DAVIDSGROUP

60 Charlotte Street, Clemton Park

Infrastructure Report

Date: October 2008

Report No: 5003-AA001875

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Report no:	5003-AA001875	**Revision**	02	**Date:**	October 2008

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1 Introduction

Hyder has been commissioned to report on the civil engineering aspects of the proposed development 60 Charlotte Street, Clemton Park where currently exists the Sunbeam Factory/Warehouse. The site hereafter referred to as Clemton Park Village is to be redeveloped to include a mixed use commercial/industrial and residential units as documented on the architectural drawings developed by Marchese & Partners and Buchan Group.

This report covers the civil engineering works required to support the lodgement of a Project Application.

This report is to be read in conjunction with the following reports:

- 60 Charlotte Street, Clemton Park
  Utilities Investigation Report
  5001-AA001875-NSR-01
  Hyder Consulting – September 2008
- 60 Charlotte Street, Clemton Park
  Stormwater and Flood Management Report
  5002-AA001875-NSR-01
  Hyder Consulting – September 2008

2 The Site

The site for the proposed development of Clemton Park Village is indicated on the civil drawing C000 and is surrounded by Harp St, Charlotte St, Viking St, Troy/Sunbeam Ln.

Clemton Park Village covers an area of approximately 5.51ha and sits within a 19.8ha drainage catchment. The land grades generally from north to south.

The civil engineering aspects of these works are:

- Sedimentation and erosion control;
- Bulk earthworks;
- Horizontal and vertical road alignments,
- Stormwater drainage,
- Pavement types,
- Signage and line marking;
- Utilities

Staging will allow adequate access, services and drainage with progressive construction of roads and services on commencement of development on adjoining lots.

3 Sedimentation and Erosion Control

Prior to any commencement of works on site, all erosion and siltation control measures will be put in place generally in accordance with the civil drawing C010 and the NSW Department of Housing Manual, “Soils and Construction” Volume 1, 4th Edition 2004.

4 Bulk Earthworks

The sequence of work for the bulk earthworks will generally include:

- Provision of erosion and sediment control measures typically as outlined above in 'Erosion & Sediment Control' and on civil drawing C010.
- Demolition of existing structure and clearing of vegetation from the proposed development and removal from site.
- Stripping of topsoil and organic matter from the site and stockpiling for future landscaping re-use on site (minimal available).
- Stripping and stockpiling fill materials suitable for reuse as controlled fill,
- Removal of all existing uncontrolled fill and stockpile materials to expose natural soils,
- Inspection of exposed natural material to ensure conformity with design assumptions,
- Proof rolling of exposed sub-grade and replacement of any soft spots with approved engineering fill.
- Placement of cut to fill material in horizontal layers not greater than 200mm in thickness and compacted to not less than 98% standard dry density (SDD), at a moisture content within the range optimum moisture content (OMC) and 2% dry of OMC.

Bulk earthworks as documented in civil drawing C020 shall be undertaken in conjunction with Geotechnical engineer's recommendations.

5 Stormwater Management

5.1 Stormwater Drainage Standards

The stormwater drainage as documented in civil drawings C025-C028 has been designed to comply with the following guidelines:

- City of Canterbury - Specification 9, A Guide for Stormwater Drainage Design, 10th November 1995
- City of Canterbury - Stormwater Management Manual
- Australian Rainfall and Runoff 2000 (ARR).
- NSW Floodplain Management Manual 2001.
- Soils and Construction, Volume 1, 4th Edition, March 2004.

5.2 Proposed Stormwater Drainage System

Refer *60 Charlotte Street, Clemton Park Stormwater and Flood Management Investigation Report 5002-AA001875-NSR-01 Hyder Consulting – September 2008.*

6 Roadworks

In its final form, Clemton Park Village will continue to be accessed by the existing perimeter road network of Charlotte, Harp and Alfred Street.

6.1 Existing roads

The proposed Clemton Park Village will maintain the existing alignment of the following roads:

- Wade Street,
- Troy Street,
- Charlotte Street,
- Harp Street, and
- Alfred Street.

Minor ancillary roadworks will be undertaken within these roads including intersection upgrades, kerb and central island realignments, signage and linemarking changes.

6.1.1 Road Realignments/Extensions & Closures

Troy Lane will be realigned to form part of New Troy Street. The existing assess via 'old' Troy Street will be closed. Driveway crossings to two properties will be replaced.

6.2 New Roads

Proposed road widths, have been designed generally in accordance with preliminary verbal advice from Jeff Senior (CCC) and Andrew Johnson Traffix. Lane widths are 3.25m minimum and parking widths 2.5m minimum.

6.2.1 External Intersections

Two new non signalised intersections are proposed:

- Intersection 1 is located at the corner of Harp Street and Alfred Street. The geometry is restricted by the existing kerb alignments and property boundaries. An existing central median will be removed to allow turning and through movements. Traffic will be controlled with signage and linemarking.
- Intersection 2 is located at the corner of Charlotte Street and Troy Lane. The geometry is restricted by the existing kerb alignments and property boundaries. A new central median is proposed to separate oncoming traffic in addition to signage and linemarking.

6.3 Vertical and Horizontal Geometry

All roads have been generally designed in accordance with the following guidelines:

- City of Canterbury Council Development Control Plans.

