



Photograph 7: PAEC 46 Stripped surface (no fill)



Photograph 8: Farm dams are constructed of locally won material

**Oran Park
Oran Park**

40740

February 2007

APPENDIX C

Electromagnetic Survey – Field and Processing Methods

APPENDIX C

ELECTROMAGNETIC SURVEY – FIELD AND PROCESSING METHODS

1. GROUND CONDUCTIVITY PROFILING

Ground conductivity profiling is an electromagnetic (EM) survey method which employs a transmitter coil above the ground surface to generate an electromagnetic field and induce subsurface current flow in electrically conductive materials. A receiver coil measures the secondary EM field generated by the ground current and the strength of this secondary field, measured in the frequency domain, is converted to an apparent ground conductivity (ECa). This apparent conductivity is a response to all electrically conductive materials within the depth of investigation and footprint of the EM system, and does not discriminate between sources such as saline soil, groundwater, clays and other conductive minerals, and buried metallic objects.

1.1 EM System Employed

For this investigation, the following equipment was employed:-

Geonics EM31 Ground Conductivity Meter with Polycorder digital data logger;

Trimble AgGPS114 Differential Global Positioning System (DGPS), iPAQ hand-held computer (digital data logger); and

4WD all terrain vehicle (ATV).

The EM31 was mounted 1 m above ground surface in a non-conductive frame cantilevered 0.5 m from the side of the quad bike and was operated in the vertical dipole (horizontal coil) mode with a coil separation of 4 m, for a maximum depth of investigation of approximately 6 m. The photograph below shows a system similar to that used on this project.

EM31 measurements of apparent conductivity were logged at 1 second intervals, as were WGS84 geographic coordinates of the measurement locations, as the bike proceeded along the survey lines. On completion of sections of profiling, data were uploaded from the data loggers to a laptop, for subsequent conversion of coordinates to the GDA94/MGA94 system and merging of navigation and apparent conductivity data using common time tags.



1.2 ATV Effects

The radiation pattern of the EM31 transmitter coil is not completely unidirectional, and secondary fields will be generated in close adjacent conductors as well as subsurface conductors. The metallic mass of the quad bike therefore has an effect on the apparent ground conductivity reading. To determine the magnitude of this effect, data were acquired on a trial profile obtained in the absence of the bike and with the bike present.

A steep gradient in apparent conductivity was produced within a distance of 1 m from the side of the bike. The non-conductive mounting system for the EM31 was constructed with an adjustable cantilever distance and was fixed for the investigation at a distance of 0.5 m, leading to an apparent conductivity contribution (bike effect) of 17 milliSiemens/m (mS/m) or 0.17 deciSiemens/m (dS/m). Reduced effects could have been obtained at greater cantilever distances, however 0.5 m was maintained for optimum physical stability and minimum total vehicle width for passing through gates throughout the investigation area. At this cantilever distance, a correction of -17 mS/m was applicable to all apparent conductivities obtained from the ATV.

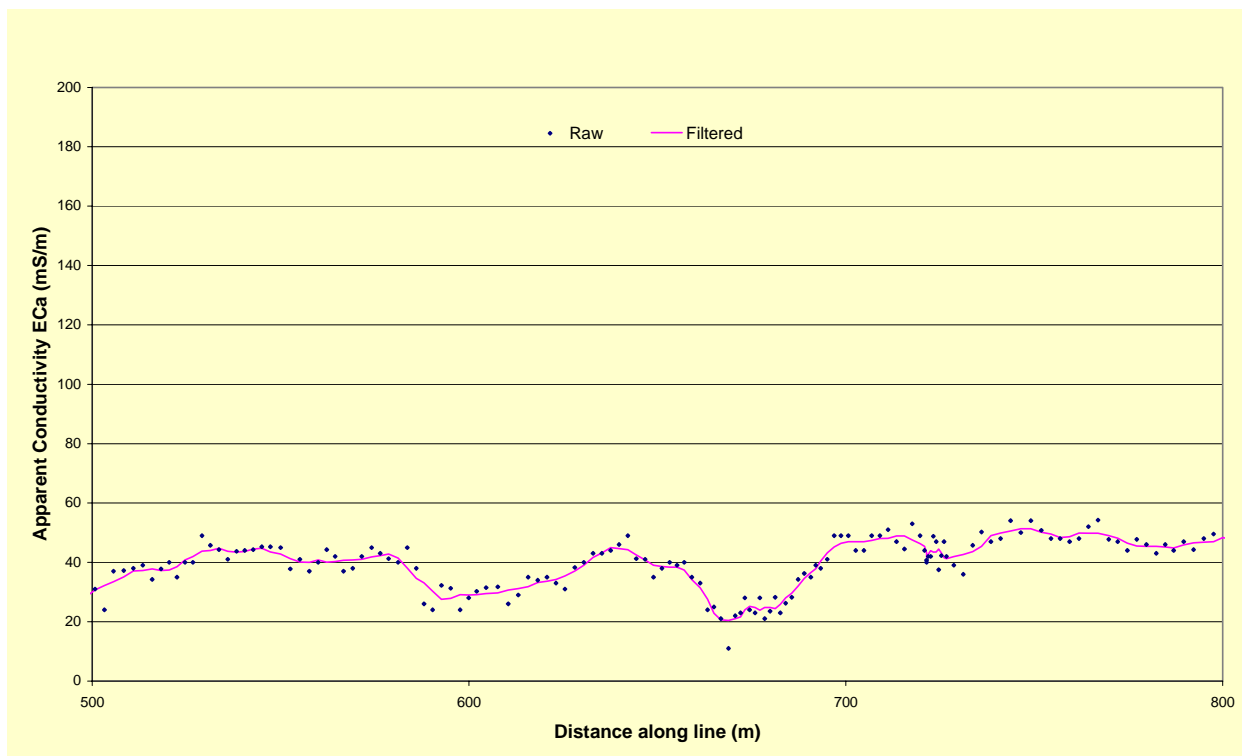
2. DATA PROCESSING

2.1 Quality Control and Filtering

Raw field data were regularly uploaded to a laptop in ASCII file format. Files were then opened as spreadsheets in Excel, for application of the quad bike correction, initial graphical display of DGPS coordinates (plan of data point locations) and ECa profiles and for quality control checks. Macros were also run to enable line detection and calculation of average station spacings and line lengths. During the investigation, over 54 500 data points were obtained on profiles with a total length of 132 line km and an average station spacing of approximately 2.4 m.

Figure 1 below shows a typical ECa profile obtained from the ATV. Raw data shows apparent conductivity anomalies with a superimposed noise envelope of ± 5 mS/m (± 0.05 dS/m) due to bumping and vertical movement of the quad bike and EM31 coils. Although this noise envelope is of small amplitude, all data were filtered with a 5-point running average prior to further processing.

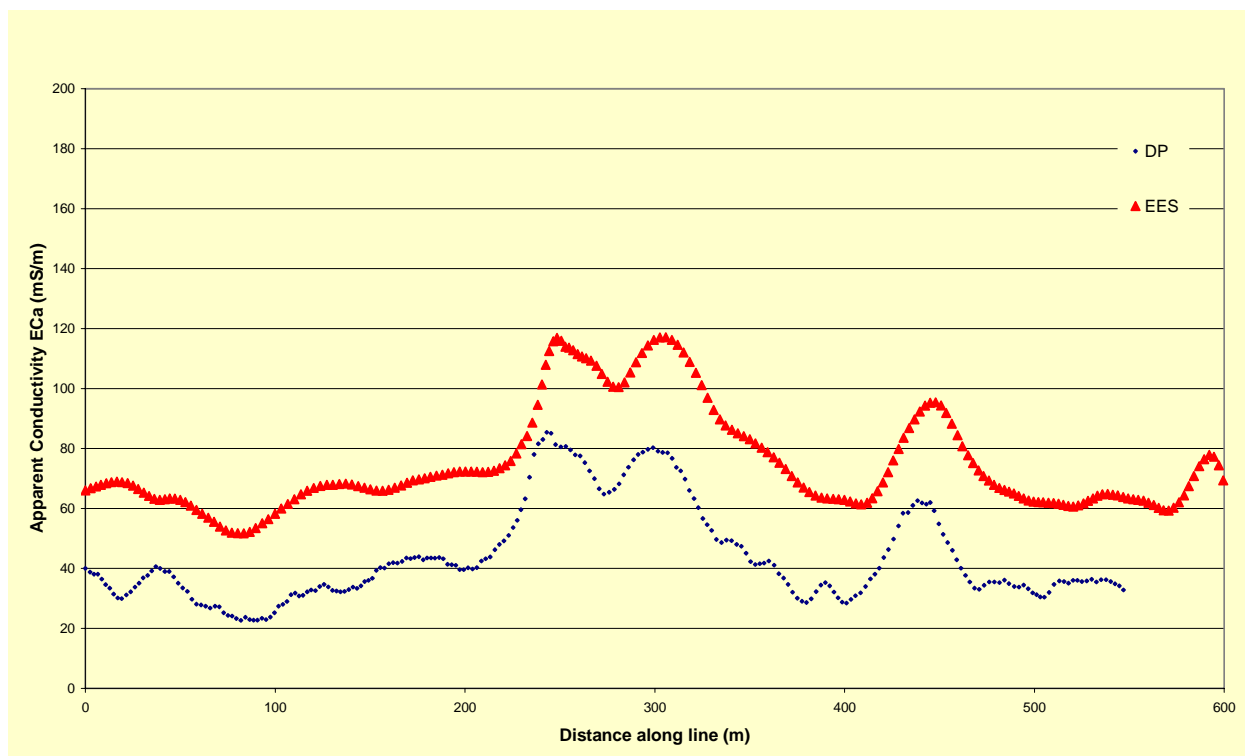
Figure 1 – Section of EM31 Profile, Oran Park Precinct



2.2 Apparent Conductivity (ECa) Mapping

Filtered ECa data from the investigation by Douglas Partners (DP), predominantly from west of The Northern Road, together with data from a previous investigation by Environmental & Earth Sciences (EES) east of the Northern Road, were combined after comparison of values along a “check line” in the centre of the area (Drawing S1) and application of a bulk shift of 35 mS/m to all DP data. This difference can easily be attributed to different vehicle corrections, different moisture contents at the two survey times and differences in instrument height. Figure 2 shows the similarity of the DP and EES data along the check line.

Figure 2 – DP and EES Apparent Conductivity data along check line (looking north)



The combined dataset was opened in the MapInfo/Discover GIS environment for spatial analysis and display, georeferenced in the AGD94/MGA94 coordinate system.

