ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

Construction Quality Assurance Report

November 2013

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

Contents

Section Number

Appendices

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

Contents

Appendices

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

Contents

Appendices

4673

Capita Symonds Ltd.

La Collette Reclamation Site

Cell 30 Construction Works

Construction Quality Assurance Report

November 2013

Prepared for

Capita Symonds Ltd.

Prepared by

Egniol Environmental Ltd.
Tre Felin
Bangor
Gwynedd
LL57 4LH

Document Review

Version No.	Date of Review	Prepared By	Reviewed By	Approved By
0	18.10.13	Russell Pearson	Gavin Harper	Richard Furniss
1	25.10.13	Russell Pearson	Gavin Harper	Russell Pearson
2	05.11.13	Russell Pearson	Gavin Harper	Gavin Harper

1.0 INTRODUCTION

1.1 Egniol Environmental Ltd. (Egniol) of Tre Felin, Bangor, Gwynedd have been appointed by *Capita Symonds Ltd. (CSL)* as Construction Quality Assurance (CQA) Consultants for the Cell 30 Construction Works at La Collette Reclamation Site.

1.2 The appointment required the professional services of Egniol for the provision of a Construction Quality Assurance (CQA) Inspector. The CQA Inspector was required to monitor the progress and report upon completion of the works, with regard to quality assurance and compliance with the approved CQA Plan and Specification for the works (Egniol documents: *La Collette Phase 3B Reclamation Site, Cell 30 Construction Works, Construction Quality Assurance Requirements & La Collette Phase 3B Reclamation Site, Cell 30 Construction Works, Geosynthetic Installation Specification)*.

1.3 In accordance with this appointment, Egniol have produced this report which covers the construction of Cell 30 at La Collette Phase 3B Reclamation Site.

2.0 BRIEF DESCRIPTION AND TIMING OF WORKS

2.1 Works commenced on 3rd June and were completed on 24th July 2013.

2.2 The sequence of events during the construction was as follows;

- Preparation of the formation surface;
- Placement of a geogrid above the formation surface;
- Placement of a 150mm thick sand protection layer;
- Installation of a Geosynthetic Clay Liner (GCL) material above the sand protection layer;
- Installation of a 2mm LLDPE Geomembrane material above the GCL;
- Installation of a Protector Geotextile material above the Geomembrane on sideslopes and in anchor trenches;
- Installation of a Drainage Geocomposite in the base of the Cell;
- Installation of a Leachate Collection and Extraction System (LCES) consisting of a minimum 200mm thick granular drainage blanket with two leachate collection points (LCP).

2.3 The appointed contractor for the earthworks portion of the project was A.A Langlois Haulage Ltd. (AAL) of St. Lawrence, Jersey. The geosynthetic lining portion of the works was carried out by Dragon Lining Ltd. (Dragon) of Cerrigydrudion, Conwy.

2.4 All documentation completed by the CQA Inspector reporting on the progress of the works is enclosed within the appendices of this report.

3.0 CONSTRUCTION QUALITY ASSURANCE

3.1 EARTHWORKS FILLING AND TRIMMINGS

3.1.1 Whilst compaction and fill material conformance during the earthworks portion of the Cell 30 Construction works was the responsibility of A.A Langois, the CQA Inspector has a watching brief between 3rd June and the 18th June. During this exercise the final formation surface was observed to be sufficiently firm and free from oversize particles and any objects that could cause damage to the overlying layers. (Reference: Appendix 8, PLATE 1 – Cell 30 Formation Works).

3.2 SAND PROTECTION LAYER

3.2.1 General Description

Prior to the placement of the overlying geosynthetic layers, a Sand Protection Layer was installed to the works area above the geogrid lined formation layer; this layer was placed to a maximum thickness of 150mm. During the placement works, the CQA Inspector undertook thickness checks to monitor the depth of the material placed.

The sand was supplied by AAL, sourced from on site stockpiles and screened prior to use.

Samples of sand were taken for laboratory testing by Celtest Ltd. (Celtest). A total of 6 no. samples were recovered from the sand stockpiles, 3 no. for particle size distribution, and 3 no. for particle density testing. All 6 no. samples returned results that met the requirements of the Specification. The laboratory testing certificates can be found in Appendix 1 of this CQA Report.

A copy of the survey drawing is enclosed within Appendix 9 of this report and shows the final levels of the sand protection layer.

3.3 GEOGRID

3.3.1 The material used for the geogrid liner was a Secugrid 40/40 supplied by NAUE GmbH & Co. KG. (NAUE).

3.4 GEOSYNTHETIC CLAY LINER (GCL)

3.4.1 General Information

A GCL was installed directly onto the approved surface of the sand protection layer of the works area; acceptance of the sand layer was recorded by the CQA Inspector on surface release forms, copies of which are enclosed within Appendix 2 of this CQA Report.

3.4.2 Material Specification

The acceptance criteria and testing frequency for the GCL were as detailed in the table below:

PARAMETER	TEST METHOD	REQUIREMENT
Mass per unit area of GCL	EN 14196	3,900 g/m^2 (min.)
Mass per unit area of bentonite component	EN 965/ ISO 9864	3,600 g/m^2 (min.)
Mass per unit area of geotextile	EN 965	Non-woven 200 g/m^2 (min.) Woven 100 g/m^2 (min.)
Thickness in dry condition	ISO 9863-1	≥10.0 mm
CBR puncture resistance of GCL	BS 6906 / EN 12236	1600 N (min.)
Peel Strength	ASTM D4632	65N (min.)
Grab Strength	ASTM D4632	400N (min.)
Hydraulic conductivity (permeability coefficient k_v)	ASTM D5887 (@35 kPa, i=150)	5 x 10^{-11} m/s (max)
Montmorillonite Content	VDG P69/XRD	70% (min.)
Cation Exchange Capacity	Methylene Blue (EA Guidance on GCLs App. A)	270 mg MB/g (min)
Moisture Content of clay	DIN 18121 /ASTM D4643	50% (max.)
Free swell	ASTM D5890 06	24 ml / 2g (min.)
Water absorption	DIN 18132	600% (min.)
Fluid loss	ASTM D5891	18 ml in 30 min. (max.)
Index flux	DIN 18130 / ASTM D5887	1 x 10^{-8} m^3/m^2/s (max)

3.4.2 Source of GCL Material

The GCL used in the works was a NaBento L-N 3500 produced by Huesker Synthetic GmBH.

3.4.3 Conformance Testing

A total of 9 no. conformance samples were recovered and forwarded to BTTG Testing and Certification Ltd. (BTTG) of Trafford Park, Manchester for laboratory testing in accordance with the requirements of the above table. A copy of the laboratory conformance test results undertaken on the GCL samples is presented in Appendix 2 of this CQA Report.

The results of this conformance testing show that the NaBento L-N3500 material does not in every panel tested achieve the required design specification values in terms of GCL Mass per Unit Area and Bentonite Mass per Unit Area.

Of the 9 no. samples, 6 no. samples returned results for GCL Mass per Unit Area and Bentonite Mass per Unit Area that were less than the required 3900g/m^2. These failures may have been due to a loss of bentonite from the GCL caused by movement and handling of the samples during transport. The failures were marginal and results varied from 3798.8g/m^2 to 3839.4g/m^2.

The Mass per Unit Area test's are included within the specification to allow selection of a GCL and the results do not affect the performance of the selected product.

The results of the tensile strength and CBR puncture resistance testing all demonstrate results in excess of the required values. The results of index flux and hydraulic permeability were less than the required values of $1.9x10^{-9}$ and $5x10^{-11}$ respectively.

We note that the conformance testing requirements table shows a testing requirement for 'Thickness in Dry Condition'. This requirement appears in a similar table in the CQA Requirements document and is an error as the thickness for sodium GCL's was not included within the specification for Cell 30. This is an anomaly between the two documents.

3.4.4 GCL Deployment

Inspection of the Subgrade

Prior to the deployment of the GCL at any location over the sand protection layer, the CQA Inspector visually inspected the surface at that location to ensure that the surface was acceptable to receive the GCL and in accordance with the requirements of the CQA Plan.

Method of Deployment

The GCL deployment was undertaken by pulling sheets manually from a roll suspended on a spreader bar on the excavator.

Each GCL panel was aligned manually, lapped over the adjacent panel to give the required overlap of 300mm along the length of the panel and 1500mm across the panel width. Where seams were orientated across the slope the panels were installed in a 'ship lap' fashion to prevent flow against the lapped seams.

All seams were inspected for damage caused during transportation or installation, wrinkles and creases and the presence of deleterious material in the overlap zone in accordance with the CQA Plan.

Each GCL panel was assigned an identification number by the CQA Inspector to record the order of deployment. This detail was recorded on the GCL Panel Deployment Record presented in Appendix 2 of this CQA Report.

3.4.5 Seaming of the GCL

Seams perpendicular to the slope were kept to a minimum but where such a seam necessary the joining of the two panels was achieved by using Bentonite powder manually applied to the overlap zone.

3.4.6 Anchor Trench

The GCL was secured into an existing anchor trench at the top of 1 of the 4 no. sides of Cell 30, into which the existing lining materials extended. The trench was carefully excavated to allow for the installation of the GCL (and subsequently the geomembrane liner) and in such a manner as to not cause disturbance to the existing materials. During the period of geosynthetic installation, the trench was temporarily backfilled before being excavated again to allow the overlying layer to be installed.

Upon completion of the Cell 30 geosynthetic lining works, the trench was carefully backfilled with acceptable materials to the surrounding levels before a series of geomembrane cap strips were installed.

On the remaining 3 sides of the Cell, a fresh anchor trench was excavated to the configuration shown in drawing no. 4673.C30.02 (enclosed within the CQA Plan and Specification).

3.5 GEOMEMBRANE LINER

3.5.1 Design Specification Details

The material used for the geomembrane liner was a 2mm textured linear low density polyethylene (LLDPE) material supplied by NAUE GmbH & Co. KG. (NAUE). The requirements of the design specification for the LLDPE were as follows overleaf:

PARAMETER	TEST METHOD	VALUE
Thickness (mm)	ASTM D5994 (Textured)	2mm (-5%, nom.) 2mm (-10%, 8 out of 10) 2mm (-15%, lowest value of 10 values)
Carbon Black Content (%)	ASTM D1603	2 – 3
Carbon Black Dispersion	ASTM D5596 (10 views)	Min. 9 of 10 in Cat. 1 or 2 and 1 in Cat. 3
Density (g/ml) (max.)	ASTM D1505 /D792	0.939
Tensile Properties: Break Stress (N/mm) (min. avg) Break Elongation (%) (min. avg)	ASTM D6693 Type IV	 21 250
Tear Resistance N (min, avg)	ASTM D1004	200
Puncture Resistance N (min, avg)	ASTM D4833	400
Asperity Height (mm) (min. avg)	GM12	0.1

3.5.2 Conformance Testing and Summary

Conformance testing of the geomembrane was undertaken in accordance with the design specification by BTTG.

A total of 2 no. conformance samples were recovered by the CQA Inspector. The results of the conformance testing are enclosed within Appendix 3 of this CQA Report

3.5.3 Geomembrane LLDPE Deployment

Method of Deployment

The geomembrane was placed by pulling sheets manually from a roll suspended on a spreader bar with this bar being suspended from a tracked excavator. Once placed each geomembrane panel was aligned manually to give the required overlap (minimum 100mm) between the adjoining panels in preparation for seaming. Where required, sandbags were then placed along the overlap to temporarily secure the panel in place and prevent any uplift from high winds.

Each geomembrane panel was assigned an identification number by the CQA Inspector to record the order of deployment.

3.5.4 Seaming of the LLDPE

Seaming Method

The principle seaming method employed was the hot wedge fusion process in which the LLDPE seam is heated to a controlled temperature and compressed between two rollers of a self propelled welding machine. This method of welding forms two parallel seams of continuously fused LLDPE sheet separated by a central hollow core for non-destructive testing of the welded seam.

All pre-treatment measures to seams (e.g. grinding and cleaning) as specified in the CQA Plan were carried out and all extrusion and wedge temperatures of the welders were maintained in accordance with the range approved by the CQA Inspector. Trial seams were performed with each seaming machine and operator at the start of each period of welding.

Testing of Seams and Welding Logs

All welding of seams, trial seam tests, destructive and non-destructive testing of field seams on the LLDPE was undertaken by deployment operatives in accordance with the requirements of the design specification and CQA Plan and witnessed by the CQA Inspector.

In addition, destructive seam samples were dispatched to BTTG for independent destructive testing. Results of the seam testing are enclosed within Appendix 3 of this CQA Report along with the welding log records that were produced by the CQA Inspector. All samples achieved the required minimum values as stated in the CQA Plan.

3.5.5 Installation of Cap Strips

Following the installation of the GCL and geomembrane liner to the anchor trenchs, a series of geomembrane cap strips were extrusion welded across the area of the anchor trench to connect the Cell 30 liner to existing materials and ensure continuation of the lining system. Each section was subjected to non-destructive testing using the vacuum box method. The results of the vacuum box testing were passes.

Plate numbers 7 and 10 of the Photographic Log (Appendix 8 of this CQA Report) show the anchor trenches in which the geomembrane and GCL have been placed and secured.

3.6 PROTECTION GEOTEXTILE

3.6.1 Design Specification Details

It is noted that no cylinder test was carried out as part of these works. Cylinder tests have been carried out on adjacent cells and grades of geotextile suitability have been determined by these tests.

The protection geotextile material used for these works was a Secutex 401 material, supplied by NAUE. The specification for this material is detailed in the table below:

Parameter	Test Method	Value
CBR Puncture Resistance (N)	BS EN ISO 12236	3900
Tensile Strength (kN/m)	BS EN ISO 10319	16 (md) 24 (cmd)

3.6.2 Conformance Testing

A summary of the Manufacturing Quality Control Data for the rolls used during the works can be found in Appendix 4 along with conformance testing on the geotextile carried out by BTTG.

A total of 2 no. conformance samples were retrieved from the rolls delivered to site. All test results were within the parameters specified in the table above.

3.6.3 Protection Layer Deployment

Method of Deployment

The protection layer was placed by pulling sheets manually from a roll suspended on a spreader bar with this bar being suspended from a tracked excavator. Once placed, each geotextile panel was aligned manually to give the required minimum overlap of 300mm between the adjoining panels. Sandbags were then placed along the overlap to temporarily secure the panel in place and prevent any uplift from the high winds. Adjacent panels were seamed together by heat bonding.

3.7 LEACHATE COLLECTION AND EXTRACTION SYSTEM

3.7.1 Geocomposite Drainage Layer

A geocomposite drainage layer was installed directly above the geotextile protection layer. The geocomposite used in these works was a NAUE, Secudrain 131cWD401. The CQA Inspectors panel deployment record for the geocomposite can be located in Appendix 5 of this CQA Report. The requirements for the geocomposite can be found in the table overleaf.

PARAMETER	TEST METHOD	REQUIREMENT
In-Plane flow capacity (I = 1 with soft platens @200kPa	BS EN ISO 12958	0.4 l/s/m (min.)

3.7.2 Geocomposite Conformance Testing

A total of 2 no. conformance samples were recovered and forwarded to BTTG for laboratory testing in accordance with the requirements of the above table. A copy of the laboratory conformance test results undertaken on the geocomposite can be found in Appendix 5 of this CQA Report.

The results of the conformance testing show that the Secudrain 131 does not achieve the required design specification values.

We note that the geocomposite acts as part of the leachate drainage system. The majority of the leachate will flow within the leachate drainage blanket. This added to the twin sumps and the small basal area of the cell leads to the conclusion that the geocomposite will not have a detrimental effect on the leachate drainage system.

3.7.3 Leachate Collection (Sideslope Riser) Pipework

Leachate collection pipework was installed in accordance with the CQA Plan and design specification. The pipework for leachate collection / monitoring risers comprised of PE80 500mm SDR11 pipework. Pipework sections were connected using electro fusion welding methods in accordance with the specification. The CQA Inspector was not present during the electro fusion welding process. As agreed the CQA Inspector approved the pipework and couplers as required; welding was undertaken at a later date in the presence of a States of Jersey representative.

3.7.4 Leachate Drainage Stone

A 200mm thick leachate drainage blanket was placed above the protector geotextile / drainage geocomposite in the base of the cell. The leachate drainage blanket shall comprise of a 200mm thick layer of 20/50mm aggregate.

9 no. samples of the drainage stone were recovered from the on site stockpiles for testing at Celtest (a UKAS accredited laboratory for the testing undertaken).

Of the 9 no. samples, 3 no. were taken for particle size distribution testing, 3 no. for ten percent fines testing, and 3 no. for calcium carbonate testing. Samples taken for particle size distribution testing met the requirements of the specification. Samples taken for ten per cent fines value testing returned results

of 85kN to 95kN. These results are in excess of the 75kN (min.) required in the specification. Samples taken for calcium carbonate testing returned results of 7.47% to 9.81%. These results are less than the maximum value of 10% permitted in the specification. All 9 no. samples, all met the requirements of the CQA Plan and specification.

4.0 PROBLEMS ENCOUNTERED

4.1 The geocomposite material used did not meet the requirements of the specification for In Plane Flow Capacity. Further commentary is provided in section 3.7.1 and section 5.2.

4.2 6 no. of the 9 no. conformance samples returned results for the GCL Mass per Unit Area and Bentonite Mass per Unit Area that were less than the required 3900g/m^2. It is noted in section 3.4.3 of this report that these failures may have been due to a loss of bentonite from the GCL caused by movement during transit.

5.0 CONCLUSIONS

5.1 From the information presented in this report it can be seen that to the best of our knowledge the Cell 30 Construction Works were generally undertaken in accordance with the CQA Plan for the works.

5.2 2 no. conformance samples were recovered from the geocomposite for In Plane flow Capacity testing. The results of these tests were 0.186 l/s/m and 0.274 l/s/m. Both of these results are below the required value of 0.4 l/s/m. These conformance tests therefore are failures when compared to the requirement of the specification.

We note that the types of waste within the cell are unlikely to generate significant amounts of leachate and any leachate produced is unlikely to clog the leachate drainage blanket as typically occurs with putrescible waste allowing the leachate drainage blanket to operate efficiently. The design of the cell with a small basal area and two leachate extraction points within the cell will also allow the efficient extraction of any leachate produced.

