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environmental management for business

Ms Eve O'Sullivan
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Office of Climate Licensing and Resource
Environmental Protection Agency
PO Box 3000
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9th July 2014

Re; Application for Waste Licence (W0261-02) Nurendale, Cappagh, Fingal Dublin 11

Dear Ms O'Sullivan,

I refer to the Agency's letter dated the 26th May 2014 in accordance with Regulation 10(2)(b)(ii) of the EPA (Industrial Emissions)(Licensing) Regulations 2013. The requested information is set out herein.

In accordance with Regulation 9(2)(g) and 9(2) (x) the details of the storage arrangements and fire protection measures for the RDF that will be stored at the site are presented below.

As referred to in Attachment D1 of the application, the waste activities proposed for each of the buildings is derived from PANDA's assessment of current and likely future market conditions.

When PANDA originally applied for planning permission for the facility in 2005 it was intended to centralise the company's dry recyclable processing capacity at the site and this was the reason for seeking approval for Buildings B1and B2. However due to the condition of the local road network, planning permission was not granted for Buildings B1 and B2.

In 2007 PANDA re-applied for planning permission for B1 and B2. Given the uncertainty over securing planning permission, PANDA leased a paper and plastics recycling plant in Ballymount Road, Tallaght, which now operates under W0263-01. This provided dry recyclable processing capacity pending the grant of approval and construction of Buildings B1 and B2.

While permission was subsequently granted for Buildings B1 and B2, the recession resulted in a significant reduction in waste volumes arising in the Greater Dublin Area, with a consequent reduction in the need for recycling capacity leading PANDA to defer the construction of Buildings B1 and B2.

In 2013, in response to a slight improvement in market conditions, PANDA applied for planning permission to accept and process MSW and also commenced construction of Buildings B1 and B2. At the time, PANDA was pursuing a long term contract to operate the Dublin City Council's Materials Recovery Facility (W0238-01) at Ballymount Road in Tallaght, but there was no certainty that this would be successful.

PANDA subsequently secured the long term contract. This facility, in conjunction with its paper and plastics plant, also on Ballymount Road (W0263-01), now meets PANDA's dry recyclable processing capacity in the Greater Dublin Area and there is no immediate need for Buildings B1 and B 2 for their original purpose.

In light of the above, and the very significant changes that have occurred in the waste market following the designation of certain waste to energy plants as recovery activities, PANDA reviewed its processing capacity requirements. This established that, as referred to above, while there is no immediate need for a major dry recyclable processing at the facility, there is a requirement to increase the RDF manufacturing capacity.

At this time PANDA cannot define the quantity of RDF that might be manufactured annually, as this will be determined by its customer base, which is subject to competitive pressures. PANDA would like the option of processing up to 150,000 tonnes of RDF annually in Buildings A1 and A2.

Based on PANDA's experience of operating other MRF's, including Waste Licence W000-03 where a building of approximately the same size is licensed to process 324, 280 tonnes of waste, the combined area of Buildings A 1 and 2 (3,790m^2) can readily accommodate the processing of 150,000/year tonnes of RDF. The baled RDF will be stored inside Buildings A1 and A 2. The maximum stored on site at any one time will be 3000 tonnes, which equates to one shipload.

The C&D and C&I processing (ca 75,000 tonnes/year) would initially move to B1, with the household dry recyclables (ca 25,000 tonnes/year) collected in Fingal being processed in B2. In future, depending on market conditions, both processes may be relocated to one of PANDA's other MRF's in the region and one of the buildings may be used to manufacture Solid Recovered Fuel (ca 100,000 tonnes/year). Any such change would be subject to the Agency's prior approval which would include appropriate odour control and abatement measures.

Panda has carried out a detailed fire risk assessment of the proposed RDF manufacturing process that addressed fire prevention, fire detection and firefighting and the details are presented below;

Fire Prevention

All electrical panels will be thermo graphically tested each year. 25 % of all wiring will be tested each year and a portable appliance test (PAT test) will be carried out on all electrical equipment. No portable heaters will be used on site. Smoking will only be authorised in a single specified designated area, which will be at a remove from the operational and waste storage areas. Intake stock and baled stock will be rotated to ensure there is no heating in stock piles.

Fire Detection

All waste loads received at the site will be off loaded inside the building and initially checked by the yard supervisor as they are tipped out to ensure there are not on fire. In addition, Drager

5000 CCTV flame detector cameras will be installed inside the building to detect sparks and flames. This type of flame detection camera is preferential to thermal imaging cameras and other flame detectors because they not susceptible to false alarms resulting from welding, reflections off glass & hi-visibility jackets, etc.

The cameras will be located in operational areas, where there are ignition source (as opposed to decomposing material or heat generated by a machine). The cameras will be housed in fireproof cases that will save the 30 seconds recorded before the camera detected a fire. This footage can be recovered and reviewed at a later date.

In the bale storage area, an air-sampling type smoke detection system will be installed. This will be similar to the one already installed in the Dublin City Materials Recycling Facility. It works by continually drawing air into pipework mounted at high level through the building using an aspirator. The air is filtered to remove dirt and dust before it enters a laser detection chamber that detects smoke. The critical benefit of this system over other smoke detection systems is the sensor can differentiate between smoke and dust. The network of pipes has the added benefit of minimising the false alarms associated with beam-type detection.

Both the Drager CCTV flame detection cameras and the air sampling smoke detection systems will be linked to a fully monitored alarm company and will have 24 hour 365 monitoring.

Fire Fighting

As with all Panda sites staff will be trained in fire prevention and detection. At least 2 people at any time on site will have fire marshal training. This is a more advanced firefighting training. They will also be trained in the correct use of stand pipes and hoses.

A 6" ring main, as described in the planning application FW 13 A / 0135, will be installed. It will connect to the Irish Water mains water system on the Cappagh road. The ring main will have riser every 15m and will have a stand pipe and hose at each riser. A reel type fire hose will be located at each door. A fire extinguisher will be provided at each item of fixed and mobile plant items.

Fingal Fire Service command have visited the site and have drawn up a site specific response procedure for the facility . We will ask them to visit again when the development works are finished and to amend the procedure to reflect the changes on site.

Access to Shut Off Valve

The shut-off valve is located inside the facility boundary and PANDA has unrestricted access to it. It is considered unlikely that fires in the buildings will prevent access to the shut-off valve.

