

Ardley Waste Management Facility

**Addendum to Environmental Statement to Enable Ardley Landfill to Continue to Accept
Asbestos Waste, as existing**

Viridor Waste Management Ltd



**March 2010
SLR Ref: 409-0036-00349**

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APPENDICES

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DRAWINGS

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|-------------------------|---|
| Drawing Ref. 4-5 | Typical Arrangement for the Disposal of Asbestos |
|-------------------------|---|

INTRODUCTION

The existing Ardley Landfill facility is permitted to accept non hazardous and asbestos waste and Viridor Waste Management Ltd have provided this addendum to clarify that the environmental effects of the site continuing to accept asbestos have been considered.

The permitted baseline for the current Ardley site is as a permitted non hazardous and asbestos landfill and this will continue in the event that the current application is not proceeded with.

3.0 DESCRIPTION OF DEVELOPMENT

The proposed amendment to enable the landfill to continue to accept asbestos waste will result in no change to the following aspects of the landfill development which have already been considered and assessed in the original Environmental Statement dated October 2008 and the Additional Information dated March 2009. The principal reason for this is that the asbestos inputs were taken into account within the industrial and commercial inputs to the site and not considered as a separate waste stream in the previous assessments. The aspects of the development that will not change are therefore as follows:

- Timescales and phasing of the landfill;
- Waste inputs into the landfill;
- Traffic movements to the landfill;
- Contours of the landfill;
- Hours of operation of the landfill; and
- Employment at the landfill.

As previously stated the disposal of asbestos is currently permitted at Ardley subject to certain requirements being met. These requirements are as follows:

- There should be no mixing of asbestos wastes and other non hazardous wastes. This means that asbestos must be placed in separate monocells. These monocells are constructed to the same engineering standard as the non-hazardous waste cells – essentially, the asbestos cell is at one end of the non-hazardous cell and the waste in the asbestos cell is separated from the non-hazardous waste by way of a separation zone of non-biodegradable, non-hazardous wastes.
- The asbestos is a bound rigid asbestos packaged in accordance with the approved codes of practice and HSE guidance notes.
- The asbestos is covered immediately to a depth of 250mm and at the end of the day to a depth of 1m on all flanks and surfaces with suitable inert material.
- A final top cover shall be placed on the top of the landfill cell in order to avoid dispersion of fibres - A minimum 2 metre thick cover layer will be placed over the asbestos containing wastes. This will in turn be overlain by biodegradable non-hazardous wastes to pre-settlement levels and the capping system.
- No works shall be carried out on the landfill/cell that could lead to a release of fibres (eg. Drilling of holes).
- The asbestos cell can contain no other waste materials other than those used for the purposes of covering the asbestos.
- The design and location of the cell should minimise the need for leachate management within the asbestos cell - Leachate drainage blanket for the asbestos cell shall be in continuity with the drainage blanket of the non-hazardous waste cell.
- A particulate monitoring plan, based on the EA guidance is in place.
- The risk of aerial emissions from asbestos wastes generally prevent the retrofitting of monitoring and extraction points. The construction of the monitoring

and management is sufficiently robust to reduce the risk of failure of the management systems to a minimum.

- As outlined in the Agency's guidance there should be no direct physical contact between asbestos and biodegradable non hazardous wastes or their waste products (including leachate or gas). The design and location of the cell should minimise the need for leachate management within the asbestos cell. However, where the collection of leachate from an asbestos cell is necessary, the design must ensure that this can be provided and maintained without drilling into the waste. – The asbestos disposal cells are designed in accordance with the requirements of the EA Guidance.

Essentially, the asbestos disposal at Ardley is regulated by the Environment Agency (EA). The design of each cell is in accordance with the EA's guidance, and the EA regulate the operation of the site. This existing regulatory framework will remain in the place for the proposed landfill development.

3.0 POTENTIAL ENVIRONMENTAL IMPACTS

3.1 Introduction

This section reviews the potential environmental impacts of the landfill continuing to accept asbestos and confirms that the existing regulatory framework that is in place will continue.

3.2 Air Quality

The sites existing Permit (PPC Permit BV7346IM) describes the emission limits to which the operations must conform, these are detailed in Table 2.2.11 of the Permit and reproduced below:

| Table 2.2.11 Dust emission limits into air | | |
|---|-----------------------------|--------------|
| Parameters and frequency of monitoring | Emission Limit | |
| Asbestos fibres (non-chrysotile) – quarterly asbestos disposal area | 0.002 fibres/m ³ | 4 hour total |

These limits are based on the Control of Asbestos at Work Regulations 2002¹.