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

1. Sand Formation Layer Requirements

- Particle Size Distribution
- Particle Density

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Particle Size Distribution

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333116

Contract: La Collette Landfill - Cell 30

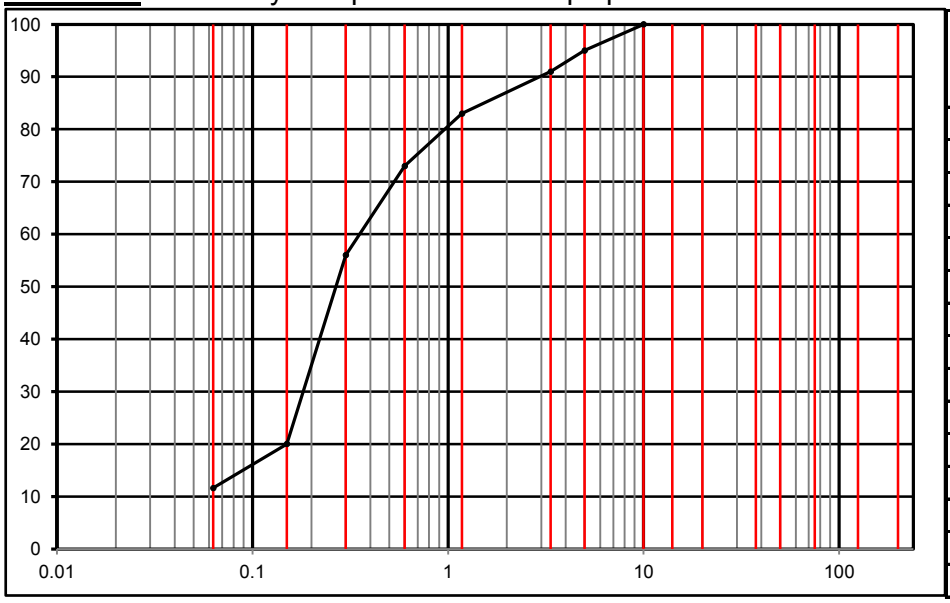
LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Size Distribution (PSD) of a soil sample- washing and sieving method in accordance with **BS1377-Part2-1990**

SAMPLE DETAILS:

Certificate of sampling received	**Yes**	Name of Source:	**Site Won**
Laboratory Ref. No:	**S43798 / 204409**	Method of Sampling:	**Disturbed Bulk Sample**
Client Ref. No:	**S1**	Sampled By:	**Egniol CQA Engineer**
Date and Time of Sampling:	**15/05/2013**		
Date of Receipt at Lab:	**29/07/2013**		
Date of Start of Test:	**31/07/2013**		
Sampling Location:	**Cell 36 Upper Slope Lining**		
Material Description:	**Sand**		
Target Specification:	**N/A**		

RESULTS: Were any unrepresentative lumps present? No



BS TEST SIEVE SIZE	PERCENTAGE BY MASS PASSING	SPECIFICATION LIMITS
200.0 mm		
125.0 mm		
75.0 mm		
50.0 mm		
37.5 mm		
20.0 mm		
14.0 mm		
10.0 mm	100	
5.0 mm	95	
3.35 mm	91	
1.18 mm	83	
0.600 mm	73	
0.300 mm	56	
0.150 mm	20	
0.063 mm	11.6	

Comments
None

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

Approved by: - [redacted]
Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333118

Contract: La Collette Landfill - Cell 30

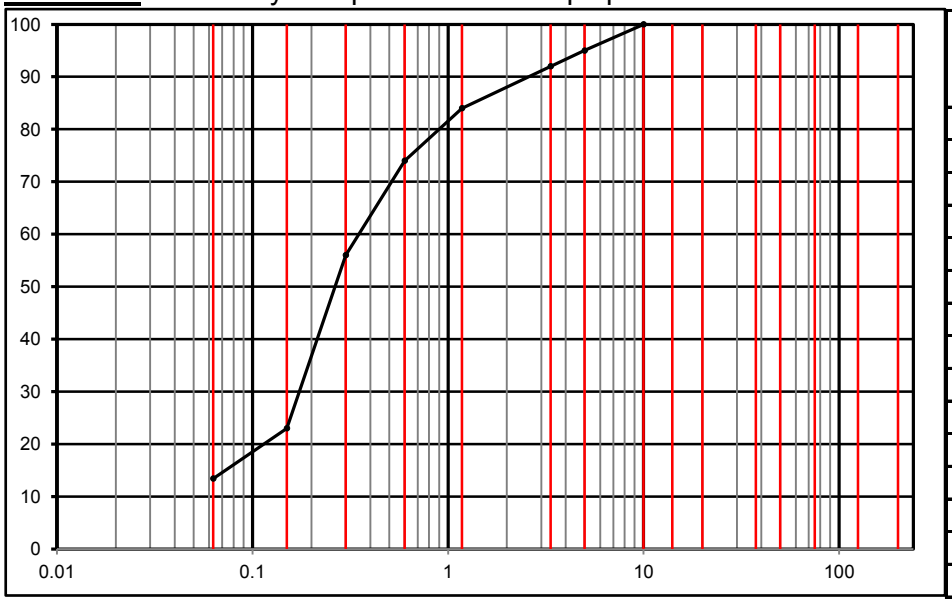
LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Size Distribution (PSD) of a soil sample- washing and sieving method in accordance with **BS1377-Part2-1990**

SAMPLE DETAILS:

Certificate of sampling received	**Yes**	Name of Source:	**Site Won**
Laboratory Ref. No:	**S43798 / 204410**	Method of Sampling:	**Disturbed Bulk Sample**
Client Ref. No:	**S1**	Sampled By:	**Egniol CQA Engineer**
Date and Time of Sampling:	**19/06/2013**		
Date of Receipt at Lab:	**29/07/2013**		
Date of Start of Test:	**31/07/2013**		
Sampling Location:	**Stockpile**		
Material Description:	**Sand**		
Target Specification:	**N/A**		

RESULTS: Were any unrepresentative lumps present? No



BS TEST SIEVE SIZE	PERCENTAGE BY MASS PASSING	SPECIFICATION LIMITS
200.0 mm		
125.0 mm		
75.0 mm		
50.0 mm		
37.5 mm		
20.0 mm		
14.0 mm		
10.0 mm	100	
5.0 mm	95	
3.35 mm	92	
1.18 mm	84	
0.600 mm	74	
0.300 mm	56	
0.150 mm	23	
0.063 mm	13.4	

Comments
None

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

Approved by: - [redacted]
Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333120

Contract: La Collette Landfill - Cell 30

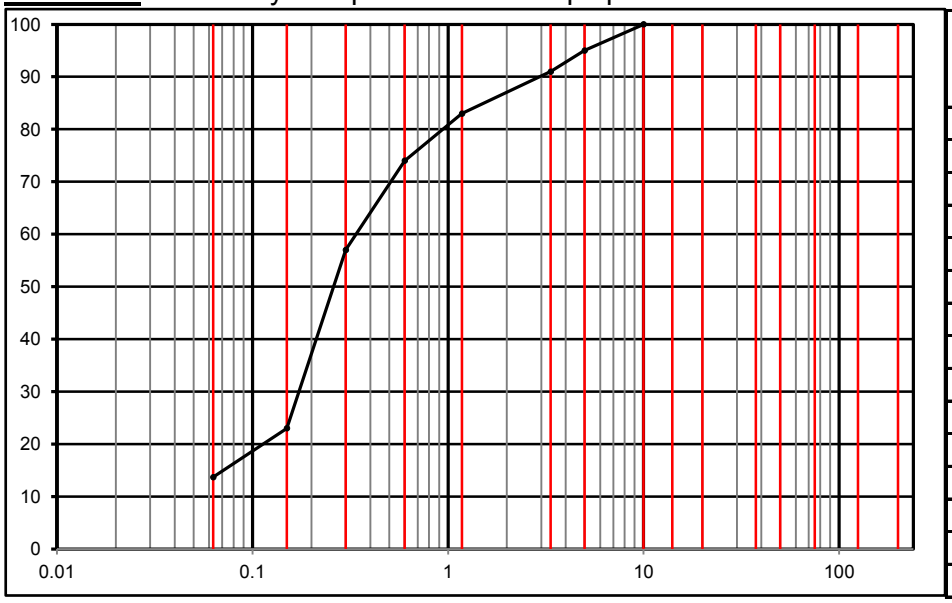
LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Size Distribution (PSD) of a soil sample- washing and sieving method in accordance with **BS1377-Part2-1990**

SAMPLE DETAILS:

Certificate of sampling received	**Yes**	Name of Source:	**Site Won**
Laboratory Ref. No:	**S43798 / 204411**	Method of Sampling:	**Disturbed Bulk Sample**
Client Ref. No:	**S2**	Sampled By:	**Egniol CQA Engineer**
Date and Time of Sampling:	**19/06/2013**		
Date of Receipt at Lab:	**29/07/2013**		
Date of Start of Test:	**31/07/2013**		
Sampling Location:	**Stockpile**		
Material Description:	**Sand**		
Target Specification:	**N/A**		

RESULTS: Were any unrepresentative lumps present? No



BS TEST SIEVE SIZE	PERCENTAGE BY MASS PASSING	SPECIFICATION LIMITS
200.0 mm		
125.0 mm		
75.0 mm		
50.0 mm		
37.5 mm		
20.0 mm		
14.0 mm		
10.0 mm	100	
5.0 mm	95	
3.35 mm	91	
1.18 mm	83	
0.600 mm	74	
0.300 mm	57	
0.150 mm	23	
0.063 mm	13.7	

Comments
None

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

Approved by: - [redacted]
Eric Goulden
Technical Manager

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Particle Density

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333117

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Density and Water absorption for aggregate **sample between 0.063mm and 4 mm, in accordance with BS EN 1097-6: 2000 Clause 9**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204409**
Client Ref. No:	**S1**
Date and Time of Sampling:	**15/05/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**02/08/2013**
Sampling Location:	**Cell 36 Upper Slope Lining**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**Sand**
Target Specification:	**N/A**

RESULTS:

Mass of dry sample tested =	**1212 g**
Particle density on an oven-dried basis =	**2.65 Mg/m³**
Particle density on a saturated and surface-dried basis =	**2.66 Mg/m³**
Apparent Particle density =	**2.68 Mg/m³**
Water absorption (of dry mass) =	**0.4 %**

Comments
None

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

Approved by: - [redacted]
Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333119

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Density and Water absorption for aggregate **sample between 0.063mm and 4 mm, in accordance with BS EN 1097-6: 2000 Clause 9**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204410**
Client Ref. No:	**S1**
Date and Time of Sampling:	**19/06/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**02/08/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**Sand**
Target Specification:	**N/A**

RESULTS:

Mass of dry sample tested =	**1267 g**
Particle density on an oven-dried basis =	**2.64 Mg/m³**
Particle density on a saturated and surface-dried basis =	**2.65 Mg/m³**
Apparent Particle density =	**2.67 Mg/m³**
Water absorption (of dry mass) =	**0.5 %**

Comments
None

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

Approved by: - [redacted]
Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333121

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Density and Water absorption for aggregate **sample between 0.063mm and 4 mm, in accordance with BS EN 1097-6: 2000 Clause 9**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204411**
Client Ref. No:	**S2**
Date and Time of Sampling:	**19/06/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**02/08/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**Sand**
Target Specification:	**N/A**

RESULTS:

Mass of dry sample tested =	**1321 g**
Particle density on an oven-dried basis =	**2.62 Mg/m³**
Particle density on a saturated and surface-dried basis =	**2.63 Mg/m³**
Apparent Particle density =	**2.65 Mg/m³**
Water absorption (of dry mass) =	**0.5 %**

Comments
None

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

Approved by: - [redacted]
Eric Goulden
Technical Manager

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

2. Geosynthetic Clay Liner (GCL Requirements)

- Surface Release Forms
- GCL Delivery and Inspection Record
- Manufacturers Quality Control Documents
- Conformance Testing
- GCL Laboratory Testing Record
- GCL Panel Deployment Record
- GCL Repair Record

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Surface Release Forms

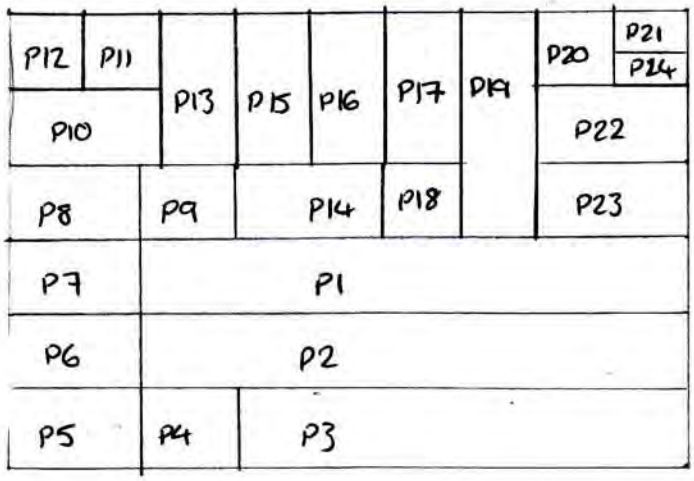
Egniol Environmental Ltd

Surface Release Form

Landfill Site: La Colette
Project: Cell 30
Date: 27.5.13
Surface being inspected for release: Sand Protection layer

Area /Panel Ref	P1 - P24
Remediation Carried Out	Depth of sand checked, area smooth and level ready for GCL

Plan of Area Released



The surface has been inspected and the signature of confirmation below indicates that the preparation has been carried out in accordance with the Construction Quality Assurance Plan, Specification and Installers method statement (as applicable)

Release is subject to the surface not being adversely affected by subsequent events prior to the installation of the following layers of the lining system.

Released By: **CQA Inspector :** *Print Name* Paul Nicholson

Signature [redacted]

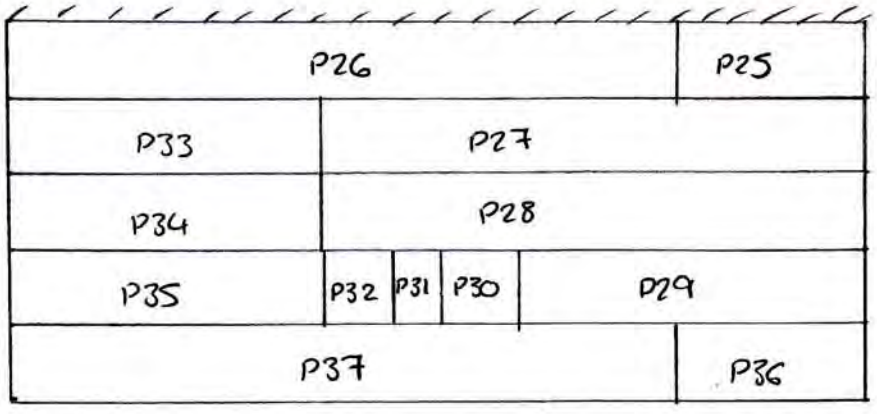
Egniol Environmental Ltd

Surface Release Form

Landfill Site: La Collette
Project: Cell 30
Date: 28-6-13
Surface being inspected for release: Sand Protection Layer

Area /Panel Ref	P25 - P37
Remediation Carried Out	Depth of sand checked, area smooth and level ready for GCL

Plan of Area Released



The surface has been inspected and the signature of confirmation below indicates that the preparation has been carried out in accordance with the Construction Quality Assurance Plan, Specification and Installers method statement (as applicable)

Release is subject to the surface not being adversely affected by subsequent events prior to the installation of the following layers of the lining system.

Released By: **CQA Inspector :** *Print Name* Paul Nicholson

Signature [redacted]

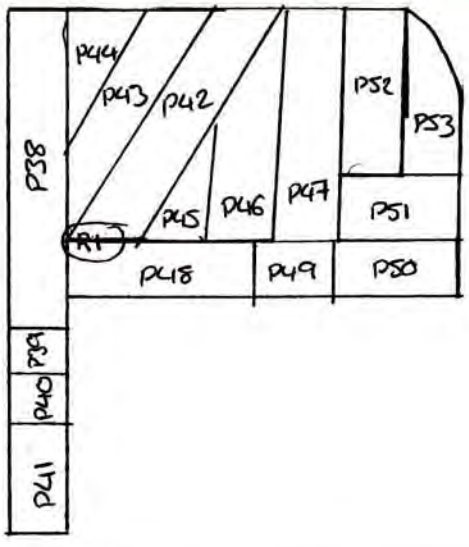
Egniol Environmental Ltd

Surface Release Form

Landfill Site: La Gollette
Project: Cell 30
Date: 29-6-13
Surface being inspected for release: Sand Protection Layer

Area /Panel Ref	P38 - P53
Remediation Carried Out	Depth of sand checked, area smooth and level ready for GCL deployment

Plan of Area Released



The surface has been inspected and the signature of confirmation below indicates that the preparation has been carried out in accordance with the Construction Quality Assurance Plan, Specification and Installers method statement (as applicable)

Release is subject to the surface not being adversely affected by subsequent events prior to the installation of the following layers of the lining system.

Released By: **CQA Inspector :** *Print Name* Paul Nicholson

Signature [redacted]

Egniol Environmental Ltd

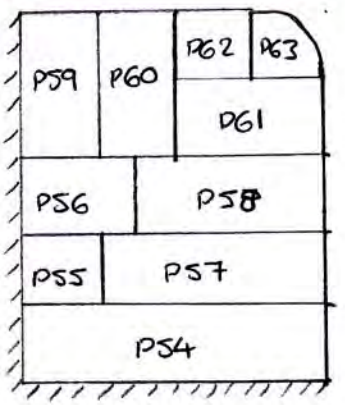
egniol ENVIRONMENTAL ENGINEERING PLANNING

Surface Release Form

Landfill Site: La Gollette
Project: Cell 30
Date: 30-6-13
Surface being inspected for release: Sand Protection Layer

Area /Panel Ref	P54 - P63
Remediation Carried Out	Depth of sand checked, area smooth and level ready for GCL

Plan of Area Released



The surface has been inspected and the signature of confirmation below indicates that the preparation has been carried out in accordance with the Construction Quality Assurance Plan, Specification and Installers method statement (as applicable)

Release is subject to the surface not being adversely affected by subsequent events prior to the installation of the following layers of the lining system.

Released By: **CQA Inspector :** *Print Name* Paul Nicholson

Signature [redacted]

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

GCL Delivery and Inspection Record

Egniol Environmental Ltd

GCL Delivery, Inspection and Conformance Sample Record

Site: La Collette
Project: Cell 30
Material NaBento L-N 3500

Date Delivered	Manufacturer	Batch Number	Roll No.	Factory Data Received (Y/N)	Inspected for Damage (Y/N)	Handling Acceptable (Y/N)	Storage Acceptable (Y/N)	Conformance Sample Taken (Sample Ref:)	Date of Conformance Sample	Conforms with Specification (Y/N)	Roll Dimensions		CQA S.I	Remarks
											Length (m)	Width (m)		
10.06.13	Heusker	13	42525	Y	Y	Y	Y	GCL8	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42526	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42527	Y	Y	Y	Y	GCL4	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42528	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42529	Y	Y	Y	Y	GCL1	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42530	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42531	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42532	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42533	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42534	Y	Y	Y	Y	GCL3	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42535	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42536	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42537	Y	Y	Y	Y	GCL9	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42535	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42539	Y	Y	Y	Y	GCL7	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42540	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42541	Y	Y	Y	Y	GCL6	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42541	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42542	Y	Y	Y	Y	GCL2	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42543	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42544	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42545	Y	Y	Y	Y				40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42546	Y	Y	Y	Y	GCL5	03.07.13		40.0	5.10	P. Nicholson	
10.06.13	Heusker	13	42547	Y	Y	Y	Y				40.0	5.10	P. Nicholson	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Manufacturers Quality Control Documents

HUESKER
Ideen. Ingenieure. Innovationen.

HUESKER Synthetic GmbH
Fabrikstraße 13-15 · D-48712 Gescher
Postfach 1262 · D-48705 Gescher
Telefon +49 (0) 25 42/ 7 01-0
Telefax +49 (0) 25 42/ 7 01-499

NaBento® L-N 3500

DATA SHEET

Geosynthetic Clay Barrier



SEALING SYSTEM

PRODUCT DATA:

Geotextile carriers	woven polypropylene	
Sealing layer (sodium-bentonite) (water content < 13%)	~ 3.500	g/m²
- with ”aero“ fleece reinforcement	~ 60	g/m²
Total weight *EN ISO 9864*	~ 3.800	g/m²
Thickness in dry condition *EN ISO 9863-1*	4.0	mm
Ultimate tensile strength *EN ISO 10.319*		
longitudinal	≥ 20	kN/m
transversal	≥ 30	kN/m
Strain at nominal tensile strength *EN ISO 10.319*		
longitudinal	≤ 25	%
transversal	≤ 25	%
CBR puncture resistance (x) *EN ISO 12236*	3.000	N
Permeability coefficient (K_v) at i = 150 and a surcharge of 35 kPa *ASTM D 5887*	≤ 5 x 10^{-11}	m/s
Standard dimensions		
Width	5.10	m
Length	40.00	m

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Conformance Testing

HIGH PERFORMANCE MATERIALS

Confidential Report

Our Ref: 10/18449J

Notified Body
for PPE Directive,
Construction Products Directive
& Marine Equipment Directive
I.D. No. 0338 & 0339

BTTG High Performance Materials
Unit 14, Wheel Forge Way,
Trafford Park, Manchester, M17 1EH

Tel: +44 (0)161 873 6543 Fax: +44 (0)161 848 7378

ilac-MRA UKAS TESTING 1066

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 14 August 2013
Our Ref : 10/18449J
Your Ref : La Collette Cell 30

Client:
Egniol Environmental Ltd.
Tre Felin
Bangor
Gwynedd
LL57 4LH

Job Title: Tests on geosynthetic clay liners – La Collette Cell 30

Client's Order No: 1321

Date of Receipt: 23rd July 2013

Description of Sample(s): Nine geosynthetic clay liners were received for testing from the above named site.

Work Requested: We were asked to make the following tests:

Mass per unit area EN 14196 on all samples
Thickness EN ISO 9863-1 on one sample
*Montmorillonite content XRD on one sample
Moisture content ASTM D2216 on two samples
Bentonite free swell ASTM D5890 on two samples
Water absorption ASTM E946 on two samples
Methylene blue test VDG P69 on one sample
Wide width tensile properties EN ISO 10319 on all samples
CBR puncture resistance EN ISO 12236 on one sample
Fluid loss ASTM D5891 on two samples
Index flux/ permeability ASTM D5887 on one sample

* subcontracted test, UKAS accredited

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **14 August 2013**
Our Ref : **10/18449J**
Your Ref : **La Collette Cell 30**

Egniol Environmental Ltd.

Laboratory Work

All tests were made following the test methods specified and the results obtained are shown in the tables on the following pages.

