Appendix 4 – Preliminary Contamination and Groundwater Assessment Report – 22-28 Princess Street



LETTER REPORT

TO

BRIGHTON AUSTRALIA

ON

PRELIMINARY CONTAMINATION & GROUNDWATER ASSESSMENT

FOR

PLANNING PROPOSAL

AT

22-28 PRINCESS STREET, BRIGHTON-LE-SANDS NSW

Job No: MPG 2038

Report No: ENV AB

Our Ref No: 590

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Brighton Australia 65 The Grand Parade Brighton Le Sands NSW 2216

Attention: Mr Alex Scionti

Preliminary Contamination & Groundwater Assessment 22-28 Princess Street, Brighton-Le-Sands NSW

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All enquiries regarding this project are to be directed to the undersigned.

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1 Introduction

Compaction & Soil Testing Services Pty Ltd (CSTS) was engaged to undertake a limited desktop study of the properties known as 22-28 Princess Street, Brighton-Le-Sands NSW, hereinafter referred to as *'the Site'*.

2 Objective

The objective of the assessment was to provide a preliminary indication of the potential for soil contamination to be present within the site, approximate depth to groundwater and general advice regarding dewatering the site for the excavation of basement levels.

3 Scope of Works

In order to achieve the objectives, consultants from CSTS undertook the following scope of works;

- > Review of readily available historic and current aerial photography,
- > Review of readily available geology and acid sulfate soil risk maps,
- Review of readily available groundwater information held within the National Resource Atlas,
- > Review of Contaminated Land Register and sites notified to the NSW EPA,
- > Conduct non-intrusive site inspection.

4 Site Information

The site is rectangular in shape and covers an area of approximately 1,190m². The site is bound by Princess Street to the North, an access lane to the South, Moate Avenue to the west and existing duplex dwellings to the east. The site has an overall gentle slope (1.5°) from a high point (Approx 12.5m AHD) in the North-east to a low point (Approx 11.7m AHD) in the South-west.

The site is currently occupied by a four-storey brick and concrete apartment block with tiled roof. The apartment block appears to be a 'walk-up' design and the ground-floor appears to be the foyer and secured parking. The building appears to be well maintained and in a reasonable state of repair. Based on the appearance of the existing building, the site is used for medium density residential purposes.

5 Potential Contamination

5.1 Aerial Imagery Review

5.1.1 Aerial Photograph 1943

The site and immediately surrounding area appears to contain duplex dwellings. Princess Street and an access laneway are present to the North and South respectively. A large tall building (possibly factory or office building), approximately 80m South-east of the site is observed. The general area appears to consist of residential properties.

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5.1.2 Aerial Photograph 2014

The site has undergone redevelopment at some stage, and now contains an apartment complex and associated parking. The neighbouring properties to the south and the properties west of Moate Avenue have been redeveloped into apartments. The properties immediately east are consistent with the 1943 aerial imagery. East of these properties, an amalgamation of properties are in the process of development. The general area appears to have undergone significant redevelopment into high-rise residential properties with commercial developments included. A large hotel (Novotel) is observed approximately 80m east of the site.

5.2 Regulatory Notices Search

A search of the Contaminated Land Register for Notices issued under the *CLM Act 1997* did not return any results regarding this site. The site is also not included in the *List of NSW contaminated sites notified to the EPA*. The nearest notified site is a service station approximately 315m North-east of the site. The service station has previously been regulated, though the contamination within the service station (and area of impact) is not considered significant enough to warrant regulatory intervention.

6 Soil

6.1 Geology

Reference to the Sydney 1:100,000 Geological Sheet 9130 (Herbert C, 1983) indicates the general area of the site is underlain by coarse quartz sand with varying amounts of shell fragments. This is confirmed by reviewing the driller's logs for the groundwater bores in Section 7.1. The driller's logs identified the area as underlain by unconsolidated sands.