Viridor's Compliance Management System incorporates a section on Asbestos Monitoring to ensure that the monitoring and ambient atmospheric limits set out in the Permit are met. A copy of this procedure is attached as Appendix A to this report. This method follows that described in Methods for the Determination of Hazardous Substances (MDHS 39/4)² published by the Health and Safety Executive.

To date the monitoring of asbestos fibres at the site has recorded levels below the threshold limit set out in the Permit and the disposal of asbestos is therefore considered not to be having any significant effects on air quality. A copy of recent results is attached as Appendix B to this report.

Asbestos monitoring will continue on a quarterly basis during the life of the active asbestos cell and no additional impacts have been identified as a result of the site continuing to accept asbestos.

3.3 Transport

Previously asbestos has been included within the traffic movements for industrial and commercial waste received at Ardley, therefore this proposed amendment will result in no additional traffic movements or tonnage inputs over and above those that have already been assessed in the October 2008 and March 2009 submissions.

Therefore no additional traffic impacts have been identified as a result of the proposed amendment.

¹ The Stationary Office, Control of Asbestos at Work Regulations 2002 (SI 2002/2675)

² HSE, Methods for determination of hazardous substances MDHS 39/4: Asbestos fibres in air (Nov 1995).

3.4 Noise

Monitoring carried out at the existing asbestos cell has confirmed that the disposal operations result in no additional noise impacts over and above those already considered as part of the EfW and landfill development.

The following table indicates that the additional operations required for the disposal of asbestos have no impact on predicted noise levels for the site, which have previously been submitted to OCC.

Predicted Landfill Impact, free-field, $L_{Aeq,T}$ dB

| Location | Period | Nature of Operation | | | Cumulative |
|------------------------|---------|--------------------------|--------------------------|--------------------------------|------------|
| | | Operations Non-Haz Cells | Operations Asbestos Cell | Validation Bay to Tip and Haul | |
| 1. Manor Farm Cottages | Daytime | 25.5 | 0 | 25.7 | 28.6 |
| 2. Ashgrove Cottages | Daytime | 47.1 | 28.9 | 42.8 | 48.5 |
| 3. Church House | Daytime | 30.4 | 22.1 | 29.2 | 32.2 |
| 4. Middleton Road | Daytime | 25.3 | 17.0 | 25.7 | 28.8 |

Therefore no additional noise impacts have been identified as a result of the site continuing to accept asbestos.

3.5 Water

The disposal of asbestos requires cells engineered to the same design and specification as those used for non hazardous waste, the only difference is that it is necessary for the asbestos to be kept separate from the non hazardous waste by being disposed of in within its own monocell, which is in effect a smaller cell constructed within the larger non hazardous cell. The existing containment system has already been considered and assessed as providing appropriate mitigation to prevent harm to the water environment. In addition there would be no change to the contours of the landfill and therefore no change to the run off characteristics for which appropriate mitigation in the form of attenuation lagoons have already been provided.

As the level of containment provided and the run off characteristics are the same that have already been proposed and assessed as providing appropriate mitigation to prevent significant effects on the water environment no additional impacts on the water environment have been identified as a result of the site continuing to accept asbestos waste.

3.6 Landscape and Visual

There would be no change to the timescales, phasing, contours and restoration of the proposed landfill as a result of the proposed amendment and the cells required to dispose of asbestos would be constructed within the existing non hazardous cells, which have already been considered and assessed.

There would therefore be no additional landscape and visual effects of the landfill continuing to accept asbestos waste.

3.7 Ecology

The disposal of asbestos would take in place within existing landfill cells the effects of which have already been considered, assessed and mitigation proposed in the October 2008 and March 2009 submissions.

There are considered to be no additional effects on ecology as a result of the site continuing to accept asbestos waste.

3.8 Cultural Heritage

No additional impacts on cultural heritage have been identified as result of the site continuing to accept asbestos waste.

3.9 Cumulative

There would be no change to the traffic, contours, timescales or tonnage inputs to the site as a result of this amendment and the monitoring programme that is in place confirms that the disposal of asbestos does not have an adverse effect on air quality.

Therefore no cumulative effects of the site continuing to accept asbestos waste have been identified.