However as a precautionary measure PANDA will install a pedestrian access gate in the fence on the southern boundary, between the site and Stadium Business Park. The gate will be fitted with a key coded electronic lock. The Facility Emergency Response Plan will be amended to refer to this alternative access.

In accordance with 9(2)(i) the details of the particulates pre and post abatement and the maximum hourly flow rate from the odour abatement system are presented in Tables E 1(ii) and E 1(iii) are in Attachment A.

In accordance with Regulation 9 (2)(k)(i) the recycling building where the RDF will be manufactured will be 12m high and the building dimensions used in the dispersion model are consistent with those of the actual and proposed buildings. In this regard, there is a typographical error in Table 3.1 of the report on the Odour Impact Assessment, which is in Attachment I.1 of the licence application. The height of the recycling building above ground level is 12m and not 2m as shown in the Table.

In accordance with Regulation 9(2)(n) the Baseline Report has been amended to reflect the European Commission guidance on baseline reports under Article 22 (2) of Directive 2010/75/EU on industrial emissions and a copy is in Attachment B.

In accordance with Regulation 9(2)(g) a copy of the Central Commercial District Waste Presentation By-Laws are in Attachment C. The condition that is of relevance to the change of the operational hours are 7(d)

An authorised waste collector shall only collect household waste or commercial waste within the Central Commercial District on the designated collection day between the hours of 07.00pm to 12.00 midnight, unless otherwise approved in writing by an appointed person

and 7 (f)

An authorised waste collector shall only collect household waste within the Central Commercial District if:

> *The authorised waste collector is also collecting commercial waste within the Central Commercial District and they provide the same level of door-to-door collection service for household waste as they provide for commercial waste,*

or

> *The authorised waste collector collects household waste within the Central Commercial District on every day.*

Yours Sincerely

Jim O'Callaghan

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BASELINE ASSESSMENT REPORT

PANDA WASTE SERVICES

WASTE RECYCLING FACILITY

CAPPOGUE

FINGLAS

DUBLIN 11

WASTE LICENCE NO. W0261-01

Prepared For: -

Nurendale Ltd T/a Panda Waste Services.
Cappagh Road,
Finglas,
Dublin 11

Prepared By: -

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Granary House,
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July2014

Project	Baseline Assessment Report Panda Waste Services Cappagh Road.
Client	Panda Waste Services Ltd W0261-01

Report No	Date	Status	Prepared By	Reviewed By
138180202	15/12/2013	Draft	Sean Moran MSc, PGeol	Jim O'Callaghan MSc, CEnv, MCIWM, IEMA
		Final		
	03/07/2104	Final RevA		

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1. INTRODUCTION

Nurendale Ltd, trading as Panda Waste Services (PANDA), operates its Materials Recovery Facility (MRF) at Cappagh Road under Waste Licence Reg. No.W0261-01 issued by the Environmental Protection Agency (Agency). PANDA intends to construct a new waste processing building at the site, which will be used to handle and process source segregated household food waste and residual waste and this requires Agency approval.

The Waste Licence already authorises the acceptance and processing of 35,000 tonnes of source segregated mixed dry recyclables, with a provision to increase the amount of this waste type subject to the overall annual limit of 200,000 tonnes not being exceeded.

PANDA is currently collecting mixed dry recyclables from 70,000 household customers in Fingal and intends to divert these wastes to the Cappagh facility upon completion of the on-going construction works, which is the 'Stage 2' Infrastructure referred to in Note 2 of Schedule A2 of the Licence.

This, in conjunction with the commercial and industrial dry recyclables, could increase the amount of dry recyclables accepted at the site to between 70,000 and 80,000 tonnes annually. The household dry recyclable bin contains a significant level of contaminants (between 20% and 30%) that are inadvertently placed in the bin by householder. Such materials are not suitable for recycling, but are suitable for the manufacture of refuse derived fuel (RDF).

Therefore there is a need to have approval to pre-treat waste for waste co-incineration, which is Class 11 4 (b)(ii) of the New First Schedule of the EPA Act 1992 to 2013. As this Class is one to which the Industrial Emissions Directive (IED) applies, PANDA must apply for an IED Licence.

In the case of an application for an IED licence for an activity that involves the use, production or release of relevant hazardous substances (as defined in Section 3 of the EPA Act 1992 as amended), provide a baseline report in accordance with section 86B of the EPA Act 1992 as amended. The purpose of the report is to determine the state of soil and groundwater contamination at the site. As the existing facility operations involve the storage and use of diesel and gas oil, both of which are classified as hazardous substances, a baseline report is required.

PANDA appointed O'Callaghan Moran & Associates (OCM) to prepare the baseline report. OCM is an environmental consultancy, established in 1997, which provides environmental services to private and public sectors. OCM has been involved in the completion of environmental risk assessments for Waste Licensed and Integrated Pollution Prevention Control licensed facilities since 2001.

1.1 Methodology

OCM's assessment was based on the Environmental Liabilities Risk Assessment and Decommissioning Management Plan prepared for the facility in 2013 and which have been submitted to the Office of Environmental Enforcement.

1.2 Limitations

The current Waste Licence authorises the construction and operation of three separate waste processing buildings and to accept and process Construction and Demolition Waste, Dry Recyclable Household and Commercial and Industrial Waste and Paper & Cardboard.

The Licence authorises the acceptance of 200,000 tonnes of waste when the site is fully developed (when all three buildings are operational), but until then the annual intake is restricted to 70,000 tonnes.

PANDA has constructed the first of the three waste processing buildings, which takes in Construction and Demolition and Dry Recyclable Commercial and Industrial wastes. The other two buildings, which will house Dry Recyclables and Paper & Cardboard are under construction. These works also include paving the entire operational area and it is understood that this will be completed in 2014.

There is a groundwater abstraction well on the lot adjoining the northern site boundary and this is used to supply water for the toilets and the dust suppression system. There is no available information on either the well construction or the quality of the groundwater. The baseline assessment of groundwater quality is based on the results of one sample from this well.

2. CURRENT USE

2.1 Facility Location

The site is located on the Cappagh Road, approximately 2.5km southwest of Dublin Airport.