Where applicable all roads have been designed to ensure compliance with the following Australian Standards:

- AS2890.1 (2004),
- AS2890.2 (2002)
- AS2890.5 (1993)
- AS1428.1 (2001)

Where appropriate an allowance for 12.5m heavy rigid vehicles (HRV) in accordance with AS 2890.2 (2002) has been allowed. All roads have longitudinal grades not exceeding 12% (1:8).

6.4 Pavement Design

The pavement design as documented in civil drawing C055 has been undertaken using the mechanistic design programme CIRCLY. Input parameters have been based on an assumed minimum CBR value of 3% and design ESA's of $5x10^6$ from Aus-Spec for Commercial roads.

All pavements have been designed in accordance with the following guidelines:

- Pavement Design
  A Guide to the Structural Design of Road Pavements
  Standards Australia, AUSTROADS, 2004.

It is noted that all pavements are subject to change pending further geotechnical and traffic investigations. This will be further developed in the construction certificate stage of the development.

6.4.1 Subgrade Preparation

Prior to placement of the road pavement the following site preparation will generally be undertaken.

- Strip all existing pavement, vegetation, fill topsoil or root affected zones and grub out any footings and tree stubs.
- Proof roll the exposed subgrade with a minimum of eight passes using a ten tonne smooth drum vibrating roller. Any soft spots will be removed and replaced with selected fill and compacted in accordance with the specifications.

- All soft or unusable areas identified during proof rolling will be excavated down to a sound base and reinstated with select fill. All fill material shall be compacted in layers no greater than 150mm loose thickness and compacted to not less than 100% Standard Maximum Dry Density (SMDD).

7 Utilities

Utilities are generally located in the existing perimeter road network. A services search and physical survey was undertaken by Dunlop Thorpe and Company Pty Ltd. Refer to the attached civil drawings C060-C063 for the location of the existing services.

Proposed services will be generally provided in the road network to service the proposed Clemton Park Village. An indicative layout is provided on civil drawings C060-C063. This will be further developed as part of the next stage of design.

Utility providers have confirmed that supply can be made available to the Clemton Park Village provided adequate notice is given prior to construction. Supply to the site may require upgrades of existing infrastructure and/or new feeders. Refer *60 Charlotte Street, Clemton Park Utilities Investigation Report 5001-AA001875-NSR-01 Hyder Consulting – September 2008.*

7.1 Sewer

Once approval is given a section 73 application is made through an accredited Sydney Water service coordinator who will provide detailed design and construction documentation for Sydney Water's approval.

7.2 Potable Water

Once approval is given a section 73 application is made through an accredited Sydney Water service coordinator who will provide detailed design and construction documentation for Sydney Water's approval.

7.3 Electricity

Once approval is given an application for connection is made through a level 3 accredited electrical designer who will provide detailed design and construction documentation for Energy Australia's approval.

7.4 Telecommunications

Once approval is given an application for connection is made through Telstra Smart Communities at which stage they will provide detailed design and construction documentation. Telstra are obliged to supply telephony to new developments under a shared cost arrangement.

7.5 Gas

Once approval is given and actual loads and consumers are identified an application for connection is made through Jemena at which stage they will provide detailed design and construction documentation. Subject to final demand Jemena may fund connection through a commercial arrangement.

Appendix A

Project Application Drawings (Civil)

(contained in a separate volume)

C000	COVER SHEET AND DRAWING LIST
C001	NOTES AND LEGENDS
C002	GENERAL ARRANGEMENT PLAN
C003	SITEWORKS DETAILS
C004	STORMWATER DETAILS
C005	TYPICAL ROAD CROSS SECTIONS
C010	EROSION AND SEDIMENT CONTROL PLANS AND DETAILS
C015	CONTROL LINE SETOU PLAN
C020	BULK EARTHWORKS PLAN
C025	SITEWORKS AND STORMWATER DRAINAGE PLAN - SHEET 1
C026	SITEWORKS AND STORMWATER DRAINAGE PLAN - SHEET 2
C027	SITEWORKS AND STORMWATER DRAINAGE PLAN - SHEET 3
C028	SITEWORKS AND STORMWATER DRAINAGE PLAN - SHEET 4
C030	ROAD LONGITUDINAL SECTIONS
C040	NEW TROY STREET CROSS SECTIONS - SHEET 1
C041	NEW TROY STREET CROSS SECTIONS - SHEET 2
C042	NEW TROY STREET CROSS SECTIONS - SHEET 3
C043	NEW TROY STREET CROSS SECTIONS - SHEET 4
C044	NEW TROY STREET CROSS SECTIONS - SHEET 5
C045	STORMWATER LONGITUDINAL SECTIONS - SHEET 1
C046	STORMWATER LONGITUDINAL SECTIONS - SHEET 2
C047	STORMWATER LONGITUDINAL SECTIONS - SHEET 3
C050	SIGNAGE AND LINEMARKING PLAN
C060	SERVICES PLAN - SHEET 1
C061	SERVICES PLAN - SHEET 2
C062	SERVICES PLAN - SHEET 3
C063	SERVICES PLAN - SHEET 4
C065	CATCHMENT PLAN
C070	TURNING PATHS PLAN