

Non Technical Summary

Former Visteon Factory Land Contamination and Remediation



Introduction

WYG Environment & Planning (N.I.) Ltd (WYG) were commissioned by Fold Housing Association to undertake Land Contamination Investigations, Risk Assessment and produce a Remedial Strategy for the former Visteon Factory site, in Finaghy. The site is proposed for residential housing development with gardens and areas of soft landscaping (open spaces) and an area of commercial development in the east.

This document presents a non technical summary of the latest risk assessment and remedial strategy (October 2016) based on recent 2016 monitoring and site investigation works.

Site Setting

The 8.95ha site is located, within a residential setting, between Finaghy Road North and Blacks Road, Belfast, approximately 5km southwest of Belfast City Centre.

The site is currently vacant with the factory building having been demolished in 2014-2015. Much of the site is covered by hardstanding (former car parking areas, internal roadways etc.) and landscaped (grassed) areas. The factory has been demolished and floor and foundations removed. All tanks, that were present when the factory was in operation, were removed from site in 2015.



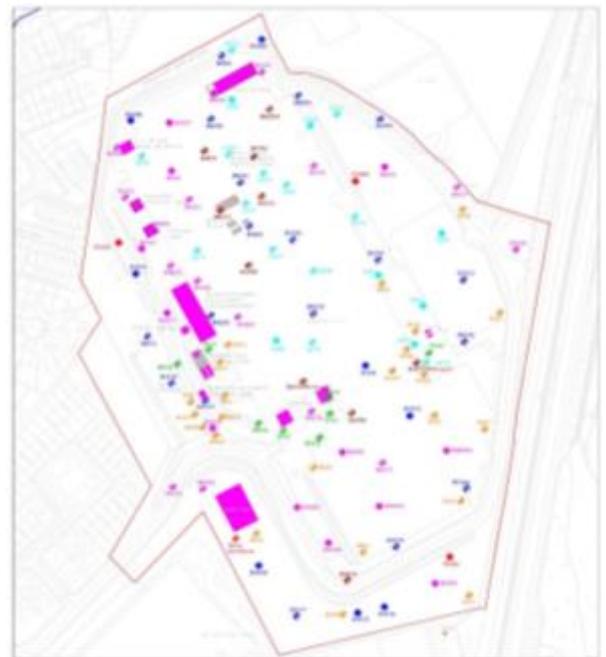
The site is bounded to its north by an area of overgrown vegetation beyond which lies Ladybrook River, approximately 80m from the northern boundary. To the immediate west are a number of residential properties and to the south-west of the site is Balmoral High School and playing fields. The M1 motorway runs along the site's eastern boundary. Beyond the motorway lie further residential properties.

Previous Investigations and Assessment Works Undertaken

A number of phases of land contamination works have been undertaken at the site dating back to 2006. An initial land contamination investigation and risk assessment was undertaken in 2006/2007 as part of a previous planning application. Additional investigations and assessments were undertaken from 2012 onwards as part of the current planning application with a Remedial Strategy completed in 2014 in line with the current proposed development.

The main reports detailing the investigations, risk assessments and remedial strategies include:

- Preliminary Risk Assessment, White Young Green, August 2006 – submitted in support of a planning application Z/2006/2339/O which covered the southern half of the site;
- Generic Quantitative Risk Assessment, White Young Green, November 2006 – submitted in support of a planning application Z/2006/2339/O;
- Generic and Detailed Quantitative Risk Assessment, White Young Green, May 2007 – submitted in support of a planning application Z/2006/2339/O;
- Preliminary Contamination Risk Assessment, Pentland Macdonald, June 2012 – covering the current application site area (Z/2013/1434/F);
- Preliminary Risk Assessment and Gap Analysis, WYG, July 2013- covering the current planning application site (Z/2013/1434/F); and
- Contaminated Land Generic / Detailed Quantitative Risk Assessment and Outline Remedial Strategy, February 2014 (Z/2013/1434/F); and
- Contaminated Land Risk Assessment and Outline Remedial Strategy Addendum, May 2014(Z/2013/1434/F).