6.2 Acid Sulfate Soil Risk

CSTS has reviewed the NSW DLWC (1997) *Botany Bay – Acid Sulfate Soil Risk Map – Edition Two* to determine the potential for Acid Sulfate Soils. Based on this review, the site is within an area of low probability of encountering Acid Sulfate Soils at depths greater than 3m bgl. The general area (Brighton-Le-Sands) has been identified as Aeolian Sand-plains with elevations in excess of 4m AHD.

7 Groundwater

7.1 Groundwater Condition

Information pertaining to groundwater condition was determined by review of information held within the National Resource Atlas. Five (5) groundwater bores were reviewed. From the centre of the site, bores were located approximately 170m North-east (GW106899), 130m North-east (GW107350), 130m North-west (GW107153), 140m West (GW105629) and 175m South-west (GW110845) of the site. Groundwater was encountered at 6.10m bgl, 5.80m bgl, 4.88m bgl, 4.27m bgl and 5.49m bgl respectively. Based on the available information, groundwater within the site is expected to be encountered approximately 4-6m bgl.

7.2 Dewatering

Based on the predicted groundwater levels, CSTS is of the opinion that dewatering of groundwater for excavation will be required. Depending on the excavation and construction method, a possible method of dewatering could include the installation of 'sheet piles' to act as a cut-off wall. Spears would then be placed within the excavation

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and progressively dewatered during excavation, to minimise the potential for oxidisation of acid sulfate soils, if encountered. The extracted water could then be reinjected beyond the cut-off walls. Treatment of the water may be required prior to reinjection.

CSTS notes that approval from the NSW Office of Water may be required and should be contacted for further information.

Due to the predicted groundwater levels, the basement construction will likely be required to be 'Tanked' to eliminate the requirement for continued, permanent dewatering processes.

8 Conclusions

- The site has undergone considerable redevelopment since 1943, namely, the demolition of duplex dwellings and the installation of walk-up apartment complex,
- > The site has historically been and is currently used for residential purposes,
- The site appears to have low potential for significant soil contamination to be present,
- > Deep excavations within the site may encounter Acid Sulfate Soils,
- Groundwater will likely be encountered during excavation and require a dewatering management plan to be prepared.

9 Limitations

CSTS has relied on information provided and produced by others. CSTS has made no effort to substantiate the information provided or used and accepts no responsibility for the accuracy of the information.

CSTS has only conducted a non-intrusive assessment of the site. The site inspection was conducted from the site boundary only. Factors that may influence the report may not have been observable from the site boundary. Should conditions within the site vary from the expected, this office should be contacted immediately. The conclusions of this report may vary depending on additional information which may become available.

This report has been prepared for an expressed purpose and for the express use of Brighton Australia and any third party they deem necessary. Reliance upon information held within this report by others is done so at own risk. This report has not been prepared in accordance with NSW OEH *Guidelines for Consultants Reporting on Contaminated Sites 2011*, and has been prepared only to assess the potential risks based on readily available information. CSTS makes no warranties, implied or otherwise, regarding the accuracy of information used within this report.

Should you have any further queries regarding this report, please do not hesitate to contact our office.

10 Attachments

- > 1943 Aerial Photograph
- > 2014 Aerial Photograph
- Groundwater Bore Summary Reports



Compaction and Soil Testing Services Pty Ltd								
which additional information e.g.: density test, DCP and Test Pit locations or	Drawn:	CR	1042 April Dhotograph	Drawing	ENV AB001			
	notes have been added. Some or all the information shown on the plan may not	Approved:	CR	1943 Aerial Photograph 22-28 Princess Street	No:	EINV ADUUT		
		Date:	27/08/2014		Job Max	MDC 2020		
		Scale:	Not To Scale	Brighton-Le-Sands, NSW	Job No:	MPG 2038		

Form No.WS 014

Issued No.1.1

Issued By:PC



Issued No.1.1

For information on the meaning of fields please see <u>Glossary</u> Document Generated on Thursday, August 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW105629

