

Remediation Statement

Former Singers Tip, Kilbowie Road, Clydebank

Part IIA Environmental Protection Act 1990



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1. Introduction

- 1.1 With the introduction of Part IIA of the Environmental Protection Act 1990 in Scotland in July 2000, all local authorities are required to inspect their area to identify sites that have the potential of being contaminated land and if found to be so to have the area affected remediated.
- 1.2 Contaminated land is any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –
- a) significant harm is being caused or there is a significant possibility of such harm being caused;
 - or
 - b) significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused
- 1.3 On 13th July 2004, West Dunbartonshire Council (WDC) formally identified land at the junction of Kilbowie Road and Great Western Road, Clydebank (Appendix 1) as contaminated land.
- 1.4 WDC, as the enforcing authority for the land, is precluded by section 78H(5) of the Environmental Protection Act 1990 from serving a Remediation Notice, and has therefore prepared this Remediation Statement pursuant to section 78H (7) of the Act and Schedule 4 of the Contaminated Land (Scotland) Regulations 2000. As required, this Remediation Statement contains:
- The location and extent of the contaminated land in question sufficient enough to enable it to be clearly identified;
 - The significant harm or significant pollution of the water environment by reason of which the contaminated land in question is contaminated land;
 - The substances by reason of which the contaminated land in question is contaminated land and, if any of the substances have escaped from other land, the location of that other land;
 - the current use of the contaminated land in question

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- the things which have been done by way of remediation
- the name and address of the person who has done each of the things by way of remediation
- the periods within which each of these things were done.

2. The Site

- 2.1 The site was used for landfilling wastes from the 1930's to the 1980's. Filling progressed from the Kilbowie Road side of the site in an easterly direction. Prior to infilling, the site had been an area of low lying, marshy ground.
- 2.2 The site was operated by The Singer Company until around 1981, responsibility for the site was transferred to Clydebank District Council in 1983. The site operated with no licence until 1979 when the waste disposal licence granted permitted disposal of sand, sawdust, metal cuttings, tins, bottles and general building materials. Trial pits and boreholes encountered not only demolition material but other materials such as ash, black silt and coal waste.
- 2.3 Following landfilling operations ceasing and prior to being investigated and subsequently remediated the site lay unoccupied and was characterised by overgrown grass and shrubs, with a belt of mature trees along the north eastern boundary parallel with the Gt Western Road. There was some evidence of fly tipping and litter deposition. The area was used on an informal basis for dog walking and other recreational activities.
- 2.4 The site is situated to the north of Clydebank at the junction of Kilbowie Road and Great Western Road. The surrounding area is relatively built up with a small residential development to the south, a school to the east and Great Western Road and Kilbowie Road to the north and west respectively. An outline of the entire site is shown in Appendix 1, the area of which is 5.8ha, grid reference 249930E, 671880N.

3. Significant Pollutant Linkage

3.1 For a site to be identified as contaminated land requires a significant pollutant linkage to have been identified which requires that a contaminant and a receptor are linked by means of a pathway.

3.2 On this basis, the following significant pollutant linkages were found to be present at the site:

	Pollutant	Pathway	Receptor
1	Polychlorinated bi-phenols	Landfill wastes	Groundwater
2	Petrol Range Organics	Landfill wastes	Groundwater
3	Xylene	Landfill wastes	Groundwater
4	Toluene	Landfill wastes	Groundwater
5	Diesel Range Organics	Landfill wastes	Groundwater
6	Polyaromatic hydrocarbons	Landfill wastes	Groundwater