2.2 Facility Layout

The site encompasses 2.53 ha and is occupied of site services, construction of perimeter security fencing, internal access roads and paved yards in the northern and central parts of the site, foul and surface water drainage system, weighbridge(s), Building A1 (1,760m^2) and an electrical substation. A 3m high acoustic wall was constructed at the south east boundary. Portacabin offices, canteen and staff welfare facilities have been temporarily located adjacent to the weighbridge at site entrance and at the south east side of the building.

The construction works that are underway, involves the construction of the Buildings B1 (2,800m^2) and B2 (4,680m^2), the completion of the paving of the open areas and the extension of the surface water drainage system.

2.3 Services

Electricity is supplied by Electric Ireland, which has an electrical substation on-site. Water is obtained from a well located on the adjoining lot north of the site. Sanitary wastewater is collected and stored in an underground tank pending removal off-site for treatment in a municipal wastewater treatment plant. Surface water is collected and directed to an underground attenuation tank located near the southern site boundary and passes through an oil interceptor before discharge to the storm sewer serving Stadium Business Park.

2.4 Waste Types & Volumes

The facility accepts predominantly skip waste from construction and demolition sites, household renovations/clearances and C&I Dry Mixed Municipal Waste. Source segregated baled cardboard, baled plastic and boxed plastic hangers are also accepted from a commercial customer who has nationwide outlets. No hazardous, putrescible or liquid wastes are accepted. The licence allows the acceptance of 200,000 tonnes annually.

2.5 Waste Acceptance & Handling Procedures

When the on-going construction works are complete, the mixed C&D and C&1 waste are handled in Building A1, the Dry Recyclables will be handled in Building B1 and the Paper and Cardboard will be handled in Building B2.

Current operations include the processing of C&D and C&I wastes inside Building A1; the bulking up of the plastic hangers into specially designed transport vehicle near the western

site boundary; the storage of the source segregated baled cardboard and baled plastic in an open paved area along the southern site boundary and the storage of recovered waste electronic and electrical waste (WEEE) and timber on paved areas adjacent to Building A1. The external storage of the wastes is a temporary measure and will stop following the construction of Buildings B1 and B2.

In Building A1 ferrous and non-ferrous metals, waste electrical and electronic equipment (WEEE), wood and bulky wastes are segregated manually and mechanically using a mechanical grab. The WEEE is stored in cages on a paved area at the rear of the processing building. The timber is stored in open bays formed by large concrete blocks on a paved area to the south west of the processing building. The remaining mixed waste is then bulked up and sent to PANDA's Beauparc facility for processing.

In Building B1, the pre-segregated dry recyclables will be baled. The mixed recyclables will be separated manually and mechanically into the different waste streams (paper, cardboard, plastic, glass and metal) using a sorting line incorporating a loading hopper, conveyor, picking line, ballistic separators and magnets. The paper, cardboard, plastic and metal cans will be baled. The glass will be stored in a bin.

In Building B2, the higher value, low quantity paper will be sorted using a picking line comprising a conveyor that it passes over five open top bins. Each of the bins will be dedicated to a particular grade. As the waste paper passes along the conveyor, the sorting personnel will pick out the particular grade and deposit it into the appropriate bin. Any unsorted paper will fall into an end bin (the lowest value grade). When a bin is full it will be emptied on to a conveyor and sent to a baler.

Lower grades of mixed paper will not be sorted but will be baled. All the bales will be tied with wire. On average the weight of each bale is 750 kg, but this can vary from 500 kg to 1,000 kg depending on size, density, waste paper type and moisture content. The finished bales will be moved to the designated storage areas inside the building using a clamp truck.

2.6 Waste Storage

Waste electrical and electronic equipment (WEEE) recovered from the incoming wastes are stored externally in cages on a paved area at the rear of the processing building. Green waste recovered from the skips and C&D waste (predominantly timber) is stored in open bays formed by large concrete blocks on a paved area to the south west of the processing building.

The source segregated baled cardboard and baled plastic are stored in an open paved area along the southern site boundary pending consignment to other authorised waste recovery facilities.

The external storage of the wastes is a temporary measure pending the construction on Buildings B1 and B2.

2.7 Plant & Equipment

Facility operations require the use of a range of fixed and mobile plant which are listed in Table 2.3.

Table 2.3 Plant and Equipment

Type of Plant	Building 1
Front Loading Shovel	2
Trommel	1
Baler	1
Grabs	1
Conveyor	2
Bag Opener	1
Forklift	1
Yardsweeper	1

2.8 Vehicle Parking and Receptacle Storage

Employee vehicles are parked on the paved area to the west of the processing building. Empty bins and empty skips are stored in the unpaved areas in the east and south of the site.

2.9 Hazardous Substances

The only hazardous substances currently used are diesel, gas oil and adblu (a diesel additive). The diesel and gas oil are stored in above ground steel tanks located in a bund at the south east corner of Building A1. The dispensing pump sits in a drip collection tray.

Table 2.2 – Volume of Hazardous Materials

Products	Quantity Stored litres
Diesel Oil	20,000
Gas Oil	5,000
Adblu	1000

2.10 Emergency Response

PANDA has prepared and adopted an Accident Prevention Policy (APP) and Emergency Response Procedures (ERP). The APP addresses all potential hazards, with particular reference to the prevention of accidents that may cause damage to the environment. The ERP identifies all potential hazards at the site that may cause damage to the environment and also specifies roles, responsibilities and actions required to deal quickly and efficiently with all foreseeable major incidents and to minimise environmental impacts.

PANDA has a documented procedure on the handling and storage of potentially polluting substances used at the facility, e.g. oils. The procedure describes how filling the fuel storage tanks and refuelling/servicing the mobile plant should be carried out to minimise the risk of accidental spills and ensure that if these occur there is a rapid and effective response.

