Civil

TaylorThomsonWhitting

CIVIL REPORT
Cardinal Freeman Village

Stockland Development Division

September 2012

101226

Revision B

Taylor Thomson Whitting (NSW) Pty Ltd Consulting Engineers ACN 113 578 377
48 Chandos Street St Leonards NSW 2065 PO Box 738 Crows Nest 1585
T 61 2 9439 7288 F 61 2 9439 3146 ttwsyd@ttw.com.au www.ttw.com.au

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QEC 22375

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1.0 INTRODUCTION

This report is prepared in support of a Section 75W Documentation application as an addendum to the original Civil Infrastructure Report (CI Report) for Cardinal Freeman Village development prepared by Robert Bird Group in March 2010. The aim of this report is to address the civil works (roads) and stormwater management of the site for the revised development layout.

The same design criteria set and approved with the original proposal is to be used for the new layout with regards to the On Site Detention (OSD) requirement, stormwater disposal of the site, Water Sensitive Urban Design (WSUD) principles, stormwater harvesting and provisions for overland flow paths.

2.0 SUMMARY

It is proposed to redevelop the Cardinal Freeman Village in Ashfield. The redevelopment work includes new building structures with associated on ground and basement parking, a reconstructed internal road network, redesigned footpath network and landscape works.

Drawings have been prepared showing proposed upgrades to vehicle and pedestrian access, new stormwater drainage network and temporary and a permanent stormwater deviation. The proposed upgrades and extensions are conceptual only and are to demonstrate how the civil infrastructure issues will be addressed. Further investigation and detail design will be necessary to implement the concepts into final construction documentation subject to relevant authorities' approval.

The WSUD will be implemented through the site by provision of the Best Management Practice (BMP) principles including but not limited to rainwater harvesting systems, buffer strips, vegetated swales, permeable pavers (for carparking areas) and end of line proprietary treatment devices such as gross pollutant traps etc (GPT).

Detailed calculations and design of infrastructure and services are to be undertaken as part of each project stage application.

3.0 EXISTING SITE

The Cardinal Freeman Village (Village) is located at 137 Victoria Street, Ashfield bounded by Clissold Street, Victoria Street, Seaview Street and Queen Street. It has a total site area of 4.1 ha.

The site falls generally in a south to north direction, from approximately RL 54.00m AHD at the Seaview Street to approximately RL 38m at Clissold Street. The site is enclosed by sandstone walls, iron gates and fences along its perimeter.

The Chapel, adjoining Glenworth House and some trees have been identified for preservation due to their heritage value.

4.0 MODIFICATION TO THE PROPOSED CONCEPT PLAN

The Village concept master plan proposes new building structures, existing structures to be retained, new access and internal circulation roads, footpaths, courtyards,

carparking and landscape areas. It compromises of 8 new buildings named RACV and building 1 through building 7 divided in three precincts and proposed to be built in 2 stages as follows:

- Stage 1 – RACF and Buildings 1 to 4
- Stage 2 – Building 5 to 7

Continuous pedestrian and vehicular access and services connections are to be maintained through the site at each development stage.

5.0 SITE ACCESS

The proposed internal access roads alignments are shown on the attached drawing C02, generally in accordance with the condition A2 of the Concept Approval Section 75O of the Environmental Planning & Assesment Act 1979 issued by the NSW Government Department of Planning dated 20 December 2010. The main through fare traffic is proposed via a 6.5m wide carriageway two way road linking Queen Street and Clissold Street. The east-west road is meeting the north-south road at "T" intersection at the porte cochere area, approximately located within the middle of the site. Also access to the porte cochere area from Victoria Street is proposed via a 4m wide carriageway one way road. A new shared pedestrian/vehicle access with a cul-de-suc end is proposed at the Chapel.

All new roadways will be graded to suit the new development but also to maintain overland flow path through the natural fall of the site directing it towards the Clissold Street.

All new access roads will be connected to the existing roads via the standard Council's driveway crossings. All redundant driveways will be removed and kerbs reconstructed to Council's specification.