Reported by: ..... [redacted] ..... Mrs L Duncan
Senior Technician

Countersigned by: [redacted] ..... Mrs C Austin
Director

Enquiries concerning this report should be addressed to Customer Services.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 14 August 2013
Our Ref : 10/18449J
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

GCL 1

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	3829.1	311.23	8.13
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3529.1		
Thickness	EN ISO 9863-1	5.12	0.49	9.50
*Montmorillonite content (%)	XRD	73.9		
Moisture content (%)	ASTM D2216	13.34		
Bentonite free swell (ml)	ASTM D5890	33.5		
Water absorption (%)	ASTM E946	828.2		
Methylene blue test (mg/g)	VDG P69	305.8		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		32.28	0.50	1.56
L-Way Ext. (%)		23.4	2.46	10.51
X-Way Tensile Strength (kN/m)		31.12	1.54	4.95
X-Way Ext. (%)		20.0	0.53	2.64
CBR puncture	EN ISO 12236			
CBR push through force (N)		4356	184	4.23
Plunger displacement (mm)		37	0.50	1.33
Fluid loss (ml)	ASTM D5891	13.6		
Index flux ((m^3/m^2) s^{-1})	ASTM D5887	1.9 x 10^{-9}		
Hydraulic conductivity (m/sec)		1.3 x 10^{-11}		

[a] This assumes a mass per unit area for the geotextile outer layers and "aero" fleece reinforcement of 300g/m^2.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 14 August 2013
Our Ref : 10/18449J
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

GCL 2 Roll No. 13/42542

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	4037.6	172.43	4.27
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3737.6		
Moisture content (%)	ASTM D2216	13.94		
Bentonite free swell (ml)	ASTM D5890	33.5		
Water absorption (%)	ASTM E946	821.2		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		32.84	2.02	6.16
L-Way Ext. (%)		24.6	1.44	5.85
X-Way Tensile Strength (kN/m)		33.66	2.07	6.14
X-Way Ext. (%)		18.1	2.36	13.01
Fluid loss (ml)	ASTM D5891	14.0		

GCL 3 Roll No. 13/42534

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	3839.4	111.37	2.90
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3539.4		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		33.65	0.57	1.68
L-Way Ext. (%)		23.7	0.90	3.79
X-Way Tensile Strength (kN/m)		31.08	0.92	2.97
X-Way Ext. (%)		18.8	1.06	5.62

[a] This assumes a mass per unit area for the geotextile outer layers and "aero" fleece reinforcement of 300g/m^2.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 14 August 2013
Our Ref : 10/18449J
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

GCL 4 Roll No. 13/42527

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	4669.9	371.71	7.96
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		4369.9		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		33.26	0.89	2.68
L-Way Ext. (%)		23.3	3.17	13.62
X-Way Tensile Strength (kN/m)		32.79	0.61	1.85
X-Way Ext. (%)		20.7	0.91	4.37

GCL 5 Roll No. 13/42546

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	3856.5	162.82	4.22
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3556.5		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		33.66	0.43	1.28
L-Way Ext. (%)		23.9	0.98	4.08
X-Way Tensile Strength (kN/m)		31.44	2.11	6.70
X-Way Ext. (%)		17.9	1.88	10.46

[a] This assumes a mass per unit area for the geotextile outer layers and "aero" fleece reinforcement of 300g/m^2.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 14 August 2013
Our Ref : 10/18449J
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

GCL 6 Roll No. 13/42541

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	3798.8	138.29	3.64
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3498.8		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		33.27	1.41	4.23
L-Way Ext. (%)		22.4	1.47	6.56
X-Way Tensile Strength (kN/m)		31.68	1.18	3.74
X-Way Ext. (%)		19.3	1.28	6.65

GCL 7 Roll No. 13/42539

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	3810.1	123.36	3.24
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3510.1		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		34.02	0.92	2.71
L-Way Ext. (%)		23.4	0.97	4.12
X-Way Tensile Strength (kN/m)		29.95	0.43	1.44
X-Way Ext. (%)		18.7	2.13	11.39

[a] This assumes a mass per unit area for the geotextile outer layers and "aero" fleece reinforcement of 300g/m^2.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 14 August 2013
Our Ref : 10/18449J
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

GCL 8 Roll No. 13/42525

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	3801.9	174.33	4.59
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3501.9		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		33.83	0.96	2.82
L-Way Ext. (%)		24.6	0.69	2.78
X-Way Tensile Strength (kN/m)		29.76	2.45	8.23
X-Way Ext. (%)		18.3	0.78	4.28

GCL 9 Roll No. 13/42537

Test	Method	Mean	SD	CV (%)
Mass per unit area of GCL (g/m^2) at 12% moisture content	EN 14196	4052.5	172.7	4.26
[a]Mass per unit area of bentonite (g/m^2) at 12% moisture content		3752.5		
Wide width tensile properties	EN ISO 10319			
L-Way Tensile Strength (kN/m)		33.00	1.21	3.65
L-Way Ext. (%)		24.0	2.18	9.06
X-Way Tensile Strength (kN/m)		28.47	2.63	9.25
X-Way Ext. (%)		18.4	1.20	6.52

[a] This assumes a mass per unit area for the geotextile outer layers and "aero" fleece reinforcement of 300g/m^2.

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

GCL Laboratory Testing Record

Egniol Environmental Ltd

GCL Laboratory Testing Record

Landfill Site: La Collette
Project: Cell 30 Construction Works
Material : NaBento L-N3500

Date	Sample Ref.	GCL Mass/Unit Area	Bentonite Mass/Unit Area	Montmorillonite Content	Moisture Content	Free Swell	Fluid Loss	Peel Strength		Cation Exchange Capacity	Water Absorption	Tensile Properties				Puncture Resistance		Perm.	Index Flux
								Length	Width			MD GS	MD AE	CMD GS	CMD AE	Puncture Force	Puncture Displacement		
		g/M²	*g/M²*	*%*	*%*	*ml/2g*	*ml*	*(N/100mm)*	*(N/100mm)*	*mg/g*		*KN/m*	*%*	*KN/m*	*%*	*KN*	*mm*	*m/s*	*m3/m2/sec*
03.07.13	GCL1	3829.1	3529.1	73.9	13.34	33.5	13.6			305.8	828.2	32.28	23.4	31.12	20.0	4356.00	37.00	1.3x10-11	1.9x10-9
03.07.13	GCL2	4037.6	3737.6		13.94	33.5	14.0				821.2	32.84	24.6	33.66	18.1				
03.07.13	GCL3	3839.4	3539.4									33.65	23.7	31.08	18.8				
03.07.13	GCL4	4669.9	4369.9									33.26	23.3	32.79	20.7				
03.07.13	GCL5	3856.5	3556.5									33.66	23.9	31.44	17.9				
03.07.13	GCL6	3798.8	3498.8									33.27	22.4	31.68	19.3				
03.07.13	GCL7	3810.1	3510.1									34.02	23.4	29.95	18.7				
03.07.13	GCL8	3801.9	3501.9									33.83	24.6	29.76	18.3				
03.07.13	GCL9	4052.5	3752.5									33.00	24.0	28.47	18.4				

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

GCL Panel Deployment Record

Egniol Environmental Ltd

GCL Panel Deployment Record

Landfill Site: La Collette
Project: Cell 30
Material: NaBento L-N 3500

Date	Batch No.	Roll No.	Panel No.	Panel Length *m*	Panel Area m^2	Cumulative Panel Area m^2	Seam Length *m*	Cumulative Linear Seaming Length *m*	Seam Ref.	Accessory Bentonite *g/lin.m*	Installation Technician	Placement Acceptance Y/N	CQA I	Remarks
27.6.13	13	42529	P1	32.0	163.2	163.2								
27.6.13	13	42545	P2	33.0	168.3	331.5	32.0	32.0	P1-P2	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42530	P3	27.0	137.7	469.2	27.0	59.0	P2-P3	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42545	P4	7.7	39.3	508.5	5.1	64.1	P4-P3	500.0	Dragon Lining	Y	P.Nicholson	
							7.7	71.8	P4-P2	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42530	P5	12.0	61.2	569.7	5.1	76.9	P4-P5	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42544	P6	14.0	71.4	641.1	5.1	82.0	P6-P2	500.0	Dragon Lining	Y	P.Nicholson	
							12.0	94.0	P5-P6	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42544	P7	14.0	71.4	712.5	5.1	99.1	P7-P1	500.0	Dragon Lining	Y	P.Nicholson	
							14.0	113.1	P6-P7	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42544	P8	12.0	61.2	773.7	12.0	125.1	P7-P8	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42529	P9	8.4	42.8	816.5	5.1	130.2	P8-P9	500.0	Dragon Lining	Y	P.Nicholson	
							8.4	138.6	P9-P1	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42542	P10	11.0	56.1	872.6	11.0	149.6	P10-P8	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42542	P11	6.0	30.6	903.2	5.1	154.7	P11-P10	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42542	P12	5.0	25.5	928.7	5.1	159.8	P12-P10	500.0	Dragon Lining	Y	P.Nicholson	
							5.0	164.8	P12-P11	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42542	P13	12.0	61.2	989.9	6.0	170.8	P11-P13	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	175.9	P13-P10	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	181.0	P13-P9,P8	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42542	P14	7.0	35.7	1025.6	5.1	186.1	P14-P9	500.0	Dragon Lining	Y	P.Nicholson	
							7.0	193.1	P14-P1	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42540	P15	13.0	66.3	1091.9	13.0	206.1	P15-P13,P9	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	211.2	P15-P14,P9	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42540	P16	13.5	68.9	1160.8	13.0	224.2	P16-P15	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	229.3	P16-P14	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42540	P17	14.0	71.4	1232.2	13.5	242.8	P17-P16	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42543	P18	5.8	29.6	1261.7	5.1	247.9	P18-P14	500.0	Dragon Lining	Y	P.Nicholson	
							5.8	253.7	P18-P1	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	258.8	P17-P18	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42543	P19	18.8	95.9	1357.6	18.0	276.8	P19-P17,P18	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	281.9	P19-P1	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42543	P20	8.8	44.9	1402.5	8.8	290.7	P20-P19	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42534	P21	9.0	45.9	1448.4	5.1	295.8	P21-P20	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42525	P22	14.0	71.4	1519.8	5.1	300.9	P22-P19	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42534	P23	14.0	71.4	1591.2	14.0	314.9	P23-P22	500.0	Dragon Lining	Y	P.Nicholson	
							14.0	328.9	P23-P1	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	334.0	P23-P19	500.0	Dragon Lining	Y	P.Nicholson	
27.6.13	13	42534	P24	5.0	25.5	1616.7	5.0	339.0	P24-P21	500.0	Dragon Lining	Y	P.Nicholson	
							5.0	344.0	P24-P22	500.0	Dragon Lining	Y	P.Nicholson	
							2.0	346.0	P24-P20	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42534	P25	11.0	56.1	1672.8	11.0	357.0	P25-P3	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42527	P26	32.8	167.3	1840.1	5.1	362.1	P25-P26	500.0	Dragon Lining	Y	P.Nicholson	
							32.8	394.9	P26-P3,P4,P5	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42546	P27	34.8	177.5	2017.6	34.8	429.7	P27-P25,P26	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42528	P28	34.7	177.0	2194.5	34.7	464.4	P28-P27	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42526	P29	22.0	112.2	2306.7	22.0	486.4	P29-P28	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42546	P30	6.6	33.7	2340.4	5.1	491.5	P30-P29	500.0	Dragon Lining	Y	P.Nicholson	
							6.6	498.1	P30-P28	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42528	P31	3.4	17.3	2357.7	5.1	503.2	P31-P30	500.0	Dragon Lining	Y	P.Nicholson	
							3.4	506.6	P31-P28	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42527	P32	6.2	31.6	2389.4	5.1	511.7	P32-P31	500.0	Dragon Lining	Y	P.Nicholson	
							6.2	517.9	P32-P28	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42526	P33	13.4	68.3	2457.7	5.1	523.0	P33-P27	500.0	Dragon Lining	Y	P.Nicholson	
							13.4	536.4	P33-P26	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42533	P34	14.1	71.9	2529.6	5.1	541.5	P34-P28	500.0	Dragon Lining	Y	P.Nicholson	
							13.4	554.9	P34-P33	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42533	P35	13.1	66.8	2596.4	5.1	560.0	P35-P32	500.0	Dragon Lining	Y	P.Nicholson	
							13.1	573.1	P35-P34	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42533	P36	14.6	74.5	2670.9	14.6	587.7	P36-P29	500.0	Dragon Lining	Y	P.Nicholson	
28.6.13	13	42537	P37	30.0	153.0	2823.9	5.1	592.8	P36-P37	500.0	Dragon Lining	Y	P.Nicholson	
							30.0	622.8	P37-P29,P30,P31,P32,P35	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42541	P38	22.6	115.3	2939.1	22.6	645.4	P38-P36,P37	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42543	P39	7.0	35.7	2974.8	5.1	650.5	P39-P38	500.0	Dragon Lining	Y	P.Nicholson	
							7.0	657.5	P39-P37	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42526	P40	5.2	26.5	3001.4	5.1	662.6	P40-P39	500.0	Dragon Lining	Y	P.Nicholson	

GCL Panel Deployment Record

Landfill Site: La Collette
Project: Cell 30
Material: NaBento L-N 3500

Date	Batch No.	Roll No.	Panel No.	Panel Length *m*	Panel Area *m^2*	Cumulative Panel Area *m^2*	Seam Length *m*	Cumulative Linear Seaming Length *m*	Seam Ref.	Accessory Bentonite *g/lin.m*	Installation Technician	Placement Acceptance Y/N	CQA I	Remarks
							5.2	667.8	P40-P37	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42541	P41	16.1	82.1	3083.5	5.1	672.9	P41-P40	500.0	Dragon Lining	Y	P.Nicholson	
							16.1	689.0	P41-P37	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42539	P42	15.0	76.5	3160.0	15.0	704.0	P42-P43	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42539	P43	15.5	79.1	3239.1								
29.6.13	13	42539	P44	6.0	30.6	3269.7	6.0	710.0	P43-P44	500.0	Dragon Lining	Y	P.Nicholson	
							14.0	724.0	P44,P43,P42-P38	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42535	P45	7.0	35.7	3305.4	7.0	731.0	P45-P42	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42535	P46	13.0	66.3	3371.7	13.0	744.0	P46-P45,P42	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42535	P47	13.0	66.3	3438.0	13.0	757.0	P47-P46	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42535	P48	10.0	51.0	3489.0	5.1	762.1	P48-P38	500.0	Dragon Lining	Y	P.Nicholson	
							10.0	772.1	P48-P42,P45,P46	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42539	P49	8.0	40.8	3529.8	5.1	777.2	P49-P48	500.0	Dragon Lining	Y	P.Nicholson	
							8.0	785.2	P49-P46,P47	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42547	P50	11.0	56.1	3585.9	5.1	790.3	P50-P49	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42547	P51	11.0	56.1	3642.0	11.0	801.3	P51-P50	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	806.4	P51-P47	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42547	P52	8.0	40.8	3682.8	8.0	814.4	P52-P47	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	819.5	P52-P51	500.0	Dragon Lining	Y	P.Nicholson	
29.6.13	13	42547	P53	7.0	35.7	3718.5	7.0	826.5	P53-P52	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	831.6	P53-P51	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42536	P54	23.2	118.3	3836.8	5.1	836.7	P54-P48	500.0	Dragon Lining	Y	P.Nicholson	
							23.2	859.9	P54-P39,P40,P41	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42536	P55	6.8	34.7	3871.5	5.1	865.0	P55-P48	500.0	Dragon Lining	Y	P.Nicholson	
							6.8	871.8	P55-P54	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42536	P56	9.8	50.0	3921.4	5.1	876.9	P56-P48,P49	500.0	Dragon Lining	Y	P.Nicholson	
							6.8	883.7	P56-P55	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42525	P57	6.6	33.7	3955.1	5.1	888.8	P57-P55	500.0	Dragon Lining	Y	P.Nicholson	
							6.6	895.4	P57-P54	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42525	P58	13.2	67.3	4022.4	5.1	900.5	P58-P56	500.0	Dragon Lining	Y	P.Nicholson	
							6.6	907.1	P58-P57	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42531	P59	14.0	71.4	4093.8	5.1	912.2	P59-P56	500.0	Dragon Lining	Y	P.Nicholson	
							14.0	926.2	P59-P50,P49	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42531	P60	14.0	71.4	4165.2	14.0	940.2	P60-P59	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	945.3	P60-P56,P58	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42531	P61	12.0	61.2	4226.4	12.0	957.3	P61-P58	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	962.4	P61-P60	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42525	P62	6.0	30.6	4257.0	6.0	968.4	P62-P60	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	973.5	P62-P61	500.0	Dragon Lining	Y	P.Nicholson	
30.6.13	13	42537	P63	6.0	30.6	4287.6	6.0	979.5	P63-P62	500.0	Dragon Lining	Y	P.Nicholson	
							5.1	984.6	P63-P61	500.0	Dragon Lining	Y	P.Nicholson	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

GCL Repair Record

Egniol Environmental Ltd

GCL Repair Record

Landfill Site: La Collette
Project: Cell 30
Material: NaBento L-N 3500

Repair Date	Repair Reference	Reason for Repair / Type of Defect	Seam or Panel Reference	Length / Width of Repair	Approximate Location	Accessory Bentonite g/lin.m	Overlap OK Y/N	Technincian	Acceptance Y/N	CQA S.I
29.6.13	R1	Insufficiant Overlap	P42,P38,P48	3/3.5	Toe of South east batter	500	Y	Dragon Lining	Y	P.Nicholson

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

3. Geomembrane Liner Requirements

- Surface Release Forms
- Delivery and Inspection Records
- Conformance Testing
- Deployment Record
- Trial Weld Record
- Seaming and Non-Destructive Testing Record
- Destructive Testing Record
- Repair Record
- Welding Operative Certificates

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

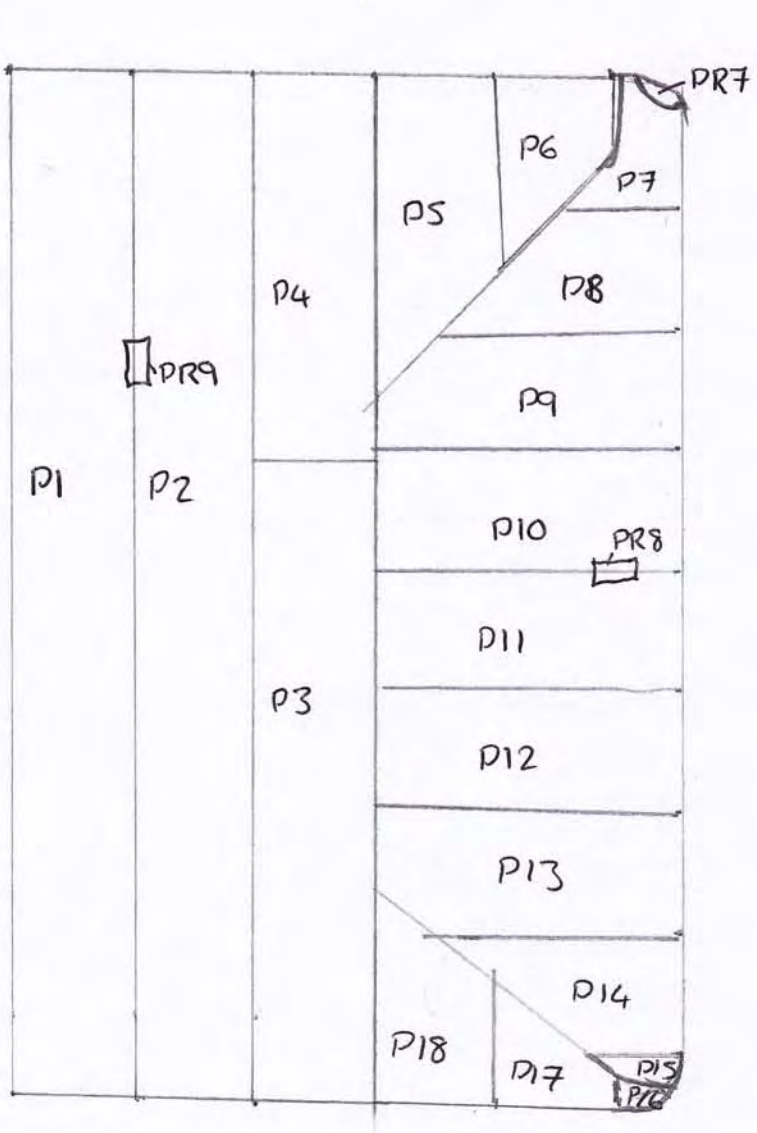
egniol

Surface Release Forms

egniol ENVIRONMENTAL ENGINEERING PLANNING

PANEL LAYOUT/SAMPLE & REPAIR LOCATIONS

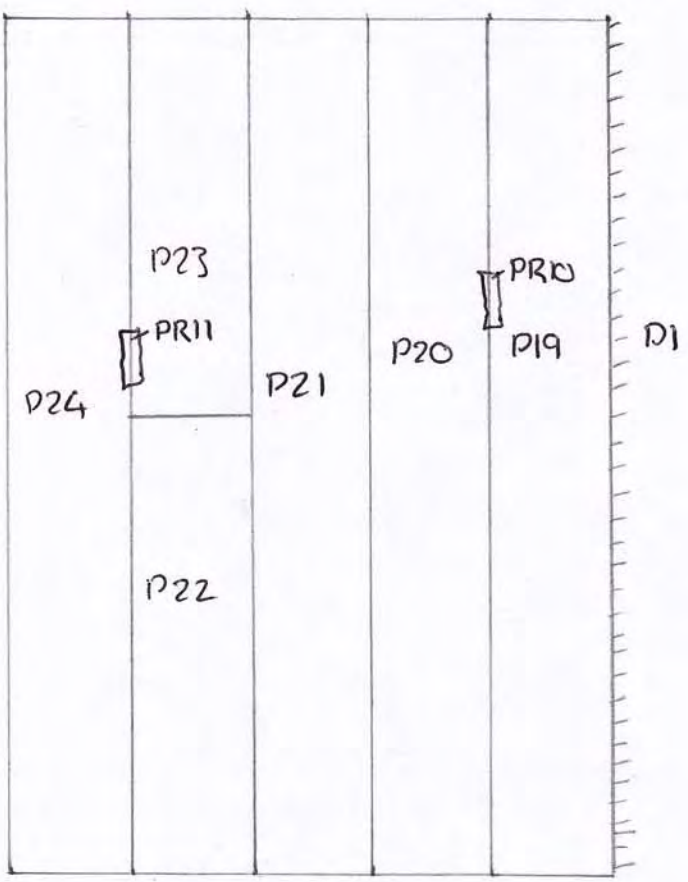
Date:	27-6-13	Site:	La Collette
Sheet No:	1	CQA Engineer	D. Nicholson
Material:	2mm LLDPE	Layer:	Geomembrane



egniol ENVIRONMENTAL ENGINEERING PLANNING

PANEL LAYOUT/SAMPLE & REPAIR LOCATIONS

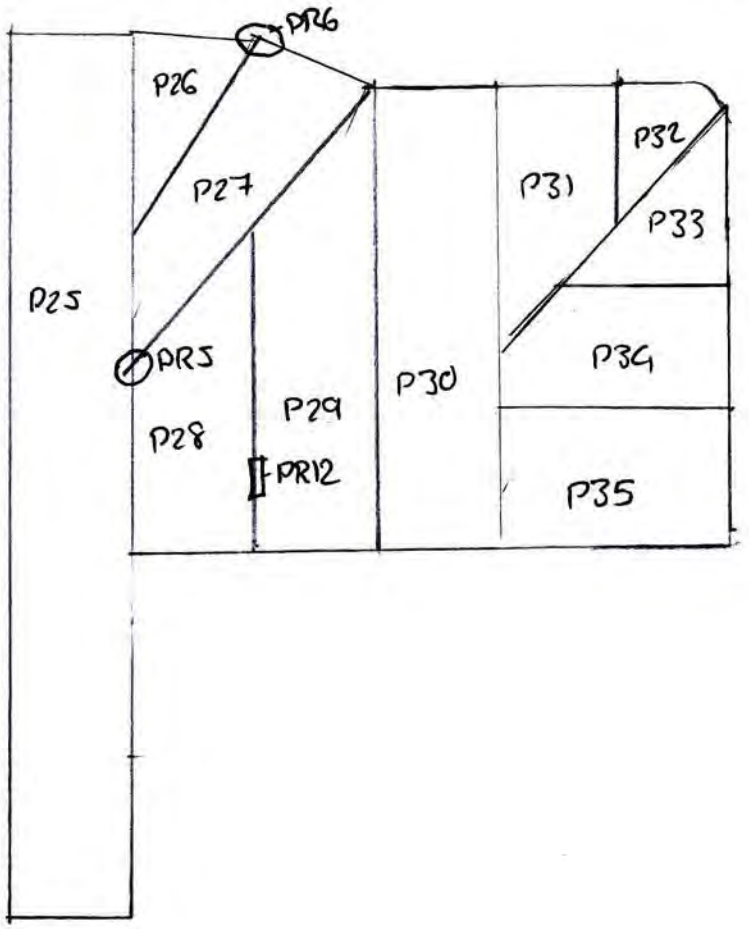
Date:	28-6-13	Site:	La Collette
Sheet No:	2	CQA Engineer	D. Nicholson
Material:	2mm LLDPE	Layer:	Geomembrane



egniol ENVIRONMENTAL ENGINEERING PLANNING

PANEL LAYOUT/SAMPLE & REPAIR LOCATIONS

Date:	29-6-13	Site:	La Collette
Sheet No:	3	CQA Engineer	P. Wardson
Material:	2mm LLDPE	Layer:	Geomembrane