Using interpolation by krigging, the ECa data set was gridded and displayed as a colour image with a continuous colour spectral scale in mS/m, the principal colours ranging through the boundary values of the Chhabra (1996) salinity classification scheme generally as follows (Table 1):

Table 1 – Colour Spectrum for Apparent Conductivity Image (Chhabra classification)

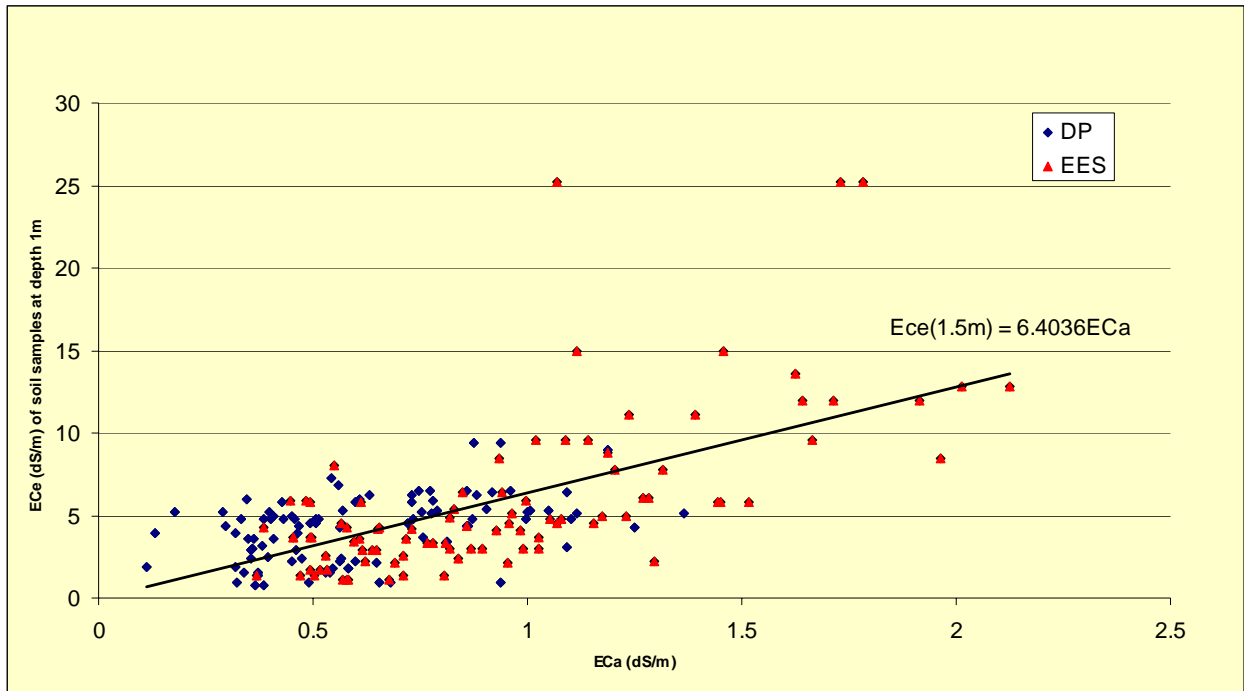
Blue	0 mS/m	
		Non-saline
Cyan	50 mS/m	
		Slightly saline
Yellow	100 mS/m	
		Moderately saline
Orange	150 mS/m	
		Very saline
Red	200 mS/m	
		Extremely saline

2.3 Correlation

After observation of reasonable qualitative correlations between locations of high ECa values, some high ECe values from soil sample tests and visible indicators of salinity, quantitative correlations were carried out aimed at re-scaling the apparent conductivities and re-presentation as “apparent salinities” or estimated ECe values (in dS/m) over the area of the EM survey.

For this correlation (Figure 3 below), all measured ECe values from soil samples at depths of the order of 1.5 m (1.3 – 1.7 m) were plotted on a scattergram against apparent conductivities from the EM31 measurement point closest to the relevant test pit. This sample depth was selected after observation of vertical soil salinity profiles from five control test pits, sampled at 0.25m intervals, showing maximum salinities generally at depths of the order of 1.5 m hence likely to contribute most of the EM31 volume response. Correlations were made between 185 ECa and ECe data pairs, with many of the 176 test pits in reasonable proximity to multiple profiles.

Figure 3 – Correlation of Salinities with Apparent Conductivities, Oran Park Precinct



The general linear relationship between ECe and ECa indicates that the EM31 system was responding to soil salinity. The linear regression performed on the scattergram indicates a factor of 6.4 by which to multiply apparent conductivities (in dS/m) to estimate ECe values throughout the EM31 data set.

2.4 Apparent Salinity (Estimated ECe) Mapping

The derived correlation factor was applied to all data, which were then re-gridded for presentation as an apparent salinity image with a continuous colour spectral scale in dS/m, with the principal colours ranging through the boundary values of the Richards (1954) salinity classification scheme, generally as follows (Table 2):

Table 2 – Colour Spectrum for Apparent Salinity Image (Richards classification)

Blue	0 dS/m	
		Non-saline
Cyan	2 dS/m	
		Slightly saline
Yellow	4 dS/m	
		Moderately saline
Orange	8 dS/m	
		Very saline
Red	16 dS/m	
		Highly saline

Finally, the 4 dS/m and 8 dS/m contours were added to the image to assist in the assessment of areas of moderately, very or highly saline soil.

APPENDIX D

PAEC Identification and Inspection Logs

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** AT

Location:

Property:	Lot 3 DP 738249 (20 Curtis Lane)	GPS Coordinates	
Grid Ref:		Easting:	292 580
PAEC #:	1	Northing:	6235 770

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | Council Records | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: | | | |

Details:

Unauthorized use as truck depot and storage of materials and equipment of unknown type (including steel drums of unknown contents) from at least the 25 th of August 1998 and 11 th of August 2003.
Also, unauthorized construction of a dwelling.

Follow up:

Field inspection required to assess current status and delineate size. Testing may be required.

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb 2007		
Inspection Method:	Walkover		

Observations:

Site has a had a previous commercial (trucking) use. Further investigation is required to determine if the commercial use extended onto the subject site

Reasoning:

Unknown use

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** AT

Location:

Property:	Lot 4 DP 738249 (24 Curtis Lane)	GPS Coordinates	
Grid Ref:		Easting:	692 620
PAEC #:	2	Northing:	6235 840

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | Council Records | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

Irrigation of land using water from septic tank. Site plans detailing locations have been acquired from Council

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Council Approved

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	X

PAEC Identification & Inspection Log

Client: Growth Centres Commission	Project Number: 40740
Project: Stage 1 Contamination Assessment	Date: 19.01.2007
Location: Oran Park	Logged: CFK

Location:

Property:	Oran Park Raceway	GPS Coordinates	
Grid Ref:		Easting:	290 660
PAEC #:	3	Northing:	6234 810

Identified from:

Site Inspection	<input type="checkbox"/>	Conductivity Data	<input type="checkbox"/>	Other (list below):	
Title Deed info.	<input type="checkbox"/>	Interviews	<input type="checkbox"/>	EES Investigation	X
Geotechnical	<input type="checkbox"/>	Aerial Photography	<input type="checkbox"/>	_____	<input type="checkbox"/>
Historical Society	<input type="checkbox"/>	Year: _____			

Details:

Contains 4 USTs, oil storage areas, 2 grease traps, surficial hydrocarbon staining, the dirt tracks are known to have wetted down with sump oil.
No surface water treatment unit on site.
Unknown fill north of medical building and hilled area west of the north circuit and between the pit area and the main straight of the South Circuit.
See EES Figure 6b.

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Unknown fill and potential UST leaks

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission	Project Number: 40740
Project: Stage 1 Contamination Assessment	Date: 19.01.2007
Location: Oran Park	Logged: CFK

Location:

Property:	4WD Park	GPS Coordinates	
Grid Ref:		Easting:	290 600
PAEC #:	4	Northing:	6234 130

Identified from:

Site Inspection	<input type="checkbox"/>	Conductivity Data	<input type="checkbox"/>	Other (list below):	
Title Deed info.	<input type="checkbox"/>	Interviews	<input type="checkbox"/>	EES Investigation	X
Geotechnical	<input type="checkbox"/>	Aerial Photography	<input type="checkbox"/>	_____	<input type="checkbox"/>
Historical Society	<input type="checkbox"/>	Year: _____			

Details:

Fill mound for 4WD course (PAEC 01)
Pit area for 4WD

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Unknown fill

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission	Project Number: 40740
Project: Stage 1 Contamination Assessment	Date: 19.01.2007
Location: Oran Park	Logged: CFK

Location:

Property:	Military Camp (EES 03)	GPS Coordinates	
Grid Ref:		Easting:	289 940
PAEC #:	5	Northing:	6234 260

Identified from:

Site Inspection	<input type="checkbox"/>	Conductivity Data	<input type="checkbox"/>	Other (list below):	
Title Deed info.	<input type="checkbox"/>	Interviews	<input type="checkbox"/>	EES Investigation	X
Geotechnical	<input type="checkbox"/>	Aerial Photography	<input type="checkbox"/>	_____	<input type="checkbox"/>
Historical Society	<input type="checkbox"/>	Year: _____			

Details:

Facilities (huts and toilet amenities) were constructed of asbestos cement sheeting
Plan Layout indicates a fuel pump.
Anecdotal information indicates live firing was not undertaken on the site.
EES reported no evidence of it's existence

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Possible onsite fuel storage, hazardous
Materials and unknown land use

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Leppington Pastoral Company	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	6	Northing:	

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

Acquired by Lemington in 1985, used for dairy farming.
An (unidentified) area was used for dumping dead cow carcasses

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Unknown material in burial area

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Old Dairy (PAEC 32, AEC 17)	GPS Coordinates	
Grid Ref:		Easting:	290 140
PAEC #:	7	Northing:	6235 750

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

Old Dairy, demolished by Perich's
Gully historically used for dumping waste (EES PAEC 32, part of an old dairy)
EES reported minor surface disturbance.

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Unknown fill material

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Unidentified disturbance (PAEC 33, AEC 18)	GPS Coordinates	
Grid Ref:		Easting:	290 020
PAEC #:	8	Northing:	6235 430

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

House and shed observed in 1947 removed by 1992
Potential contaminants HM, TPH/BTEX, PAH, OCP and asbestos

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Demolished building

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Residential Building (EES PAEC 34, AEC 19)	GPS Coordinates	
Grid Ref:		Easting:	289 830
PAEC #:	9	Northing:	6234 860

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

House and Sheds observed in 1961 and removed by 2002.

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Demolished building

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission	Project Number: 40740
Project: Stage 1 Contamination Assessment	Date: 19.01.2007
Location: Oran Park	Logged: CFK

Location:

Property:	Residential Building (EES PAEC 35)	GPS Coordinates	
Grid Ref:		Easting:	290 100
PAEC #:	10	Northing:	6234 890

Identified from:

Site Inspection	<input type="checkbox"/>	Conductivity Data	<input type="checkbox"/>	Other (list below):	
Title Deed info.	<input type="checkbox"/>	Interviews	<input type="checkbox"/>	EES Investigation	X
Geotechnical	<input type="checkbox"/>	Aerial Photography	<input type="checkbox"/>	_____	<input type="checkbox"/>
Historical Society	<input type="checkbox"/>	Year: _____			

Details:

House and Sheds

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Onsite structures

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Residential Building (EES PAEC 36, AEC 20)	GPS Coordinates	
Grid Ref:		Easting:	291 030
PAEC #:	11	Northing:	6235 120

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

House/sheds observed in 1970 removed by 2002.