2006-2014 Investigation Locations

These previous assessments identified the following sources of contamination to be present at the site:-

In soils:

- Heavy metals, namely nickel, lead in some areas, and asbestos contamination present within shallow soils;
- Hydrocarbons (from fuels such as heating oils, diesels), TCE (Trichloroethylene – commonly used as a degreaser for metal parts).

In shallow groundwater:

- hydrocarbons (from fuels) and TCE.

In deeper groundwater in the sandstone bedrock aquifer:

- Hydrocarbons and TCE.

Note:

1. Hydrocarbons (fuels) were observed to be present in former tank areas as free phase hydrocarbon contamination in soils and groundwater. This means that fuels were present in their original form rather than mixed with water or soil.
2. The report commonly refers to VOCs (Volatile Organic Compounds). These are compounds which can easily evaporate from fuels and other chemicals (eg TCE) to air and can pose a hazard to persons breathing in that air; particularly if these compounds enter confined spaces.

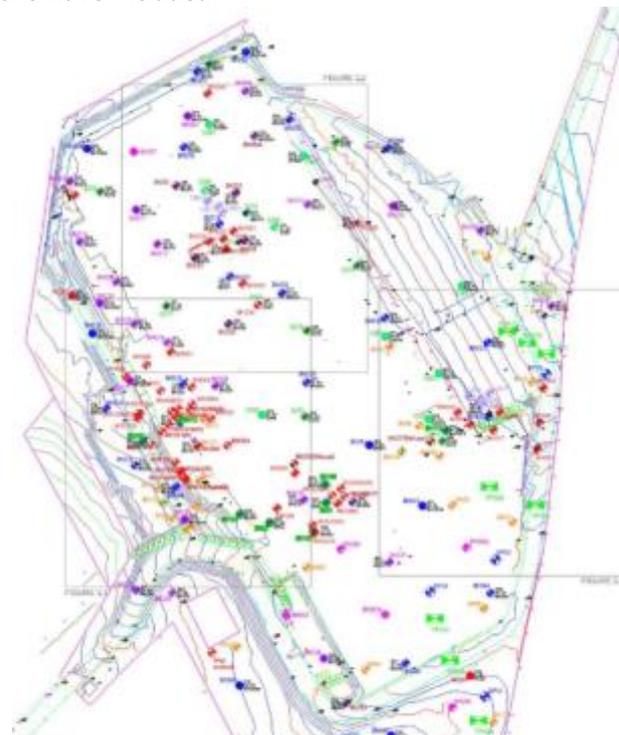
2015 - 2016 Investigations and Assessment Works Undertaken

Additional site investigations, collection and laboratory analysis of samples and monitoring were undertaken in 2016. The results were used to update the 2014 risk assessments and included the following:

1. Soil sample laboratory analysis results were re-assessed using new standards which had been published in 2015;
2. Samples were collected and analysed by a laboratory to determine hydrocarbon (fuel) concentrations in shallow groundwater.;
3. Investigations were completed to better understand the location, nature and extent of the contamination sources located on site, particularly in the area of the former tanks where hydrocarbon (fuel) contamination was known to be present and also in areas where TCE contamination was known to be present.
4. Groundwater samples were collected from shallow groundwater and analysed by a laboratory to determine TCE (Trichloroethene) concentrations, particularly in areas as identified in the 2014 report.
5. Vapour well investigations and soil vapour sampling and analysis targeting TCE contamination areas and also along the site boundary to ensure contamination is not migrating off site.

Including all investigations, from the eight extensive reports produced including results of site investigations, sampling and chemical laboratory testing of soil and groundwater samples at a range of depths throughout the entire site. The investigations have included:

- Over 300 investigation points, including 196 boreholes (wells) and 105 trial pits (pits which are about 3m by 1m are excavated by a digger);
- Laboratory chemical analysis of over 500 soil and 300 groundwater samples;
- The boreholes vary in depth from 1 metre into shallow soils to 50 metres deep into the Sandstone Bedrock;
- Soils samples were collected from the ground surface up to depths of 9 metres;
- Groundwater samples were collected from a variety of depths including shallow and deeper groundwater up to 50 metres deep in the sandstone bedrock aquifer.



2006-2016 Investigation Locations

Final Investigation and Assessment Results

The site investigations and risk assessments completed to date have identified a number of areas of contamination.