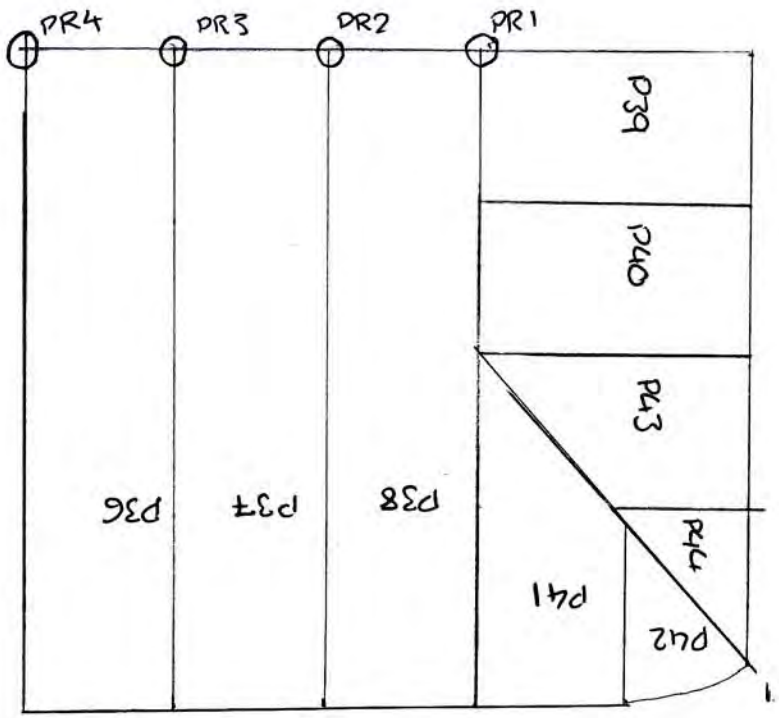


egnial ENVIRONMENTAL ENGINEERING PLANNING

PANEL LAYOUT/SAMPLE & REPAIR LOCATIONS

Date:	30·6·13	**Site:**	La Collette
Sheet No:	4	**CQA Engineer**	D. Nicholson
Material:	2mm LLDPE	**Layer:**	Geomembrane

N



ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Delivery and Inspection Records

Geomembrane Delivery, Inspection and Conformance Sample Record

Site: La Collette
Project: Cell 30
Material 2mm LLDPE

Date Delivered	Manufacturer	Batch Number	Roll No.	Factory Data Received	Inspected for Damage (Y/N)	Handling Acceptable (Y/N)	Storage Acceptable (Y/N)	Conformance Sample Taken (Sample Ref:)	Date of Conformance Sample	Conforms with Specification (Y/N)	Roll Dimensions		CQA S.I	Remarks
											Length (m)	Width (m)		
21.6.13	NAUE	3303928	14515060	Y	Y	Y	Y	GEOM1	03.07.13	Y	120.0	5.10	P.Nicholson	
21.6.13	NAUE	3393298	14515061	Y	Y	Y	Y				120.0	5.10	P.Nicholson	
21.6.13	NAUE	3393298	14515062	Y	Y	Y	Y				120.0	5.10	P.Nicholson	
21.6.13	NAUE	3393298	14515063	Y	Y	Y	Y				120.0	5.10	P.Nicholson	
21.6.13	NAUE	3393298	14515064	Y	Y	Y	Y				120.0	5.10	P.Nicholson	
21.6.13	NAUE	3393298	14515065	Y	Y	Y	Y				120.0	5.10	P.Nicholson	
21.6.13	NAUE	3393298	14515066	Y	Y	Y	Y				120.0	5.10	P.Nicholson	
21.6.13	NAUE	3393298	14515067	Y	Y	Y	Y	GEOM2	03.07.13	Y	120.0	5.10	P.Nicholson	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Conformance Testing

HIGH PERFORMANCE MATERIALS

Confidential Report

Our Ref: 10/18449C

Notified Body
for PPE Directive,
Construction Products Directive
& Marine Equipment Directive
I.D. No. 0338 & 0339

BTTG High Performance Materials
Unit 14, Wheel Forge Way,
Trafford Park, Manchester, M17 1EH

Tel: +44 (0)161 873 6543 Fax: +44 (0)161 848 7378

ilac-MRA UKAS TESTING 1066

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **29 July 2013**
Our Ref: **10/18449C**
Your Ref: **La Collette Landfill Site – Cell 30**

Client:

Egniol Environmental Ltd.
Tre Felin
Bangor
Gwynedd
LL57 4LH

Job Title:

Tests on geomembranes –
La Collette – Cell 30

Client's Order No:

1321

Date of Receipt:

23rd July 2013

Description of Sample(s):

Two samples of double textured geomembrane sheet were received for testing from the above named site.

Work requested:

We were asked to make the following tests:

Thickness ASTM D5994
Asperity height GRI GM12
Carbon black content ASTM D1603
Carbon black dispersion ASTM D5596
Density ASTM D1505
Tensile properties ASTM D6693
Puncture resistance ASTM D4833
Tear resistance ASTM D1004

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **29 July 2013**
Our Ref : **10/18449C**
Your Ref : **La Collette Cell 30**

Egniol Environmental Ltd.

Laboratory Work

All tests were made following the test methods specified and the results obtained are shown in the table on the following page.

Reported by: ..... [redacted] ..... Mr A Redfern
Senior Technician

Countersigned by: ..... Mrs C Austin
Director

Enquiries concerning this report should be addressed to Customer Services.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 29 July 2013
Our Ref : 10/18449C
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

Geomembrane Sheet

Test	Method	Roll 0014515060	Roll 0014515067
Thickness (mm)	ASTM D5994	2.03	2.02
Asperity height (mm)	GRI GM12	1.43	1.45
Carbon Black Content (%)	ASTM D1603	2.54	2.67
Carbon Black Dispersion	ASTM D5596	1	1
Density (g/cm^3)	ASTM D1505	0.942	0.943
Tensile Properties	ASTM D6693		
L-Way Yield Stress (kN/m)		30.82	31.59
X-Way Yield Stress (kN/m)		32.72	33.35
L-Way Elongation (%) at Yield		19.0	19.0
X-Way Elongation (%) at Yield		15.5	15.1
L-Way Break Stress (kN/m)		37.02	32.38
X-Way Break Stress (kN/m)		38.15	34.93
L-Way Elongation (%) at Break		412	356
X-Way Elongation (%) at Break		540	487
Puncture resistance (N)	ASTM D4833	724.8	730.7
Tear resistance	ASTM D1004		
Tearing through L-Way (N)		326.9	333.8
Tearing through X-Way (N)		319.5	303.6

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Deployment Record

Egniol Environmental Ltd

Geomembrane Deployment Record

Landfill Site: La Collette
Project: Cell 30
Material 2mm LLDPE

Date	Batch Number	Roll No.	Panel No.	Thickness of liner at (x)m intervals						Dimensions		CQA S.I	Remarks
				10	*20*	*30*	*40*	*50*	*60*	Length (m)	Width (m)		
27.6.13		14515063	P1	x	x	x	x			46.0	5.10	P.Nicholson	
27.6.13		14515063	P2	x	x	x	x			46.0	5.10	P.Nicholson	
27.6.13		14515063	P3	x	x					27.0	5.10	P.Nicholson	
27.6.13		14515060	P4	x						18.0	5.10	P.Nicholson	
27.6.13		14515060	P5	x						14.0	5.10	P.Nicholson	
27.6.13		14515060	P6	x						10.0	5.10	P.Nicholson	
27.6.13		14515060	P7	x						6.4	5.10	P.Nicholson	
27.6.13		14515060	P8	x						14.7	5.10	P.Nicholson	
27.6.13		14515060	P9	x						17.0	5.10	P.Nicholson	
27.6.13		14515060	P10	x						17.2	5.10	P.Nicholson	
27.6.13		14515060	P11	x						17.3	5.10	P.Nicholson	
27.6.13		14515067	P12	x						17.7	5.10	P.Nicholson	
27.6.13		14515067	P13	x						17.5	5.10	P.Nicholson	
27.6.13		14515067	P14	x						7.0	5.10	P.Nicholson	
27.6.13		14515067	P15	x						3.0	5.10	P.Nicholson	
27.6.13		14515067	P16	x						5.0	5.10	P.Nicholson	
27.6.13		14515067	P17	x						7.0	5.10	P.Nicholson	
27.6.13		14515067	P18	x						9.0	5.10	P.Nicholson	
28.6.13		14515067	P19	x	x	x	x			46.3	5.10	P.Nicholson	
28.6.13		14515062	P20	x	x	x	x			46.3	5.10	P.Nicholson	
28.6.13		14515062	P21	x	x	x	x			46.0	5.10	P.Nicholson	
28.6.13		14515062	P22	x	x					22.6	5.10	P.Nicholson	
28.6.13		14515065	P23	x	x					24.0	5.10	P.Nicholson	
28.6.13		14515065	P24	x	x	x	x			46.0	5.10	P.Nicholson	
29.6.13		14515065	P25	x	x	x	x			46.0	5.10	P.Nicholson	

Egniol Environmental Ltd

Geomembrane Deployment Record

Landfill Site: La Collette
Project: Cell 30
Material 2mm LLDPE

Date	Batch Number	Roll No.	Panel No.	Thickness of liner at (x)m intervals						Dimensions		CQA S.I	Remarks
				10	*20*	*30*	*40*	*50*	*60*	Length (m)	Width (m)		
29.6.13		14515066	P26	x	x	x	x			46.0	5.10	P.Nicholson	
29.6.13		14515066	P27	x						8.5	5.10	P.Nicholson	
29.6.13		14515067	P28	x						15.7	5.10	P.Nicholson	
29.6.13		14515066	P29	x						16.0	5.10	P.Nicholson	
29.6.13		14515061	P30	x						17.6	5.10	P.Nicholson	
29.6.13		14515061	P31	x						17.9	5.10	P.Nicholson	
29.6.13		14515061	P32	x						13.0	5.10	P.Nicholson	
29.6.13		14515066	P33	x						6.5	5.10	P.Nicholson	
29.6.13		14515066	P34	x						12.0	5.10	P.Nicholson	
29.6.13		14515066	P35	x						12.0	5.10	P.Nicholson	
30.6.13		14515061	P36	x	x					23.5	5.10	P.Nicholson	
30.6.13		14515061	P37	x	x					23.5	5.10	P.Nicholson	
30.6.13		14515066	P38	x	x					23.5	5.10	P.Nicholson	
30.6.13		14515061	P39	x						13.0	5.10	P.Nicholson	
30.6.13		14515061	P40	x						13.0	5.10	P.Nicholson	
30.6.13		14515066	P41	x						13.0	5.10	P.Nicholson	
30.6.13		14515066	P42	x						6.0	5.10	P.Nicholson	
30.6.13		14515067	P43	x						13.0	5.10	P.Nicholson	
30.6.13		14515067	P44	x						6.0	5.10	P.Nicholson	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Trial Weld Record

Egniol Environmental Ltd

Geomembrane Trial Weld Record

Site: La Collette
Project: Cell 30
Material 2mm LLDPE

Trial Weld Reference	Date of Trial	Time of Trial	Weld Type F - Fusion E - Extrusion	Welding Equipment Manufacturer	Welding Equipment Serial Number	Welding Technician	Ambient Temp (^{o}C)	Preheat Temp (^{o}C)	Weld Temp (^{o}C)	Welder Speed (M/min)	Destructive Field Tests (Pass/Fail)	CQA S.I
TW1	27.6.13	14:30	Fusion	Concord	488	H.Evans	22.0	-	400.0	1.90	Pass	P.Nicholson
TW2	27.6.13	15:50	Fusion	Concord	8343	D.Wynne	22.0	-	400.0	1.90	Pass	P.Nicholson
TW3	28.6.13	12:25	Fusion	Concord	8343	D.Wynne	20.0	-	400.0	1.90	Pass	P.Nicholson
TW4	28.6.13	14:35	Fusion	Concord	8343	D.Wynne	21.0	-	400.0	1.90	Pass	P.Nicholson
TW5	28.6.13	16:08	Fusion	Concord	8343	D.Wynne	21.0	-	400.0	1.90	Pass	P.Nicholson
TW6	29.6.13	13:20	Fusion	Concord	8343	D.Wynne	25.0	-	400.0	1.90	Pass	P.Nicholson
TW7	30.6.13	12:00	Fusion	Concord	8343	D.Wynne	24.0	-	400.0	1.90	Pass	P.Nicholson
TW8	30.6.13	15:30	Extrusion	Munsch	-	D.Wynne	26.0	280.0	280.0	NA	Pass	P.Nicholson
TW9	3.7.13	13:40	Extrusion	Munsch	-	D.Wynne	23.0	280.0	280.0	NA	Pass	P.Nicholson
TW10	4.7.13	08:10	Extrusion	Munsch	-	D.Wynne	18.0	280.0	280.0	NA	Pass	P.Nicholson
TW11	23.7.13	12:00	Extrusion	Munsch	-	H.Evans	26.0	280.0	280.0	NA	Pass	P.Nicholson

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Seaming and Non-Destructive Testing Record

Geomembrane Seaming and Non-destructive Testing

Site Name: La Collette
Project: Cell 30

Test Method Key
***APT**: Air Pressure Test*
***HVE**: High Voltage Electricity*
***VB :** Vacuum Box*

Date	WELDING INFORMATION											Destructive Field tests	NON-DESTRUCTIVE TESTING INFORMATION								CQA S.I	D.S Sample Ref.
	Seaming Ref.	Trial Weld	Weld Type	Seaming Times		Ambient Temp	Weld Temp	Speed	Preheat Temp	Seam Length	Welding Operator		Test Method	Air Pressure Test				Result	Date (if different from that of seaming)		
														Start		Finish					
		Ref.	*F - Fusion E - Extrusion*	*Start Time*	*Finish Time*	*º C*	*º C*	*M/min*	*º C*	*m*		*P - Pass F - Fail*		*Time*	*Pressure*	*Time*	*Pressure*	*P - Pass F - Fail*			
27.6.13	P1-P2	TW1	Fusion	14:42	15:06	22.0	400.0	1.90		46.0	H.Evans	Pass	APT	14:00	2.0	14:05	2.0	Pass	28.06.13	P.Nicholson	D.S1
27.6.13	P3-P4	TW1	Fusion	15:14	15:17	22.0	400.0	1.90		5.10	H.Evans	Pass	APT	15:26	2.0	15:31	2.0	Pass	28.06.13	P.Nicholson	
27.6.13	P2-P3,P4	TW1	Fusion	15:36	16:00	22.0	400.0	1.90		46.0	H.Evans	Pass	APT	14:08	2.0	14:13	2.0	Pass	28.06.13	P.Nicholson	
27.6.13	P9-P10	TW2	Fusion	15:58	16:05	22.0	400.0	1.90		17.0	D.Wynne	Pass	APT	17:30	2.0	17:35	2.0	Pass		P.Nicholson	
27.6.13	P5-P6	TW1	Fusion	16:05	16:10	22.0	400.0	1.90		10.0	H.Evans	Pass	APT	17:10	2.0	17:15	2.0	Pass		P.Nicholson	
27.6.13	P10-P11	TW2	Fusion	16:10	16:18	22.0	400.0	1.90		17.0	D.Wynne	Pass	APT	17:37	2.0	17:42	2.0	Pass		P.Nicholson	D.S2
27.6.13	P8-P9	TW1	Fusion	16:12	16:20	22.0	400.0	1.90		15.0	H.Evans	Pass	APT	17:22	2.0	17:27	2.0	Pass		P.Nicholson	
27.6.13	P7-P8	TW1	Fusion	16:23	16:26	22.0	400.0	1.90		6.0	H.Evans	Pass	APT	17:03	2.0	17:08	2.0	Pass		P.Nicholson	
27.6.13	P5-6/P7,P8,P9	TW2	Fusion	16:20	16:28	22.0	400.0	1.90		15.0	D.Wynne	Pass	APT	17:20	2.0	17:25	2.0	Pass		P.Nicholson	
27.6.13	P11-P12	TW2	Fusion	16:30	16:37	22.0	400.0	1.90		17.0	D.Wynne	Pass	APT	17:47	2.0	17:52	2.0	Pass		P.Nicholson	
27.6.13	P13-P14	TW2	Fusion	17:02	17:05	22.0	400.0	1.90		7.0	D.Wynne	Pass	APT	17:12	2.0	17:17	2.0	Pass		P.Nicholson	
27.6.13	P14-P15	TW2	Fusion	17:07	17:09	22.0	400.0	1.90		3.0	D.Wynne	Pass	APT	17:21	2.0	17:26	2.0	Pass		P.Nicholson	
27.6.13	P16-P17	TW2	Fusion	17:25	17:27	22.0	400.0	1.90		5.0	D.Wynne	Pass	APT	17:53	2.0	17:58	2.0	Pass		P.Nicholson	
	P12/P13/P18	TW2	Fusion	17:35	17:45	22.0	400.0	1.90		20.0	D.Wynne	Pass	APT	18:00	2.0	18:05	2.0	Pass		P.Nicholson	
27.6.13	P17-P18	TW2	Fusion	18:00	18:06	22.0	400.0	1.90		7.0	D.Wynne	Pass	APT	18:10	2.0	18:15	2.0	Pass		P.Nicholson	
27.6.13	P13,14,15-P16,17,18	TW2	Fusion	18:17	18:30	22.0	400.0	1.90		25.0	D.Wynne	Pass	APT	18:35	2.0	18:40	2.0	Pass		P.Nicholson	
27.6.13	P3,P4,P5,P9,P10,P11, P12,P13,P18	TW2	Fusion	18:38	19.02	22.0	400.0	1.90		46.0	D.Wynne	Pass	APT	19:10	2.0	19:15	2.0	Pass		P.Nicholson	
28.6.13	P19-P1	TW3	Fusion	12:32	12:56	20.0	400.0	1.90		46.0	D.Wynne	Pass	APT	13:52	2.0	13:57	2.0	Pass		P.Nicholson	
28.6.13	P20-P19	TW3	Fusion	12:59	13:24	20.0	400.0	1.90		46.0	D.Wynne	Pass	APT	13:45	2.0	13:50	2.0	Pass		P.Nicholson	D.S3
28.6.13	P21-P20	TW4	Fusion	14:43	15:07	21.0	400.0	1.90		46.0	D.Wynne	Pass	APT	15:10	2.0	15:15	2.0	Pass		P.Nicholson	
28.6.13	P22-P23	TW5	Fusion	16:13	16:15	21.0	400.0	1.90		5.10	D.Wynne	Pass	APT	16:18	2.0	16:23	2.0	Pass		P.Nicholson	
28.6.13	P22,P23-P21	TW5	Fusion	16:36	17:00	21.0	400.0	1.90		46.0	D.Wynne	Pass	APT	08:05	2.0	08:10	2.0	Pass	29.06.13	P.Nicholson	
28.6.13	P24-P22,P23	TW5	Fusion	17:01	17:25	21.0	400.0	1.90		46.0	D.Wynne	Pass	APT	08:13	2.0	08:18	2.0	Pass	29.06.13	P.Nicholson	D.S4
29.6.13	P25-P24	TW6	Fusion	13:28	13:52	25.0	400.0	1.90		46.0	D.Wynne	Pass	APT	08:20	2.0	08:25	2.0	Pass	30.06.13	P.Nicholson	
29.6.13	P26-P27	TW6	Fusion	14:04	14:08	25.0	400.0	1.90		8.0	D.Wynne	Pass	APT	14:15	2.0	14:20	2.0	Pass		P.Nicholson	
29.6.13	P28-P29	TW6	Fusion	14:20	14:28	25.0	400.0	1.90		15.0	D.Wynne	Pass	APT	14:30	2.0	14:35	2.0	Pass		P.Nicholson	D.S5
29.6.13	P29-P30	TW6	Fusion	14:45	14:54	25.0	400.0	1.90		16.0	D.Wynne	Pass	APT	15:13	2.0	15:18	2.0	Pass		P.Nicholson	
29.6.13	P28,P29-P27	TW6	Fusion	15:15	15:21	25.0	400.0	1.90		12.0	D.Wynne	Pass	APT	15:36	2.0	15:41	2.0	Pass		P.Nicholson	
29.6.13	P33-P34	TW6	Fusion	15:32	15:35	25.0	400.0	1.90		6.5	D.Wynne	Pass	APT	15:47	2.0	15:52	2.0	Pass		P.Nicholson	
29.6.13	P34-P35	TW6	Fusion	15:36	15:43	25.0	400.0	1.90		12.0	D.Wynne	Pass	APT	15:55	2.0	16:00	2.0	Pass		P.Nicholson	
29.6.13	P31-P32	TW6	Fusion	16:01	16:04	25.0	400.0	1.90		5.9	D.Wynne	Pass	APT	16:05	2.0	16:10	2.0	Pass		P.Nicholson	
29.6.13	P31,P32-P33,P34	TW6	Fusion	16:10	16:17	25.0	400.0	1.90		14.0	D.Wynne	Pass	APT	16:20	2.0	16:25	2.0	Pass		P.Nicholson	
29.6.13	P30-P31,P35	TW6	Fusion	16:20	16:29	25.0	400.0	1.90		17.1	D.Wynne	Pass	APT	16:35	2.0	16:40	2.0	Pass		P.Nicholson	
29.6.13	P28,27,26-P25	TW6	Fusion	16:33	16:45	25.0	400.0	1.90		22.8	D.Wynne	Pass	APT	16:50	2.0	16:55	2.0	Pass		P.Nicholson	
30.6.13	P36-P25	TW7	Fusion	12:10	12:22	24.0	400.0	1.90		23.0	D.Wynne	Pass	APT	12:23	2.0	12:28	2.0	Pass		P.Nicholson	
30.6.13	P37-P36	TW7	Fusion	12:22	12:34	24.0	400.0	1.90		22.8	D.Wynne	Pass	APT	12:36	2.0	12:41	2.0	Pass		P.Nicholson	
30.6.13	P38-P37	TW7	Fusion	12:38	12:49	24.0	400.0	1.90		22.4	D.Wynne	Pass	APT	12:52	2.0	12:57	2.0	Pass		P.Nicholson	D.S6
30.6.13	P39-P40	TW7	Fusion	12:52	12:59	24.0	400.0	1.90		13.0	D.Wynne	Pass	APT	13:05	2.0	13:10	2.0	Pass		P.Nicholson	
30.6.13	P41-P42	TW7	Fusion	13:06	13:09	24.0	400.0	1.90		6.0	D.Wynne	Pass	APT	13:15	2.0	13:20	2.0	Pass		P.Nicholson	
30.6.13	P43-P40	TW7	Fusion	13:41	13:47	24.0	400.0	1.90		13.0	D.Wynne	Pass	APT	13:49	2.0	13:54	2.0	Pass		P.Nicholson	