All internal roads, access driveways, footpaths and car parks shall remain privately owned but designed in accordance with the requirements of Ashfield Council, Austroads and Road and Maritime Services (RMS).

The design criteria and details proposed within the CI Report and approved by the original DA submission are to be implemented into the detailed design stage application. This includes the design criteria for the road horizontal geometry, design gradients, design vehicle, pavements, kerbs and laybacks.

6.0 STORMWATER DRAINAGE AND OVERLAND FLOW PATHS

The stormwater strategy adopted for the revised development layout generally follows the approved design criteria set in the CI Report which also refers to the Hydraulic Services Master Plan Report prepared by Whipps-Wood Consulting dated September 2009 for OSD requirements and water harvesting.

6.1 Existing Stormwater and Overland Flow Paths

As identified in the previous reports, the site is drains with a 525mm diameter pipe running along the internal roads and connecting to a Council Pit on the south side of the Clissold Street-Williams Street intersection. A 300mm pipe was also found running through the north east portion of the site connecting to the 525mm diameter

pipe. This pipe will be demolished and replaced with a new pipe system during Stage 3 construction of buildings 5 and 6. Various smaller pipes connect to these two major lines.

The overland flow path generally follows the existing site falls through existing roads and landscaping areas draining to the middle of the site from east to west and eventually north-south to Williams Street.

6.2 Proposed Stormwater and Overland Flow Paths

The stormwater system will be designed to cater for all storms up to and including 1 in 100 year ARI storm event with a provision for an overland flow path for larger events. Roof drainage leading to OSD tanks shall be sized for 1 in 100 year ARI. All other pipes shall be designed for the 1 in 20 year ARI storm event with the overland flow paths by means of roadways and swales taking the balance up to the 1 in 100 year ARI. Should overland flow path be interrupted leading into the OSD basin and/or has other restrictions due to the nature of the development, the piped drainage is to be sized for the 1 in 100 year ARI event.

The design freeboard for car park thresholds and habitable areas shall be provided as follows:

- minimum 150mm above maximum spillway operating level when near OSD
- minimum 150mm above surrounding finished ground levels
- minimum 300mm above maximum water surface level along major overland flow paths

It is proposed that all new drainage drains to the existing 525mm diameter pipe.

6.2.1 On Site detention System

Based on the Ashfield Municipal Council Stormwater Management Code, an OSD system is required to reduce post developed flows to pre developed flows for all storm duration from 1 in 5 year ARI up to and including the 1 in 100 year ARI storm event.

Generally, the previously approved development layout did not increase impervious areas compared to the existing development. Whipps-Wood Consulting had negotiated with Council on this basis that OSD is not required. However, they have come up with an agreement to provide some OSD volume to further reduce the site discharge to the Council system as follows:

- an additional 2400m² impervious area was used to calculate 63m³ OSD storage requirement for the Village Precinct
- an additional 8800m² impervious area was used to calculate 132m³ OSD storage requirement for the Care Precinct
- no OSD storage was proposed for the remainder of the development.

In addition to the above OSD storage requirements a 30% of the proposed Rainwater

Tank volume was allowed as an offset reduction to the required OSD storages.

The impervious areas of the current proposed Village layout was compared to previously approved layout impervious areas and OSD storages were adjusted accordingly as follows:

- the revised layout does not change additional impervious area compared to the approved development and the previously approved OSD storage of 63m³ is proposed for the Village Precinct
- the revised layout does not change additional impervious area compared to the approved development and the previously approved OSD storage of 132m³ is proposed for the Care Precinct. The OSD is proposed to be provided in two locations, 62m³ at RACV building and 70m³ at Building 2
- no OSD storage is proposed for the reminder of the development

All the above storages are to be used in detail calculation stages to determine the reduced discharge from each site based on the actual impervious area. Then an OSD storage reduction can be applied equal to 30% of the rainwater tank volume used for the respective stage development.

The OSD tank storages are shown conceptually on the drawings being toward the lower side of the respective precinct, generally adjacent/combined with rainwater tanks incorporated inside the underground parking area.

The proposed concept master plan drainage is shown on attached drawings C02 through C06. Drawings C07 throughC09 indicate the proposed stormwater drainage works (new drainage and proposed deviations) for the staged development.