4.0 NEED AND ALTERNATIVES

There are no alternative methods for dealing with asbestos other than by disposal to landfill and there are no alternative sites within Oxfordshire permitted to accept this waste stream. The alternative therefore to Ardley continuing to accept this waste would be for it to be exported from the county for disposal.

This is considered contrary to the principle of managing waste at the nearest appropriate facility as the existing permission already establishes that Ardley is considered to be an appropriate facility for the disposal of asbestos.

5.0 CONCLUSION

The proposed amendment clarifies that it is Viridor's intention that the landfill continues to accept asbestos waste and the assessment of potential environmental effects has not identified any significant effects as a result of the site continuing to accept this waste stream.

There are no alternative methods or sites for dealing with this waste within Oxfordshire and there is therefore a need to continue to make provision at this existing facility.

Date 22nd May 2009

Mr Philip Branchflower
SLR Consulting Ltd
Treenwood House
Rowden Lane
Bradford on Avon
Wiltshire
BA15 2AU

Dear Philip,

I am writing with reference to your email requesting information regarding the monitoring of asbestos fibres emissions undertake at Ardley Landfill. This monitoring is undertaken as part of our PPC Permit BV7346IM as per Table 2.2.11 below.

Table 2.2.11 Dust emission limits into air

| Parameters and frequency of monitoring | Emission Limit | |
|---|-----------------------|--------------|
| Asbestos fibres (non-chrysotile) – quarterly asbestos disposal area | 0.002 fibres/ml | 4 hour total |

Viridor undertake monitoring of asbestos fibres in air on a quarterly basis at four separate locations around the active asbestos cell. In order to ensure we have representative samples the monitor locations change on each visit, with regard to the prevailing wind direction. On each occasion we monitor three downwind points (AR002ASB, AR003ASB and AR004ASB) and one upwind point (AR001ASB).

To date the monitoring of asbestos fibres at the site has recorded levels below the threshold limit set out in the permit (see above). Viridor note that asbestos monitoring at the site will only take place on active cells. Asbestos monitoring will continue on a quarterly basis during the life of the active asbestos cell, once the cell has been filled and capped the monitoring of asbestos fibres in air will cease.

Monitoring of asbestos fibres at the site is conducted in-line with our internal guidance note (6.4.10 Asbestos Monitoring), a copy of which is attached to this letter. In the event that a breach in asbestos fibres limits was recorded at one of the downwind locations, supplementary speciation monitoring will be undertaken. Viridor will also review the volume of asbestos taken at the site on the date of monitoring along with what measures were put in place to prevent asbestos fibres release.

For completeness I have attached to this letter a copy of our asbestos monitoring results for the period January 2008 to May 2009. We also provide this data to the Environment Agency on a Quarterly and Annual basis.

Closure

We hope you find the above to be constructive and would welcome any feedback you have on this matter. If you would like to discuss this further then please do not hesitate to contact me or the Unit Manager Henry Austin.

Yours sincerely

J C Miers

Jonathan Miers
Environmental Services Officer
Northern and Scottish Region
Viridor Waste Management