3.3 Further details on the findings and assessment in support of the determination can be found in the following reports

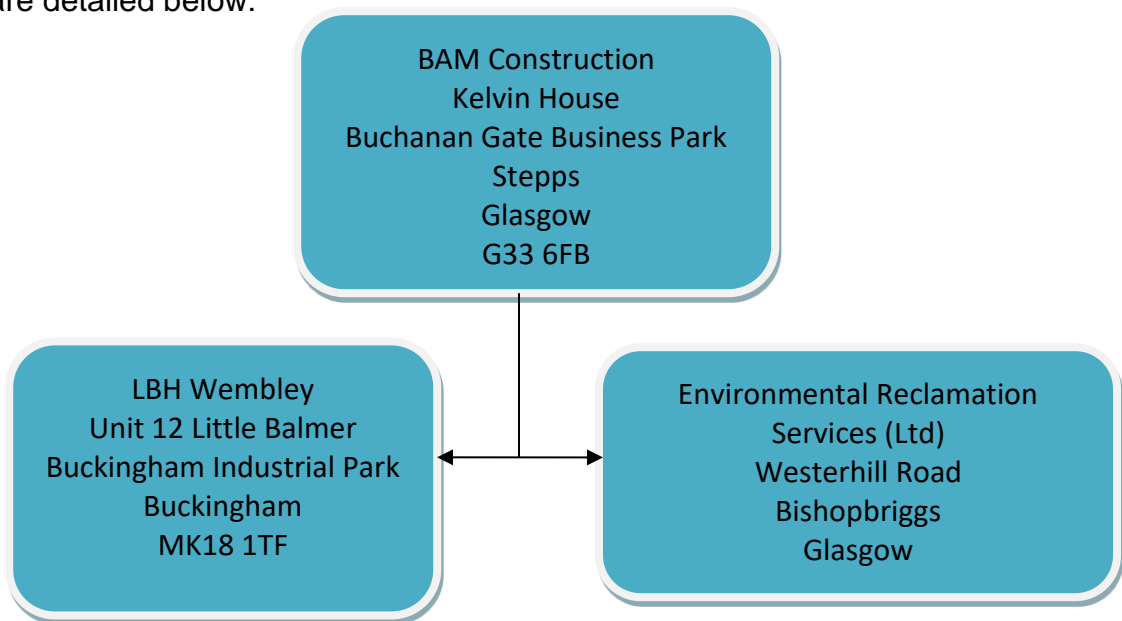
- Kilbowie Road Stage 2 Site Investigation - Envirocentre, Nov 1999
- Groundwater Risk Assessment, Kilbowie Landfill, Clydebank – Johnson Poole & Bloomer, June 2003

4. Current Use

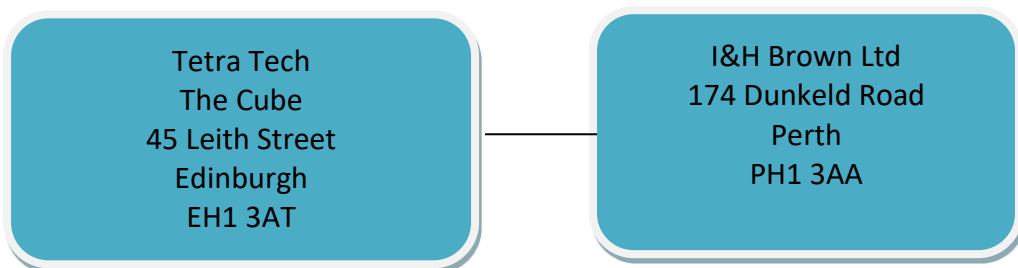
- 4.1 In 2007, and as part of the WDC Schools PPP Initiative, a planning application for a new school was submitted which included plans to utilise some of the Part IIA site for the school sports pitches. The site was then divided into two (see Appendix 2). As a result two separate remediation schemes were submitted, a summary of which is detailed in Section 6 and Section 7 of this report.
- 4.2 The south eastern portion of the site (Area 2) occupying approximately 4Ha is currently utilised for the school sports pitches associated to the St Peter the Apostle High School. The north western portion of the site (Area 1) occupying approximately 1.6Ha is currently utilised as a car park with a bus turning circle for school pick up/drop off. Both sites are linked by way of a footpath to enable easier access to the school from the neighbouring properties to the west.

5. Remediation Contractors – Contact Details

5.1 For Area 2 the WDC PPP Schools Initiative project was awarded to BAM Construction who appointed LBH Wembley as their Environmental Engineers. In addition to this and in order to fulfill the remediation strategy, Ground Remediation Systems were appointed to install and manage the Water Treatment Centre on the site. Responsibility for the maintenance of the Water Treatment Centre transferred to Environmental Reclamation Services Limited (ERS) back in 2019. Contact details for all three parties are detailed below:



5.2 For Area 1, WDC appointed White Young Green Environmental Ltd (Now Tetra Tech) as the Project Manager with I&H Brown Ltd appointed as the Principal Contractor. Contact details for both parties are detailed below:



6. St Peter the Apostle High School – Sports Pitches

6.1 Prior to producing the remediation strategy a detailed site investigation was undertaken to properly evaluate the extent of the contamination. In doing this and in accordance with a more up-to date method of risk assessment it became apparent that while a number of pollutant linkages existed that the only significant pollutant linkage (SPL) to exist was as follows:

	Pollutant	Pathway	Receptor
5	Diesel Range Organics	Landfill wastes	Groundwater

6.2 Taking this into account and while the focus of the remediation strategy was to break this one SPL, the very nature of the works meant that many other pollutant linkages were dealt with also.

6.3 In addition to this and as this site was being dealt with through the planning regime resulting in a change of use it was important to ensure that the gas regime was properly assessed. In particular it was important that any change to the underlying gas regime did not increase the risk to the surrounding properties.

6.4 It was also agreed that for the duration of the remediation works that the planning boundary for the schools project could be extended to the west. This area was used to create a mound to separate the sports pitches from the park 'n' ride facilities. This area was built up with suitable topsoil that was removed from the original site. An impermeable membrane was placed over the top which was then capped with 300mm of topsoil which had been suitably tested and validated.

6.5 Full details of the remediation works can be found in the following reports. To view these reports are by appointment only and so please contact West Dunbartonshire Council Environmental Health department to arrange:

- Remediation Plan & Strategy Ver 1.8, St Peter the Apostle High School & St Eunans Primary School, LBH Wembley, March 2008

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- Construction Verification Report: Construction Element A - Water Treatment System, St Peter the Apostle High School & St Eunans Primary School, LBH Wembley, May 2009
- Construction Verification Report: Construction Element C – Phase 1, Phase 2 and Phase 3, Ver 1.7 St Peter the Apostle High School & St Eunans Primary School, LBH Wembley, March 2017

6.6 The remediation works were carried out between Feb 2008 and Oct 2011. A summary of the works is detailed below:

- **Provision of vertical in-ground barrier** – This was installed to channel groundwater movement from the site to a collection point therefore intercepting the off-site flow of DRO-contaminated groundwater in order to break the SPL that the Part IIA designation was based on.
- **Gas and groundwater monitoring before, during and post construction** – In order to demonstrate that the construction works had not unduly affected the contamination situation on the site gas and groundwater monitoring was undertaken on numerous occasions from existing boreholes. In addition to this two long term dual installation monitoring wells were also installed adjacent to the in-ground barrier to ensure that the barrier was capturing the contamination and that there was no deep pathway for contamination to leave the site. The location of these wells can be found in the Verification Report.

Monitoring from these wells was initially reported every month and then extended to every two months. In recent years however the decision has been taken to decommission the deep wells. BH2(Deep) was decommissioned in June 2011 with BH1(Deep) more recently decommissioned in January 2017. On both occasions damage to the boreholes was reported and seeing as neither had returned any results of concern it was felt appropriate to decommission them rather than repair them.

- **Provision of in-line groundwater treatment** – A water treatment centre (WTC) has been installed that treats contaminated groundwater prior to it being discharged. The WTC includes a number of tanks, pumps and filters and is being monitored and maintained on a monthly basis. The centre has been designed to ensure that should any other contaminants be found to exceed their discharge criteria that additional treatment plant could be installed to deal with these contaminants.

It should be noted that the preferred option was to discharge the treated water back into the ground on the other side of the barrier however a number of engineering constraints meant that the option adopted was to have the treated water discharged to sewer. The treated water is being discharged under license to a nearby Scottish Water sewer at a maximum discharge volume rate of 50m³/day.

At the time of writing, the WTC had been operational for 13 years. The intention is to continue to treat the groundwater throughout the lifetime of the school or until such time as it can be adequately demonstrated that the significant pollutant linkage is no longer an issue.

ERS are responsible for monitoring and maintaining the WTC and currently issue a monthly report to the Schools Estate. The monitoring results from the boreholes and the WTC have been and will continue to be collated by Environmental Health.