Typical OSD tank details, pits and pipe details shown on the CI Report are still applicable and no additional details are shown with this addendum report.

6.2.2 Overland flow paths

Overland flow paths shall generally follow the existing flow regime and site topography. Overland flows will still flow from south to north, mostly following the proposed road and path network.

Appropriate freeboard shall be provided to new structures and velocity*depth restriction of 0.4m²/sec still maintained. If this can't be achieved the pipe network is to be designed appropriately to cater for larger storm events.

Where low level trapped areas are unavoidable the piped drainage system is to be designed for a 1 in 100 year ARI event plus additional provision for overflow.

6.2.3 Rainwater harvesting

It is proposed to retain roof water in rainwater tanks to be used for toilet flushing and landscape irrigation.

For rainwater tank sizes, water balancing and reuse details refer to Hydraulic Consultant report.

The overflow from rainwater tanks will be directed to the proposed stormwater/OSD

system.

6.2.4 Water quality and Pollution Control

WSUD principles are incorporated in various design elements of the proposed civil works. Rainwater harvesting systems, buffer strips, vegetated swales, rain gardens and permeable pavers are to be implemented where possible.

OSD systems will be used to reduce peak flows but also the integrated trash screens will reduce gross pollutants. Use of litter baskets on individual pits versus end of line GPT is to be considered to provide the most maintenance/cost effective system.

The aim of the above measures is to provide treatment at the source which is the preferred and the most effective method for the whole treatment train.

7.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls will be provided during the construction stages.

The concept plan and details drawings provided in the CI Report are still applicable for the development.

During the detailed design for each staged development a respective sediment erosion control plan is to be prepared. This will generally follow the measures proposed in the concept plan such as but not limited to silt fences, sediment ponds, hay bale filters, pit sediment traps and stabilised construction access.

8.0 CONCLUSIONS & RECOMMENDATIONS

8.1 CONCLUSIONS

The stormwater management requirements of the Ashfield Municipal Council Stormwater Management Code have been met through the use of:

- The restriction of stormwater discharge in accordance with the rates adopted by Council as per the previous DA submission.
- The new stormwater drainage design, using the common practice of providing separate minor and major drainage systems to cater for full range of storms up to 1 in 100 year ARI and provision for safe overland flow and;
- The implementation of WSUD measures such as;
    - Rainwater reuse tanks;
    - Swales and buffer zones;
    - Infiltration features;
    - Suitable pollution prevention measures; and
    - Erosion control measures.

The proposed stormwater management strategy identified in this report will ensure that the proposed development does not:

- Increase the impact of flood events;
- Increase the impact of runoff on neighbouring properties;

- Adversely affect the integrity of natural waterways, groundwater and ecosystems.

Prepared by:
TAYLOR THOMSON WHITTING (NSW**) PTY LTD**

Dimitar Hristovski
Senior Civil Engineer

Authorised by:
TAYLOR THOMSON WHITTING (NSW**) PTY LTD**

PAUL YANNOULATOS
Technical Director – Civil

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Appendices

Appendix A

CARDINAL FREEMAN VILLAGE
CLISSOLD STREET, ASHFIELD

GENERAL NOTES

1. Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the Engineer .
2. Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise.
3. Make smooth connection with all existing works.
4. Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building footprint.
5. All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. The Contractor shall obtain these requirements from the Authority. Where the requirements of the Authority are different to the drawings and specifications, the requirements of the Authority shall be applicable.
6. For all temporary batters refer to geotechnical recommendations.

REFERENCE DRAWINGS

1. These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.

Consultant	Dwg Title	Dwg No	Rev	Date
LOCKLEY	SURVEY	29838	–	18.02.11
AJC	SITE PLAN	DA1002	F	15.10.12
AJC	BASEMENT PLAN	SK39	–	–

SURVEY AND SERVICES INFORMATION

SURVEY

Origin of levels : SSM 25219
Datum of levels : A.H.D. AUSTRALIAN HEIGHT DATUM
Coordinate system : MGA
Survey prepared by : LOCKLEY LAND TITLE SOLUTIONS
Setout Points : CONTACT THE SURVEYOR

Taylor Thomson Whitting does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause whatsoever.