Works Details (top)

GROUNDWATER NUMBER	GW105629
LIC-NUM	10WA113397
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Spear
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	Jetted - Water
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2003-11-19
FINAL-DEPTH (metres)	7.93
DRILLED-DEPTH (metres)	7.93
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	BUNYAN
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	4.27
SALINITY	
YIELD	1.50

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9130-38
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6240848.00
EASTING	329353.00
LATITUDE	33 57' 33"
LONGITUDE	151 9' 11"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	GIS - Geographic Information System
REMARK	

Form-A (top)

COUNTY CUMBERLAND

PARISH ST GEORGE PORTION-LOT-DP 70//6770

Licensed (top)

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	70 6770

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter; ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO) PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OÐ (mm)	ID (mm) INTERVAL	DETAIL
1		Hole	Hole	0.00	7.93	100		Jetted - Water
1	1	Casing	Stainless Steel	0.00	6.93	42	38	Glued
1	1	Opening	Screen	6.93	7.93	42	38	Stainless Steel; (Unknown); SL: 60mm; (Unknown)

Water Bearing Zones (top)

FROM-DEPTH (metres)	I TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC S-W-L	D-D-L YIELD	TEST-HOLE-DEPTH DUI (metres)	RATION SALINITY
4.27	7.93	3.66	4.27	1.00	•	

Drillers Log (top)

FROM TO THICKNESS DESC GEO-MATERIAL COMMENT

0.00 7.93 7.93 sand, unconsolidated with sea shells

For information on the meaning of fields please see <u>Glossary</u> Document Generated on Thursday, August 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW106899

Works Details (top)

GROUNDWATER NUMBER	GW106899
LIC-NUM	10WA113717
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Spear
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	Jetted - Water
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-11-22
FINAL-DEPTH (metres)	9.46
DRILLED-DEPTH (metres)	9.46
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	STRATA PLAN 13286
GWMA	
GW-ZONE	-
STANDING-WATER-LEVEL	6.10
SALINITY	
YIELÐ	1.00

Site Details (top)

·	
REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
СМА-МАР	9130-38
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6240861.00
EASTING	329673.00
LATITUDE	33 57' 32"
LONGITUDE	151 9' 24"
GS-MAP	· · ·
AMG-ZONE	56
COORD-SOURCE	GIS - Geographic Information System
REMARK	-

Form-A (top)

COUNTY	CUMBERLAND				
PARISH	ST GEORGE •				
PORTION-LOT-DP	SP 13286				

Licensed (top)

COUNTY		CUMBERLAND
PARISH	•	ST GEORGE

PORTION-LOT-DP 13286

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Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter; ID-Inside Diameter;C-Cemented;SL-Slor Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)		ID (mm)	INTERVAL	DETAIL	
1	·	Hole	Hole	0.00	9.46	100			Jetted - Water	
1 .	1	Casing	PVC Class 9	0.00	8.46	100	100	۰ ۰ ۰	Glued	
1	1	Opening .	Screen	8.46	9.46	50			Stainless Steel; A: .01mm; Screwed	
							·.· .			

Water Bearing Zones (top)

FROM-DEPTH (metres)	I TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC S-W-L	D-D-L YIELD	TEST-HOLE-DEPTH (metres)	DURATION SALINITY
6.10	9.46	3.36	6.10	1.00	• .	Good

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL COMMENT

0.00 9.46 9.46 Sand, unconsolidated

For information on the meaning of fields please see <u>Glossary</u> Document Generated on Thursday, August 28, 2014

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Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW107153

Works Details (top)

GROUNDWATER NUMBER	GW107153
LIC-NUM	10WA113887
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Spear
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	Jetted - Water
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-05-30
FINAL-DEPTH (metres)	8.24
DRILLED-DEPTH (metres)	8.24
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	LOIZOU
GWMA	- •
GW-ZONE	-
STANDING-WATER-LEVEL	4.88
SALINITY	
YIELD	1.00