Cc Henry Austin
Chris Ingham

| Site | SamplePoint | Date | Personnel | Upwind/Downwind | GPS Coordinates (E/N) | Filter Diameter (mm) | Total Graticule Number | Fibres Counted | Diameter of Graticule | Volume of Air (litres) | Calculated Results (f/ml) | Reported Results (f/ml) | Weather Comment | Wind Speed (m/s) |
|--------|-------------|------------|-----------|-----------------|-----------------------|----------------------|------------------------|----------------|-----------------------|------------------------|---------------------------|-------------------------|---|------------------|
| Ardley | AR001ASB | 10/12/2007 | LC | Upwind | SP 53824,25630 | 22.5 | 200 | 3.5 | 100 | 2475 | 0.0004 | <0.002 | Clear and cold | 1 |
| Ardley | AR001ASB | 04/03/2008 | LC | Upwind | SP53808,25600 | 22.5 | 200 | 1 | 100 | 2870 | 0.0001 | <0.002 | clear cold bright | 2.5 |
| Ardley | AR001ASB | 17/06/2008 | LC | Upwind | SP 53854,25589 | 22.5 | 200 | 1 | 100 | 2570 | 0.0001 | <0.002 | clear & humid | 0.6 |
| Ardley | AR001ASB | 10/09/2008 | MJT | Upwind | SP 53800 25432 | 22.5 | 200 | 2 | 100 | 2480 | 0.0002 | <0.002 | Sunny, overcast and breezy | 0.9 |
| Ardley | AR001ASB | 11/12/2008 | MJT | Upwind | SP 53874 25641 | 22.5 | 200 | 4 | 100 | 2400 | 0.0004 | <0.002 | Overcast, light air and cold | 0.6 |
| Ardley | AR001ASB | 17/03/2009 | MJT | Upwind | SP 53845 25599 | 22.5 | 200 | 0.5 | 100 | 2450 | 0.0001 | <0.002 | Sunny, warm, blue sky with some clouds and a breeze | 2.3 |
| Ardley | AR002ASB | 10/12/2007 | LC | Downwind | SP 53814,25537 | 22.5 | 200 | 5 | 100 | 2475 | 0.0005 | <0.002 | Clear and cold | 1 |
| Ardley | AR002ASB | 04/03/2008 | LC | Downwind | SP53891,25602 | 22.5 | 200 | 0.5 | 100 | 2820 | 0 | <0.002 | clear cold bright | 2.5 |
| Ardley | AR002ASB | 17/06/2008 | LC | Downwind | SP53886,25663 | 22.5 | 200 | 2.5 | 100 | 2540 | 0.0002 | <0.002 | clear & humid | 0.6 |
| Ardley | AR002ASB | 10/09/2008 | MJT | Downwind | SP 53863 25608 | 22.5 | 200 | 1 | 100 | 2430 | 0.0001 | <0.002 | Sunny, overcast and breezy | 0.9 |
| Ardley | AR002ASB | 11/12/2008 | MJT | Downwind | SP 53839 25415 | 22.5 | 200 | 2 | 100 | 2420 | 0.0002 | <0.002 | Overcast, light air and cold | 0.6 |
| Ardley | AR002ASB | 17/03/2009 | MJT | Downwind | SP 53828 25417 | 22.5 | 200 | 1 | 100 | 2420 | 0.0001 | <0.002 | Sunny, warm, blue sky with some clouds and a breeze | 2.3 |
| Ardley | AR003ASB | 10/12/2007 | LC | Downwind | SP 53826,25550 | 22.5 | 200 | 5 | 100 | 2475 | 0.0005 | <0.002 | Clear and cold | 1 |
| Ardley | AR003ASB | 04/03/2008 | LC | Downwind | SP53879,25618 | 22.5 | 200 | 2 | 100 | 2820 | 0.0002 | <0.002 | clear cold bright | 2.5 |
| Ardley | AR003ASB | 17/06/2008 | LC | Downwind | SP53856,25661 | 22.5 | 200 | 2 | 100 | 2530 | 0.0002 | <0.002 | clear & humid | 0.6 |
| Ardley | AR003ASB | 10/09/2008 | MJT | Downwind | SP 53842 25600 | 22.5 | 200 | 2.5 | 100 | 2400 | 0.0003 | <0.002 | Sunny, overcast and breezy | 0.9 |
| Ardley | AR003ASB | 11/12/2008 | MJT | Downwind | SP 53805 25427 | 22.5 | 200 | 1.5 | 100 | 2400 | 0.0002 | <0.002 | Overcast, light air and cold | 0.6 |
| Ardley | AR003ASB | 17/03/2009 | MJT | Downwind | SP 53806 25424 | 22.5 | 200 | 0.5 | 100 | 2400 | 0.0001 | <0.002 | Sunny, warm, blue sky with some clouds and a breeze | 2.3 |
| Ardley | AR004ASB | 10/12/2007 | LC | Downwind | SP 53852,25552 | 22.5 | 200 | 2 | 100 | 2475 | 0.0002 | <0.002 | Clear and cold | 1 |
| Ardley | AR004ASB | 04/03/2008 | LC | Downwind | SP53877,25601 | 22.5 | 200 | 2.5 | 100 | 2820 | 0.0002 | <0.002 | clear cold bright | 2.5 |
| Ardley | AR004ASB | 17/06/2008 | LC | Downwind | SP53849,25666 | 22.5 | 200 | 1 | 100 | 2550 | 0.0001 | <0.002 | clear & humid | 0.6 |
| Ardley | AR004ASB | 10/09/2008 | MJT | Downwind | SP 53820 25597 | 22.5 | 200 | 8 | 100 | 2400 | 0.0008 | <0.002 | Sunny, overcast and breezy | 0.9 |
| Ardley | AR004ASB | 11/12/2008 | MJT | Downwind | SP 53783 25441 | 22.5 | 200 | 1.5 | 100 | 2400 | 0.0002 | <0.002 | Overcast, light air and cold | 0.6 |
| Ardley | AR004ASB | 17/03/2009 | MJT | Downwind | SP 53783 25439 | 22.5 | 200 | 1 | 100 | 2400 | 0.0001 | <0.002 | Sunny, warm, blue sky with some clouds and a breeze | 2.3 |