Geomembrane Seaming and Non-destructive Testing

Site Name: La Collette
Project: Cell 30

Test Method Key
APT: *Air Pressure Test*
HVE: *High Voltage Electricity*
VB **:** *Vacuum Box*

Date	WELDING INFORMATION											Destructive Field tests	NON-DESTRUCTIVE TESTING INFORMATION							CQA S.I	D.S Sample Ref.
	Seaming Ref.	Trial Weld	Weld Type	Seaming Times		Ambient Temp	Weld Temp	Speed	Preheat Temp	Seam Length	Welding Operator		Test Method	Air Pressure Test				Result	Date (if different from that of seaming)		
														Start		Finish					
		Ref.	*F - Fusion E - Extrusion*	*Start Time*	*Finish Time*	*^{o}C*	*^{o}C*	*M/min*	*^{o}C*	*m*		*P - Pass F - Fail*		*Time*	*Pressure*	*Time*	*Pressure*	*P - Pass F - Fail*			
30.6.13	P43-P44	TW7	Fusion	13:29	13:33	24.0	410.0	1.90		6.0	M	Pass	APT	13:40	2.0	13:45	2.0	Pass		P.Nicholson	
30.6.13	P41,P42-P43,P44	TW7	Fusion	13:55	14:02	24.0	410.0	1.90		13.7	M	Pass	APT	14:05	2.0	14:10	2.0	Pass		P.Nicholson	
30.6.13	P41,P40,P39-P38	TW7	Fusion	14:09	14:19	24.0	410.0	1.90		19.0	M	Pass	APT	14:30	2.0	14:35	2.0	Pass		P.Nicholson	
30.6.13	P39,P38,P37,P36-P35,P30,P29,P28	TW7	Fusion	14:32	14:44	24.0	410.0	1.90		22.8	M	Pass	APT	08:39	2.0	08:44	2.0	Pass	01.07.13	P.Nicholson	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Destructive Testing Record

Egniol Environmental Ltd

Geomembrane Destructive Testing and Sampling Record

Landfill Site: La Collette
Project: Cell 30

Date	Sample Reference	Location (Seam Ref.)	Sample Type Fusion Extrusion	Field Test Results P - Pass F - Fail	Laboratory Test Results						CQA SI	Remarks
					Shear (N/M)		Peel (N/M)		P - Pass F - Fail	Mode of Failure		
					Mean	Lowest	Mean	Lowest				
27.6.13	D.S1	P1-P2	Fusion	P	31.08	30.63	26.58	25.82	P - Pass		P.Nicholson	
27.6.13	D.S2	P10-P11	Fusion	P	31.18	30.47	26.34	26.17	P - Pass		P.Nicholson	
28.6.13	D.S3	P20-P19	Fusion	P	31.25	30.59	25.69	25.58	P - Pass		P.Nicholson	
28.6.13	D.S4	P24-P22,23	Fusion	P	31.75	31.21	26.95	26.83	P - Pass		P.Nicholson	
29.6.13	D.S5	P28-P29	Fusion	P	31.90	31.24	26.25	25.67	P - Pass		P.Nicholson	
30.6.13	D.S6	P37-P38	Fusion	P	31.23	30.10	26.12	25.61	P - Pass		P.Nicholson	
30.6.13	D.S7	TW8	Extrusion	P	33.43	32.95	28.70	26.76	P - Pass		P.Nicholson	
03.7.13	D.S8	TW9	Extrusion	P	33.68	33.38	27.64	25.65	P - Pass		P.Nicholson	
04.7.13	D.S9	TW10	Extrusion	P	34.27	33.43	30.78	29.98	P - Pass		P.Nicholson	
23.7.13	D.S10	TW11	Extrusion	P	34.59	33.31	30.94	29.84	P - Pass		P.Nicholson	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Repair Record

Egniol Environmental Ltd

Geomembrane Defect and Repair Record

Landfill Site: La Collette
Project: Cell 30

Date	Repair Reference:	Seam/Panel Ref. and Approx Location of Defect		Defect Code:	Type of Repair P - Patch B - Bead	Testing HVE - High Voltage Electricity VB - Vacuum Box	Operative	CQA S.I	Remarks
		Ref.	Location						
30.6.13	PR1	P30,35,38,39	Toe of Southern Batter	INT	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR2	P29,30,38,37	Southern end cell floor	INT	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR3	P28,29,36,37	Southern end cell floor	INT	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR4	P25,28,36	Southern end cell floor	WS	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR5	P25,27,28	Toe of eastern Batter	WS	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR6	P26-P27	North west corner	PD	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR7	P6-P7	Top of West Batter	PD	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR8	P10-P11	Top of North Batter	D.S	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR9	P1-P2	Toe of Western Batter	D.S	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR10	P19-P20	Toe of Western Batter	D.S	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR11	P23-P24	Toe of Western Batter	D.S	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR12	P28-P29	Toe of Eastern Batter	D.S	P - Patch	VB	D.Wynne	P.Nicholson	
30.6.13	PR13	P38-P37	Toe of Western Batter	D.S	P - Patch	VB	D.Wynne	P.Nicholson	

Key for Defect Codes

APT:	Air Pressure Test Hole	BT: Boot
BO:	Welder Burn Out	PT: Protrusion
DS:	Destructive Sample	
FS:	Failed Seam	
INT:	Panel Intersection	
IO:	Insufficient Overlap	
PD:	Panel Damage	
WR:	Wrinkle	
WS:	Welder Restart	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Welding Operative Certificates

Approval Certificate

EN 13067 Plastic Welding Personnel - Approval Testing of Welders - Thermoplastic Welded Assemblies

CSWIP CERT NO 45792/5

This is to certify that:

Robert Dylan Wynne

Date of birth 14 May 1974

has demonstrated proficiency as a Plastics Welder Standard Level in accordance with the CSWIP requirements published in Document CSWIP-PW-6-96, 6th Edition, April 2007 and amendments in force on the examination date. This certificate is valid for the special categories mentioned below:

Geomembrane welding

7.4 Machine Hot Wedge welding of PE lining membrane (electric heated wedge)
7.5 Extrusion welded PE lining membrane lap joint.

Date of issue 21 January 2013

Date of expiry 3 January 2014

[redacted]

Signed [redacted]

SIGNATURE OF HOLDER
(Person named above) _____ Date _____

PLEASE READ THE NOTES OVERLEAF

Photocopies are unauthorised by TWI Certification Ltd

Issued by:
TWI Certification Ltd, Granta Park
Great Abington, Cambridge CB21 6AL, UK

Approval Certificate

EN 13067 Plastic Welding Personnel - Approval Testing of Welders - Thermoplastic Welded Assemblies

CSWIP CERT NO 55483/3

This is to certify that:

Robert Huw Evans

Date of birth 15 June 1964

has demonstrated proficiency as a Plastics Welder Standard Level in accordance with the CSWIP requirements published in Document CSWIP-PW-6-96, 6th Edition, April 2007 and amendments in force on the examination date. This certificate is valid for the special categories mentioned below:

Geomembrane welding

7.4 Machine Hot Wedge welding of PE lining membrane (electric heated wedge)

7.5 Extrusion welded PE lining membrane lap joint.

Date of issue 28 March 2013

Date of expiry 29 March 2014

[redacted]

EXAMINER

Signed [redacted]

(For CSWIP)

SIGNATURE OF HOLDER

(Person named above) _____ Date _____

PLEASE READ THE NOTES OVERLEAF

Photocopies are unauthorised by TWI Certification Ltd

Issued by:
TWI Certification Ltd, Granta Park
Great Abington, Cambridge CB21 6AL, UK

The use of the UKAS Accreditation Mark indicates accreditation in respect of those activities covered by Accreditation Certificate No. 025

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

4. Geotextile Requirements

- Delivery and Inspection Records
- Conformance Testing
- Panel Deployment and Overlap Record

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Delivery and Inspection Records

Egniol Environmental Ltd

Geotextile Delivery, Inspection and Conformance Sample Record

Site: La Collette
Project: Cell 30
Material Secutex R2004

Date Delivered	Manufacturer	Batch Number	Roll No.	Factory Data Received (Y/N)	Inspected for Damage (Y/N)	Handling Acceptable (Y/N)	Storage Acceptable (Y/N)	Conformance Sample Taken (Sample Ref:)	Date of Conformance Sample	Conforms with Specification (Y/N)	Roll Dimensions		CQA S.I	Remarks
											Length (m)	Width (m)		
24.6.13	NAUE	120200	14518998	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14518999	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14519000	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14519001	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14519002	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14519003	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14519004	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14519005	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14521677	Y	Y	Y	Y	GT2	03.07.13	Y	40.0	5.80	P.Nicholson	
24.6.13	NAUE	120200	14521678	Y	Y	Y	Y				40.0	5.80	P.Nicholson	
	NAUE		14314240								40.0	5.80	P.Nicholson	From Previous Job
	NAUE		14314224					GT1	03.07.13	Y	40.0	5.80	P.Nicholson	From Previous Job
	NAUE		14314239								40.0	5.80	P.Nicholson	From Previous Job
	NAUE		14314234								40.0	5.80	P.Nicholson	From Previous Job
	NAUE		14314240								40.0	5.80	P.Nicholson	From Previous Job
	NAUE		14314243								40.0	5.80	P.Nicholson	From Previous Job
	NAUE		14314228								40.0	5.80	P.Nicholson	From Previous Job
	NAUE		14314235								40.0	5.80	P.Nicholson	From Previous Job
	NAUE		13969432								40.0	5.80	P.Nicholson	From Previous Job

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Conformance Testing

HIGH PERFORMANCE MATERIALS

Confidential Report

Our Ref: Supplement to 10/18449D

Notified Body
for PPE Directive,
Construction Products Directive
& Marine Equipment Directive
I.D. No. 0338 & 0339

BTTG High Performance Materials
Unit 14, Wheel Forge Way,
Trafford Park, Manchester, M17 1EH

Tel: +44 (0)161 873 6543 Fax: +44 (0)161 848 7378

ilac-MRA UKAS TESTING 1066

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 30 July 2013
Our Ref: Supplement to 10/18449D
Your Ref: La Collette Cell 30

Client:
Egniol Environmental Ltd.
Tre Felin
Bangor
Gwynedd
LL57 4LH

Job Title:
Tests on geotextiles–
La Collette Cell 30

Client's Order No: **1321**

Date of Receipt: **23rd July 2013**

Description of Sample(s): **Two pink/grey, non-woven geotextiles were received for testing from the above named site.**

Work requested: **We were asked to make the following tests on each sample:**

Mass per unit area EN ISO 9864
Thickness EN ISO 9863-1
Wide width tensile properties EN ISO 10319
CBR Puncture resistance EN ISO 12236
Cone Drop EN ISO 13433

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **30 July 2013**
Our Ref : **Supplement to 10/18449D**
Your Ref : **La Collette Cell 30**

Egniol Environmental Ltd.

Laboratory Work

All tests were made following the test methods specified and the results obtained are shown in the tables on the following page.

Reported by: ..... [redacted] ..... Mr A Redfern
Senior Technician

Countersigned by: [redacted] ..... Mrs C Austin
Director

Enquiries concerning this report should be addressed to Customer Services.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 30 July 2013
Our Ref : Supplement to 10/18449D
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

Geotextile : GT1, Naue Secutex R2004

Test	Method	Mean	SD	CV %
Mass per unit area (g/m^2)	EN ISO 9864	2011.6	63.05	3.13
Thickness under 2kPa (mm)	EN ISO 9863-1	11.21	0.25	2.25
Tensile Strength	EN ISO 10319			
M-Way Tensile Strength (kN/m)		59.22	1.80	3.04
M-Way Extension (%) at max. load		138.6	3.84	2.77
X-Way Tensile Strength (kN/m)		111.25	6.21	5.58
X-Way Extension (%) at max. load		87.7	7.87	8.97
CBR Puncture resistance (N)	EN ISO 12236	13428	207	1.54
Plunger displacement (mm)		71	1.07	1.51
Cone drop (hole diameter - mm)	EN ISO 13433	Zero		

Geotextile : GT2, Naue Secutex R2004

Test	Method	Mean	SD	CV %
Mass per unit area (g/m^2)	EN ISO 9864	1990.9	93.56	4.70
Thickness under 2kPa (mm)	EN ISO 9863-1	14.24	0.27	1.89
Tensile Strength	EN ISO 10319			
M-Way Tensile Strength (kN/m)		48.13	0.77	1.61
M-Way Extension (%) at max. load		144.8	6.85	4.73
X-Way Tensile Strength (kN/m)		103.73	4.91	4.73
X-Way Extension (%) at max. load		88.8	13.61	15.32
CBR Puncture resistance (N)	EN ISO 12236	13220	852	6.44
Plunger displacement (mm)		72	1.31	1.82
Cone drop (hole diameter - mm)	EN ISO 13433	Zero		

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Panel Deployment and Overlap Record