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
СМА-МАР	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	•
NORTHING	6240935.00
EASTING	329416.00
LATITUDE	33 57' 30"
LONGITUDE	151 9' 14" •
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	GIS - Geographic Information System
REMARK	

Form-A (top)

COUNTYCUMBERLANDPARISHST GEORGEPORTION-LOT-DP28 6770

Licensed (top)

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	28 6770

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter; ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO) PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OÐ ID (mm) (mm)	INTERVAL DETAIL
1		Hole	Hole	0.00	8.24	100	Jetted - Water
1	1	Casing	PVC Class 9	0.00	7.24	100	Glued

Water Bearing Zones (top)

FROM-DEPTH	(metres)	THICKNESS (metres)	ROCK-CAT-DESC S-W-L	D-D-L YIELD	TEST-HOL&-DEPTH (metres)	DURATION SALINITY
4.88	8.24	3.36	4.88	1.00		Good

Drillers Log (top)

FROM TO THICKNESS DESC GEO-MATERIAL COMMENT

0.00 8.24 8.24 sand

For information on the meaning of fields please see <u>Glossary</u> Document Generated on Thursday, August 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW107350

Works Details (top)

GROUNDWATER NUMBER	GW107350
LIC-NUM	10WA113918
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Spear
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	Jetted - Water
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-24
FINAL-DEPTH (metres)	9.46
DRILLED-DEPTH (metres)	9.46
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	STRATA PLAN 447
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	5.80
SALINITY	
YIELD	1.00

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
СМА-МАР	9130-38
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6240889.00
EASTING	329606.00
LATITUDE	33 57' 31"
LONGITUÐE	151 9' 21"
GS-MAP	
AMG-ZONE	56 .
COORD-SOURCE	GIS - Geographic Information System
REMARK	

Form-A (top)

1 of 2

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	SP447

Licensed (top)

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	447

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter; ID-Inside Diameter;C-Cemented;SL-Slot Lengtb;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO) PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD ID (mm) (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	9.46	100		Jetted - Water
1	1	Casing	PVC Class 12	0.00	8.85	42	. •	Glued
· · · · · · · · · · · · · · · · · · ·	1	Opening	Screen	8.85	9.45	50		Stainless Steel; A. .01mm; Screwed

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC S-W-L	D-D-L YIELD	TEST-HOLE-DEPTH (metres)	DURATION SALINITY
5.80	9.46	3.66	5.80	1.00		Good

Drillers Log (top)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT

0.00 9.46 9.46 Sand, unconsolidated

For information on the meaning of fields please see <u>Glossary</u> Document Generated on Thursday, August 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110845

Works Details (top)

GROUNDWATER NUMBER	GW110845
LIC-NUM	10WA114294
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Spear
WORK-STATUS	
CONSTRUCTION-METHOD	Jetted - Water
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2006-11-06
FINAL-DEPTH (metres)	8.54
DRILLED-DEPTH (metres)	8.54
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	STRATA PLAN 45176
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	5.49
SALINITY	
YIELD	1.00

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6240643.00
EASTING	329387.00
LATITUDE	33 57' 39"
LONGITUDE	151 9' 12"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	//45176

Licensed (top)

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	1 45176

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter; ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.54	100			Jetted - Water
1	1	Casing	PVC Class 9	0.00	7.63	100			Glued
1	1	Opening	Screen	0.00	0.00	50			Stainless Steel; A: .01mm; Screwed

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC S-W-L D-D-	L YIELD	TEST-HOLE-DEPTH (metres)	DURATION SALINITY
5.49	8.54	3.05	5.49	1.00		Good

Drillers Log (top)

FROM TO THICKNESS DESC GEO-MATERIAL COMMENT

0.00 8.54 8.54 UNCONSOLIDATED ALL SAND

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