2.11 Risk Mitigation Measures

The Licence conditions require the provision of mitigation measures, both infrastructural and procedural, that effectively minimise the risk of environmental liabilities associated with unplanned events. Such measures, which are subject to regular review both by the licensee and in response to the findings of Agency inspections, include:

- Provision of an appropriately experienced Facility Management Team and implementation of appropriate staff programmes;
- Implementation of a site specific Environmental Management System (EMS), including an Environmental Management Programme (EMP) and Corrective Action Procedures;
- Adoption of site specific APP and ERP, which are reviewed annually;
- Provision of impermeable concrete surfaces in all areas of the facility associated with the movement, processing, handling and storage of waste;
- Provision and maintenance of attenuation tank and oil interceptor on the storm water system;
- Provision of appropriate bundling for all tank and drum storage areas, and routine integrity testing of these and underground tanks and pipework to ensure that the are fit for purpose;
- Provision and maintenance of appropriate spill response and clean-up equipment in areas where there is a risk of spills occurring;
- Regular site inspections and visual inspections of the surface water emissions from the site.
- Full time on-site security outside of operational hours

3. PAST USE

3.1 Site History

The site was initially developed in 2006. Prior to this the site had been used for agricultural purposes. Fingal County Council issued a Waste Permit for the facility in May 2006. The facility opened in October 2006 and has been in continuous operation since then. The Agency granted the Waste Licence August 2010.

3.2 Incident History

There have been no incidents (spills, fires, leaks etc.) since PANDA began operations at the site that had potential to cause soil or groundwater pollution.

4. ENVIRONMENTAL SETTING

4.1 Site Location and Layout

The site is located on the Cappagh Road, with a single access off the public road. It encompasses 2.53 ha and, when the current construction works are complete, will be occupied by Building A1, A2 Buildings B1 and B2, weighbridge, staff welfare facilities; electrical substation, concrete paved yards and a palisade security fence. The site is level, with no significant slopes inside the licensed area.

4.2 Surrounding Land Use

The lands surrounding the site have been intensively developed for industrial, commercial and quarrying uses, with the infrastructure in place to facilitate further industrial and commercial development.

There is one (1 No) private residence located close to the facility, approximately 30m from the south eastern boundary. More residences (10 No) are approximately 450 m to the south east, also on the southern side of the Cappagh Road. These are the only private residences within 500m of the facility.

The lands to the west have been zoned for warehousing and the site adjacent the northwest boundary is occupied by a Coca Cola distribution centre. Further northwest is Irish Asphalt. The lot adjoining the northern site boundary is owned by PANDA and is leased to a haulage company. Further north is Millennium Business Park, which is occupied by industrial and commercial enterprises with some heavy industries, including a concrete plant.

To the east is a hard rock quarry (Huntstown Quarry), which extends for some 1 - 2 km^2. The Stadium Business Park adjoins the southern site boundary and is occupied by commercial activities including logistics companies, chemical distributors, light engineering facility and food distributors

4.3 Hydrology

The site is located in the catchment of the Tolka River, whose main channel is approximately 2.5 kilometres to the south of the site. The closest significant water feature is a tributary of the Tolka and is approximately 1km to the west of the site.

Surface water from roofs and paved areas is collected in the surface water drainage system and directed to an underground concrete attenuation tank in the south of the site, which has a capacity of 1,400m^3 and is connected to a Class 1 Full Retention Klargester Oil Interceptor. The attenuation tank provides temporary storage of surface water and allows the discharge at a steady rate to the storm water sewer system serving the Stadium Business Park.

4.4 Geology

A site investigation was carried out in 2005 to determine the type and thickness of the soils and subsoils prior to the start of construction of the existing facility. The investigation comprised the excavation of seven (7 No.) trial pits across the site. The pits revealed approximately 25 cm of top soils overlying a boulder clay that ranges in thickness from 0.8 to 1.35 m and is underlain by the bedrock. There was no visual evidence of any soil contamination and groundwater was not encountered. The trial pit logs are in Appendix 1. The underlying bedrock locally comprises nodular muddy limestone and shale.

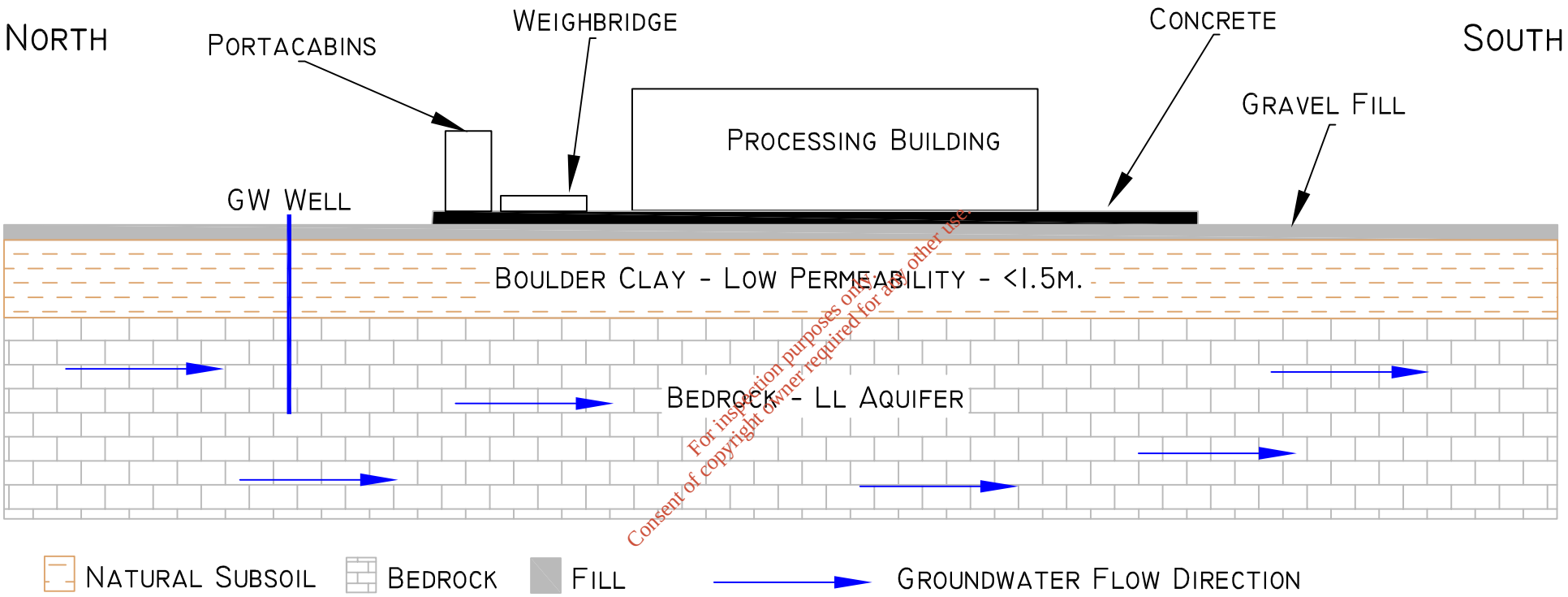
4.5 Hydrogeology

The subsoils are poorly permeable and are not significantly water bearing. The bedrock is classified by the Geological Survey of Ireland (GSI) as being Moderately Productive only in local zones (**Ll**). There is one on-site well that supplies water for the welfare facilities and dust suppression system. There is no record of any groundwater abstraction wells within 2 kilometres of the site.