- **Removal of unsuitable material** – During the extensive cut and fill operation on the site all material considered unsuitable for re-use as compacted fill was identified and removed. This material was either hazardous (asbestos, grossly contaminated) or geotechnically unsuitable.
- **Provision of gas protection measures** – Following the capping of the site and to ensure that the ground gas can continue to vent to the atmosphere rather than be driven laterally into the adjacent residential areas a perimeter gas venting trench was installed along the south western boundary of the site. In addition to this a low permeability

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drainage and gas venting blanket was installed across the site which connected into the perimeter gas venting trench. Gas pressure relief vertical venting pipes were also incorporated into the final design, these are visible across the site.

- **Solidification/stabilisation to create a semi-rigid capping layer** – To help isolate end-users from the underlying contamination cement/lime solidification/stabilisation of the uppermost 300mm of the tip material was undertaken.

- **Lay an impervious membrane (horizontal barrier/low permeability layer)** – To create a horizontal barrier to rainwater infiltration a composite membrane was laid above the stabilised capping layer that comprised upper and lower drainage media separated by an impervious membrane.
- **Provision of clean cover** – To ensure the suitability of the capping material all imported material was tested to ensure that the material was suitable for use.
- **Provision of suitably resistant below-ground construction materials** – To ensure the protection of the new construction from the underlying contamination all below-ground steel and concrete, water supply pipework and other materials took into account the chemical nature of the soils and groundwater with which they could come into contact with.

7. Kilbowie Park 'n' Ride

7.1 To ensure that the entire former Singers Tip was remediated, a separate remediation strategy was produced for the remaining 1.6Ha of the site beyond the planning boundary for the new PPP school. In developing the strategy it became apparent that the works being undertaken on the school site would in essence break the SPL's that had resulted in the entire site being designated as contaminated land. On this basis it was agreed that the main objective for this section of the site was to reduce the permeability of the site in order to help in reducing the infiltration rates through the underlying waste.

7.2 In addition to this and while the actual end-use for the site was still being finalised it was agreed that in order to avoid any further earth moving works on this site that this remediation phase should take account of the future plans for the site, namely a car park and bus turning circle.

7.3 Full details of the remediation works can be found in the following reports. To view these reports are by appointment only and so please contact West Dunbartonshire Council Environmental Health department to arrange::

- Review of Existing Information and Remediation Strategy, WYG Environmental, June 2008
- Remediation Works Verification Report, WYG Environmental, September 2008

7.4 The remediation works took 10 weeks to complete and were carried out between January 2008 and March 2008. The following summary of works is included in section 3.3 of the Verification Report:

7.4.1 Objectives

- Provide a physical barrier between future site users and underlying asbestos impacted soils

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- Provide a reduced permeability barrier covering historic waste deposits, thus reducing infiltration of precipitation and therefore reducing the potential for the migration of underlying contaminants