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Demolished structures

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Residential Building (EES PAEC 37, AEC 21)	GPS Coordinates	
Grid Ref:		Easting:	291 250
PAEC #:	12	Northing:	6234 220

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews EES Investigation X
 Geotechnical Aerial Photography _____
 Historical Society Year: _____

Details:

In-filled Dam, indicated that filling material was natural soil

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Unknown fill material

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Residential Building (EES PAEC 38, AEC 22)	GPS Coordinates	
Grid Ref:		Easting:	291 330
PAEC #:	13	Northing:	6234 120

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

Not inspected by EES, as the property was occupied
Observed in 1956 and removed by 2002

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Demolished structure

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Residential Building (EES PAEC 39 figure 5 AEC 23 Figure 6b)	GPS Coordinates	
Grid Ref:		Easting:	289 970
PAEC #:	14	Northing:	6234 218

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

Residential Buildings (EES PAEC 39) may contain Asbestos
Not inspected by EES, as the property was occupied
Observed in 1956 and removed by 1994

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Demolished structure

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Residential Building (EES PAEC 40, AEC 24)	GPS Coordinates	
Grid Ref:		Easting:	290 190
PAEC #:	15	Northing:	6234 210

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews EES Investigation X
 Geotechnical Aerial Photography _____
 Historical Society Year: _____

Details:

House/sheds Observed in 1956 removed by 1994
Not inspected by EES, as the property was occupied

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Demolished structure

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/> X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Residential Building (EES PAEC 44, AEC 27)	GPS Coordinates	
Grid Ref:		Easting:	290 970
PAEC #:	16	Northing:	6234 180

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

House/sheds Observed in 1994 removed by 2002

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Demolished structure

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Unidentified disturbance (EES PAEC 45, AEC 28)	GPS Coordinates	
Grid Ref:		Easting:	290 510
PAEC #:	17	Northing:	6234 420

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews EES Investigation X
 Geotechnical Aerial Photography _____
 Historical Society Year: _____

Details:

Unknown disturbance identified in 1961 aerial photograph.

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Possible fill

Classified as an AEC ?	
Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Unidentified disturbance (EES PAEC 46)	GPS Coordinates	
Grid Ref:		Easting:	291 250
PAEC #:	18	Northing:	6235 030

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

Unknown disturbance

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Possible fill

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** CFK

Location:

Property:	Unidentified disturbance (EES PAEC 47, AEC 29)	GPS Coordinates	
Grid Ref:		Easting:	290 120
PAEC #:	19	Northing:	6236 000

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | X |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | | |

Details:

Possible market garden or cropping area.

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Possible pesticide use

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 19.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	189 Springfield Road Catherine Field (Lot 2522 DP 861221)	GPS Coordinates	
Grid Ref:	292850E 6236050	Easting:	292 680
PAEC #:	20	Northing:	6236 270

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews EES Investigation
 Geotechnical Aerial Photography Property Attribute X
 Historical Society Year: _____

Details:

Approval for a backfill dam (15.01.1997) (unidentified by EES).
Concerns for filling of unknown origin.

Follow up:

--

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb 2007		
Inspection Method:	Interview		

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural material
--

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	X

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:	Area within: 291200E 6234800N 291200E 6235000N	Easting:	291,270.02
PAEC #:	21	Northing:	6,234,911.65

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1994, 2004 | | | |

Details:

Disturbed area.

Follow up:

A walkover assessment.

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb 2007		
Inspection Method:	Walkover		

Observations:

Site walkover revealed that the area of disturbance is actually a farm dam

Reasoning:

Land disturbance did not appear to occur

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:	Area within: 290600E 6235000N 290600E 6235400N	Easting:	290,739.60
PAEC #:	22	Northing:	6,235,260.61

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews EES Investigation
 Geotechnical Aerial Photography Property Attribute
 Historical Society Year: 1961-2004

Details:

Dam

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:		GPS Coordinates	
Grid Ref:	Area within: 290000E 6235400N 290000E 6235600N	Easting:	290,288.97
PAEC #:	23	Northing:	6,235,546.58

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1961-2004 | | | |

Details:

Dam

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	Mcintosh	GPS Coordinates	
Grid Ref:	286000E 6235700N	Easting:	289,629.48
PAEC #:	24	Northing:	6,235,674.75

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1984-2004 | | | |

Details:

Dams

Follow up:

A walkover assessment followed by testing.

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:	290000E 6235800N & 290200E 6235800N	Easting:	290,151.90
PAEC #:	25	Northing:	6,235,808.40

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1961-2004 | | | |

Details:

Dams

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:		GPS Coordinates	
Grid Ref:	Area within: 291800E 6236600N 291800E 6237000N 292200E 6237000N	Easting:	292,051.61
PAEC #:	26	Northing:	6,236,703.62

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1984-2004 | | | |

Details:

Dam

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	288800E 6236500N	Easting:	288,852.69
PAEC #:	27	Northing:	6,236,468.44

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1994-2004 | | | |

Details:

Dam

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:	289900E 6234900N	Easting:	289,933.47
PAEC #:	28	Northing:	6,234,861.58

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1961-2004 | | | |

Details:

Dam

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	Area within: 288400E 6234200N 288800E 6234400N	Easting:	288,742.64
PAEC #:	29	Northing:	6,234,414.19

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews EES Investigation
 Geotechnical Aerial Photography Property Attribute
 Historical Society Year: 1994-2004

Details:

Dam

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	288000E 6234000N	Easting:	288,844.74
PAEC #:	30	Northing:	6,234,062.79

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1947-2004 | | | |

Details:

Buildings present in various forms since before 1947. Appears to be original farm house and associated sheds

Follow up:

A walkover assessment.

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb		
Inspection Method:	Walkover		

Observations:

Property is a residential dwelling occupied since at least 1947

Reasoning:

Long history of occupation. Further title info is Required and interviews with owners

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	Area within: 289200E 6234000N 289400E 6234400N	Easting:	289,329.21
PAEC #:	31	Northing:	6,234,370.94

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 2004 | | | |

Details:

College Campus

Follow up:

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Site has already been the subject of an enviro. assessment, no change in land use is proposed

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289600E 6234000N	Easting:	289,733.45
PAEC #:	32	Northing:	6,234,178.90

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1984-2004 | | | |

Details:

Earthmoving activity has occurred in the past and now a few buildings/sheds have been constructed in this area (dairy farm). Some demolition may have taken place Between 1994 and 2004

Follow up:

A walkover assessment. Include check for presence of remnant building refuse

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 24.01.2007
Location: Oran Park **Logged:** RL

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:	291000E 6235900N	Easting:	291,085.09
PAEC #:	33	Northing:	6,235,847.05

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1970-2004 | | | |

Details:

Bare earth patch

Follow up:

A walkover assessment.

Inspection Details:

Inspected by:	CCK	Photographed:	Yes
Date Inspected:	22 Feb		
Inspection Method:	Walkover		

Observations:

Eroded creek line, in a high salinity area – Saline scald

Reasoning:

No cut or fill activities

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289300E 6235100N	Easting:	288,892.30
PAEC #:	34	Northing:	6,235,220.36

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1961-2004 | | | |

Details:

Dam

Follow up:

Walk over site assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
Material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289700E 6235900N	Easting:	289.789.86
PAEC #:	35	Northing:	6,235,934.68

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1961-2004 | | | |

Details:

Dam

Follow up:

Walk over site assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
Material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289850E 6236250	Easting:	289,803.02
PAEC #:	36	Northing:	6,236,235.41

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1984-2004 | | | |

Details:

Dam

Follow up:

Walk over site assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
Material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289500E 6235900N	Easting:	289,487.97
PAEC #:	37	Northing:	6,235,984.09

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1984-2004 | | | |

Details:

Dam

Follow up:

Walk over site assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
Material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	288500E 6236900N	Easting:	288,481.97
PAEC #:	38	Northing:	6,236,844.80

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1978-2004 | | | |

Details:

Dam

Follow up:

Walk over site assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
Material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	290300E 6236500N	Easting:	290,234.20
PAEC #:	39	Northing:	6,236,431.62

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1984-2004 | | | |

Details:

Dam

Follow up:

Walk over site assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Interviews suggest that walls of farm dams were made from locally sourced natural
Material

Reasoning:

Natural material used

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	Oran Park and Mcln	GPS Coordinates	
Grid Ref:	289750E 6234500N	Easting:	289,645.93
PAEC #:	40	Northing:	6,234,480.47

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1947 | | | |

Details:

Suspected ex-military base (Narellan Army Camp) . No evidence of this activity discernable in 1961 aerial composite.

Follow up:

Milsearch Assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Milsearch have undertaken a review of the site for military purposes. Reference should be made to their report

Reasoning:

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:	290100E 6235700N	Easting:	290,201.92
PAEC #:	41 (may be same as PAEC #7)	Northing:	6,235,707.43

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1961 - 1994 | | | |

Details:

Building structures that appear to have been demolished by the 2004 aerial photograph

Follow up:

Walk over site assessment – check for presence of building rubble, fill

Inspection Details:

Inspected by:	CCK	Photographed:	Yes
Date Inspected:	22 Feb 2007		
Inspection Method:	Walkover		

Observations:

Foundations and building rubble observed

Reasoning:

Age of building indicates that hazardous building materials may have been used

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission	Project Number: 40740
Project: Stage 1 Contamination Assessment	Date: 12.02.2007
Location: Oran Park	Logged: AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289600E 6234600N	Easting:	289,576.20
PAEC #:	42	Northing:	6,234,637.41

Identified from:

Site Inspection	<input type="checkbox"/>	Conductivity Data	<input type="checkbox"/>	Other (list below):	
Title Deed info.	<input type="checkbox"/>	Interviews	<input type="checkbox"/>	EES Investigation	<input type="checkbox"/>
Geotechnical	<input type="checkbox"/>	Aerial Photography	<input checked="" type="checkbox"/>	Property Attribute	<input type="checkbox"/>
Historical Society	<input type="checkbox"/>	Year: 2004			

Details:

Ground disturbance

Follow up:

Walk over site assessment

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	288900E 6236300N	Easting:	288,643.37
PAEC #:	43	Northing:	6,236,137.25

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year:1947-1961 | | | |

Details:

Ground disturbance

Follow up:

Site walkover inspection

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb		
Inspection Method:	Walkover/ Interview		

Observations:

Silage pits?

Reasoning:

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	288950E 6236350N	Easting:	288,896.73
PAEC #:	44	Northing:	6,236,288.52

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year:1978 | | | |

Details:

Ground disturbance. May be related to PAEC 43.

Follow up:

Walkover site inspection

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289300E 6235400N	Easting:	289,364.27
PAEC #:	45	Northing:	6,235,434.72

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 1984 | | | |

Details:

Cluster of possibly related ground disturbances

Follow up:

Walkover site inspection

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb		
Inspection Method:	Walkover		

Observations:

Review of all aerials and a walkover, suggest a low risk land use and standard cropping in this area

Reasoning:

Low risk landuse

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission	Project Number: 40740
Project: Stage 1 Contamination Assessment	Date: 12.02.2007
Location: Oran Park	Logged: AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289000E 6234525N	Easting:	288,987.10
PAEC #:	46	Northing:	6,234,548.20

Identified from:

Site Inspection	<input type="checkbox"/>	Conductivity Data	<input type="checkbox"/>	Other (list below):	
Title Deed info.	<input type="checkbox"/>	Interviews	<input type="checkbox"/>	EES Investigation	<input type="checkbox"/>
Geotechnical	<input type="checkbox"/>	Aerial Photography	<input checked="" type="checkbox"/>	Property Attribute	<input type="checkbox"/>
Historical Society	<input type="checkbox"/>	Year:2004			

Details:

Ground disturbance

Follow up:

Walkover site inspection

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb 2007		
Inspection Method:	Walkover		

Observations:

Eroded surface at dam edge – Possibly associated with high salinity

Reasoning:

Not a cut or fill site

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289250E 6234600N	Easting:	289,157.13
PAEC #:	47	Northing:	6,234,638.41

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year:2004 | | | |

Details:

Evidence of cultivation and presence of shed like structure. Potential for pesticide and / or herbicide use and / or storage.