Based on the available information on the type and thickness of the subsoil, the vulnerability of the bedrock aquifer ranges from High to Extreme across the site. The local direction of groundwater flow is to the south, but is likely to be greatly influenced by the large scale quarrying immediately to the east of the site (Huntstown Quarry).

4.6 Site Characterisation

A Conceptual Site Model (CSM) is shown on Figure 4.1. The model is based on the available information on the topography, geology and hydrogeology.



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CLIENT: PANDA WASTE SERVICES

TITLE: CONCEPTUAL SITE MODEL, CAPPAGH ROAD

details:

Drawing No. 4.1

SCALE: NTS

REV.: A

5. SITE CHARACTERISATION

5.1 Soils Assessment

There is no evidence to indicate that past and current uses have caused soil contamination. The site investigation carried out in 2005, before the site was developed, did not identify any indicators of soil contamination. In the absence of site specific information a site investigation was conducted in June 2014.

5.1.1 Site Investigation

This involved the collection of soil samples at three randomly selected locations across the site, as shown on Figure 5.1. The diesel and gas oil tanks are located in bunds, which are subject to routine integrity testing. The surrounding area was paved with concrete before the tanks were installed. Therefore in the absence of any evidence or indication of zones of expected pollutants, a targeted approach was not warranted.

The sampling locations were in areas covered with granular materials and used for vehicle trafficking and bin and skip storage and were considered to be representative of existing conditions.

Trial pits were excavated using a mechanical digger. The upper granular layer (approximately 300mm) was removed to expose the subsoils and the trial pits were extended to approximately 1m below ground level. An OCM geologist inspected the pits and did not identify the presence of contamination, for example soil staining or odours. OCM collected representative composite samples in the top 150mm and bottom 500mm, in accordance with OCM's sampling protocols, a copy of which is in Appendix 2.

The samples were sent to Jones Environmental Forensics Laboratory in the UK, who have accreditation for the range of tests conducted. The analysis included Total Petroleum Hydrocarbons (TPH), which were speciated into Aliphatics and Aromatics; Methyly tert-butyl ether and benzene, ethylbenzene, touluene and xylene (BETEX). This parameter range was based on the storage and use of diesel and gas oil at the site. The laboratory methodologies were all ISO/CEN approved.

The laboratory test report in in Appendix 3 and the results are presented in Table 5.1. TPH, MBTE and BETEX were not detected in any of the samples.

5.1.2 Groundwater Assessment

The aquifer beneath the site is part of the Dublin Area Groundwater Body (IE_EA_G_005). The condition of a groundwater Water Body is defined by its chemical and quantitative status, whichever is worse, and groundwater quality is ranked in one of two status classes: Good or

Poor. The Dublin Area Water Body is categorised as being of 'Good' status, but is 'At Risk' of achieving its objective of protecting the existing status.

There are no groundwater monitoring wells within the licensed area, but there is an abstraction well on the lot adjoining the north-western boundary, which is used to supply the facility toilets and dust suppression system. The well location is shown on Figure 4.3.

There is no information on the depth of the well or the construction details, but it does extend into the bedrock. PANDA personnel collected a sample from the tap supplied by the well pump in January 2014 and submitted it to Fitz Scientific for analysis. The parameters tested included ammonia, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), chloride, nitrate and TPH.

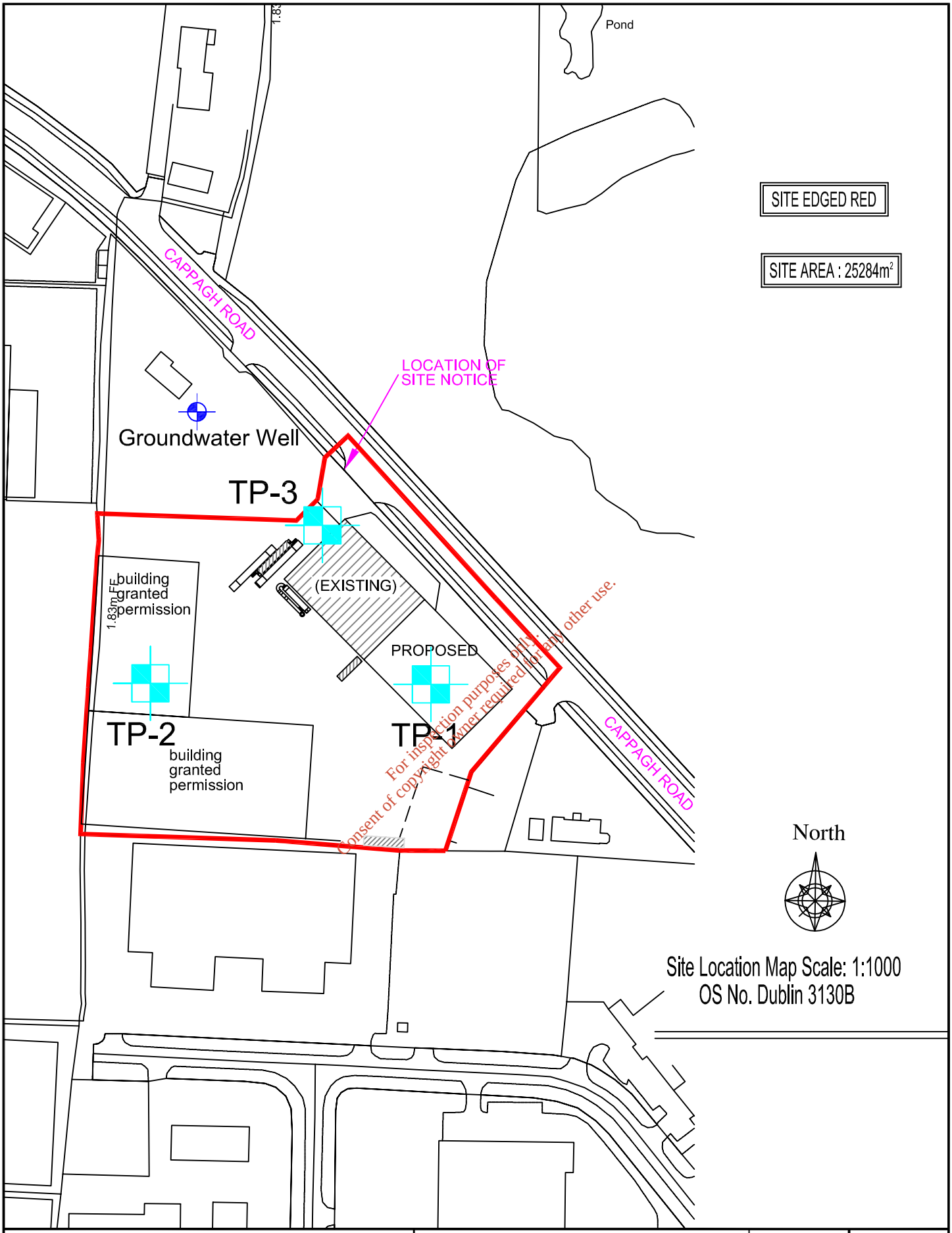
The full laboratory report in Appendix 2 and the results are presented in Table 5.2. The Table includes, for comparative purposes, the threshold values (GTVs) set in S.I. No. 9/2010 – European Communities Environmental Objectives (Groundwater) Regulations 2010 (Threshold Values) and the Environmental Protection Agency Interim Guideline Values (IGVs).