UNDERGROUND SERVICES - WARNING

The locations of underground services shown on Taylor Thomson Whittings drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities own use and may not necessarily be updated or accurate.

The position of services as recorded by the authority at the time of installation may not reflect changes in the physical environment subsequent to installation.

Taylor Thomson Whitting does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies in the services information shown from any cause whatsoever.

The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Superintendent.

The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to; State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.
Taylor Thomson Whitting plans do not indicate the presence of any survey mark. The contractor is to undertake their own search.

DRAWING INDEX

C01	COVER SHEET
C02	CONCEPT MASTERPLAN
C03	STAGE 1 SITEWORKS PLAN SHEET 1 OF 2
C04	STAGE 1 SITEWORKS PLAN SHEET 1 OF 2
C05	STAGING WORKS - STAGE 1A
C06	STAGING WORKS - STAGE 1B
C07	STAGING WORKS - STAGE 2

Rev	Description	Eng	Draft	Date
P1	PRELIMINARY	DH	RP	16.10.12

Project

CARDINAL FREEMAN VILLAGE, ASHFIELD

Sheet Subject

COVER SHEET

Architect

ALLEN JACK + COTTIER
79 MYRTLE STREET, CHIPPENDALE NSW 2008
9311 8222

TaylorThomsonWhitting
Consulting Engineers
48 Chandos Street St.Leonards NSW 2065
T: +61 2 9439 7288 F: +61 2 9439 3146 ttwsyd@ttw.com.au
Taylor Thomson Whitting (NSW) Pty Ltd A.C.N. 113 578 377

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Job No	Drawing No	Revision
101226	C01	P1

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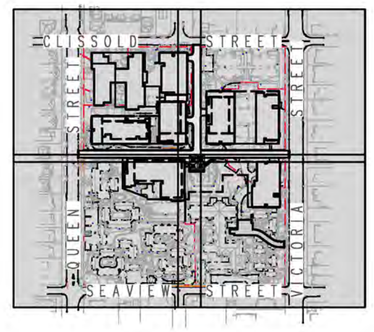
FileName: C01.dwg – USER: roberty – Plot File Created: Oct 17, 2012 – 2:39pm

A1 0 1 2 3 4 5 6 7 8 9 10

LEGEND

- SITE BOUNDARY
- PROPOSED STORMWATER LINE AND PIPE DIAMETER — ø375
- EXISTING STORMWATER LINE TO REMAIN — SW
- EXISTING STORMWATER LINE TO BE DEMOLISHED/MADE REDUNDANT — X—X
- PROPOSED OVERLAND FLOW PATH — OLF
- PROPOSED FINISHED LEVEL — F39.00
- EXISTING SEWER LINE — S
- EXISTING WATER MAIN — W
- EXISTING TELSTRA LINE — T
- EXISTING UECOMM FIBRE OPTIC CABLE — FO
- EXISTING GAS LINE — G
- EXISTING ELECTRICITY DISTRIBUTION LINE — E
- EXISTING ELECTRICITY TRANSMISSION LINE — E
- EXISTING OVERHEAD ELECTRICITY LINE — OH/E

KEY PLAN



NOTE:

ROOF DRAINAGE NOT SHOWN TO BE CONNECTED TO OSD OR RETENTION SYSTEM TO SUIT BUILDING LAYOUT, RUNNING EITHER THROUGH BASEMENT CARPARK (SUSPENDED OR INGROUND) OR CONNECTED TO EXTERNAL INGROUND DRAINAGE. REFER TO FUTURE HYDRAULIC ENGINEER'S DETAILS

Rev	Description	Eng	Draft	Date
P4	FOR APPROVAL	DH	RP	17.10.12
P3	FOR APPROVAL	DH	RP	16.10.12
P2	PRELIMINARY	DH	RP	05.10.12
P1	PRELIMINARY	DH	RP	24.09.12

