes; machinery and vehicles.	Bodily injury	Direct physical contact	Medium	Medium	**Medium**	Site security measures at these facilities are normally good to prevent theft. Apart from lead acid batteries, all permitted waste types are non hazardous, so only a medium magnitude risk is estimated.	SR - activities shall be managed and operated in accordance with a management system (will include site security measures to prevent unauthorised access).	Low
Local human population and local environment.	Arson and / or vandalism causing the release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff, firefighters or arsonists/vandals. Pollution of water or land.	Air transport of smoke. Spillages and contaminated firewater by direct run-off from site and via surface water drains and ditches.	Medium	Medium	**Medium**	As above.	As above. SR - management system (will include fire and spillages).	Low
Local human population and local environment	Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff or firefighters. Pollution of water or land.	As above.	Low	Medium	**Low**	Risk of accidental combustion of waste is low.	As above (excluding comments on access to waste). Permitted activities do not include the burning of waste.	Low
All surface waters close to and downstream of site.	Spillage of liquids, leachate from waste, contaminated rainwater run-off from waste e.g. containing suspended solids.	Acute effects: oxygen depletion, fish kill and algal blooms	Direct run-off from site across ground surface, via surface water drains, ditches etc.	Low	Low	**Low**	Apart from lead acid batteries and liquid residues, all permitted waste types are non hazardous solids so only a low magnitude risk is estimated. There is potential for contaminated rainwater run-off from wastes stored outside buildings especially during heavy rain.	SR - All liquids shall be provided with secondary containment.... (applies to wastes and non-wastes such as fuels). Run-off restricted by SR (emissions of substances not controlled by emission limits).	Very low
All surface waters close to and downstream of site.	As above	Chronic effects: deterioration of water quality	As above. Indirect run-off via the soil layer	Medium	Low	**Low**	As above. Harm is likely to be temporary and reversible.	As above	Low

Abstraction from watercourse downstream of facility (for agricultural or potable use).	As above	Acute effects, closure of abstraction intakes.	Direct run-off from site across ground surface, via surface water drains, ditches etc. then abstraction.	Low	Low	**Low**	As above. Watercourse must have medium / high flow for abstraction to be permitted, which will dilute contaminated run-off.	As above	Very low
Groundwater	As above	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole.	Transport through soil/groundwater then extraction at borehole.	Medium	Medium	**Medium**	There is a potential for contaminated rainwater run-off or leakage from permitted waste types.	As above	Low
Local human population	Contaminated waters used for recreational purposes	Harm to human health - skin damage or gastro-intestinal illness.	Direct contact or ingestion	Low	Medium	**Low**	Unlikely to occur, but might restrict recreational use.	SR - emissions of substances not controlled by emission limits....SR (if required) - emissions management plan.	Very low
Protected sites - European sites and SSSIs	Any	Harm to protected site through toxic contamination, nutrient enrichment, smothering, disturbance, predation etc.	Any	Low	Medium	**Low**	Waste operations may cause harm to and deterioration of nature conservation sites.	SR - activities shall not be carried out within 500m of a European Site or SSSI. (Distance criteria as agreed with Natural England/Countryside Council for Wales).	Low

Notes: Red triangle indicates comment containing supporting information
Yellow columns contain drop down menus that allow automatic evaluation of risk in green column

REPORT 3

EPS MR LTD ENVIRONMENTAL PERMIT VARIATION

UPDATED ENVIRONMENTAL RISK ASSESSMENT

Appendix 4 Indicative Drainage Plan

Report Number 1469r3v1d0316

LEGEND

- EXISTING/NEW DRAIN
- EXISTING/NEW CUT-OFF DITCH/DRAIN
- EXISTING/NEW UNDERGROUND PIPE
- EXISTING/NEW KERB
- EXISTING/NEW BUND
- EXISTING/NEW SOAKAWAY
- RUN-OFF DIRECTION
- EXISTING/PROPOSED TREATMENT/STORAGE
- FOUL DRAIN
- SURFACE WATER SEWER
- DRAINED AREAS