While the GTVs are more appropriate for large pumping wells, they are now used by the Agency to assess the significance of contamination in groundwater where values have been specified for particular parameters. Because not all parameters monitored at the site have limits assigned under the groundwater regulations, the IGV limits have also been included. The IGV are guidance values published by the Agency that are indicative of unpolluted groundwater.

All of the parameters are significantly below the TGV and IGV, where established. The groundwater quality is good.

5.2 Baseline Conditions

There is no evidence of any impacts by the hazardous substances used at the site on either soil or groundwater quality. .



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environmental management for business

CLIENT
PANDA WASTE SERVICES

TITLE
SOIL AND GROUNDWATER SAMPLING LOCATIONS

DETAILS
Trial Pit
Grondwater Well

Figure No.
5.1

SCALE
NTS

REV.
A

Table 5.1 Soils Analysis

Parameter	Units	TP-1 0.3-0.4	TP-1 0.4-0.9	TP-2 0.35-0.45	TP-2 0.45-0.95	TP-3 0.3-0.4	TP-3 0.4-0.9
	Depth (m)						
Aliphatics							
>C5-C6	**mg/kg**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
>C6-C8	**mg/kg**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
>C8-C10	**mg/kg**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
>C10-C12	**mg/kg**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
>C12-C16	**mg/kg**	<4	<4	<4	<4	<4	<4
>C16-C21	**mg/kg**	<7	<7	<7	<7	<7	<7
>C21-C35	**mg/kg**	<7	<7	<7	<7	<7	<7
Total Aliphatics C5-C35	**mg/kg**	<19	<19	<19	<19	<19	<19
Aromatics							
>C5-EC7	**mg/kg**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
>EC7-EC8	**mg/kg**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
>EC8-EC10	**mg/kg**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
>EC10-EC12	**mg/kg**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
>EC12-EC16	**mg/kg**	<4	<4	<4	<4	<4	<4
>EC16-EC21	**mg/kg**	<7	<7	<7	<7	<7	<7
>EC21-EC35	**mg/kg**	<7	<7	<7	<7	<7	<7
Total Aromatics C5-35	**mg/kg**	<19	<19	<19	<19	<19	<19
Total Aliphatics and Aromatics C5-35	**mg/kg**	<38	<38	<38	<38	<38	<38
Benzene	**ug/kg**	<5	<5	<5	<5	<5	<5
Toluene	**ug/kg**	<5	<5	<5	<5	<5	<5
Ethyl benzene	**ug/kg**	<5	<5	<5	<5	<5	<5
m/p-Xylene	**ug/kg**	<5	<5	<5	<5	<5	<5
o-Xylene	**ug/kg**	<5	<5	<5	<5	<5	<5
MTBE	**ug/kg**	<5	<5	<5	<5	<5	<5
Natural Moisture Content	**%**	10.9	11.1	9.8	11.2	14.2	8.2

Table 5.2 Groundwater Results

Parameter	Unit	Jan 2014	IGV	TGV
BOD	mg/l	<2		
COD	mg/l	7		
Ammonia	mg/l	0.029		0.175
Chloride	mg/l	40.29		187.5
Nitrate	mg/l	6.760		37.5
TPH	ug/l	<1	10	

APPENDIX 1

cpm engineering
River House
East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				1	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Report on Site Investigation

Introduction

A trial pit investigation was carried out to establish subsoil conditions at Cappagh Road, Finglas on 15th July 2005.

The days that preceded the opening of the trial holes were reasonably dry.

Trial pit locations are shown on the attached location map, No V083-E-010

Fieldwork

Trial pits were excavated using a JCB. A total of 7 No trial pits were undertaken.

A visual inspection only of the trial pits was made. The results of this inspection are recorded in the trial pit logs, which follow. No laboratory testing of the excavated materials was undertaken.