Follow up:

Interview

Inspection Details:

Inspected by:	CCK	Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

PAEC is with in the bounds of McArthur Anglican school Agricultural area. There has not been a long term use of the site for this land use and there is currently no proposed change

Reasoning:

No change in land use

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	288650E 6234650N	Easting:	288,552.11
PAEC #:	48	Northing:	6,234,663.19

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year:1984 | | | |

Details:

Evidence of cultivation. Potential for pesticide and / or herbicide use.

Follow up:

Site inspection, interview.

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb 2007		
Inspection Method:	Walkover/ Interview		

Observations:

No evidence of intensive use. Interview with site owners indicate site was never used for intensive agriculture.

Reasoning:

No actual agricultural land use

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission	Project Number: 40740
Project: Stage 1 Contamination Assessment	Date: 12.02.2007
Location: Oran Park	Logged: AT

Location:

Property:	McIntosh	GPS Coordinates	
Grid Ref:	289050E 6234200N	Easting:	289,004.86
PAEC #:	49	Northing:	6,234,233.09

Identified from:

Site Inspection	<input type="checkbox"/>	Conductivity Data	<input type="checkbox"/>	Other (list below):	
Title Deed info.	<input type="checkbox"/>	Interviews	<input type="checkbox"/>	EES Investigation	<input type="checkbox"/>
Geotechnical	<input type="checkbox"/>	Aerial Photography	<input checked="" type="checkbox"/>	Property Attribute	<input type="checkbox"/>
Historical Society	<input type="checkbox"/>	Year:1970			

Details:

Evidence for cultivation. Potential for pesticide / herbicide use.

Follow up:

Site inspection, interview

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb		
Inspection Method:	Walkover / Aerial		

Observations:

A walkover did not reveal any current market gardens. Review of the aerial photograph suggests these areas were used for standard cropping, not intensive agriculture.

Reasoning:

Low risk landuse

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:	290250E 6235750N	Easting:	290,302.64
PAEC #:	50	Northing:	6,235,719.74

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year:1984 | | | |

Details:

Evidence for cultivation. Potential for pesticide / herbicide use

Follow up:

Site inspection,

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb 2007		
Inspection Method:	Walkover/ Aerial		

Observations:

A walkover did not reveal any current market gardens. Review of the aerial photograph suggests these areas were used for standard cropping, not intensive agriculture.

Reasoning:

Low risk landuse

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	Lot 1 DP 599327	GPS Coordinates	
Grid Ref:	289750E 6234250N	Easting:	289,733.45
PAEC #:	51 (refer also to 32)	Northing:	6,234,178.90

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: _____ | | GeoEnviro Report | X |

Details:

The GeoEnviro reported the following on Lot 1 DP 599327
• Pile of building materials consisting of timber and metal pieces
• Stock pile of demolition rubble consisting of concrete, bricks and timber along the eastern boundary
• An area in the north western portion being filled with broken clay pipes and possibly used as an evaporation bed

Follow up:

Site walkover inspection to determine if these issues are still current.

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Classified as an AEC ?

Yes	<input type="checkbox"/>
No	X

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 12.02.2007
Location: Oran Park **Logged:** AT

Location:

Property:	189 Springfield Road, Catherine Field (Lot 2522 DP 861221)	GPS Coordinates	
Grid Ref:	292700E 6236300N	Easting:	292,629.71
PAEC #:	52	Northing:	6,236,250.38

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | EES Investigation | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input checked="" type="checkbox"/> | Property Attribute | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: 2004 | | GeoEnviro Report | |

Details:

Possible market gardening activities.

Follow up:

Site walkover inspection

Inspection Details:

Inspected by:	CCK	Photographed:	No
Date Inspected:	22 Feb		
Inspection Method:	Walkover		

Observations:

Reasoning:

Market Garden

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** CCK

Location:

Property:	McIntosh Land	GPS Coordinates	
Grid Ref:		Easting:	288 390
PAEC #:	53	Northing:	6234 380

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input checked="" type="checkbox"/> | Council Records | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: | | | |

Details:

Asbestos pipe system

Follow up:

None required

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Hazardous building material

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** CCK

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	54	Northing:	

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input checked="" type="checkbox"/> | Council Records | <input type="checkbox"/> |
| Geotechnical | <input type="checkbox"/> | Aerial Photography | <input type="checkbox"/> | _____ | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: | | | |

Details:

Asbestos pipe system

Follow up:

None required

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Hazardous building material

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** CCK

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:		Easting:	290 230
PAEC #:	55	Northing:	6234 240

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews Council Records
 Geotechnical X Aerial Photography _____
 Historical Society Year: _____

Details:

Fragments of asbestos found near surface of test pits 47 & 57

Follow up:

None required

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Hazardous building material

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** CCK

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:		Easting:	290 540
PAEC #:	56	Northing:	6235 830

Identified from:

- | | | | | | |
|--------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | <input type="checkbox"/> | Conductivity Data | <input type="checkbox"/> | Other (list below): | |
| Title Deed info. | <input type="checkbox"/> | Interviews | <input type="checkbox"/> | Council Records | <input type="checkbox"/> |
| Geotechnical | X | Aerial Photography | <input type="checkbox"/> | | <input type="checkbox"/> |
| Historical Society | <input type="checkbox"/> | Year: | | | |

Details:

Fragments of asbestos found near the surface of test pits 73 & 88

Follow up:

None required

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Hazardous building material

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** CCK

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:		Easting:	290 340
PAEC #:	57	Northing:	6235 880

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews Council Records
 Geotechnical Aerial Photography _____
 Historical Society Year: _____

Details:

Building rubble in creek line

Follow up:

None required

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Possibly contains asbestos

Classified as an AEC ?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

PAEC Identification & Inspection Log

Client: Growth Centres Commission **Project Number:** 40740
Project: Stage 1 Contamination Assessment **Date:** 18/01/07
Location: Oran Park **Logged:** CCK

Location:

Property:	Oran Park	GPS Coordinates	
Grid Ref:		Easting:	292260
PAEC #:	58	Northing:	6236316

Identified from:

Site Inspection Conductivity Data Other (list below):
 Title Deed info. Interviews Council Records
 Geotechnical X Aerial Photography _____
 Historical Society Year: _____

Details:

Fragments of asbestos found near the surface of test pit 146

Follow up:

None required

Inspection Details:

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Hazardous building material

Classified as an AEC ?

Yes	X
No	<input type="checkbox"/>

APPENDIX E

Notes from Interviews

Standard Interview Sheet

Client: Growth Centres Commission
Project: Land Capability Assessment
Location: Turner Road
Interviewee: Ian McIntosh

Project Number: 40740
Date: 26 Feb 07
Interviewed by: Chris Kline
Occupation:

Question 1 – Where did you work?

3 areas

Question 2 – What period were you working the subject site? What period do you have knowledge of farm operations?

Working since 1970's Nephew of Ron McIntosh. Full knowledge of farming history
From earliest days as a farm

Question 3 – Any present or former intensive agriculture?

Dairy farm 20 years ago

Question 4 – Any present or former market gardens, orchards or nurseries?

No

Question 5 – What type of agriculture has been undertaken on site? Herds? Crops?

Commercial beef cattle, prior to 1987 stud dairy.
Early 1900's Trading cattle, 1800's breeding horses / growing wheat

Question 6 – Any known use of filling materials on site?

Dams constructed from local material. A few trucks of clay came from within the
curtlege

Question 7 – Any known history of Flytipping?

No

Question 8 – Was there any storage of fuels on the site? USTs? ASTs?

No

Question 9 – Was there a central chemical storage? What chemicals were kept?

No

Question 10 – Any known instances of spills or accidents?

Super phosphate spill – within curtlege (i.e. outside subject site)

Question 11 – What is the history of pesticide application?

No boom spraying prior to fodder crops. Spot spraying used.

Question 12 – Were cattle dips used on site?

No

Question 13 – Cattle spraying areas? If no, where were animals treated?

Drenching yards in curtlege, Johnson’s yards in the northeast.

Question 14 – Any buildings that may have been demolished? Construction type?

Small brick building (1900s) north of school
Weatherboard dwelling in northern section moved to curtlege

Question 15 – Any use of any part of the site by other individuals or companies?

Yes, Jamie Ingles

Question 16 – How and where was waste disposed on the site? Historically?

Within curtlege

Question 17 – How and where is animal effluent disposed on the site? Historically

Dairy in curtlege

Question 18 – What water management practices are undertaken on site? (Dams, asbestos pipelines, diesel pumps?)

Asbestos cement 6 inch pipe – Ian knows the location

Question 19 – In your opinion is there any other activities that may contribute to further potential for contamination?

No

Question 20 – Do you know any other individuals who may have knowledge of the site? Contact details?

No

APPENDIX F

Bore Logs and Construction Notes for Groundwater Wells

BOREHOLE LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING: 6234494
NORTHING: 288791
DIP/AZIMUTH: 90°/--

BORE No: OP1
PROJECT No: 40740
DATE: 05 Feb 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
	1	CLAY - red brown clay with some sand and silt							Backfill	
	2	- becoming wet							Case	
	3								Bentonite	
	4								Gravel	
	4.5	Bore discontinued at 4.5m (target depth reached)							Screen	
	5									
	6									
	7									

RIG: Gemco 210B

DRILLER: Boers

LOGGED: J Smalley

CASING:

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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BOREHOLE LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING: 6235884
NORTHING: 289282
DIP/AZIMUTH: 90°/--

BORE No: OP2
PROJECT No: 40740
DATE: 05 Feb 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
		SILTY CLAY - brown silty clay	[Hatched pattern]							
	0.5	CLAY - orange brown clay	[Hatched pattern]							
	1	- with some sand (ironstone)	[Hatched pattern]							
	2		[Hatched pattern]							
	2.5	CLAY - yellow brown clay	[Hatched pattern]							
	3	- with some gravel	[Hatched pattern]							
	3.3	CLAY - grey mottled yellow clay	[Hatched pattern]							
	3.8	CLAY - brown clay (residual rock)	[Hatched pattern]							
	4		[Hatched pattern]							
	4.2	SHALE - brown shale	[Dashed pattern]							
	4.5	Bore discontinued at 4.5m (target depth reached)								
	5									
	6									
	7									

RIG: Gemco 210B

DRILLER: Boers

LOGGED: J Smalley

CASING:

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A Auger sample	pp Pocket penetrometer (kPa)
D Disturbed sample	PID Photo ionisation detector
B Bulk sample	S Standard penetration test
U Tube sample (x mm dia.)	PL Point load strength Is(50) MPa
W Water sample	V Shear Vane (kPa)
C Core drilling	> Water seep
	☼ Water level

CHECKED
Initials:
Date:



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BOREHOLE LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING: 6235699
NORTHING: 289911
DIP/AZIMUTH: 90°/--

BORE No: OP3
PROJECT No: 40740
DATE: 05 Feb 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
	0.3	SILTY CLAY - light brown silty clay	 					Soil		
		CLAY - light brown clay	 					Case		
1	1.0	CLAY - brown clay	 					Bentonite		
	1.7	CLAY - light brown clay	 							
2	2.0	CLAY - red brown clay, humid	 					Sand		
	2.2	CLAY - red mottled grey clay	 							
			 					Screen		
3			 							
	3.5	CLAY - grey clay	 							
4	4.0	CLAY - light brown and grey clay	 							
	4.3	SHALE - highly weathered, low strength shale	 							
	4.5	Bore discontinued at 4.5m (target depth reached)	 							
5			 							
6			 							
7			 							

RIG: Gemco 210B

DRILLER: Boers

LOGGED: J Smalley

CASING:

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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BOREHOLE LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING: 6236182
NORTHING: 290765
DIP/AZIMUTH: 90°/--

BORE No: OP4
PROJECT No: 40740
DATE: 05 Feb 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
	0.4	SILTY CLAY - brown silty clay	---						Backfill	
		CLAY - brown clay	/ / / /						Case	
	1	- harder	/ / / /						Bentonite	
		- humid	/ / / /							
	2		/ / / /						Sand	
	2.7	CLAY - orange brown clay	/ / / /						Screen	
	3		/ / / /							
	3.1	CLAY - light grey orange clay	/ / / /							
	3.3	CLAY - grey clay	/ / / /							
	3.8		/ / / /							
	4	SHALE - highly weathered shale	- - - -							
	4.0	SHALE - weathered shale	- - - -							
	4.1	Bore discontinued at 4.1m (target depth reached)	- - - -							
	5		/ / / /							
	6		/ / / /							
	7		/ / / /							

RIG: Gemco 210B

DRILLER: Boers

LOGGED: J Smalley

CASING:

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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BOREHOLE LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING: 6236733
NORTHING: 292042
DIP/AZIMUTH: 90°/--

BORE No: OP5
PROJECT No: 40740
DATE: 05 Feb 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details
				Type	Depth	Sample	Results & Comments		
	0.2	SILTY CLAY - brown silty clay	— / —						
		CLAY - brown clay	/ / / /						
	1								Backfill
	1.75	CLAY - light brown clay	/ / / /						Case
	2.0	CLAY - light grey brown clay	/ / / /						
	2.3	CLAY - orange clay	/ / / /						Bentonite
	3								
	3.5	CLAY - grey clay	/ / / /						Sand
	4								Screen
	4.7	SHALE - highly weathered shale	- - - -						
	5								
	5.85	Bore discontinued at 5.85m (target depth reached)							
	6								
	7								

RIG: Gemco 210B

DRILLER: Boers

LOGGED: J Smalley

CASING:

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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APPENDIX G

Test Pit Logs



NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, Geotechnical Site Investigations Code. In general, descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions.

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing with a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and in sands above the water

table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" — Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of say 4, 6 and 7

as 4, 6, 7
 N = 13

- In the case where the test is discontinued short of full penetration, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm

as 15, 30/40 mm.

The results of the tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

$$q_c \text{ (MPa)} = (0.4 \text{ to } 0.6) N \text{ (blows per 300 mm)}$$

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

$$q_c = (12 \text{ to } 18) c_u$$

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. Normally, there is a depth limitation of 1.2 m but this may be extended in certain conditions by the use of extension rods.

Two relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable, or possible to justify on economic grounds. In any case, the boreholes represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be

the same at the time of construction as are indicated in the report.

- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

If these occur, the Company will be pleased to assist with investigation or advice to resolve the matter.

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section

is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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DESCRIPTION AND CLASSIFICATION OF ROCKS FOR ENGINEERING PURPOSES

DEGREE OF WEATHERING

Term	Symbol	Definition
Extremely Weathered	EW	Rock substance affected by weathering to the extent that the rock exhibits soil properties - i.e. it can be remoulded and can be classified according to the Unified Classification System, but the texture of the original rock is still evident.
Highly Weathered	HW	Rock substance affected by weathering to the extent that limonite staining or bleaching affects the whole of the rock substance and other signs of chemical or physical decomposition are evident. Porosity and strength may be increased or decreased compared to the fresh rock usually as a result of iron leaching or deposition. The colour and strength of the original fresh rock substance is no longer recognisable.
Moderately Weathered	MW	Rock substance affected by weathering to the extent that staining or discolouration of the rock substance usually by limonite has taken place. The colour of the fresh rock is no longer recognisable.
Slightly Weathered	SW	Rock substance affected by weathering to the extent that partial staining or discolouration of the rock substance usually by limonite has taken place. The colour and texture of the fresh rock is recognisable.
Fresh Stained	Fs	Rock substance unaffected by weathering, but showing limonite staining along joints.
Fresh	Fr	Rock substance unaffected by weathering.

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index ($I_{S(50)}$) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by Australian Standard 4133.4.1 - 1993.

Term	Symbol	Field Guide*	Point Load Index $I_{S(50)}$ MPa	Approx Unconfined Compressive Strength q_u ** MPa
Extremely low	EL	Easily remoulded by hand to a material with soil properties	<0.03	< 0.6
Very low	VL	Material crumbles under firm blows with sharp end of pick; can be peeled with a knife; too hard to cut a triaxial sample by hand. SPT will refuse. Pieces up to 3 cm thick can be broken by finger pressure.	0.03-0.1	0.6-2
Low	L	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150 mm long 40 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.	0.1-0.3	2-6
Medium	M	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.	0.3-1.0	6-20
High	H	Can be slightly scratched with a knife. A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken with pick with a single firm blow, rock rings under hammer.	1 - 3	20-60
Very high	VH	Cannot be scratched with a knife. Hand specimen breaks with pick after more than one blow, rock rings under hammer.	3 - 10	60-200
Extremely high	EH	Specimen requires many blows with geological pick to break through intact material, rock rings under hammer.	>10	> 200

Note that these terms refer to strength of rock material and not to the strength of the rock mass, which may be considerably weaker due to rock defects.

* The field guide assessment of rock strength may be used for preliminary assessment or when point load testing is not able to be done.

** The approximate unconfined compressive strength (q_u) shown in the table is based on an assumed ratio to the point load index of 20:1. This ratio may vary widely.

STRATIFICATION SPACING

Term	Separation of Stratification Planes
Thinly laminated	<6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	>2 m

DEGREE OF FRACTURING

This classification applies to diamond drill cores and refers to the spacing of all types of natural fractures along which the core is discontinuous. These include bedding plane partings, joints and other rock defects, but exclude known artificial fractures such as drilling breaks. The orientation of rock defects is measured as an angle relative to a plane perpendicular to the core axis. Note that where possible, recordings of the actual defect spacing or range of spacings is preferred to the general terms given below.

Term	Description
Fragmented	The core consists mainly of fragments with dimensions less than 20 mm.
Highly Fractured	Core lengths are generally less than 20 mm - 40 mm with occasional fragments.
Fractured	Core lengths are mainly 40 mm - 200 mm with occasional shorter and longer sections.
Slightly Fractured	Core lengths are generally 200 mm - 1000 mm with occasional shorter and longer sections.
Unbroken	The core does not contain any fracture.

ROCK QUALITY DESIGNATION (RQD)

This is defined as the ratio of sound (i.e. low strength or better) core in lengths of greater than 100 mm to the total length of the core, expressed in percent. If the core is broken by handling or by the drilling process (i.e. the fracture surfaces are fresh, irregular breaks rather than joint surfaces) the fresh broken pieces are fitted together and counted as one piece.

SEDIMENTARY ROCK TYPES






















This classification system provides a standardised terminology for the engineering description of sandstone and shales, particularly in the Sydney area, but the terms and definitions may be used elsewhere when applicable.

Rock Type	Definition
Conglomerate	More than 50% of the rock consists of gravel-sized (greater than 2 mm) fragments
Sandstone:	More than 50% of the rock consists of sand-sized (0.06 to 2 mm) grains
Siltstone:	More than 50% of the rock consists of silt-sized (less than 0.06 mm) granular particles and the rock is not laminated.
Claystone:	More than 50% of the rock consists of clay or sericitic material and the rock is not laminated.
Shale:	More than 50% of the rock consists of silt or clay-sized particles and the rock is laminated.











Rocks possessing characteristics of two groups are described by their predominant particle size with reference also to the minor constituents, eg. clayey sandstone, sandy shale.

GRAPHIC SYMBOLS FOR SOIL & ROCK




SOIL

	BITUMINOUS CONCRETE
	CONCRETE
	TOPSOIL
	FILLING
	PEAT
	CLAY
	SILTY CLAY
	SANDY CLAY
	GRAVELLY CLAY
	SHALY CLAY
	SILT
	CLAYEY SILT
	SANDY SILT
	SAND
	CLAYEY SAND
	SILTY SAND
	GRAVEL
	SANDY GRAVEL
	CLAYEY GRAVEL
	COBBLES/BOULDERS
	TALUS





SEDIMENTARY ROCK

	BOULDER CONGLOMERATE
	CONGLOMERATE
	CONGLOMERATIC SANDSTONE
	SANDSTONE FINE GRAINED
	SANDSTONE COARSE GRAINED
	SILTSTONE
	LAMINITE
	MUDSTONE, CLAYSTONE, SHALE
	COAL
	LIMESTONE

METAMORPHIC ROCK

	SLATE, PHYLITTE, SCHIST
	GNEISS
	QUARTZITE

IGNEOUS ROCK



	GRANITE
	DOLERITE, BASALT
	TUFF
	PORPHYRY

TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 1
PROJECT No: 40740
DATE: 15 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, red brown and orange brown clay.		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
				D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
				D	2.5								
	3			D	3.0		pp > 400kPa	3					
	3.1	Pit discontinued at 3.1m (limit of investigation)											
	4												

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 2
PROJECT No: 40740
DATE: 15 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.1	TOPSOIL - brown sandy silty clay												
	0.3	SILTY CLAY - hard, brown silty clay			0.5		pp > 400kPa							
	0.9	CLAY - hard, orange brown and grey clay			1.0		pp > 400kPa	1						
	1.5				1.5		pp > 400kPa							
	2.0				2.0		pp = 200kPa	2						
	2.5	GRAVELLY SILTY CLAY - stiff, orange brown and dark grey gravelly silty clay. Gravel fine grained.			2.5									
	3.0				3.0		pp = 100-200kPa	3						
	3.2	Pit discontinued at 3.2m (limit of investigation)												
	4.0													