Egniol Environmental Ltd

Geotextile Panel Deployment and Overlap Record

Landfill Site: La Collette
Project: Cell 30
Material: Secutex R2004

Geotextile Deployment Information																										
Deployment Date	Panel No.	Batch No.	Roll No.	Panel Dimensions		CQA S.I	Seam Ref	Length of Seam	Overlaps Between Adjacent Panels Verified @ 10 metres Intervals (>300mm = Y)																CQA S.I
				Deployed Length (m)	Deployed Width (m)				10	20	30	40	50	60	70	80	90	100	110	120	130	140	150		
1.7.13	P1		14521678	40.0	5.80	P.Nicholson																			
1.7.13	P2		14519002	40.0	5.80	P.Nicholson	P1-P2	40.0	Y	Y	Y	Y													P.Nicholson
1.7.13	P3		14519004	40.0	5.80	P.Nicholson	P2-P3	40.0	Y	Y	Y	Y													P.Nicholson
1.7.13	P4		14314240	5.0	5.80	P.Nicholson																			
1.7.13	P5		14314240	4.9	5.80	P.Nicholson	P4-P5	4.9	Y																P.Nicholson
1.7.13	P6		14314240	4.7	5.80	P.Nicholson	P5-P6	4.7	Y																P.Nicholson
1.7.13	P7		14314240	4.0	5.80	P.Nicholson	P6-P7	4.0	Y																P.Nicholson
1.7.13	P8		14314240	3.1	5.80	P.Nicholson	P7-P8	3.1	Y																P.Nicholson
1.7.13	P9		14314240	2.6	5.80	P.Nicholson	P8-P9	2.6	Y																P.Nicholson
1.7.13	P10		14314240	1.8	5.80	P.Nicholson	P9-P10	1.8	Y																P.Nicholson
1.7.13	P11		14314240	1.3	5.80	P.Nicholson	P10-P11	1.3	Y																P.Nicholson
							P3-P4,5,6,7,8,9,10,11	40.0	Y	Y	Y	Y														P.Nicholson
1.7.13	P12		14314240	6.5	5.80	P.Nicholson	P12-P1	5.8	Y																P.Nicholson
1.7.13	P13		14314240	6.0	5.80	P.Nicholson	P12-P13	6.0	Y																P.Nicholson
							P13-P1	5.8	Y																P.Nicholson
1.7.13	P14		14314224	5.2	5.80	P.Nicholson	P13-P14	5.2	Y																P.Nicholson
							P14-P1	5.8	Y																P.Nicholson
1.7.13	P15		14314224	5.0	5.80	P.Nicholson	P14-P15	5.0	Y																P.Nicholson
							P15-P1	5.8	Y																P.Nicholson
1.7.13	P16		14314224	4.2	5.80	P.Nicholson	P15-P16	4.2	Y																P.Nicholson
1.7.13	P17		14314224	15.4	5.80	P.Nicholson	P16-P17	4.2	Y																P.Nicholson
							P17-P1,P2	9.8	Y																P.Nicholson
1.7.13	P18		14314224	10.1	5.80	P.Nicholson	P17-P18	5.8	Y																P.Nicholson
							P18-P2,P3,P4	10.1	Y																P.Nicholson
1.7.13	P19		14314239	23.4	5.80	P.Nicholson	P19-P17,P18	23.4	Y	Y															P.Nicholson
1.7.13	P20		14314239	16.6	5.80	P.Nicholson	P20-P19	16.6	Y																P.Nicholson
1.7.13	P21		14314234	7.3	5.80	P.Nicholson	P21-P20	5.8	Y																P.Nicholson
							P20-P21	7.3	Y																P.Nicholson
1.7.13	P22		14314234	21.7	5.80	P.Nicholson	P22-P20,P21	21.7	Y	Y															P.Nicholson
1.7.13	P23		14314234	3.2	5.80	P.Nicholson	P23-P22(layer 2 sump)	3.2	Y																P.Nicholson
1.7.13	P24		14314240	2.5	5.80	P.Nicholson	P24-P22	5.8	Y																P.Nicholson
1.7.13	P25		14314234	3.3	5.80	P.Nicholson	P24-P25	2.5	Y																P.Nicholson
							P25-P22	5.8	Y																P.Nicholson
1.7.13	P26		14314234	3.7	5.80	P.Nicholson	P25-P26	3.3	Y																P.Nicholson
							P26-P22	5.8	Y																P.Nicholson
1.7.13	P27		14314234	3.0	5.80	P.Nicholson	P27-P3(layer 2 sump)	3.0	Y																P.Nicholson
1.7.13	P28		14519001	14.4	5.80	P.Nicholson																			
1.7.13	P29		14519001	13.3	5.80	P.Nicholson	P28-P29	13.3	Y																P.Nicholson
1.7.13	P30		14519001	13.2	5.80	P.Nicholson	P29-P30	13.2	Y																P.Nicholson
1.7.13	P31		14518998	11.5	5.80	P.Nicholson	P30-P31	11.5	Y																P.Nicholson
1.7.13	P32		14518998	11.9	5.80	P.Nicholson	P31-P32	11.5	Y																P.Nicholson
1.7.13	P33		14518998	11.2	5.80	P.Nicholson	P32-P33	11.2	Y																P.Nicholson
1.7.13	P34		14518998	7.4	5.80	P.Nicholson																			
1.7.13	P35		14519005	5.0	5.80	P.Nicholson	P34-P35	5.8	Y																P.Nicholson
							P34,P35-P33	11.2	Y																P.Nicholson
1.7.13	P36		14519005	10.4	5.80	P.Nicholson	P36-P34,P35	10.4	Y																P.Nicholson
1.7.13	P37		14519005	10.7	5.80	P.Nicholson	P37-P36	10.4	Y																P.Nicholson
1.7.13	P38		14519005	6.0	5.80	P.Nicholson	P38-P37	6.0	Y																P.Nicholson
1.7.13	P39		14519005	13.0	5.80	P.Nicholson	P39-P38	6.0	Y																P.Nicholson
1.7.13	P40		14521677	12.5	5.80	P.Nicholson	P40-P39	13.0	Y																P.Nicholson
1.7.13	P41		14521677	7.0	5.80	P.Nicholson																			
1.7.13	P42		14521677	10.4	5.80	P.Nicholson	P41-P42	7.0	Y																P.Nicholson
							P40-P41,P42	12.5	Y																P.Nicholson
1.7.13	P43		14521677	11.4	5.80	P.Nicholson	P42-P43	10.4	Y																P.Nicholson
2.7.13	P44		14314243	7.1	5.80	P.Nicholson	P44-P43	5.8	Y																P.Nicholson
2.7.13	P45		14314243	8.5	5.80	P.Nicholson	P45-P43	5.8	Y																P.Nicholson
							P44-P45	7.1	Y																P.Nicholson
2.7.13	P46		14314243	12.3	5.80	P.Nicholson																			
2.7.13	P47		14314243	12.2	5.80	P.Nicholson	P46-P47	12.2	Y																P.Nicholson
2.7.13	P48		14314228	12.2	5.80	P.Nicholson	P47-P48	12.2	Y																P.Nicholson
2.7.13	P49		14314228	6.2	5.80	P.Nicholson	P49-P48	6.2	Y																P.Nicholson
2.7.13	P50		14314228	12.1	5.80	P.Nicholson	P49-P50	5.8	Y																P.Nicholson
							P50-P48	5.8	Y																P.Nicholson
2.7.13	P51		14314228	12.4	5.80	P.Nicholson	P50-P51	12.1	Y																P.Nicholson
2.7.13	P52		14314235	11.0	5.80	P.Nicholson	P52-P51	11.0	Y																P.Nicholson
2.7.13	P53		14314235	11.0	5.80	P.Nicholson	P53-P52	11.0	Y																P.Nicholson
2.7.13	P54		14314235	11.1	5.80	P.Nicholson	P54-P53	11.0	Y																P.Nicholson
2.7.13	P55		14314235	5.7	5.80	P.Nicholson																			
2.7.13	P56		14314235	2.8	5.80	P.Nicholson	P55-P56	5.8	Y																P.Nicholson
2.7.13	P57			1.8	5.80	P.Nicholson	P56-P57	5.8	Y																P.Nicholson
2.7.13	P58		14521677	2.8	5.80	P.Nicholson	P57-P58	5.8	Y																P.Nicholson
							P54-P55,P56,P57,P58	11.1	Y																P.Nicholson
2.7.13	P59		14519003	11.6	5.80	P.Nicholson	P59-P55,P56,P57,P58	11.6	Y																P.Nicholson
2.7.13	P60		14519003	11.6	5.80	P.Nicholson	P60-P59	11.6	Y																P.Nicholson
2.7.13	P61		14519003	12.3	5.80	P.Nicholson	P61-P60	11.6	Y																P.Nicholson
2.7.13	P62		14519003	7.7	5.80	P.Nicholson																			
2.7.13	P63		14519000	6.2	5.80	P.Nicholson	P62-P63	5.8	Y																P.Nicholson
							P61-P62,P63	12.3	Y																P.Nicholson
2.7.13	P64		14519000	12.6	5.80	P.Nicholson	P64-P62,P63	12.6	Y																P.Nicholson
2.7.13	P65		14519000	12.3	5.80	P.Nicholson	P65-P64	12.3	Y																P.Nicholson
2.7.13	P66		14519000	11.4	5.80	P.Nicholson	P66-P65	11.4	Y																P.Nicholson
2.7.13	P67		14518999	5.8	5.80	P.Nicholson																			
2.7.13	P68		14518999	9.6	5.80	P.Nicholson	P67-P68	5.8	Y																P.Nicholson
							P66-P67,P68	11.4	Y																P.Nicholson
2.7.13	P69		14518999	14.4	5.80	P.Nicholson	P69-P68,P66	14.4	Y																P.Nicholson
2.7.13	P70		14518999	13.5	5.80	P.Nicholson	P70-P69	13.5	Y																P.Nicholson
2.7.13	P71		13969432	12.7	5.80	P.Nicholson	P71-P70	12.7	Y																P.Nicholson
2.7.13	P72		13969432	12.0	5.80	P.Nicholson	P72-P71	12.0	Y																P.Nicholson
2.7.13	P73		13969432	12.3	5.80	P.Nicholson	P73-P72	12.0	Y																P.Nicholson
2.7.13	P74			6.6	5.80	P.Nicholson	P74-P73	6.6	Y																P.Nicholson
2.7.13	P75		13969432	4.7	5.80	P.Nicholson	P75-P74	5.8	Y																P.Nicholson
							P75-P73	4.7	Y																P.Nicholson
							P75-P28	5.8	Y																P.Nicholson

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

5. Geocomposite Drainage Layer Requirements

- Delivery and Inspection Record
- Manufacturers Quality Control Documents
- Conformance Testing
- Panel Deployment and Overlap Record

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Delivery and Inspection Record

Egniol Environmental Ltd

Geocomposite Delivery, Inspection and Conformance Sample Record

Site: La Collette
Project: Cell 30
Material Secudrain 131 c WD 401

Date Delivered	Manufacturer	Batch Number	Roll No.	Factory Data Received (Y/N)	Inspected for Damage (Y/N)	Handling Acceptable (Y/N)	Storage Acceptable (Y/N)	Conformance Sample Taken (Sample Ref:)	Date of Conformance Sample	Conforms with Specification (Y/N)	Roll Dimensions		CQA S.I	Remarks
											Length (m)	Width (m)		
21.6.13	NAUE	178800	14491357	Y	Y	Y	Y	GDL1	03.07.13	Y	70.0	3.80	P.Nicholson	
21.6.13	NAUE	178800	14491358	Y	Y	Y	Y				70.0	3.80	P.Nicholson	
21.6.13	NAUE	178800	14491363	Y	Y	Y	Y				70.0	3.80	P.Nicholson	
21.6.13	NAUE	178800	14491364	Y	Y	Y	Y	GDL2	03.07.13	Y	70.0	3.80	P.Nicholson	
21.6.13	NAUE	178800	14491370	Y	Y	Y	Y				70.0	3.80	P.Nicholson	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Conformance Testing

HIGH PERFORMANCE MATERIALS

Confidential Report

Our Ref: Supplement to 10/18449F

Notified Body
for PPE Directive,
Construction Products Directive
& Marine Equipment Directive
I.D. No. 0338 & 0339

BTTG High Performance Materials
Unit 14, Wheel Forge Way,
Trafford Park, Manchester, M17 1EH

Tel: +44 (0)161 873 6543 Fax: +44 (0)161 848 7378

1066

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **30 July 2013**
Our Ref: **Supplement to 10/18449F**
Your Ref: **La Collette Cell 30**

Client:

Egniol Environmental Ltd.
Tre Felin
Bangor
Gwynedd
LL57 4LH

Job Title:

Tests on drainage geocomposite–
La Collette Cell 30

Client's Order No: **1321**

Date of Receipt: **23rd July 2013**

Description of Sample(s):

One three-layer geocomposite, comprising a three dimensional drainage core with a filter nonwoven geotextile on both faces, was received for testing from the above named site.

Work requested:

We were asked to make the following test:

In-plane flow EN ISO 12958

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **30 July 2013**
Our Ref : **Supplement to 10/18449F**
Your Ref : **La Collette Cell 30**

Egniol Environmental Ltd.

Laboratory Work

The tests were made following the test method specified and the mean result obtained is shown in the table on the following page.

Reported by: ..... [redacted] ..... Mr A Redfern
Senior Technician

Countersigned by: [redacted] ..... Mrs C Austin
Director

Enquiries concerning this report should be addressed to Customer Services.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **30 July 2013**
Our Ref : **Supplement to 10/18449F**
Your Ref : **La Collette Cell 30**

Egniol Environmental Ltd.

Geocomposite : GDL 1, Naue Secudrain 131C WD 401

Test	Method	Mean	SD	CV %
In-plane water flow (l/s/m) with soft/soft contact surfaces, at:	EN ISO 12958			
M-Way at HG 1.0 and 200kPa		0.186		

HIGH PERFORMANCE MATERIALS

Confidential Report

Our Ref: Supplement to 10/18449G

Notified Body
for PPE Directive,
Construction Products Directive
& Marine Equipment Directive
I.D. No. 0338 & 0339

BTTG High Performance Materials
Unit 14, Wheel Forge Way,
Trafford Park, Manchester, M17 1EH

Tel: +44 (0)161 873 6543 Fax: +44 (0)161 848 7378

1066

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 30 July 2013
Our Ref: Supplement to 10/18449G
Your Ref: La Collette Cell 30

Client:
Egniol Environmental Ltd.
Tre Felin
Bangor
Gwynedd
LL57 4LH

Job Title:
Tests on drainage geocomposite–
La Collette Cell 30

Client's Order No: **1321**

Date of Receipt: **23rd July 2013**

Description of Sample(s): **One two-layer geocomposite, comprising a three dimensional drainage core with a filter nonwoven geotextile on one face, was received for testing from the above named site.**

Work requested: **We were asked to make the following test:**

In-plane flow EN ISO 12958

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: **30 July 2013**
Our Ref : **Supplement to 10/18449G**
Your Ref : **La Collette Cell 30**

Egniol Environmental Ltd.

Laboratory Work

The tests were made following the test method specified and the mean result obtained is shown in the table on the following page.

Reported by: ..... [redacted] ..... Mr A Redfern
Senior Technician

Countersigned by: ..... Mrs C Austin
Director

Enquiries concerning this report should be addressed to Customer Services.

HIGH PERFORMANCE MATERIALS

Unit 14, Wheel Forge Way
Trafford Park
Manchester, M17 1EH
England

Tel: +44 (0)161 873 6543
Fax: +44 (0)161 848 7378
Web: http://www.bttg.co.uk
Email: info@bttg.co.uk

Date: 30 July 2013
Our Ref : Supplement to 10/18449G
Your Ref : La Collette Cell 30

Egniol Environmental Ltd.

Geocomposite : GDL 2, Naue Secudrain 131C WD 401

Test	Method	Mean	SD	CV %
In-plane water flow (l/s/m) with hard/soft contact surfaces, at:	EN ISO 12958			
M-Way at HG 1.0 and 200kPa		0.274		

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Panel Deployment and Overlap Record

Egniol Environmental Ltd

Geocomposite Panel Deployment and Overlap Record

Landfill Site: La Collette
Project: Cell 30
Material: Secudrain

Geocomposite Deployment Information									Overlaps Between Adjacent Panels Verified @ 10 metres Intervals															
Deployment Date	Panel No.	Batch No.	Roll No.	Panel Dimensions		CQA S.I	Seam Ref	Length of Seam																CQA S.I
				Deployed Length (m)	Deployed Width (m)				10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	
1.7.13	P1		13901257	51.0	5.10	P.Nicholson																		
1.7.13	P2		14491363	18.9	5.10	P.Nicholson																		
2.7.13	P3		14491363	46.1	5.10	P.Nicholson	P3-P1	46.1	Y	Y	Y	Y												P.Nicholson
2.7.13	P4		14491357	31.0	5.10	P.Nicholson	P4-P3	31.0	Y	Y	Y													P.Nicholson
2.7.13	P5		13901257	17.0	5.10	P.Nicholson	P5-P4	5.1	Y															P.Nicholson
							P5-P3	17.0	Y															P.Nicholson
2.7.13	P6		14491357	37.0	5.10	P.Nicholson	P6-P4,P5	37.0	Y	Y	Y													P.Nicholson
2.7.13	P7		13901271	11.0	5.10	P.Nicholson	P7-P6	5.1	Y															P.Nicholson
							P7-P5	11.0	Y															P.Nicholson
2.7.13	P8		13901271	48.1	5.10	P.Nicholson	P8-P6,P7	48.0	Y	Y	Y	Y												P.Nicholson
2.7.13	P9		13901271	9.6	5.10	P.Nicholson	P9-P8	9.6	Y															P.Nicholson
2.7.13	P10		14491358	39.0	5.10	P.Nicholson	P10-P9	5.1	Y															P.Nicholson
							P10-P8	39.0	Y	Y	Y													P.Nicholson
2.7.13	P11		14491358	2.5	5.10	P.Nicholson																		
2.7.13	P12		14491358	2.5	5.10	P.Nicholson	P11-P12	2.5	Y															P.Nicholson
2.7.13	P13		14491358	2.5	5.10	P.Nicholson	P12-P13	2.5	Y															P.Nicholson
2.7.13	P14		14491358	2.5	5.10	P.Nicholson	P13-P14	2.5	Y															P.Nicholson
2.7.13	P15		14491358	2.5	5.10	P.Nicholson	P14-P15	2.5	Y															P.Nicholson
							P10-P11,12,13,14,15	24.0	Y	Y														P.Nicholson
2.7.13	P16		14491358	14.0	5.10	P.Nicholson	P16-P2	5.1	Y															P.Nicholson
							P16-P4,6,8,10	14.0	Y															P.Nicholson
2.7.13	P17		14491364	14.0	5.10	P.Nicholson	P17-P2	5.1	Y															P.Nicholson
							P17-P16	14.0	Y															P.Nicholson
2.7.13	P18		14491364	14.0	5.10	P.Nicholson	P18-P2	5.1	Y															P.Nicholson
							P18-P17	14.0	Y															P.Nicholson
2.7.13	P19		14491364	14.0	5.10	P.Nicholson	P19-P2	5.1	Y															P.Nicholson
							P19-P18	14.0	Y															P.Nicholson
2.7.13	P20		14491364	14.1	5.10	P.Nicholson	P20-P2	5.1	Y															P.Nicholson
							P20-P19	14.0	Y															P.Nicholson
2.7.13	P21		14491364	2.5	5.10	P.Nicholson	P21-P15	2.5	Y															P.Nicholson
							P21-P10,16	5.1	Y															P.Nicholson

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

6. Leachate Drainage Layer (Laboratory Testing – 20/50mm Aggregate)

- Particle Size Distribution
- Ten Percent Fines Value
- Calcium Carbonate Content

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Particle Size Distribution

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333122

Contract: La Collette Landfill - Cell 30

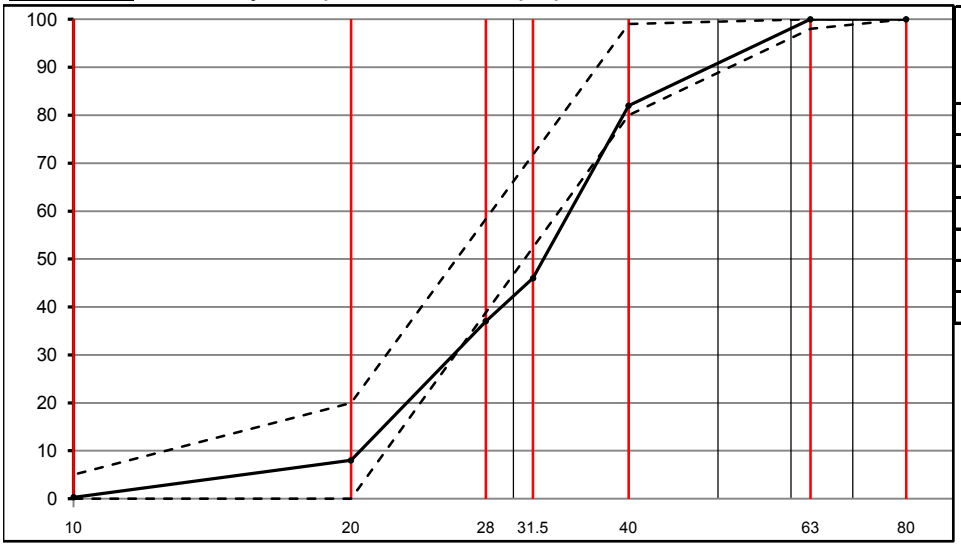
LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Size Distribution (PSD) of a aggregate sample-washing and sieving method to **BS EN 933-1: 2012.**

SAMPLE DETAILS:

Certificate of sampling received	**Yes**	Name of Source:	**Site Won**
Laboratory Ref. No:	**S43798 / 204412**	Method of Sampling:	**Disturbed Bulk Sample**
Client Ref. No:	**ST1**	Sampled By:	**Egniol CQA Engineer**
Date and Time of Sampling:	**08/07/2013**		
Date of Receipt at Lab:	**29/07/2013**		
Date of Start of Test:	**31/07/2013**		
Sampling Location:	**Stockpile**		
Material Description:	**20/50mm Aggregate**		
Target Specification:	**SHW Volume 1 Clause 505 Table 5/5 Type B - BS EN 13242 Filter Drain Material**		

RESULTS: Were any unrepresentative lumps present? No



BS TEST SIEVE SIZE	PERCENTAGE BY MASS PASSING	SPECIFICATION LIMITS
80.0 mm	100	100
63.0 mm	100	98 - 100
40.0 mm	82	80 - 99
31.5 mm	46	
28.0 mm	37	
20.0 mm	8	0 - 20
10.0 mm	0.3	0 - 5

Comments

Complies with specification requirements for Type B Filter Media - Grading limits

Certificate Prepared by:- [redacted] Meical Owen
Assistant Laboratory Manager

[redacted]
Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333125

Contract: La Collette Landfill - Cell 30

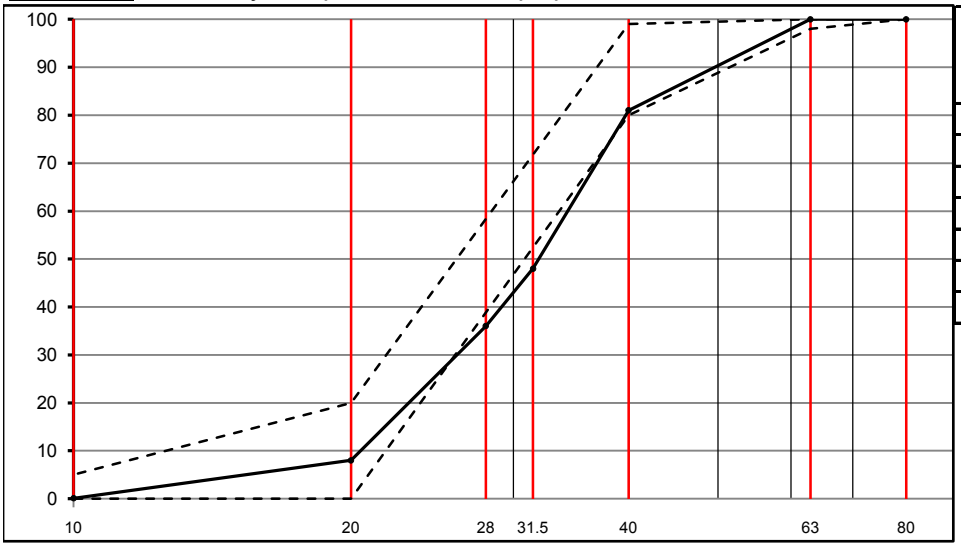
LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Size Distribution (PSD) of a aggregate sample-washing and sieving method to **BS EN 933-1: 2012.**

SAMPLE DETAILS:

Certificate of sampling received	**Yes**	Name of Source:	**Site Won**
Laboratory Ref. No:	**S43798 / 204413**	Method of Sampling:	**Disturbed Bulk Sample**
Client Ref. No:	**ST2**	Sampled By:	**Egniol CQA Engineer**
Date and Time of Sampling:	**08/07/2013**		
Date of Receipt at Lab:	**29/07/2013**		
Date of Start of Test:	**31/07/2013**		
Sampling Location:	**Stockpile**		
Material Description:	**20/50mm Aggregate**		
Target Specification:	**SHW Volume 1 Clause 505 Table 5/5 Type B - BS EN 13242 Filter Drain Material**		