No running water was encountered in the trial pits.

cpm engineering
River House
East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				2	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Trial Pit No.1

Equipment & Methods: Machine (JCB) excavated trial hole	Location No. / Location: Lands at Cappoge Road
Carried out for: Panda waste Ltd	Ground Level: 83.1 / Coordinates / Date: 15/07/05

Description	Reduced Level	Depth	Thickness	Sample	Test	
Building Waste (Crushed concrete Etc.)	83.1	0.00m	0.25m			
Vegetable Soil	82.85	0.25m	0.30m			
Light Brown Boulder Clay	82.55	0.55m				
Bottom of pit	81.5	1.60m	1.05m			No water visible
Dark brown/black hard Clay with stones Difficult to excavate						

Remarks:

Logged by JMcE

Notes

SCALE: NTS

cpm engineering
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East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				3	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Trial Pit No.2

Equipment & Methods: Machine (JCB) excavated trial hole	Location No. Location: Lands at Cappoge Road
Carried out for: Panda waste Ltd	Ground Level: 83.00 Coordinates: Date: 15/07/05

Description	Reduced Level	Depth	Thickness	Sample	Test	
Vegetable Soil	83.00		0.25m			
Light brown clay	82.75	0.25m				
Bottom of pit	81.7	1.30m	1.05m			No water visible
Dark brown/black hard Clay with stones Difficult to excavate						

Remarks:

Notes

Logged by: JMcE

SCALE: NTS

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River House
East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				4	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Trial Pit No.3

Equipment & Methods: Machine (JCB) excavated trial hole

Location No.

Location: Lands at Cappoge Road

Carried out for: Panda Waste Ltd

Ground Level 82.90

Coordinates

Date 15/07/05

Description	Reduced Level	Depth	Thickness	Sample	Test	
Vegetable Soil	82.90		0.30m			
Light brown clay	82.60	0.30m	0.60m			
Brown/grey mottled silty sandy stiff Clay (boulder clay)	82.00	0.90m				
Bottom of pit	81.40	1.50m	0.60m			No water visible
Dark brown/black hard Clay with stones Difficult to excavate						

Remarks:

Logged by JMcE

SCALE: NTS

Notes

cpm engineering
River House
East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				5	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Trial Pit No.4

Equipment & Methods:
Machine (JCB) excavated trial hole

Location No.

Location: Lands at Cappoge Road

Carried out for:
Panda Waste Ltd

Ground Level
82.87

Date
15/07/05

Description	Reduced Level	Depth	Thickness	Sample	Test	
Vegetable Soil	82.87		0.30m			
Light brown clay	82.57	0.30m	0.40m			
Brown/grey mottled silty sandy stiff Clay (boulder clay)	82.17	0.70m				
Bottom of pit	81.37	1.50m	0.80m			No water visible
Dark brown/black hard Clay with stones Difficult to excavate						

Remarks:

Logged by
JMcE

Notes

SCALE:
NTS

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East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				6	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Trial Pit No.5

Equipment & Methods: Machine (JCB) excavated trial hole	Location No. Location: Lands at Cappoge Road
Carried out for: Panda Waste Ltd	Ground Level: 83.65 Coordinates: Date: 15/07/05

Description	Reduced Level	Depth	Thickness	Sample	Test	
Vegetable Soil	83.65		0.30m			
Light brown clay	83.35	0.30m	0.50m			
Brown/grey mottled silty sandy stiff Clay (boulder clay)	82.85	0.80m				
Bottom of pit	82.45	1.20m	0.40m			No water visible
Dark brown/black hard Clay with stones Difficult to excavate						

Remarks:

Logged by JMcE

SCALE: NTS

Notes

cpm engineering
River House
East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project	Job Ref.
Panda Waste - Lands at Cappoge Road	V083
Section	**Sheet no./rev.**
Site Investigation	7

Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Trial Pit No.6

Equipment & Methods:
Machine (JCB) excavated trial hole

Location No.

Location: Lands at Cappoge Road

Carried out for:
Panda Waste Ltd

Ground Level: 83.10

Coordinates

Date: 15/07/05

Description	Reduced Level	Depth	Thickness	Sample	Test	
Vegetable Soil	83.10		0.30m			
Light brown clay	82.80	0.30m	0.30m			
Brown/grey mottled silty sandy stiff Clay (boulder clay)	82.50	0.60m				
Bottom of pit	82.00	1.10m	0.50m			No water visible
Dark brown/black hard Clay with stones Difficult to excavate						

Remarks:

Logged by
JMcE

SCALE:
NTS

Notes

cpm engineering
River House
East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				8	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

Trial Pit No.7

Equipment & Methods: Machine (JCB) excavated trial hole	Location No. / Location: Lands at Cappoge Road	
Carried out for: Panda waste Ltd	Ground Level 82.90	Coordinates / Date 15/07/05

Description	Reduced Level	Depth	Thickness	Sample	Test	
Vegetable Soil	82.90		0.30m			
Light brown clay	82.60	0.30m	0.50m			
Brown/grey mottled silty sandy stiff Clay (boulder clay)	82.10	0.80m				
Bottom of pit	81.70	1.20m	0.40m			No water visible
Dark brown/black hard Clay with stones Difficult to excavate						

Remarks:

Logged by JMcE

SCALE: NTS

Notes

cpm engineering
River House
East Wall Road
Dublin 3
Tel 01 874 5411 Fax 01 835 5779

Project				Job Ref.	
Panda Waste - Lands at Cappoge Road				V083	
Section				Sheet no./rev.	
Site Investigation				9	
Calc. by	Date	Chck'd by	Date	App'd by	Date
JMcE	22/07/05				

APPENDIX 2

STANDARD OPERATING PROCEDURE

SOIL SAMPLING

The soil sampling technique described below will be followed to ensure that soil samples are representative of the environment which they are intended to characterise.

1.0 SAMPLING

(A) Locate the soil sampling station in accordance with the workplan which will specify the number and type of samples to be taken. Place a wooden stake into the ground one metre from the sample location and record sample location on the stake.

(B) Record the location in the field logbook and, if possible, photograph the location.

(C) Collect soil samples from the depth specified in the workplan and record the depth in the field notebook. Describe the colour and texture of each sample and record in notebook.

(D) Wear appropriate level of protection when taking samples (gloves, safety glasses, hard hat etc.) as specified in the workplan. Collect soil samples as specified in the workplan using decontaminated stainless steel trowel, soil corer, or similar device. Collect discrete soil samples from each station.

(E) If required by the workplan, composite discreet soil samples by placing equal volumes of soil into the container and mixing thoroughly to a homogenous mixture. Samples may be hand picked, if necessary, to remove larger materials, such as leaves, sticks, gravel, rocks etc., if specified in the workplan. Record in notebook the nature of any materials removed from soil samples.

(F) Deposit each soil sampled into a (clean, pre-washed) container. At the time of collection, the sample bottle will be filled to the top with soil sample.

