CASE STUDY

Soil Management / Offsite Disposal

ZF Automotive, Pontypool

Client

Environmental Consultant

Specialist Contractor

Site Background & History

ZF Automotive specialises in engineering and is known around the world for design, research, development and manufacturing activities in the automotive industry. ZF is a worldwide supplier of chassis and driveline technology for cars and commercial vehicles

Envirotreat was engaged by Arcadis to manage the removal and disposal of a soil stockpile which had accumulated over time following the amalgamation of numerous smaller stockpiles arising from various construction / demolition activities on site. This area of the facility was in the process of being sold to a local company - the removal of all wastes was understood to be a condition of the sale contract.

The stockpile location on the site is shown in Figure 1 below

Figure 1 – Stockpile Location

The stockpile shown in Figure 1 above had formed an “L” shape around at the boundary of the site. The client’s environmental consultant, Arcadis carried out an assessment of the stockpile - the northern (longer) section was observed to be blighted with Japanese Knotweed and was not sampled at this stage – see Figure 2 below.

Figure 2 – Japanese Knotweed Blighted Area

Arcadis collected 18 soil samples from the southern (shorter) section of the stockpile which comprised a mix of soil, stones and oversize concrete. The samples were submitted for appropriate analysis to enable a full assessment in accordance with the requirements of the current WM3 Guidance.

Exceedances in concentrations of zinc, copper, lead and chromium confirmed that the stockpile would be classified as hazardous (HP2, HP7 and HP14) for offsite disposal.

The findings of the assessment carried out by Arcadis confirmed that the stockpile would require careful and effective management to ensure the potential for any cross contamination was minimised especially regarding the Japanese Knotweed impacted area.

Arcadis approached Envirotreat to provide a practical, sustainable and cost-effective disposal route for the stockpile to enable the client to comply with the conditions of the sale contract. Working with our network of hauliers and soil treatment facilities, Envirotreat identified receiver sites that ensured the waste materials were recycled and ultimately reused, where practical to do so.

To support this, Envirotreat carried out additional soil sampling and analysis on the Japanese Knotweed impacted soil to confirm the nominated receiver site could accept this material in line with its environmental permit. Results confirmed that these soils were likely to be hazardous based on TPH analysis (HP7 and HP11) but still acceptable at the intended receiver site.

Japanese Knotweed Impacted Stockpile

Prior to any works in this area, a controlled access point was set up to ensure the potential spread of rhizomes was mitigated. Once set up the Knotweed stands were carefully cut down in accordance with the NRW Guidance on Japanese Knotweed management and placed to the side of the stockpile to await separate disposal.

Once the stands had been removed the rhizome impacted soils were carefully loaded onto wagons for disposal at the designated facility. During this phase it was noted that the plants had extended much further than previously thought. This increased the number of loads removed.

The removal of the Japanese Knotweed stands is shown in Figure 3 below. The loading onto lorries is shown in Figure 4 below. The further impacted soils are shown in Figure 5 below.

Figure 3 – Japanese Knotweed Stockpile Following Removal of Stands

Figure 4 – Loading of Knotweed Impacted Soils

Figure 5 – Further Knotweed Impacted Soils

In total 62 loads of soil of Knotweed impacted hazardous soils were removed from site. A further 2 loads of knotweed vegetation were removed and disposed of separately.

The tracks of the excavator were cleaned following completion and the area was fenced off in readiness for herbicide treatment (to be carried out as and when required).

The Southern Stockpile

It was concluded that the volume of hazardous soils in the remaining stockpile could be reduced by picking and screening out the oversize materials. A large screen setting of 75mm was utilised to minimise the potential risk of hazardous soils remaining with the oversize material. Some material was passed through the screener a second time.

Reassurance air monitoring was carried out throughout the screening works to monitor the potential release of asbestos fibres. The results confirmed there was no release of asbestos fibres during this element of the works. The screening process is shown in Figure 6 below. The screened oversize material is shown in Figure 7 below and the remaining hazardous soils (fines) are shown in Figure 8 below.

Figure 6 – Screening Process

Figure 7 – Screened Oversize Material

Figure 8 – Remaining Soil (<75mm fines)

Following the completion of the screening process, the remaining soil was loaded onto lorries for disposal at a hazardous soil treatment facility. In total 32 loads of hazardous soil (fines) were removed from site for appropriate treatment and recycling at the facility. The loading of the soils is shown in Figure 9 below.

Figure 9 – Loading of Hazardous Soils (Fines)

Oversize Materials

All concrete / oversize materials screened out of the hazardous stockpile were stockpiled and loaded onto lorries for appropriate disposal at a local recycling facility for crushing and subsequent reuse. In total 31 loads of oversize material were removed from site.

The oversize material is shown in Figure 10 below. As can be seen the oversize material contained large blocks which necessitated the use of suitable lorries for transport. The loading onto lorries is shown in Figure 11 below.

Figure 10 – Oversize Material

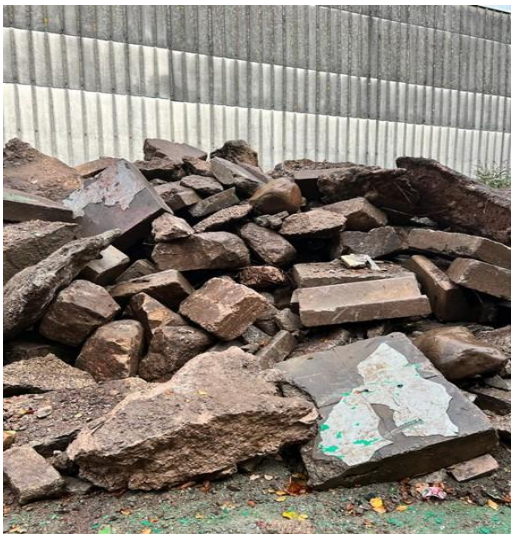

Figure 11 – Loading of Oversize Material

Environmental Monitoring

Envirotreat undertook environmental monitoring throughout the screening and disposal works – this comprised of predominantly dust monitoring (using a Dust Trak) and reassurance air monitoring during the screening operation. Dust levels did not exceed background thresholds during the work and dust suppression was not required. Reassurance air monitoring showed all fibre concentrations to be below threshold values.

The dust and reassurance air monitoring are shown below in Figures 12 and 13 respectively.

Figure 12 – Dust Monitoring

Figure 13 – Reassurance Air Monitoring

Completed Works

The cleared site area is shown in Figures 14 – 17 below.

Figure 14 – Post Completion

Figure 15 – Post Completion

Figure 16 – Post Completion

Figure 17 – Post Completion

Conclusions

All hazardous waste consignment notes and transfer tickets were provided to Arcadis on completion, along with a summary report.

The successful completion of these works enabled the client to comply fully with the conditions of the sale contract.

The disposal works were completed in accordance with the agreed strategy and in full compliance with The Waste (England and Wales) Regulations 2011.