RESULTS: Were any unrepresentative lumps present? No



BS TEST SIEVE SIZE	PERCENTAGE BY MASS PASSING	SPECIFICATION LIMITS
80.0 mm	100	100
63.0 mm	100	98 - 100
40.0 mm	81	80 - 99
31.5 mm	48	
28.0 mm	36	
20.0 mm	8	0 - 20
10.0 mm	0.1	0 - 5

Comments

Complies with specification requirements for Type B Filter Media - Grading limits

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

[redacted]
Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333128

Contract: La Collette Landfill - Cell 30

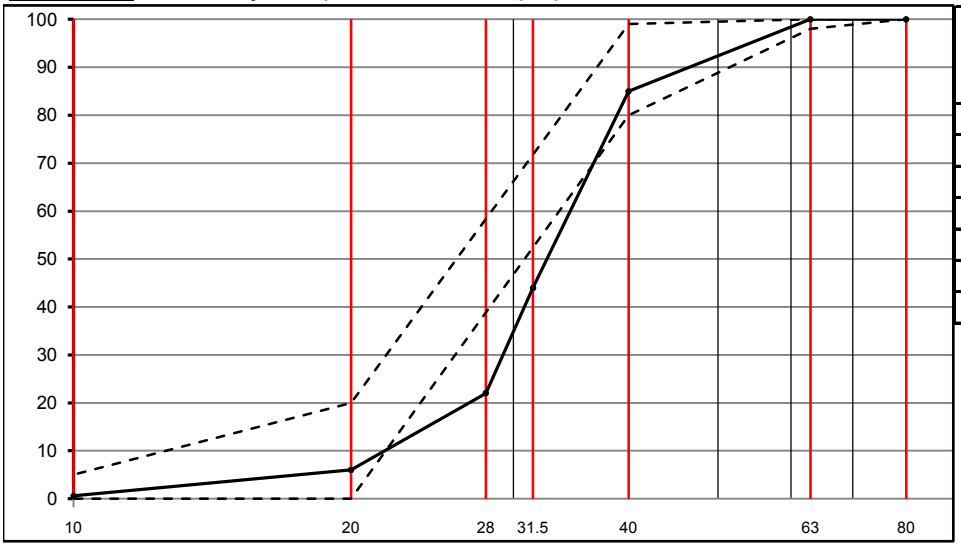
LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Size Distribution (PSD) of a aggregate sample-washing and sieving method to **BS EN 933-1: 2012.**

SAMPLE DETAILS:

Certificate of sampling received	**Yes**	Name of Source:	**Site Won**
Laboratory Ref. No:	**S43798 / 204414**	Method of Sampling:	**Disturbed Bulk Sample**
Client Ref. No:	**ST3**	Sampled By:	**Egniol CQA Engineer**
Date and Time of Sampling:	**08/07/2013**		
Date of Receipt at Lab:	**29/07/2013**		
Date of Start of Test:	**31/07/2013**		
Sampling Location:	**Stockpile**		
Material Description:	**20/50mm Aggregate**		
Target Specification:	**SHW Volume 1 Clause 505 Table 5/5 Type B - BS EN 13242 Filter Drain Material**		

RESULTS: Were any unrepresentative lumps present? No



BS TEST SIEVE SIZE	PERCENTAGE BY MASS PASSING	SPECIFICATION LIMITS
80.0 mm	100	100
63.0 mm	100	98 - 100
40.0 mm	85	80 - 99
31.5 mm	44	
28.0 mm	22	
20.0 mm	6	0 - 20
10.0 mm	0.6	0 - 5

Comments

Complies with specification requirements for Type B Filter Media - Grading limits

Certificate Prepared by:- [redacted]
Meical Owen
Assistant Laboratory Manager

[redacted]
Eric Goulden
Technical Manager

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Ten Percent Fines Value

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333123

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Ten Per Cent Fines Value (TFV) of aggregate sample 10mm and greater in accordance with **BS 812: Part 111: 1990.**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204412**
Client Ref. No:	**ST1**
Date and Time of Sampling:	**08/07/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**02/08/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**20/50mm Aggregate**
Target Specification:	**N/A**

RESULTS:

Ten per cent fines value (SOAKED) = 85 kN

Comments

Has the "as received material" been altered by crushing in the laboratory: YES / ~~NO~~

Report to nearest 10kN for forces of 100kN or more report to nearest 5kN for forces less than 100kN.

Certificate Prepared by:- [redacted]

Meical Owen
Assistant Laboratory Manager

Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333126

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Ten Per Cent Fines Value (TFV) of aggregate sample 10mm and greater in accordance with **BS 812: Part 111: 1990.**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204413**
Client Ref. No:	**ST2**
Date and Time of Sampling:	**08/07/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**02/08/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**20/50mm Aggregate**
Target Specification:	**N/A**

RESULTS:

Ten per cent fines value (SOAKED) = 95 kN

Comments

Has the "as received material" been altered by crushing in the laboratory: YES / ~~NO~~

Report to nearest 10kN for forces of 100kN or more report to nearest 5kN for forces less than 100kN.

Certificate Prepared by:- [redacted]

Meical Owen
Assistant Laboratory Manager

Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333129

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Ten Per Cent Fines Value (TFV) of aggregate sample 10mm and greater in accordance with **BS 812: Part 111: 1990.**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204414**
Client Ref. No:	**ST3**
Date and Time of Sampling:	**08/07/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**02/08/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**20/50mm Aggregate**
Target Specification:	**N/A**

RESULTS:

Ten per cent fines value (SOAKED) = 95 kN

Comments

Has the "as received material" been altered by crushing in the laboratory: YES / ~~NO~~

Report to nearest 10kN for forces of 100kN or more report to nearest 5kN for forces less than 100kN.

Certificate Prepared by:- [redacted]

Meical Owen
Assistant Laboratory Manager

Eric Goulden
Technical Manager

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Calcium Carbonate Content

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333124

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Calcium Carbonate CaCO3 content of soil samples in accordance with **BS 7755 : 1995**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204412**
Client Ref. No:	**ST1**
Date and Time of Sampling:	**08/07/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**31/07/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**20/50mm Aggregate**
Target Specification:	**N/A**

RESULTS:

Calcium Carbonate Content (%) = 9.81

Comments
None

Certificate Prepared by:- [redacted]

Meical Owen
Assistant Laboratory Manager

Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333127

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Calcium Carbonate CaCO3 content of soil samples in accordance with **BS 7755 : 1995**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204413**
Client Ref. No:	**ST2**
Date and Time of Sampling:	**08/07/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**31/07/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**20/50mm Aggregate**
Target Specification:	**N/A**

RESULTS:

Calcium Carbonate Content (%) = 9.13

Comments
None

Certificate Prepared by:- [redacted]

Meical Owen
Assistant Laboratory Manager

Eric Goulden
Technical Manager

Egniol Environmental Ltd.
Trefelin
Talybont
Bangor
Gwynedd
LL57 4LH

Date: 05 August 2013
Test Report Ref: STR 333130

Contract: La Collette Landfill - Cell 30

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Calcium Carbonate CaCO3 content of soil samples in accordance with **BS 7755 : 1995**

SAMPLE DETAILS:

Certificate of sampling received:	**Yes**
Laboratory Ref. No:	**S43798 / 204414**
Client Ref. No:	**ST3**
Date and Time of Sampling:	**08/07/2013**
Date of Receipt at Lab:	**29/07/2013**
Date of Start of Test:	**31/07/2013**
Sampling Location:	**Stockpile**
Name of Source:	**Site Won**
Method of Sampling:	**Disturbed Bulk Sample**
Sampled By:	**Egniol CQA Engineer**
Material Description:	**20/50mm Aggregate**
Target Specification:	**N/A**

RESULTS:

Calcium Carbonate Content (%) = 7.47

Comments
None

Certificate Prepared by:- [redacted]

Assistant Laboratory Manager

Technical Manager

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

7. CQA Inspectors Daily Reports

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Monday 3rd June 2013
Weather	Previous Night	Overcast
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**AA Langlois Haulage Ltd (A.A.L)** Trimmed and removed all the vegetation from the cell area, all material trimmed from the cell area was removed by the contractor. Started placing fill material along the north, east and western banks in 300mm layers and compacting with the vibrating roller.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site

Project: Cell 30 Construction Works

Date		Tuesday 4th June 2013
Weather	Previous Night	Overcast
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**A.A.L** Continued placing fill material along the north, east and western banks in 300mm layers and compacting with the vibrating roller.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Wednesday 5th June 2013
Weather	Previous Night	Overcast
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**A.A.L** Continued placing fill material along the north, east and western banks in 300mm layers and compacting with the vibrating roller
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Thursday 6th June 2013
Weather	Previous Night	Overcast
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**A.A.L** Continued placing fill material along the north, east and western banks in 300mm layers and compacting with the vibrating roller
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site

Project: Cell 30 Construction

Date		Friday 6th June 2013
Weather	Previous Night	Overcast
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**A.A.L** Continued placing fill material along the north, east and western banks in 300mm layers and compacting with the vibrating roller
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		Progress Meeting
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Monday 10th June 2013
Weather	Previous Night	Overcast
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**A.A.L** Continued filling and compacting in 300mm layers on the northern and eastern batters Started to trim the northern and western batters, the surveyor working with the excavator to trim some rat runs to formation. 5 No roll of Geogrid delivered to site and stored in the AAL compound
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette landfill Site
Project: Cell 30 Construction Works

Date		Tuesday 11th June 2013
Weather	Previous Night	Overcast
	a.m	Overcast/Windy
	p.m	Overcast/Windy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**A.A.L** Continued trimming the batters to formation with the surveyor checking the level and the cut material placed on the floor in 300mm layers and then rolled to achieve the final formation level.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Wednesday 12th June 2013
Weather	Previous Night	Overcast
	a.m	Overcast/Windy
	p.m	Overcast/Windy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller
Contract Works Undertaken		**A.A.L** Continued trimming the batters to formation with the surveyor checking the level and the cut material placed on the floor in 300mm layers and then rolled to achieve the final formation level.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Thursday 13th June 2013
Weather	Previous Night	Overcast
	a.m	Overcast/Windy
	p.m	Overcast/Windy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller Mini Digger 2 No Labourer
Contract Works Undertaken		A.A.L – Continued trimming the batters to formation with the surveyor checking the level and the cut material placed on the floor in 300mm layers and then rolled to achieve the final formation level.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Friday 14th June 2013
Weather	Previous Night	Overcast
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller Mini Digger 2 No Labourer
Contract Works Undertaken		**A.A.L –** Continued trimming to formation with the surveyor checking the level and once approved the cell floor was rolled ready for Geogrid and sand layer. Continued excavating the anchor trench around the perimeter of the cell starting at the northern end.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		Progress Meeting
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Monday 17th June 2013
Weather	Previous Night	Overcast
	a.m	Overcast/Heavy Showers
	p.m	Overcast/Heavy Showers
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller Mini Digger 2 No Labourer
Contract Works Undertaken		**A.A.L** Continued trimming to formation with the surveyor checking the level and once approved the cell floor was rolled ready for Geogrid and sand layer. Started excavating the anchor trench around the perimeter of the cell starting at the northern end. Hand digging trial holes along the eastern tie in to determine the depth and location of the existing liner.
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer Checking Overlaps
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Tuesday 18th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		13:30
CQA Departure Time:		13:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller Mini Digger 2 No Labourer
Contract Works Undertaken		**A.A.L** Continued trimming to formation with the surveyor checking the level and once approved the cell floor was rolled ready for Geogrid and sand layer. Started placing Geogrid at the northern end of the cell, all overlaps meeting the required 300mm and then cable tied to adjacent panels to secure the grid in place. Continued excavating the anchor trench around the perimeter of the cell.
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer Checking Overlaps
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Wednesday 19th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		13:30
CQA Departure Time:		13:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L** Continued trimming to formation with the surveyor checking the level and once approved the cell floor was rolled ready for Geogrid and sand layer. Continued placing and trimming the sand protection layer at the northern end of the cell Hand digging trial holes along the eastern tie in to determine the depth and location of the existing liner for the tie in detail.
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Thursday 20th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		13:30
CQA Departure Time:		13:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo 340 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L** Continued trimming to formation with the surveyor checking the level and once approved the cell floor was rolled ready for Geogrid and sand layer. Continued placing and trimming the sand protection layer at the northern end of the cell
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer
Meetings/ Correspondence		None
Health and Safety		None
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works 2013

Date		Friday 21st June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		13:30
CQA Departure Time:		13:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L –** Continued placing Geogrid to specification and spreading and trimming the sand protection layer to the required 150mm, depth checks carried out during trimming and then smooth rolled to give the finished layer on the cell floor, the batters were smoothed of with the back of the bucket during trimming. Cutting the southern bank to formation with the surveyor working alongside the excavator to achieve formation, also reducing the access ramp into the cell. Asbestos discovered during the formation cut, site informed and worked stopped at 13:30.
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer
Meetings/ Correspondence		None
Health and Safety		Asbestos discovered during the formation cut in the old material.
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Monday 24th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		19:30
CQA Departure Time:		19:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L –** Continued spreading and trimming the sand protection layer to the required 150mm, depth checks carried out during trimming and then smooth rolled to give the finished layer on the floor, the batters were smoothed off with the back of the bucket during trimming. Cutting the Southern bank to formation with the surveyor working alongside the excavator to achieve formation, also reducing the access ramp into the cell.
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Tuesday 25th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		19:30
CQA Departure Time:		19:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L** Trimming the formation in the cell, with the cell floor being rolled and checked by the surveyor before placement of the Geogrid with the 300mm required overlap and then cable tied together. The sand protection layer was then placed and trimmed with the labourer depth checking during trimming, the cell floor being rolled and then surveyed. Reducing the old access ramp into the cell to start bringing the southern end of the cell to formation.
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		Peter Wilkinson, Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Wednesday 26th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		19:30
CQA Departure Time:		19:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Volvo A30 Dumper 1 No Smooth drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L** Trimming the formation in the cell, with the cell floor being rolled and checked by the surveyor before placement of the Geogrid with the 300mm required overlap and then cable tied together. The sand protection layer was then placed and trimmed with the labourer depth checking during trimming, the cell floor being rolled and then surveyed.
Testing Undertaken		Visual Inspections Photographic Records Depth Checks on Sand Protection Layer
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		Dave Leonard (States of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Thursday 27th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Cloudy
	p.m	Sunny/Cloudy
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		19:30
CQA Departure Time:		19:30
Contractors Plant / Resources Utilised		1 No Volvo 340 Excavator 1 No Volvo 140 Excavator 1 No Volvo A30 Dumper 1 No Mini Digger 1 No Smooth drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L** Trimming the formation in the cell, with the cell floor being rolled and checked by the surveyor before placement of the Geogrid with the 300mm required overlap and then cable tied together. The sand protection layer was then placed and trimmed with the labourer depth checking during trimming, the cell floor being rolled and then surveyed. **Dragon Lining** Commenced placement of GCL this in direct contact with the approved sand protection layer, all overlaps meet the required 300mm and all seems receiving the required 500g per 1m of accessory bentonite. Placed P1 – P24 and picked up by the surveyor. Commenced deployment of 2mm LLDPE Textured Geomembrane in the cell, this in direct contact with the GCL placed earlier. All panels overlapped by the minimum of 100mm and fusion welded together and air tested in accordance with the spec. Placed P1 – P18
Testing Undertaken		Visual Inspections Photographic Records Checking Overlaps 2 x GCL Conformance Samples 2 x Fusion Destructive Samples All other testing was carried out in accordance with the approved CQA plan (Field Tabs, air tests etc)

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site

Project: Cell 30 Construction Works

Meetings/ Correspondence	None
Health and Safety	No Issues
Visitors to Site	Dave Leonard (States of Jersey)
Comments	None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Friday 28th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Clear
	p.m	Sunny/Clear
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		19:30
CQA Departure Time:		19:30
Contractors Plant / Resources Utilised		1 No Volvo 340 Excavator 1 No Volvo 140 Excavator 1 No Mini Digger 1 No Labourer
Contract Works Undertaken		**A.A.L** Trimming the final section of formation in the south west corner of the cell with the cell floor being rolled and checked by the surveyor before placement of the final section of Geogrid with the 300mm required overlap and then cable tied together. **Dragon Lining** Continued placement of GCL in direct contact with the approved sand protection layer. All overlaps meet the required 300mm and all seems receiving the required 500g per 1m of accessory bentonite. Placed P25 – P37 and picked up by the surveyor. Continued deployment of 2mm LLDPE Textured Geomembrane in the cell, this in direct contact with the GCL placed earlier. All panels overlapped by the minimum of 100mm and fusion welded together and air tested in accordance with the spec. Placed P19 – P24.
Testing Undertaken		Visual Inspections Photographic Records Checking Overlaps 3 x GCL Conformance Tests 2 x Fusion DS All other testing was carried out in accordance with the approved CQA plan (Field Tabs, air tests etc)
Meetings/ Correspondence		Progress Meeting (given the go ahead to work the weekend)

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site

Project: Cell 30 Construction Works

Health and Safety	No Issues
Visitors to Site	Dave Leonard (States of Jersey)
Comments	None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Saturday 29th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Clear
	p.m	Sunny/Clear
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 340 Excavator 1 No Volvo 140 Excavator 1 No Mini Digger 1 No Labourer
Contract Works Undertaken		**A.A.L** Placing and trimming final section of the sand protection layer in the south west corner of the cell, The labourer dipping to check the depth during placement. **Dragon Lining** Continued placement of GCL in direct contact with the approved sand protection layer. All overlaps meet the required 300mm and all seems receiving the required 500g per 1m of accessory bentonite. Placed P38 – P53 and picked up by the surveyor. Continued deployment of 2mm LLDPE Textured Geomembrane in the cell, this in direct contact with the GCL placed earlier. All panels overlapped by the minimum of 100mm and fusion welded together and air tested in accordance with the spec. Placed P25 – P35
Testing Undertaken		Visual Inspections Photographic Records Checking Overlaps 2 x Conformance samples 1 x Fusion DS All other testing was carried out in accordance with the approved CQA plan (Field Tabs, air tests etc)
Meetings/ Correspondence		None
Health and Safety		No Issues

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Visitors to Site	None
Comments	None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Sunday 30th June 2013
Weather	Previous Night	Clear
	a.m	Sunny/Clear
	p.m	Sunny/Clear
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 340 Excavator 1 No Mini Digger
Contract Works Undertaken		**A.A.L** Working with dragon to deploy lining materials **Dragon Lining** Completed placement of GCL this in direct contact with the approved sand protection layer, all overlaps meet the required 300mm and all seems receiving the required 500g per 1m of accessory bentonite. Placed P54 – P63 and picked up by the surveyor. Completed deployment of 2mm LLDPE Textured Geomembrane in the cell, this in direct contact with the GCL placed earlier. All panels overlapped by the minimum of 100mm and fusion welded together and air tested in accordance with the spec. Placed P36 – P44
Testing Undertaken		Visual Inspections Photographic Records Checking Overlaps 2 x GCL Conformance Samples 1 x Fusion DS 1 x Extrusion DS All other testing was carried out in accordance with the approved CQA plan (Field Tabs, air tests etc)
Meetings/ Correspondence		None
Health and Safety		No Issues

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Visitors to Site	None
Comments	None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette
Project: Cell30

Date		Monday 1st July 2013
Weather	Previous Night	Clear
	a.m	Sunny/Clear
	p.m	Sunny/Clear
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 340 Excavator
Contract Works Undertaken		**A.A.L** working with dragon to deploy textiles **Dragon Lining** Completed the deployment of the protector textile on the cell floor, all overlaps meet the minimum 300mm required and then heat bonded together. P1 – P27 placed on the floor in direct contact with the geomembrane. Placed 2 GDL panels along the toe of the eastern batter, this allowing the eastern batter to be textiled, P28 – P43 placed on the eastern batter in direct contact with the geomembrane.
Testing Undertaken		Visual Inspections Photographic Records Checking Overlaps 2 No Geotextile Conformances
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		Dave Leonard (State of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Tuesday 2nd July 2013
Weather	Previous Night	Clear
	a.m	Sunny/Clear
	p.m	Sunny/Clear
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 340 Excavator
Contract Works Undertaken		**A.A.L** working with dragon to deploy textiles **Dragon Lining –** Completed placement of the GDL on the cell floor, all overlaps meet the minimum required and then heat bonded together. All joints temporarily weighted with sandbags. Completed the deployment of the protector textile on the batters, all overlaps meet the minimum 300mm required and then heat bonded together and overlapped onto the GDL on the cell floor by 300mm.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		Dave Leonard (State of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Wednesday 3rd July 2013
Weather	Previous Night	Clear
	a.m	Sunny/Clear
	p.m	Sunny/Clear
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 2 No Labourer
Contract Works Undertaken		**A.A.L** Preparing the tie in along the eastern tie, hand digging to expose the crest of the existing liner to achieve the **Dragon Lining –** commenced the installation of the cap strips along the eastern tie in, with GCL placed over the backfilled anchor trench between the two cells then the Geomembrane caps strip placed over this, extruded to cell 30 and then lap and laid over the existing liner with a 500mm overlap. The protector textiles were then heat bonded together.
Testing Undertaken		Visual Inspections Photographic Records 1 x DS test
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		Dave Leonard (State of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Thursday 4th July 2013
Weather	Previous Night	Overcast
	a.m	Overcast
	p.m	Overcast
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No Smooth Drum Roller 1 No Labourer
Contract Works Undertaken		**A.A.L** Cutting the outer edges of the north and southern banks to give the site full access to the haul roads, once the cut was complete the roller was run along the top to seal the anchor trench properly. **Dragon Lining** C Completed the installation of the cap strips along the eastern tie in, with GCL placed over the backfilled anchor trench between the two cells then the Geomembrane caps strip placed over this, extruded to cell 30 and then lap and laid over the existing liner with a 500mm overlap. The protector textiles were then heat bonded together.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		Dave Leonard (State of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site
Project: Cell 30 Construction Works

Date		Friday 5th July 2013
Weather	Previous Night	Clear
	a.m	Sunny and Fine
	p.m	Sunny and Fine
Site Hours:		07:00 – 16:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		16:30
CQA Departure Time:		16:30
Contractors Plant / Resources Utilised		1 No Volvo 140 Excavator 1 No 9ton Dumper 1 No Labourer
Contract Works Undertaken		**A.A.L** Placing a 150mm layer of sand over the top of the protector textile along the eastern flank.
Testing Undertaken		Visual Inspections Photographic Records
Meetings/ Correspondence		Progress Meeting (Dave Leonard stated that he wanted the 150mm layer of sand along the eastern flank and then a bund to be constructed on this using the material trimmed the outer bank
Health and Safety		No Issues
Visitors to Site		Dave Leonard (State of Jersey)
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

CQA Inspector's Daily Report

Site Name: La Collette Landfill Site

Project: Cell 30 Construction Works

Date		Saturday 6th July 2013
Weather	Previous Night	Clear
	a.m	Sunny and Fine
	p.m	Sunny and Fine
Site Hours:		07:00 – 12:30
Contractors Arrival Time:		07:00
CQA Arrival Time:		07:00
Contractors Departure Time:		12:30
CQA Departure Time:		12:30
Contractors Plant / Resources Utilised		1 No Volvo 340 Excavator 1 No Volvo 140 Excavator 1 No Volvo A30 Dumper 1 No Labourer
Contract Works Undertaken		**A.A.L** Completed trimming the banks around the outer edge of the cell, the material from the cut was taken to the eastern tie in to construct the bund on the eastern tie in.
Testing Undertaken		Visual Inspection of stone placement Photographic Records
Meetings/ Correspondence		None
Health and Safety		No Issues
Visitors to Site		None
Comments		None

For Egniol Environmental Ltd: Paul Nicholson

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

8. Photographic Log

PHOTOGRAPHIC LOG

Plate No.	Description
1	Cell 30 Formation Works.
2	Placing Geogrid Above the Formation Layer.
3	Placing Sand Protection Layer Above Geogrid.
4	Sand Protection Layer.
5	Placing GCL Above Sand Protection Layer.
6	Placed LLDPE Geomembrane.
7	Geotextile and LLDPE Geomembrane Secured in Anchor Trench.
8	Placed Geotextile Within Cell.
9	Placing Drainage Stone Above Geocomposite in Base of Cell.
10	View of Completed Cell.