(G) Fill out labels with waterproof ink and attach to the sample container. The following information will be recorded on each sample label: -

Client/Site Name
Date Collected
Time Collected
Analysis
Preservative
Sample Identification Number

(H) Decontaminate sampling equipment as described below unless otherwise specified in the site workplan. When using stainless steel sampling equipment: -

- wash with non-phosphate detergent in potable water,
- rinse sequentially in potable water, methanol, acetone, methanol and D1 water and;
- allow to air dry in a containment free area.

(I) Wrap the decontaminated sampling equipment in aluminium foil which has been decontaminated in accordance with Section H.

2.0 FIELD DOCUMENTATION

Record sample information in the field notebook. Provide a complete description of the sample location, and a photograph, if necessary. Describe the soil appearance, especially if the presence of oil or an odour is noted. Document the sample bottle lot numbers in the field notebook. Record weather conditions at the time of sampling. The Field Team Leader will initial the logbook entries for correctness.

3.0 FIELD QA/QC SAMPLES

See the separate SOP on Field QA/QC samples for appropriateness and preparation of D1 Water Field Blanks, Cross-contamination Field Blanks, Trip Blanks and Field Duplicate Samples.

4.0 PACKAGING AND TRANSPORT

Check to be sure that all necessary information is on the sample container label. Complete the chain-of custody form. Package, label and transport the samples to the testing laboratory in accordance with requirements for packing, shipping and labelling environmental samples.

END.

APPENDIX 3

Fitz scientific
Monitoring and Testing Services

Unit 35,
Boyne Business Park,
Drogheda,
Co. Louth
Ireland
Tel: +353 41 9845440
Fax: +353 41 9846171
Web: www.fitzsci.ie
email info@fitzsci.ie

A copy of this certificate is available on www.fitzsci.ie

Customer	**David Naughton**	***Lab Report Ref. No.***	**2190/188/01**
	Panda Waste	***Date of Receipt***	**17/01/2014**
	Beauparc Business Centre	***Sampled On***	**17/01/2014**
	Navan	***Date Testing Commenced***	**17/01/2014**
	Co Meath	***Received or Collected***	**Delivered by Customer**
	Ireland	***Condition on Receipt***	**Acceptable**
Customer PO		***Date of Report***	**29/01/2014**
Customer Ref	**Cappagh - Groundwater**	***Sample Type***	**Groundwater**
Ref 2			

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Ammonia (Ground Water)	114	Colorimetry	0.029	mg/L as N	UKAS
BOD (Ground Water)	113	Electrometry	<2	mg/L	UKAS
Chloride (Ground Water)	100	Colorimetry	40.29	mg/L	UKAS
COD (Ground Water)	107	Colorimetry	7	mg/L	UKAS
Nitrate (Ground Water)	103	Colorimetry	6.760	mg/L as N	UKAS
TPH (>C10-40)	188	GC-FID	<1	ug/L	

Signed : A Harmon

Aoife Harmon - Technical Supervisor

Date : 29/01/2014

Acc. : Accredited Parameters by ISO 17025:2005
PVL - Parametric Value Limit as per EU Drinking water Regulations (SI 278 2007)
All organic results are analysed as received and all results are corrected for dry weight at 104 C
Results shall not be reproduced, except in full, without the approval of Fitz Scientific
Results contained in this report relate only to the samples tested
(P) : Presumptive Results
**The analytical result for this parameter may not be reflective of the concentration present at the time of sampling. The maximum recommended preservation time for this parameter has been exceeded.

UKAS TESTING 2802

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781

O'Callaghan Moran & Associates
Granary House
Rutland Street
Cork
Ireland

4225

Attention :	Barry Sexton
Date :	18th June, 2014
Your reference :	13-198-20
Our reference :	Test Report 14/6693 Batch 1
Location :	Panda
Date samples received :	9th June, 2014
Status :	Final report
Issue :	1

Six samples were received for analysis on 9th June, 2014. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc
Project Manager

Bob Millward BSc FRSC
Principal Chemist

Client Name: O'Callaghan Moran & Associates
Reference: 13-198-20
Location: Panda
Contact: Barry Sexton
JE Job No.: 14/6693

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3-4	5-6	7-8	9-10	11-12					LOD/LOR	Units	Method No.
Sample ID	TP-1	TP-1	TP-2	TP-2	TP-3	TP-3							
Depth	0.3-0.4	0.4-0.9	0.35-0.45	0.45-0.95	0.3-0.4	0.4-0.9							
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J							
Sample Date	06/06/2014	06/06/2014	06/06/2014	06/06/2014	06/06/2014	06/06/2014							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	09/06/2014	09/06/2014	09/06/2014	09/06/2014	09/06/2014	09/06/2014							
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19					<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19	<19					<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38	<38					<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM31/PM12
Natural Moisture Content	10.9	11.1	9.8	11.2	14.2	8.2					<0.1	%	PM4/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: O'Callaghan Moran & Associates

Reference: 13-198-20

Location: Panda

Contact: Barry Sexton

Matrix : Solid

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 14/6693

SOILS

Please note we are only MCERTS accredited for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory . It is important that detection limits are carefully considered when requesting water analysis.

UKAS accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	UKAS accredited.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
OC	Outside Calibration Range

JE Job No: 14/6693

Test Method No.	Description	Prep Method No. (if appropriate)	Description	UKAS	MCERTS (soils only)	Analysis done on As Received (AR) or Air Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM16	Aliphatic/Aromatic fractionation			AR	Yes
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM16	Aliphatic/Aromatic fractionation	Yes		AR	Yes
TM5/TM36	TPH CWG by GC-FID	PM12/PM16	CWG GC-FID			AR	Yes
TM31	In-house method based on USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID. Accredited to ISO 17025 for soils and waters and MCERTS accredited for soils. Accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific			AR	Yes
TM31	In-house method based on USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID. Accredited to ISO 17025 for soils and waters and MCERTS accredited for soils. Accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific	Yes		AR	Yes
TM36	In-House method based on USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-12 by headspace GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS accredited (carbon banding only) on soils. All accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific			AR	Yes
TM36	In-House method based on USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-12 by headspace GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS accredited (carbon banding only) on soils. All accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific	Yes		AR	Yes