Project

CARDINAL FREEMAN VILLAGE, ASHFIELD

Sheet Subject

CONCEPT MASTERPLAN

Architect

ALLEN JACK + COTTIER
79 MYRTLE STREET, CHIPPENDALE NSW 2008
9311 8222

TaylorThomsonWhitting
Consulting Engineers
48 Chandos Street St.Leonards NSW 2065
T: +61 2 9439 7288 F: +61 2 9439 3146 ttwsyd@ttw.com.au
Taylor Thomson Whitting (NSW) Pty Ltd A.C.N. 113 578 377

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Job No	Drawing No	Revision
101226	C02	P4

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A1 0 1 2 3 4 5 6 7 8 9 10

CLISSOLD STREET

QUEEN STREET

No. 98 QUEEN STREET HOUSES 1-5

TWO STOREY BRICK RESIDENCE TILE ROOF

ONE & TWO STOREY BRICK RESIDENCES TILE ROOF

BRICK RESIDENCE TILE ROOF

SP 42807

No. 15 ONE & TWO STOREY BRICK RESIDENCE TILE ROOF

No. 13 BRICK SUBSTATION

No. 40 TIMBER COTTAGE METAL ROOF

DP 4272

No. 100 SINGLE STOREY BRICK COTTAGE TILE ROOF

LOW TRAPPED POINT NO OVERLAND FLOW PATH, PIPE DESIGNED FOR 1:100 YEAR ARI

RAINWATER RETENTION TANK. VOLUME = 44m³ TO BE CONFIRMED BY OTHERS

ONSITE DETENTION TANK VOLUME = 60m³

INV IN 38.68 ø225
INV OUT 38.60 ø225

INV IN 37.65 ø100
INV IN 37.64 ø300
INV IN 37.61 ø225
INV IN 37.78 ø100
INV IN 37.66 ø150
INV OUT 37.58 ø300

INV IN 37.34 ø300
INV IN 37.20 ø525
INV IN 37.28 ø375
INV OUT 37.15 ø475
ø475(APPROX.)