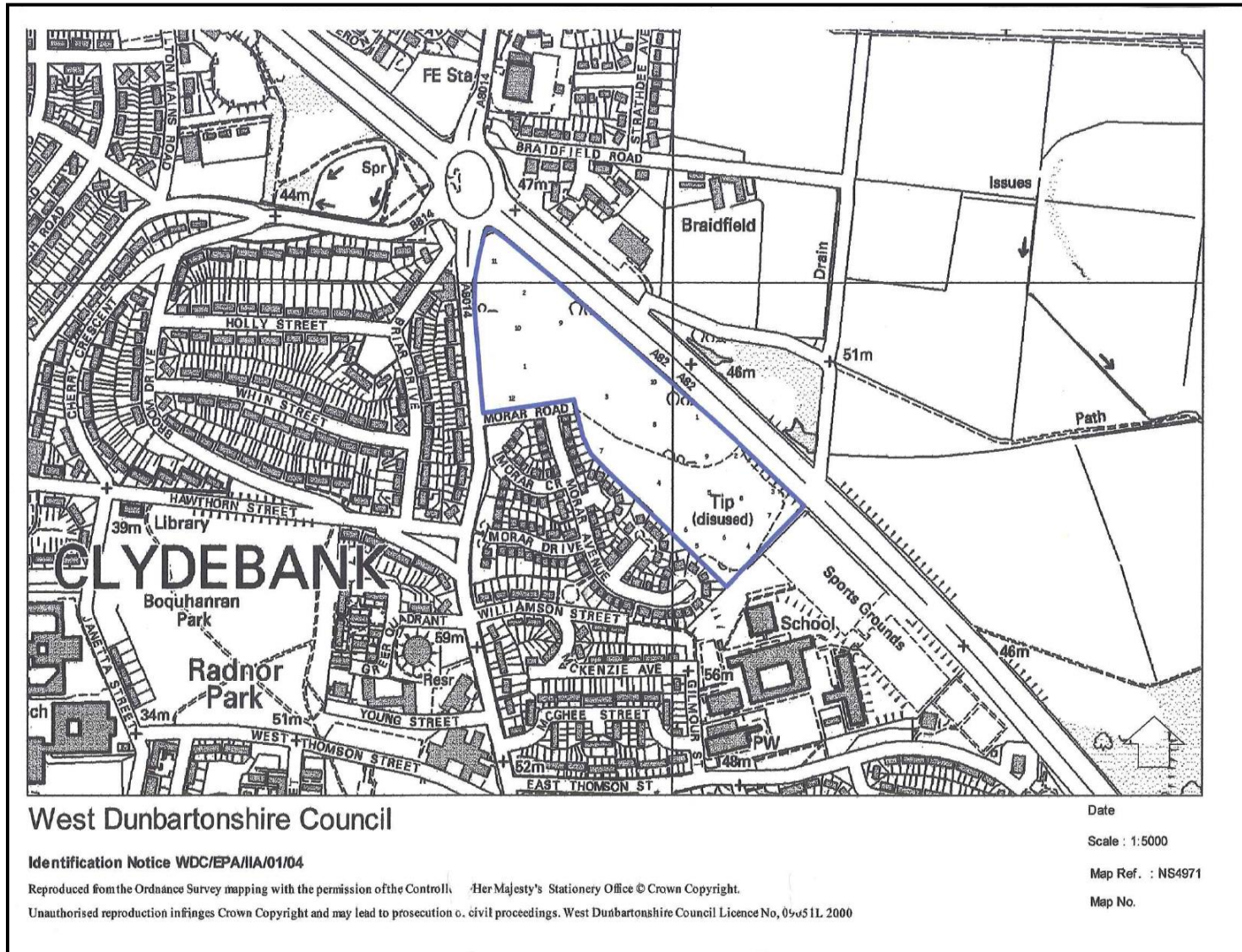
7.4.2 Remediation Design Details

- The formation surface (waste deposits) was levelled and graded to a profile to suit the potential future car park end-use. The surface was then proof rolled to an appropriate specification to provide a suitably stable formation upon which subsequent design elements could be installed or other future remediation activities carried out.
- Geosynthetic separation and reinforcement layer(s) were installed overlying the formation surface. The material(s) were to serve the following purposes:
 - Physical separation/warning layer to distinguish between overlying clean materials and underlying contaminated or asbestos impacted soils
 - Physical separation layer to prevent downwards migration and loss of granular capping material into underlying waste deposits; and
 - Reinforcement of the capping layer to increase stiffness and reduce the thickness of the capping layer.
- A capping layer (6F2 granular material) was installed to serve the following purposes :
 - To provide a physical mass barrier to separate site users from underlying waste deposits, and;
 - To provide a suitably strengthened surface upon which the potential future car park could be constructed
- A separation geotextile layer was placed over the surface of the completed capping layer to limit migration of fines from the overlying topsoil layer into the capping layer
- A topsoil layer of approx 300mm was then placed over the separation geotextile layer. The majority of the topsoil used was site won (following testing and validation), with the shortfall of topsoil imported to site.

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- Topsoil was then grass seeded to improve the amenity value of the site as well as encouraging rapid vegetation cover to stabilise placed soils against surface erosion and optimise evapotranspiration effects that would limit downward percolation of incident precipitation.
- A proposal to install a SUDS pond was also included in the remediation design however a final design was never agreed. To allow for this there was one area to the NE of the site that was subject to a different remediation design. Further details of where this is and what was involved can be found in the Verification Report by White Young Green (details above).
- On completion of the works a proposal was later submitted to plant trees along the boundary with Gt Western Road. In order that a suitable growing medium was available for trees and to ensure that the geotextile layer was not breached the capping layer was increased in three areas now easily identifiable as three mounds.

APPENDIX 1: PART IIA DESIGNATED SITE LOCATION MAP



APPENDIX 2: SITE SPLIT POST 2007