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 3
PROJECT No: 40740
DATE: 15 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
		TOPSOIL - brown silty clay		D	0.1								
	0.4	CLAY - hard, brown/orange brown clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.6	CLAY - hard, orange brown and grey clay		D	1.5		pp > 400kPa						
	2			D	2.0			2					
	3			D	2.5		pp = 350kPa						
	3			D	3.0		pp = 150-200kPa	3					
	3.2	Pit discontinued at 3.2m (limit of investigation)											
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 4
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.3	TOPSOIL - brown silty clay		D	0.1														
		CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	1			D	1.0		pp > 400kPa	1											
	1.4																		
	1.5	SHALE - slightly weathered, low to medium strength, grey and orange brown shale Pit discontinued at 1.5m (refusal in medium strength shale)		D	1.5														
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 6
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.1	TOPSOIL - brown silty clay		D	0.1								
	0.3	CLAY - hard, red brown clay		D	0.5		pp > 400kPa						
	0.7	CLAY - hard, grey and orange brown clay with trace gravel - gravel content increasing with depth.		D	1.0		pp > 400kPa	1					
	1.8	SHALE - extremely to highly weathered, extremely low to very low strength, grey and orange brown shale		D	2.0			2					
3	3.0	Pit discontinued at 3.0m (refusal in very low to low strength shale)						3					
4								4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:








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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 7
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
	0.9	CLAY - hard, red brown clay, humid		D	0.5		pp > 400kPa						
	1.0	CLAY - hard, grey mottled orange brown clay with a trace of gravel		D	1.0		pp > 400kPa	1					
	2.1			D	1.5								
	2.1			D	2.1								
	3.0	Pit discontinued at 3.0m (refusal in extremely low to very low strength shale)											

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:





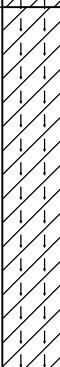

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 8
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		SILTY CLAY - hard, brown silty clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.4	SILTY CLAY - hard, orange brown and grey silty clay with trace gravel.		D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
	2.6			D	2.5		pp > 400kPa						
	2.7	SHALE - moderately weathered, low to medium strength, grey and orange brown, shale. Pit discontinued at 2.7m (refusal in low to medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 9
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay		D	0.1								
	0.2	CLAY - hard, light orange brown and red brown clay		D	0.5		pp > 400kPa						
	0.9	GRAVELLY SILTY CLAY - hard, grey and orange brown gravelly silty clay		D	1.0		pp > 400kPa	1					
	1.4	SHALE - slightly weathered, low to medium strength, grey shale		D	1.5								
	1.7	Pit discontinued at 1.7m (refusal in medium strength shale)											
	2							2					
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 11
PROJECT No: 40740
DATE: 19 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
	0.2	TOPSOIL - brown silty clay		D	0.1		pp > 400kPa					
	0.45	CLAY - hard, red brown clay		D	0.4							
	0.45	SHALE - extremely to highly weathered, extremely to very low strength, orange brown and grey shale		D	0.5							
	1.2	Pit discontinued at 1.2m (refusal on low to medium strength shale)										
	2											
	3											
	4											

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS: Moved pit 30m west

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 12
PROJECT No: 40740
DATE: 19 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
	0.2	TOPSOIL - brown silty clay		D	0.1		pp > 400kPa					
	0.2	CLAY - hard, orange brown clay		D	0.5							
	0.7	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale		D	1.0							
	1			D	2.5							
	2.7	Pit discontinued at 2.7m (refusal on low strength shale)										
	3											
	4											

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 13
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
	0.7	CLAY - hard, red brown clay		D	0.5		pp > 400kPa						
	1.4	CLAY - hard, grey mottled orange brown clay with some gravel		D	1.0		pp > 400kPa	1					
	1.7	SHALE - extremely to highly weathered, extremely low to low strength, brown and orange brown shale		D	1.5								
	1.7	Pit discontinued at 1.7m (refusal on low to medium strength shale)											
	2.0												
	3.0												
	4.0												

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 14
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.1	TOPSOIL - brown silty clay		D	0.1								
		GRAVELLY SILTY CLAY - hard, brown gravelly silty clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.6			D	1.5		pp > 400kPa						
	2	SHALE - highly to extremely weathered, low to medium strength, light brown shale		D	2.0		pp > 400kPa	2					
	2.2	Pit discontinued at 2.2m (refusal in low to medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:




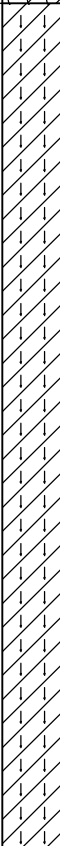
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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 15
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		SILTY CLAY - hard, red brown silty clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
				D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
				D	2.5		pp > 400kPa						
	3			D	3.0		pp > 400kPa	3					
	3.1	Pit discontinued at 3.1m (limit of investigation in hard silty clay)											
	4												

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 16
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, dark brown clay with trace gravel		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.7			D	1.5		pp > 400kPa						
	2	GRAVELLY SILTY CLAY - hard, grey gravelly silty clay		D	2.0		pp > 400kPa	2					
	2.3	SHALE - medium strength, fresh, grey shale											
	2.5	Pit discontinued at 2.5m (refusal in medium strength shale)		D	2.5		pp > 400kPa						
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 17
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay		D	0.1								
	0.2	CLAY - hard, red brown clay		D	0.5		pp > 400kPa						
	0.9	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange brown shale		D	1.0			1					
	1.7	Pit discontinued at 1.7m (limit of investigation in extremely low to medium strength shale)		D	1.5								
	2							2					
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 18
PROJECT No: 40740
DATE: 19 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.2	TOPSOIL - brown silty clay		D	0.1									
	0.2	CLAY - hard, red brown and orange brown clay		D	0.5		pp > 400kPa							
	1			D	1.0		pp > 400kPa	1						
	1.3	SILTY CLAY - hard, red brown silty clay		D	1.5		pp > 400kPa							
	2			D	2.3		pp > 400kPa							
	2.7			D	2.7									
3	3.0	Pit discontinued at 3.0m (limit of investigation)												
4														

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:





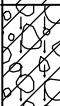

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 19
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.25	TOPSOIL - brown silty clay		D	0.1								
	0.55	CLAY - hard, red brown clay		D	0.5		pp > 400kPa						
	0.9	GRAVELLY SILTY CLAY - hard, orange brown and grey gravelly silty clay		D	1.0		pp > 400kPa	1					
	1.5	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale		D	1.7								
	2.6	Pit discontinued at 2.6m (refusal on low to medium strength shale)											

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS:

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 20
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay		D	0.1								
	0.2	CLAY - hard, red brown clay		D	0.5		pp > 400kPa						
	0.7	GRAVELLY SILTY CLAY - hard, orange brown gravelly silty clay		D	1.0		pp > 400kPa	1					
	1			D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
	2.4	SHALE - highly weathered, very low to medium strength, grey and orange brown shale		D	2.5								
	2.7	Pit discontinued at 2.7m (refusal in medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
Δ	Water seep
≡	Water level

CHECKED
Initials:
Date:




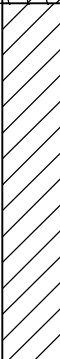

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 21
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, red brown and grey clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.5	SHALE - extremely to highly weathered, extremely low to medium strength, red brown and grey shale		D	1.5								
	2			D	2.0			2					
	2.3	Pit discontinued at 2.3m (refusal in low to medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:





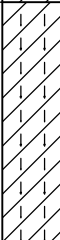
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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 22
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, orang brown clay with trace gravel		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
				D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
	2.3	SILTY CLAY - stiff, brown silty clay		D	2.5		pp > 150kPa						
	3			D	3.0		pp = 150kPa	3					
	3.1	Pit discontinued at 3.1m (limit of investigation in stiff clay)											
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:





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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 23
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, orange brown clay, humid		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
				D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
				D	2.5		pp > 400kPa						
	3			D	3.0		pp > 400kPa	3					
	3.1	Pit discontinued at 3.1m (limit of investigation)											
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:




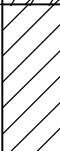

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 24
PROJECT No: 40740
DATE: 15 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.1	TOPSOIL - brown silty clay		D	0.1								
	0.4	CLAY - hard, red brown and brown clay		D	0.5		pp > 400kPa						
	0.9	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown shale		D	1.0		pp > 400kPa	1					
	1.7	Pit discontinued at 1.7m (refusal on low to medium strength shale)		D	1.5								
	2							2					
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:





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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 25
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.2	TOPSOIL - brown silty clay		D	0.1									
		CLAY - hard, red brown clay		D	0.5		pp > 400kPa							
	1			D	1.0		pp > 400kPa	1						
				D	1.5		pp > 400kPa							
	2			D	2.0		pp > 400kPa	2						
				D	2.5		pp > 400kPa							
	3	Pit discontinued at 3.0m (limit of investigation in hard clay)						3						
	4							4						

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 26
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		SILTY CLAY - hard, brown and red brown silty clay with some gravel		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.2	SHALE - slightly weathered, medium strength, grey shale											
	1.4	Pit discontinued at 1.4m (refusal in medium strength shale)		D	1.4								
	2												
	3												
	4												

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 27
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.2	TOPSOIL		D	0.1									
	0.9	GRAVELLY SILTY CLAY - hard, red/brown and orange/brown gravelly silty clay		D	0.5		pp > 400kPa							
	1.0	CLAY - hard, red/brown and grey clay with trace gravel		D	1.0		pp > 400kPa	1						
	1.5			D	1.5		pp > 400kPa							
	2.0			D	2.0		pp > 400kPa	2						
	2.5	- gravel content increasing with depth		D	2.5		pp > 400kPa							
	2.8	SHALE - extremely to highly weathered, extremely low to very low strength, grey and red/brown shale						3						
	3.2	Pit discontinued at 3.2m (refusal on low to medium strength shale)												
	4.0							4						

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 29
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, red/brown and grey clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.7			D	1.5		pp > 400kPa						
	2	SHALE - extremely to highly weathered, extremely low to medium strength, grey ad orange brown shale		D	2.0			2					
	2.1	Pit discontinued at 2.1m (refusal in low to medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 30
PROJECT No: 40740
DATE: 19 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
	0.25	FILLING - brown silty clay		D	0.1		pp > 400kPa					
	0.7	CLAY - hard, brown and orange brown clay		D	0.5							
	1.0	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown, red brown and grey shale		D	1.0							
	1.5			D	1.5							
	2.8	Pit discontinued at 2.8m (refusal in extremely low to very low strength shale)										

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS: Pit moved about 50m north towards road

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 31
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
		TOPSOIL - brown gravelly silty clay		D	0.1								
	0.7	GRAVELLY SILTY CLAY - hard, brown, gravelly silty clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa						
	2			D	1.5		pp > 400kPa						
	2.1			D	2.0		pp > 400kPa						
		Pit discontinued at 2.1m (refusal in extremely low to low strength, extremely weathered, orange/brown shale)											
	3												
	4												

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 32
PROJECT No: 40740
DATE: 19 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
	0.1	TOPSOIL - brown silty clay		D	0.1													
	0.45	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa											
	1.0			D	1.0		pp > 400kPa											
	1.3	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale		D	1.5													
	2.8	Pit discontinued at 2.8m (near refusal on low strength shale)																
	3.0																	
	4.0																	

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS: Pit moved off

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:





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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 33
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)											
				Type	Depth	Sample	Results & Comments		5	10	15	20								
	0.35	TOPSOIL - brown silty clay		D	0.1															
		CLAY - hard, red brown clay with trace gravel		D	0.5		pp > 400kPa													
	1			D	1.0		pp > 400kPa													
	2			D	2.0															
	3			D	2.5															
	3.1			D	3.0				pp > 400kPa											
		Pit discontinued at 3.1m (limit of investigation)																		
	4																			