The following is a short summary of the investigation findings:

- Site wide nickel (metal), TCE and asbestos contamination in made ground soils;
- Lead (metal) and hydrocarbon (fuel) soil contamination;
- Isolated free product hydrocarbon (fuel) areas in soils and in groundwater;
- Elevated ground gas – carbon dioxide and soil vapour TCE, and
- TCE in deeper groundwater in Sandstone.

2016 Remedial Strategy

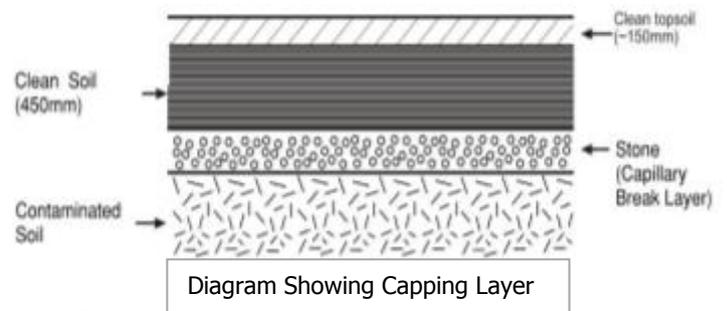
The updated risk assessment concluded that soils on site only require remediation to protect the health of residents and persons visiting the site. Consequently, all gardens and landscaped areas will be provided with a capping layer and all buildings with gas protection measures which include a membrane that will stop contaminated vapours from entering the buildings from the ground below.

A capping layer is the placement of clean material (soil and stone) on top of contaminated soils. The capping layer at the Visteon site will be a minimum of 0.8m thick. A capping layer prevents contact with the underlying soil and provides a layer of clean soil for growing vegetables, grass and plants.

The risk assessment has shown that TCE detected in shallow groundwater and in the soil can not migrate to cause pollution of drinking water supplies or impact nearby streams or rivers including the Ladybrook.

In summary the remedial works are:

1. Tanks were decommissioned and removed from site when the factory was demolished in 2014-2015.
2. Shallow soils are contaminated with metals, low risk asbestos, TCE (trichloroethene), isolated areas of hydrocarbons (fuels) and ground gases. for which the remediation method proposed involves by providing a capping layer to all gardens and open spaces and a membrane to houses and other. Remediation will ensure future residents on site and existing residences off site are not exposed to contamination present on the Visteon Site. The proposed remediation includes the installation of capping layers in garden and open space areas and membranes beneath houses and other buildings which will prevent persons from coming into contact with contamination;
3. Clean soils for use in the capping layer will be excavated from a Borrow Pit located in the commercial area in the southeast of the site. The void formed will be backfilled with made ground impacted with asbestos and will be provided with a capping layer that will cover the material so that it poses no risk to residents on or off site and or persons visiting the site;
4. Soils and groundwater impacted by free product hydrocarbons (fuels) will be dug out and removed from site; and
5. Remediation of TCE identified within the Sherwood Sandstone using a method called Monitored Natural Attenuation (MNA), with a contingency for enhancement at a later date should the contamination not break down naturally or quickly enough. Monitored Natural Attenuation involves careful monitoring and review of the groundwater contamination levels and movement in the Sherwood Sandstone Bedrock Aquifer over time. The aim of MNA is to



demonstrate that the contaminant concentrations are decreasing under natural conditions. If concentrations are not decreasing quickly enough then the process can be speed up by injecting a natural treatment; this is called enhancement. Monitoring of groundwater will be required until contaminant concentrations decrease to acceptable standards.

All remedial works will be witnessed, documented, monitored and numerous samples collected for analysed by a laboratory to ensure the remedial works are being completed as agreed with Belfast City Council's Planning and Environmental Health department, and Northern Ireland Environment Agency (NIEA). This will result in the production of a Validation Report completed by a suitably qualified environmental consultant, with verification reports submitted to Belfast City Council's Planning and Environmental Health department, and Northern Ireland Environment Agency (NIEA). Residents will not be allowed to move into the properties until the regulators have approved these reports.

For further information on the regeneration and remediation of the Visteon Site please visit Fold's website www.foldvisteonregeneration.com. A full copy of WYG's October 2016 Report and Remedial Strategy is available on the website. Or alternatively email regeneration@foldgroup.co.uk or telephone 028 9039 4553