SUPPORT PROCESS

Compliance Management Systems - Monitoring



| | | |
|-------------|----------------|-------------------------------|
| Issue Date: | 14/08/08 | Asbestos Monitoring 6.4.10 |
| Issue No: | 2 | |
| Author: | C Dussek | |
| Checked: | <i>Initial</i> | |
| Approved: | <i>CD</i> | |

In undertaking particulates surveys/monitoring, Viridor require the following minimum standards of work to be achieved through the following the protocols below:

Scheduling

Monitoring schedules are established by formal Planning Permission, Waste Management Licence and PPC Permit requirements. The Monitoring Officer will compile a schedule to address the requirements of these documents, and in conjunction with the Environment Manager or Regional Environment Manager, revise the schedule(s) to take in to account site sensitivity and other perceived issues (for example: waste input procedures/rates) to finalise the monitoring schedule for the site.

Prior to monitoring, the Monitoring Officer should check with the Regional Environmental Manager, ESO and/or Unit Manager as to whether there are any specific issues that have arisen since the last monitoring was completed. This may include or require adjustment to monitoring locations in the field or monitoring of specific issues on the day.

Field Monitoring

Instrument Set Up / Calibration

The Monitoring Officer will ensure that the field equipment is maintained in full accordance with the manufacturer's maintenance and calibration requirements. Copies of laboratory calibration and maintenance certificates must be passed to the Environment Manager for uploading onto the network.

Asbestos pumps supplied to Viridor are factory set to pass air through the pump at a standard rate of 10 litres/minute. Over a four hour period, this gives a total sample volume of 2,440 litres.

Pump flow rates are checked once a month by the Monitoring Officer using a spare filter head.

Filter heads fitted to pump are fitted with a standard 1.2 µm aperture and are of cellulose construction.

Monitoring

In establishing a monitoring position, the meter must be between 1.2m – 1.5m above ground level.

Locations are normally governed by the site's regulatory documentation. If not, suitable locations will be established by Viridor using the due skill and experience of the Monitoring Officer, being aware of the key issues associated with noise impacts at the site. For non permanent locations, the Monitoring Officer should record the location of the reading on the day using a GPS unit. Routine monitoring normally requires 3 down gradient monitoring locations and 1 upgradient monitoring location. Additional down gradient samples may be taken where there is a significant distance between the downwind boundary of the asbestos cell and the downwind boundary of the site (the PPC Compliance point)

When undertaking any offsite monitoring where particulates impacts may be sensitive, the Monitoring Officer should also ensure that monitoring is also undertaken at one or more of the following locations:

Downwind or adjacent to the main operations/noise sources within the installation (for example: <50m from the active asbestos cell)

At the site boundary between any sensitive receptor and the main operations/particulates sources.

Loading the Filter Head

It is critical not to touch the filter head. Tweezers should be used to load the filters into the cassettes (in a clean office environment).

Field Monitoring

Once the meter is established, the pump will be switched on and left running for the set duration.

The standard duration of the monitoring event is 4 hours. Monitoring locations are static.

During the monitoring period, the Monitoring Officer will record all other activities or events at the monitoring location that may give rise to the particulates levels recorded.

Readings are only taken when the air conditions are 'dry'.

End of Field Monitoring

At the end of the sampling period, the filter housing is capped and the filter removed from the sample pump. Each filter head is then double bagged and tagged for subsequent dispatch to the laboratory.

Laboratory Data

Results from the laboratory are returned directly to the Monitoring Officer. The Monitoring Officer subsequently calculates the number of fibres / litre of air using the following standard calculations:

| Location Symbol | Filter Head | Fibres Counted | Filter Dia | Total Graticule Number | Diameter of Graticule | Volume of Air | Calculated Results | Reported Results |
|-------------------|-------------|----------------|------------|------------------------|-----------------------|---------------|--------------------|------------------|
| | | N | D | n | d | V | C | |
| Upwind AR001AM* | V8 | 3.5 | 22.5 | 200 | 100 | 2590 | 0.0003 | < 0.002 |
| Downwind AR002AM* | V7 | 6.5 | 22.5 | 200 | 100 | 2570 | 0.0006 | < 0.002 |
| Downwind AR003AM* | V6 | 1.5 | 22.5 | 200 | 100 | 2570 | 0.0001 | < 0.002 |
| Downwind AR004AM* | V5 | 6.0 | 22.5 | 200 | 100 | 2570 | 0.0006 | < 0.002 |