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 34
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)						
				Type	Depth	Sample	Results & Comments		5	10	15	20			
	0.3	TOPSOIL - brown silty clay		D	0.1		pp > 400kPa								
	0.9	CLAY - hard, red brown clay		D	0.5										
	1.4	SHALE - moderately to highly weathered, extremely low to low strength, grey and orange brown shale		D	1.0										
	1.4	Pit discontinued at 1.4m (refusal on low to medium strength shale)													
	2.0														
	3.0														
	4.0														

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 35
PROJECT No: 40740
DATE: 16 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, orange brown clay with some gravel. - gravel content increasing with depth.		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.2	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale (excavates as a mixture of silty clay and gravel)											
	2							2					
	2.7	- slightly to moderately weathered											
	2.7	Pit discontinued at 2.7m (refusal in low to medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






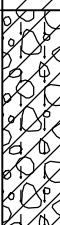

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 36
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, orange brown clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
		- trace gravel		D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
	2.4	GRAVELLY SILTY CLAY - very stiff, grey and orange/brown gravelly silty clay		D	2.5		pp = 300kPa						
	3			D	3.0		pp = 300kPa	3					
	3.2	SHALE - extremely to highly weathered, extremely low to medium strength, grey shale		D	3.3								
	3.3	Pit discontinued at 3.3m (refusal in extremely low to medium strength shale)											
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 37
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.3	TOPSOIL - brown silty clay		D	0.1		pp > 400kPa							
	0.9	CLAY - hard, grey mottled red/brown clay		D	0.5									
	1.7	SHALE - extremely weathered, extremely low to medium strength, grey and orange/brown shale		D	1.0									
	1.7	Pit discontinued at 1.7m (refusal in extremely low to medium strength shale)												
	2													
	3													
	4													

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
☞	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 38
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.1	TOPSOIL - brown silty clay		D	0.1								
	0.4	CLAY - hard, orange brown clay		D	0.5								
	1.0			D	1.0								
	1.5			D	1.5								
	2.0			D	2.0								
	2.5	SHALE - extremely to highly weathered, extremely low to medium strength, red brown and orange brown shale		D	2.5								
	2.7	Pit discontinued at 2.7m (refusal in extremely low to medium strength shale)											
	3.0												
	4.0												

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 39
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.4	TOPSOIL - brown silty clay		D	0.1								
		SILTY CLAY - hard, light orange brown silty clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
				D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
	2.0 2.1	SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and grey shale Pit discontinued at 2.1m (refusal in low to medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 41
PROJECT No: 40740
DATE: 19 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
	0.3	TOPSOIL - brown silty clay		D	0.1													
		CLAY - hard, red brown mottled grey clay		D	0.5		pp > 400kPa											
	1.0	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale		D	1.0													
	1.7	Pit discontinued at 1.7m (refusal on low to medium strength shale)																
	2																	
	3																	
	4																	

RIG: Backhoe - 450mm bucket

LOGGED: Lackenby

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 42
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
	0.7	CLAY - hard, red brown clay		D	0.5								
	1.0	GRAVELLY SILTY CLAY - very stiff, orange brown gravelly silty clay		D	1.0		pp = 250kPa	1					
	1.7			D	1.5		pp = 250kPa						
	2.0	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange brown shale											
2	2.0	Pit discontinued at 2.0m (refusal in low to medium strength shale)		D	2.0			2					
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 43
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, red/brown and grey clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.4	GRAVELLY SILTY CLAY - hard, grey gravelly silty clay		D	1.5		pp > 400kPa						
	1.6	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange brown shale		D	2.0			2					
	2.1	Pit discontinued at 2.1m (refusal in low to medium strength shale)											
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 44
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.1	TOPSOIL - brown silty clay		D	0.1								
	0.3	CLAY - hard, red brown clay		D	0.5		pp > 400kPa						
	0.9	GRAVELLY CLAY - hard, grey and orange brown gravelly clay		D	1.0		pp > 400kPa	1					
	1			D	1.5		pp > 400kPa						
	2.2	SHALE - extremely weathered, extremely low strength, orange brown and grey shale		D	2.2		pp > 400kPa						
	2.7			D	2.7		pp > 400kPa						
	3.0	Pit discontinued at 3.0m (limit of investigation)											

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 45
PROJECT No: 40740
DATE: 18 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.1	TOPSOIL - brown silty clay												
	0.3	CLAY - hard, red brown mottled grey clay			0.5		pp > 400kPa							
	0.9	GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay			1.0		pp = 250kPa	1						
	1.2	SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale			1.3									
	1.5	GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay			1.5		pp = 250kPa							
	2.0				2.0		pp = 300kPa	2						
	2.5				2.5		pp = 300kPa							
	2.9	SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale						3						
	3.1	Pit discontinued at 3.1m (refusal in extremely low to medium strength shale)												
	4.0							4						

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A Auger sample	pp Pocket penetrometer (kPa)
D Disturbed sample	PID Photo ionisation detector
B Bulk sample	S Standard penetration test
U Tube sample (x mm dia.)	PL Point load strength Is(50) MPa
W Water sample	V Shear Vane (kPa)
C Core drilling	> Water seep
	≡ Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 46
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay		D	0.1								
		SILTY CLAY - hard, orange brown silty clay with some gravel		D	0.5		pp > 400kPa						
1	1.0	GRAVELLY SILTY CLAY - hard, grey and red brown gravelly silty clay		D	1.1		pp > 400kPa	1					
				D	1.5		pp > 400kPa						
2				D	2.0		pp > 400kPa	2					
				D	2.5		pp > 400kPa						
3	2.9	Pit discontinued at 2.9m (limit of investigation in gravelly silty clay)						3					
4								4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 47
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay with some fibreboard		D	0.1														
		CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	1.0			D	1.0		pp > 400kPa												
	1.3	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale																	
	1.6	Pit discontinued at 1.6m (refusal on low to medium strength shale)																	
	2.0																		
	3.0																		
	4.0																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS: Asbestos in topsoil

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:







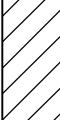

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 48
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
	0.2	TOPSOIL - brown silty clay		D	0.1													
	0.2	CLAY - hard, brown orange clay		D	0.5		pp > 400kPa											
	0.6	GRAVELLY CLAY - hard, brown and orange 3mm sized gravelly clay		D	1.0		pp > 400kPa											
	0.9	CLAY - hard, brown orange clay		D	1.4		pp > 400kPa											
	1.7	- trace gravel, gravel content increasing with depth		D			pp > 400kPa											
	1.7	SHALE - extremely to very highly weathered, extremely low to very low strength, orange, grey and black shale																
	1.9	Pit discontinued at 1.9m (refusal on low to medium strength shale)																

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 49
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.2	TOPSOIL - brown silty clay with trace gravel		D	0.1									
	0.2	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa							
	0.8	CLAY - hard, grey and orange clay		D	1.0		pp > 400kPa	1						
	1.25	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale		D	1.5									
	1.8	Pit discontinued at 1.8m (refusal in low to medium strength shale)						2						
	2													
	3													
	4													

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 50
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, red brown mottled grey clay		D	0.5								
	1.7	SHALE - highly weathered, extremely low to medium strength, red/brown and grey shale		D	1.0								
	2.9	Pit discontinued at 2.9m (refusal in low to medium strength shale)		D	1.5								
					1.9								
	3												
	4												

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 51
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.1	TOPSOIL - brown silty clay		D	0.1														
	0.3	CLAY - hard, red brown clay		D	0.5		pp > 400kPa												
	0.7	GRAVELLY CLAY - hard, grey gravelly clay		D	1.0		pp > 400kPa												
	1.4	SHALE - slightly weathered, extremely low to medium strength, grey shale		D	1.5														
	1.5	Pit discontinued at 1.5m (refusal in low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 52
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
	0.3	TOPSOIL - brown silty clay		D	0.1													
		CLAY - hard, red brown clay		D	0.5		pp > 400kPa											
	1			D	1.0		pp > 400kPa											
	1.5	GRAVELLY CLAY - hard, grey gravelly clay		D	1.5		pp > 400kPa											
	2.0	SHALE - extremely to highly weathered, extremely low to medium strength, red brown and grey shale		D	2.1													
	2.3	Pit discontinued at 2.3m (refusal in low to medium strength shale)																
	3																	
	4																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:





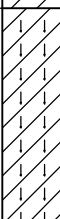
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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 54
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
		TOPSOIL - light brown silty clay		D	0.1								
	0.5	CLAY - hard, red brown and orange clay		D	0.5		pp > 400kPa						
	1			D	1.1		pp > 400kPa						
	1.5	SILTY CLAY - hard, grey and red brown silty clay with trace gravel		D	1.7		pp > 400kPa						
	2.2	Pit discontinued at 2.2m (refusal on low to medium strength shale)											
	3												
	4												

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 55
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, red brown and grey clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
				D	1.5		pp > 400kPa						
	1.8	GRAVELLY SILTY CLAY - hard, grey and red brown gravelly silty clay		D	2.0		pp > 400kPa	2					
	2			D	2.5		pp > 400kPa						
				D	2.9		pp > 400kPa						
	3.0	Pit discontinued at 3.0m (limit of investigation in gravelly silty clay)						3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 56
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay		D	0.1								
		SILTY CLAY - hard, brown silty clay with some gravel, dry		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.4	GRAVELLY SILTY CLAY - hard, brown gravelly silty clay, dry		D	1.5		pp > 400kPa						
	2			D	2.0		pp > 400kPa	2					
	2.3	GRAVELLY SILTY CLAY - hard, grey gravelly silty clay, dry. High gravel content		D	2.5		pp > 400kPa						
	3	Pit discontinued at 3.0m (limit of investigation in low strength shale)						3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS:

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 57
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay with some concrete and fibreboard		D	0.1														
	0.65	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	0.8	SHALE - extremely to very highly weathered, extremely low to very low strength, orange/brown shale Pit discontinued at 0.8m (refusal on low to medium strength shale)																	
	1																		
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS: Possible asbestos found on surface

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



Douglas Partners
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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 58
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay with some gravel		D	0.1														
	0.65	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	0.8	SHALE - very highly to highly weathered, extremely low to very low strength, orange and grey shale Pit discontinued at 0.8m (refusal on low to medium strength shale)																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



Douglas Partners
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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 59
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay		D	0.1														
	0.2	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	0.8	SHALE - very highly to highly weathered, extremely low to very low strength, orange and grey shale																	
	1.3	Pit discontinued at 1.3m (refusal on low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 60
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay with trace gravel		D	0.1														
	0.2	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	0.8	SHALE - highly weathered, extremely low to very low strength, grey shale																	
	1.1	Pit discontinued at 1.1m (refusal on low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:





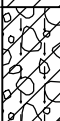

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 61
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.3	TOPSOIL - brown silty clay		D	0.1														
		CLAY - hard, red/brown mottled grey clay, humid		D	0.5		pp > 400kPa												
	1			D	1.0		pp > 400kPa	1											
	1.4	GRAVELLY SILTY CLAY - hard, brown and grey gravelly silty clay, humid		D	1.5														
	1.8	SHALE - fresh, very low to medium strength, grey shale		D	1.9														
	1.9	Pit discontinued at 1.9m (refusal in low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 62
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.1	TOPSOIL - brown silty clay		D	0.1														
	0.3	CLAY - hard, red brown clay		D	0.5														
	0.6	GRAVELLY SILTY CLAY - hard, yellow brown and grey gravelly silty clay		D	1.0														
	1.1	SHALE - highly weathered, extremely low to medium strength, yellow brown and grey shale		D	1.3														
	1.3	Pit discontinued at 1.3m (refusal in low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 63
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.3	TOPSOIL - brown silty clay		D	0.1														
	0.7	CLAY - hard, red brown clay		D	0.5		pp > 400kPa												
	1.0	SHALE - moderately weathered, extremely low to medium strength, red brown and grey shale		D	1.0														
	1.0	Pit discontinued at 1.0m (refusal in low to medium strength shale)																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 64
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
		TOPSOIL - brown silty clay		D	0.1														
	0.3	CLAY - hard, orange brown slightly silty clay with some gravel																	
	0.45	SILTY CLAY - hard, grey and orange silty clay		D	0.5		pp > 400kPa												
	0.85	SANDSTONE - extremely to very highly weathered, extremely low to very low strength, grey and orange fine grained sandstone																	
	1																		
	1.1	Pit discontinued at 1.1m (refusal in low to medium strength fine grained sandstone)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 65
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, brown orange clay		D	0.5		pp > 400kPa						
	1			D	1.0		pp > 400kPa	1					
	1.4	SILTY CLAY - very stiff, grey and orange silty clay		D	1.5		pp = 350-400kPa						
	1.9	CLAY - stiff, grey clay with trace gravel		D	2.0		pp = 350-400kPa	2					
	2			D	2.5		pp > 400kPa						
	3			D	3.0		pp > 400kPa	3					
	3.05	Pit discontinued at 3.05m (limit of investigation in hard clay with some gravel)											
	4												

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:





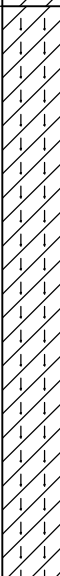
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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 66
PROJECT No: 40740
DATE: 17 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
		CLAY - hard, red brown clay, humid		D	0.5		pp > 400kPa						
	1.1	SILTY CLAY - hard, grey and red brown silty clay, humid		D	1.2		pp > 400kPa						
				D	1.5		pp > 400kPa						
				D	2.0		pp > 400kPa						
				D	2.5		pp > 400kPa						
	3.0	Pit discontinued at 3.0m (limit of investigation in silty clay)											

RIG: Backhoe - 450mm bucket

LOGGED: N Boers

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:





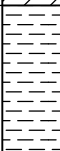
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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 67
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay		D	0.1														
	0.2	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	0.9	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale		D	1.0														
	1.4	Pit discontinued at 1.4m (refusal on low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 68
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
		TOPSOIL - gravelly silty clay		D	0.1													
	0.3	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale																
	0.5	Pit discontinued at 0.5m (refusal on low to medium strength shale)																
	1																	
	2																	
	3																	
	4																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 69
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.15	TOPSOIL - brown silty clay		D	0.1														
	0.6	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	0.8	SHALE - highly weathered, extremely low to very low strength, grey shale																	
	1	Pit discontinued at 0.8m (refusal on low to medium strength shale)																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 70
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay		D	0.1								
	0.4	CLAY - hard, orange brown clay											
	0.9	SHALE - extremely to very highly weathered, extremely low to very low strength, orange, grey and brown shale		D	0.5		pp > 400kPa						
	1	Pit discontinued at 0.9m (refusal on low to medium strength shale)											
	2												
	3												
	4												

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 71
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.3	TOPSOIL - brown silty clay		D	0.1														
	0.3	GRAVELLY CLAY - hard, red/brown mottled grey gravelly clay		D	0.5		pp > 400kPa												
	1.0	SHALE - highly weathered, extremely low to medium strength, red/brown and grey shale		D	1.0														
	1.1	Pit discontinued at 1.1m (refusal in low to medium strength shale)																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 72
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.1	TOPSOIL - brown silty clay		D	0.1								
	0.3	CLAY - hard, red/brown clay, humid		D	0.5		pp > 400kPa						
	0.9	GRAVELLY SILTY CLAY - hard, yellow brown gravelly silty clay, humid		D	1.0		pp > 400kPa	1					
	1.5	SHALE - highly weathered, extremely low to medium strength, red/brown and grey shale		D	1.5								
	2.0			D	2.0			2					
	2.2	Pit discontinued at 2.2m (refusal in low to medium strength shale)											
	3.0							3					
	4.0							4					

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:






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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 73
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)						
				Type	Depth	Sample	Results & Comments		5	10	15	20			
	0.2	TOPSOIL - brown silty clay		D	0.1		pp > 400kPa								
	0.2	CLAY - hard, orange brown clay with trace gravel		D	0.5										
	0.8	SANDSTONE - extremely to very highly weathered, extremely low to very low strength, orange and grey very fine grained sandstone													
	1.1	Pit discontinued at 1.1m (refusal in low to medium strength very fine grained sandstone)													
	2														
	3														
	4														

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS: Possible asbestos found on surface

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 74
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
		TOPSOIL - brown silty clay		D	0.1									
	0.4	SILTY CLAY - stiff, orange/brown mottled grey silty clay, moist		D	0.5		pp = 150kPa							
	1			D	1.0		pp = 150kPa	1						
				D	1.5		pp = 150kPa							
	2	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange/brown shale		D	2.0		pp = 150kPa	2						
	2.3	Pit discontinued at 2.3m (refusal in low to medium strength shale)		D	2.3									
				D	2.5		pp = 150kPa							
	3													
	4													

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS:

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 75
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.1	TOPSOIL - brown silty clay		D	0.1								
	0.4	CLAY - hard, brown/orange clay		D	0.5		pp > 400kPa						
	0.8	SILTY CLAY - hard, orange brown silty clay		D	1.0		pp > 400kPa	1					
	1.5			D	1.5		pp > 400kPa						
	2.0			D	2.0		pp > 400kPa	2					
	2.4	GRAVELLY SILTY CLAY - hard, orange brown and grey, gravelly silty clay		D	2.5		pp > 400kPa						
	2.8	SANDSTONE - extremely to highly weathered, extremely low to very low strength, red and grey sandstone		D	2.95								
	3.0	Pit discontinued at 3.0m (limit of investigation in very low to low strength sandstone)						3					
	4.0							4					

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:





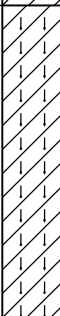




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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 76
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1								
	0.9	CLAY - hard, orange brown clay with some gravel		D	0.5		pp > 400kPa						
	1.1	SILTY CLAY - hard, orange brown silty clay		D	1.0		pp > 400kPa	1					
	2.1			D	1.5		pp > 400kPa						
	2.2			D	2.0		pp = 350kPa	2					
	2.7			D	2.5		pp = 350kPa						
	3.1	GRAVELLY CLAY - very stiff to hard, orange brown and black gravelly clay		D	3.0		pp = 400kPa	3					
	3.1	Pit discontinued at 3.1m (limit of investigation in very stiff to hard gravelly clay)											
	4.0							4					

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 77
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
	0.3	TOPSOIL - brown silty clay with trace gravel		D	0.1													
	0.55	SHALE - moderately weathered, extremely low to low strength, grey shale																
	0.55	Pit discontinued at 0.55m (refusal on low to medium strength shale)																
	1																	
	2																	
	3																	
	4																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 78
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.2	TOPSOIL - brown silty clay with trace gravel		D	0.1								
		CLAY - hard, orange brown clay		D	0.5		pp > 400kPa						
	0.8	GRAVELLY CLAY - hard, grey and orange gravelly clay, gravel content increasing with depth		D	1.0		pp > 400kPa	1					
	1.2	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale											
	1.4	Pit discontinued at 1.4m (refusal on low to medium strength shale)											
	2							2					
	3							3					
	4							4					

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
☞	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 79
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay																	
	0.5	CLAY - hard, orange brown clay		D	0.4		pp > 400kPa												
	0.6	SHALE - moderately weathered, extremely low to low strength, grey shale Pit discontinued at 0.6m (refusal on low to medium strength shale)																	
	1			D	1.0														
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 80
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.2	TOPSOIL - brown silty clay with some gravel		D	0.1														
	0.2	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa												
	0.85	SHALE - highly weathered, extremely low to very low strength, brown/grey and orange shale																	
	1.0	Pit discontinued at 1.0m (refusal on low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 81
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.3	TOPSOIL - brown silty clay		D	0.1														
		CLAY - hard, red/brown mottled grey clay, moist		D	0.5		pp > 400kPa												
1	1.0	GRAVELLY SILTY CLAY - hard, grey and red/brown gravelly silty clay, moist		D	1.0		pp > 400kPa	1											
	1.4	SHALE - extremely weathered, extremely low to medium strength, grey and red/brown shale		D	1.4														
	1.5	Pit discontinued at 1.5m (refusal in low to medium strength shale)																	
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
▷	Water seep
≡	Water level

CHECKED
Initials:
Date:




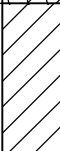

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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 83
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.3	TOPSOIL - brown silty clay with trace gravel		D	0.1														
	0.3	CLAY - hard, orange brown slightly silty clay		D	0.5		pp > 400kPa												
	0.8	SANDSTONE - very highly to highly weathered, extremely low to very low strength, orange and grey sandstone																	
	1.0	Pit discontinued at 1.0m (refusal on low to medium strength sandstone)																	

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:







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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 84
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
		TOPSOIL - brown silty clay		D	0.1								
	0.7	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa						
	1.2	SILTY CLAY - hard, red brown silty clay		D	1.0		pp > 400kPa	1					
	1.9	CLAY - hard, orange and greyclay		D	1.5		pp > 400kPa						
	2.9			D	2.0		pp > 400kPa	2					
	3.0			D	2.5		pp > 400kPa						
	3.0	Pit discontinued at 3.0m (limit of investigation in hard clay)		D	2.9		pp > 400kPa						
	3.0												

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 85
PROJECT No: 40740
DATE: 23 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	TOPSOIL - brown silty clay		D	0.1		pp > 400kPa						
	0.8	SILTY CLAY - hard, orange brown silty clay with trace gravel		D	0.5								
	0.9	SANDSTONE - highly weathered, extremely low to very low strength, fine grained sandstone Pit discontinued at 0.9m (refusal on low to medium strength fine grained sandstone)											

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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TEST PIT LOG

CLIENT: Growth Centres Commission
PROJECT: Land Capability Assessment
LOCATION: Oran Park

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: 86
PROJECT No: 40740
DATE: 22 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
		GRAVEL AND CLAY - unconsolidated gravel and clay																	
	0.55	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale		D	0.5														
	0.7	Pit discontinued at 0.7m (refusal on low to medium strength shale)																	
	1																		
	2																		
	3																		
	4																		

RIG: Backhoe - 450mm bucket

LOGGED: Jackson

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A	Auger sample
D	Disturbed sample
B	Bulk sample
U	Tube sample (x mm dia.)
W	Water sample
C	Core drilling
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
S	Standard penetration test
PL	Point load strength Is(50) MPa
V	Shear Vane (kPa)
>	Water seep
≡	Water level

CHECKED
Initials:
Date:



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