KINGS DOCK

Warehouse
Trinity House Depot
Surface Water Sewer
Surface water drains
Drain and sump
Kerbed storage area
Bunded heating oil tank
Soakaway
Septic Tank
Roof water drains
Graded slab with internal containment
Bunded diesel storage tank
Bunded storage of contaminated surface water, or new sealed sump
Storage area graded slab with internal containment
Kerbed processing area to sealed sump
Bunded diesel tank
Kerb processing area and new sump
KINGS DOCK QUAY
Drained area = 3,810m2
Drained area = 9,335m2
Localised kerbing improvements may be required
Graded/kerbed surface to retain run-off within the site
Kerbed processing area to sealed sump
New kerbs for processing area and drain to existing or new sealed sump
Pre-treatment (if required for heavy metals)
Attenuation (if required)
Discharge to dock
2 x Class 1 Full Retention Interceptors Klargester NSFA200 or equivalent
Cut off ditches – design TBC
Replace 200M3 attenuation with high level overflow and use cut-off drain volume as attenuation???
Drained area = 7,237m2
EQUIPMENT STORAGE
FERROUS STORAGE
NON-FERROUS STORAGE
OFFICE
TREATMENT AREA 1
TREATMENT AREA 2
TREATMENT AREA 3
TREATMENT AREA 4
SUMP
BUND
Bollards
Track
N

This drawing is not intended to represent detailed design

AMENDMENTS

REV REF	DETAILS	DATE	MADE BY	CHKD BY
A	FOR PERMIT VARIATION. UPDATED BOUNDARY AND LAYOUT. PROPOSED DRAINAGE SCHEME ADDED (SUBJECT TO DETAILED DESIGN)	20/02/16	SCW	AS

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EPS MR LTD	Drawn	SW	Scale
	Ch'kd	BS	1:1,250
DRAINAGE PLAN (PROPOSED)	Appr'd	BS	@A3
	Date	08/12/15	
Job No. EPS	Drg No.	10934 - 000 - D (Rev. A)	

REPORT 3

EPS MR LTD ENVIRONMENTAL PERMIT VARIATION

UPDATED ENVIRONMENTAL RISK ASSESSMENT

Appendix 5 Potential Metal Removal Techniques

Report Number 1469r3v1d0316

Geotechnical &
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Water Lynx

Clearflow's Water Lynx blocks provide a convenient method to introduce environmentally safe treatment into continuous or intermittent concentrated flows such as ditches, inlets, storm drain systems and pump discharges. After initial implementation, minimal maintenance is required. Each block type is produced to work with specific soil and/or site water chemistries.
Once introduced, Water Lynx transforms elevated levels of fine suspended particles, including colloidal clays, metals, phosphorous and nutrients into masses easily removed from moving water. As an example, all construction site storm water can be clarified prior to discharge onto adjacent land or storm drains.

SEDIMENT CONTROL

SURFACE / STORM WATER RUNOFF

Placing Clearflow's environmentally friendly *Water Lynx* blocks in a runoff stream causes the sediment particles to settle by flocculation. Adequate mixing and settling times for the flow rate, temperature, and sediment load must be achieved for optimum *Water Lynx* performance. Sediment can be captured using standard BMPs enhanced with *Lynx* products and Clearflow's natural filter mediums.

HEAVY METAL REDUCTION

Use of Clearflow's environmentally friendly *Water Lynx* blocks in runoff water reduces the amount of heavy metals, PCBs, organics, phosphorous and other nutrients by grabbing the silt and clay particles that these are attached to, causing them to settle out of the flowing water.

POND AND BASIN CLARIFICATION

Water Lynx products used in with mixing devices such as fountains , aerators, waterfalls, Clearflow's PR5 Water Treatment System (PR5) and associated equipment remove suspended materials and nutrients, producing clean and clear water.

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