With the calculated result (C) based on:

$$C = [1000 \cdot N \cdot D^2] / [V \cdot n \cdot d^2]$$

Where

- C Calculated result as fibres/ml
- N The number of fibres counted (lab result)
- n The number of graticule areas examined (lab result)
- D The exposed area of the filter (mm²)
- d The diameter of the graticule (µm)
- V The total volume of air through the filter (recorded by Monitoring Officer)

Data Records

Data File Records

The Monitoring Officer is to save all data files including laboratory results sheets on the network within the EnviroMonitor Drive.

Site Report

A site report (based on the standard VWM template/last monitoring report for the site) is to be sent as a .doc file to the site's ESO. This report will be reviewed by the ESO prior to its issue. A copy of the issued .doc file will be sent by the ESO to the Monitoring Officer for future use.

Database Data

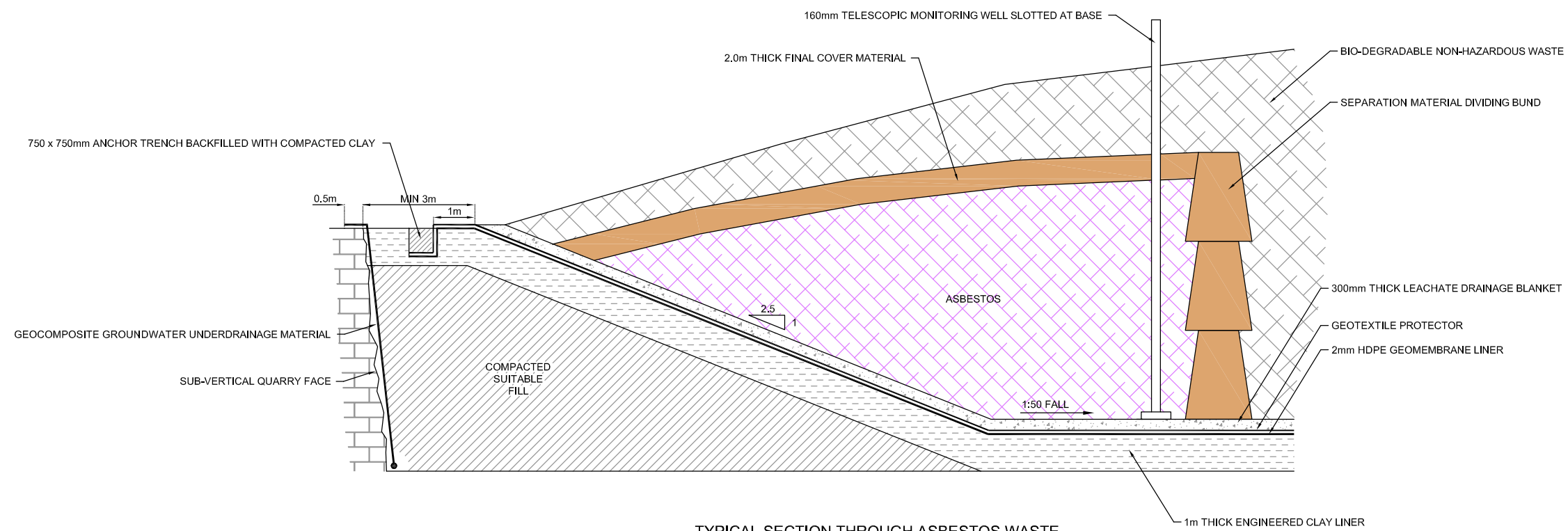
Data to be sent to the Environmental Administrator for importation into Monitor Pro is as follows:

Site Name
Monitoring Technician Name
Date / Time Period (to nearest minute)
Monitoring Point ID
Calculated Number of Fibres / sample point

END

NOTES

LEGEND



TYPICAL SECTION THROUGH ASBESTOS WASTE CELL SHOWING SEPARATION ARRANGEMENTS



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ARDLEY LANDFILL
PLANNING APPLICATION
TYPICAL ASBESTOS CELL DETAIL

4-5

Scale N.T.S @ A3

Date MARCH 2010

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