Plate 1

Plate 2

Plate 3

Plate 4

Plate 5

Plate 6

Plate 7

Plate 8

Plate 9

Plate 10

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

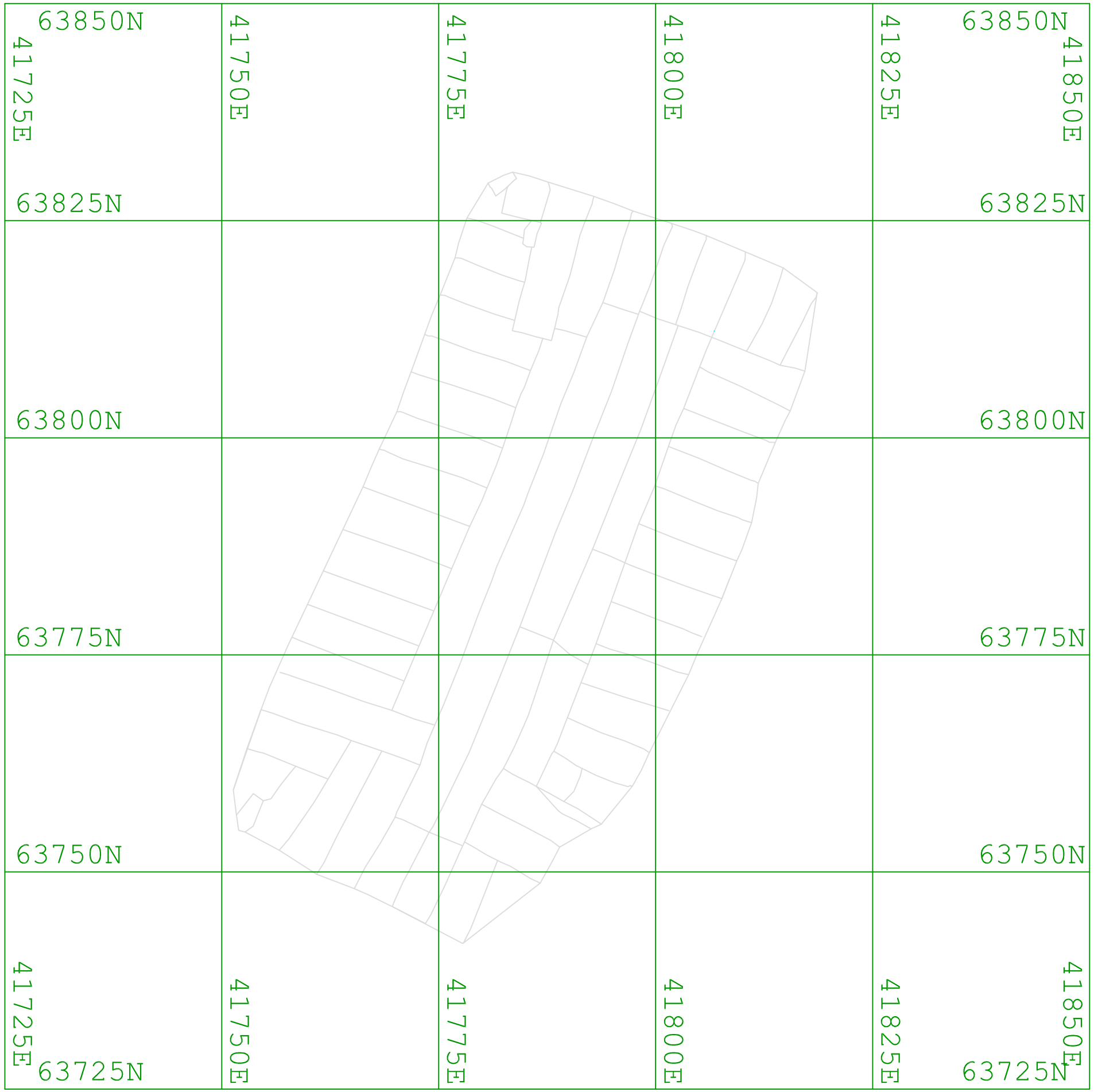
egniol

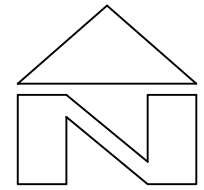
Capita Symonds Ltd.

La Collette Phase 3B Reclamation Site

Cell 30 Construction Works

9. As Built Survey Drawing





NOTES

Rev	Description	Date	Initial

ML GEOMATICS LTD

ML Geomatics Ltd
44 Pound Street,
Bitterne,
Southampton,
SO18 6BP

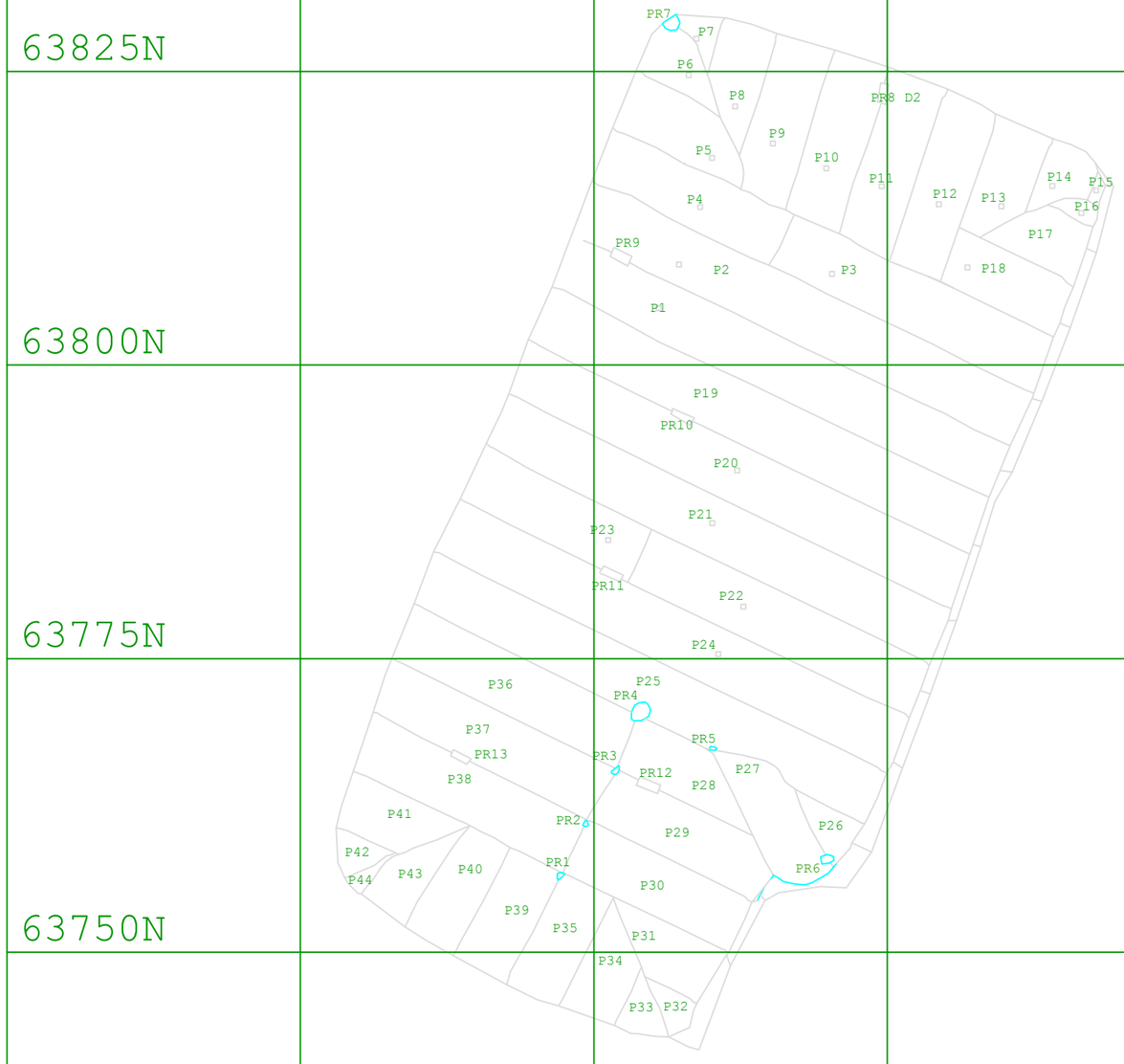
Tel.(07714) 748072
e.mail:michael.lawrence@mlgeomatics.co.uk

Client
States of Jersey

Site
La Collette

Drawing
La Collette Cell 30
As Built Top of Geogrid

Drawn By	Date	Checked By
MWL	26/07/2013	
Scale	Revision	Rev Checked By
1:500		
Cad Plot Date	Cad File Name	
26/07/2013	SOJ_AALCELL30ASGEOGRID	



NOTES

LEGEND

P22 LLDPE Panel Numbers

Rev	Description	Date	Initial

ML GEOMATICS LTD

ML Geomatics Ltd
44 Pound Street,
Bitterne,
Southampton,
S018 6BP

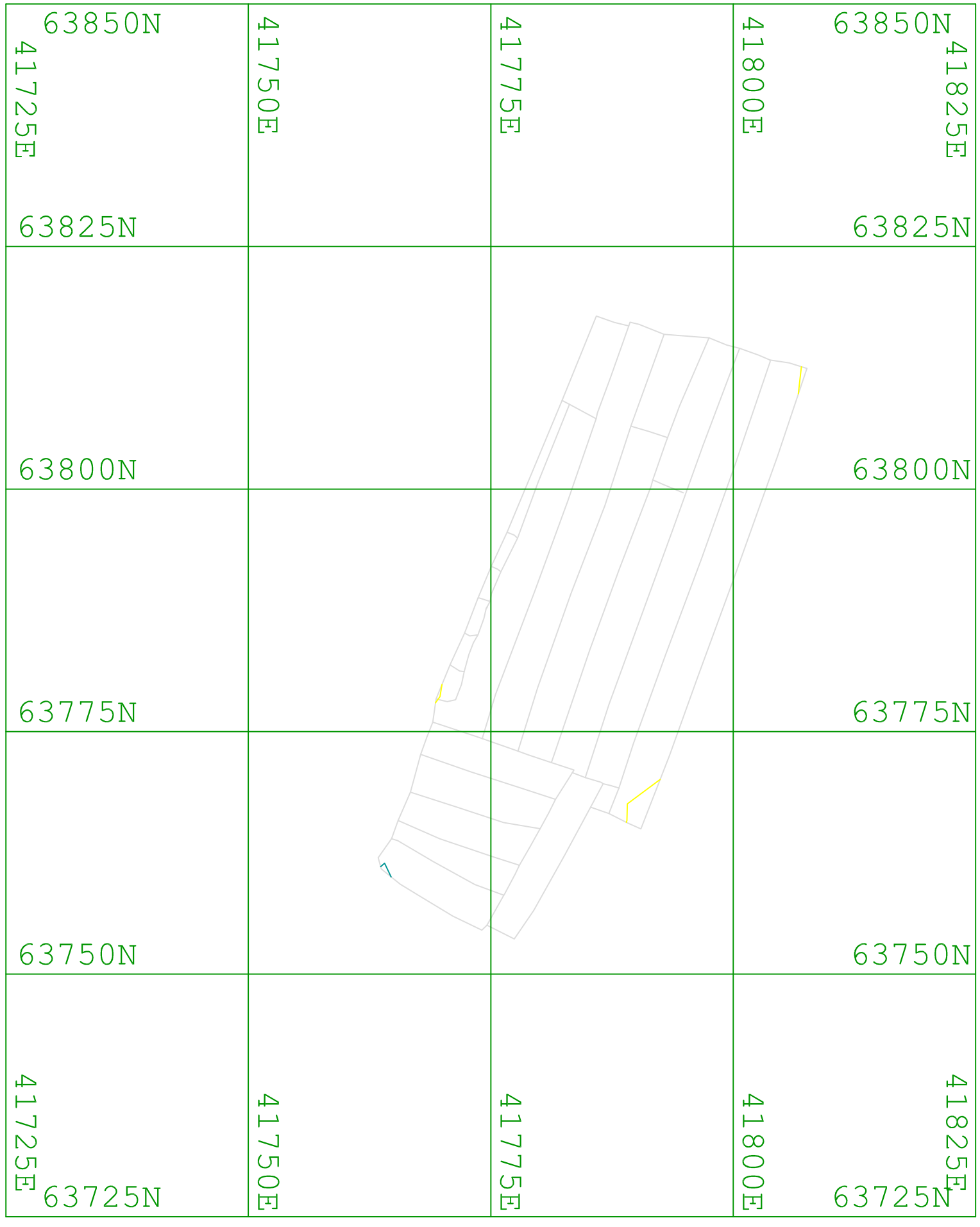
Tel.(07714) 748072
e.mail:michael.lawrence@mlgeomatics.co.uk

Client
States of Jersey

Site
La Collette

Drawing
La Collette Cell 30
As Built LLDPE Panel Layout

Drawn By	Date	Checked By
MWL	26/07/2013	
Scale	**Revision**	**Rev Checked By**
1:500		
Cad Plot Date	**Cad File Name**	
26/07/2013	SOJ_AALCELL30ASLLDPE	



NOTES

Rev	Description	Date	Initial

ML GEOMATICS LTD

ML Geomatics Ltd
44 Pound Street,
Bitterne,
Southampton,
SO18 6BP

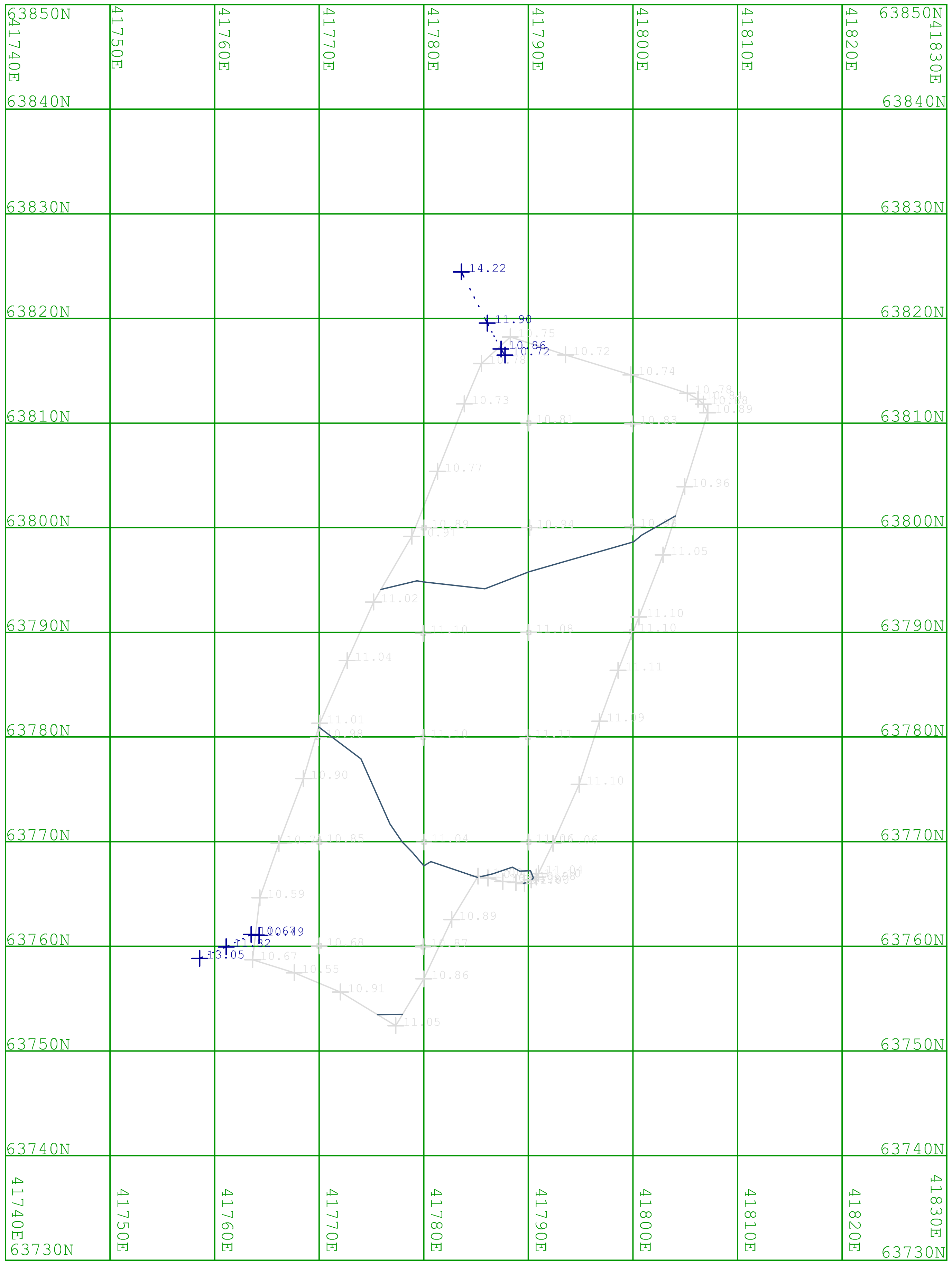
Tel.(07714) 748072
e.mail:michael.lawrence@mlgeomatics.co.uk

Client
States of Jersey

Site
La Collette

Drawing
La Collette Cell 30
As Built GDL Panel Layout

Drawn By	Date	Checked By
MWL	26/07/2013	
Scale	**Revision**	**Rev Checked By**
1:500		
Cad Plot Date	**Cad File Name**	
26/07/2013	SOJ_AALCELL30ASGDL	



NOTES

LEGEND

Rev	Description	Date	Initial

ML GEOMATICS LTD

ML Geomatics Ltd
44 Pound Street,
Bitterne,
Southampton,
SO18 6BP
Tel.(07714) 748072
e.mail:michael.lawrence@mlgeomatics.co.uk

Client
States of Jersey

Site
La Collette

Drawing
La Collette Cell 30
As Built Top of Leachate Blanket

Drawn By	Date	Checked By
MWL	26/07/2013	
Scale	**Revision**	**Rev Checked By**
1:500		
Cad Plot Date	**Cad File Name**	
26/07/2013	SOJ_AALCELL30ASTOLB	

ENGINEERING
ENVIRONMENTAL
HEALTH & SAFETY

egniol

North Wales Office:

Tre Felin

Bangor

Gwynedd

LL57 4LH

T: 01248 355 996

F: 01248 371 996

Cheshire Office:

Mere View Farm Offices

Park Lane, Pickmere

Near Knutsford, Cheshire

WA16 0LG

T: 01565 732 930

F: 01565 732 931

www.egniol.com