EXISTING CONNECTION TO COUNCIL SYSTEM THROUGH FOOTPATH TO REMAIN

CONNECT NEW ø600 PIPE TO EXISTING PIT AND MAKE GOOD. BLOCK ALL REDUNDANT INLET PIPES

GROSS POLLUTANT TRAP

6 PARKING SPACES TO BE RETAINED

RECONSTRUCT EXISTING PIT TO SUIT THE CONSTRUCTION OF NEW ø375 DIVERSION PIPE, BLOCK REDUNDANT OUTLET AND MAKE GOOD

3 TEMPORARY PARKING SPACES TO BE PROVIDED

TEMPORARY FOOTPATH

TEMPORARY ROAD STAGE 1 WORKS

TEMPORARY FOOTPATH

ONSITE DETENTION TANK VOLUME = 72m³

RAINWATER RETENTION TANK. VOLUME = 70m³ TO BE CONFIRMED BY OTHERS

RESIDENTIAL AGED CARE FACILITY (RACF)
BASEMENT B2 FFL. 39.00
GROUND FFL. 43.00

BUILDING 2
BASEMENT B2 FFL. 39.10
GROUND FFL. 45.30

BUILDING 3
BASEMENT B1 FFL. 42.20
GROUND FFL. 45.30

BUILDING 1
GROUND FFL. 45.30

4 STOREY BRICK APARTMENTS METAL ROOF

2 STOREY BRICK APARTMENTS TILE ROOF

BUILDING "C" 2 STOREY BRICK TILE ROOF

CONCRETE CARPARK

SUPERVISORS OFFICE BRICK BUILDING TILE ROOF

CONNECTION LINE TO EXISTING PIT AND MAKE GOOD

BREAK PIPE AND CONSTRUCT NEW INLET PIT

F39.00 F38.80 F45.20 F47.00 F46.70 F47.30 F44.40 F44.30

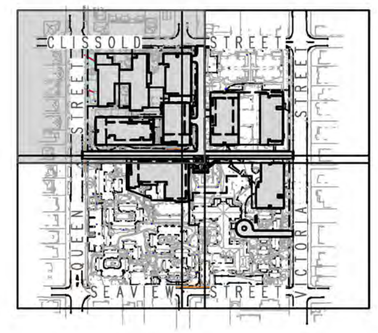
FOR CONTINUATION REFER TO DRAWING NoC04

FOR CONTINUATION REFER TO DRAWING NoC04

LEGEND

- SITE BOUNDARY
- PROPOSED STORMWATER LINE AND PIPE DIAMETER — ø375
- EXISTING STORMWATER LINE TO REMAIN — SW
- EXISTING STORMWATER LINE TO BE DEMOLISHED/MADE REDUNDANT — X X
- PROPOSED OVERLAND FLOW PATH — OLF
- PROPOSED FINISHED LEVEL — F39.00
- EXISTING SEWER LINE — S
- EXISTING WATER MAIN — W
- EXISTING TELSTRA LINE — T
- EXISTING UECOMM FIBRE OPTIC CABLE — FO
- EXISTING GAS LINE — G
- EXISTING ELECTRICITY DISTRIBUTION LINE — E
- EXISTING ELECTRICITY TRANSMISSION LINE — E E
- EXISTING OVERHEAD ELECTRICITY LINE — DH/E

KEY PLAN



NOTE:

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P4	FOR APPROVAL	DH	RP	17.10.12
P3	FOR APPROVAL	DH	RP	16.10.12
P2	PRELIMINARY	DH	RP	05.10.12
P1	PRELIMINARY	DH	RP	03.10.12

Project

CARDINAL FREEMAN VILLAGE, ASHFIELD

Sheet Subject

STAGE 1 SITEWORKS PLAN SHEET 1 OF 2

Architect
ALLEN JACK + COTTIER
79 MYRTLE STREET, CHIPPENDALE NSW 2008
9311 8222

TaylorThomsonWhitting
Consulting Engineers
48 Chandos Street St Leonards NSW 2065
T: +61 2 9439 7288 F: +61 2 9439 3146 ttwsyd@ttw.com.au
Taylor Thomson Whitting (NSW) Pty Ltd A.C.N. 113 578 377

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A1 0 1 2 3 4 5 6 7 8 9 10

CLISSOLD STREET

QUEEN STREET

VICTORIA STREET

RESIDENTIAL AGED CARE FACILITY (RACF)
BASEMENT B2 FFL 39.00
GROUND FFL 43.00

BUILDING 1
GROUND FFL 45.30

BUILDING 2
BASEMENT B2 FFL 39.10
GROUND FFL 45.30

BUILDING 3
BASEMENT B1 FFL 42.20
GROUND FFL 45.30

BUILDING 4
BASEMENT B1 FFL 44.20
GROUND FFL 47.50

BUILDING 5
BASEMENT B1 FFL 41.50
GROUND FFL 44.50

BUILDING 6
BASEMENT B1 FFL 41.50
GROUND FFL 44.50

BUILDING 7
BASEMENT B1 FFL 44.20
GROUND FFL 47.50

4 STOREY BRICK APARTMENTS METAL ROOF

TWO STOREY BRICK UNITS TILE ROOF

CHAPEL TWO STOREY STONE BUILDING TILE ROOF

STAGING LEGEND

- PROPOSED STORMWATER
- EXISTING STORMWATER TO BE REMOVED/MADE REDUNDANT
- SW — EXISTING STORMWATER TO REMAIN AS PART OF STAGE 2 WORKS
- SW — EXISTING STORMWATER TO REMAIN OUTSIDE ZONE OF WORKS
- PROPOSED STORMWATER CONSTRUCTED DURING STAGE 1
- STAGING BOUNDARY

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TaylorThomsonWhitting
Consulting Engineers
48 Chandos Street St Leonards NSW 2065
T: +61 2 9439 7288 F: +61 2 9439 3146 ttwsyd@ttw.com.au
Taylor Thomson Whitting (NSW) Pty Ltd A.C.N. 113 578 377

Project
CARDINAL FREEMAN VILLAGE
ASHFIELD

Sheet Subject
STAGING PLAN
STAGE 2

Scale : A1
1:400

Drawn
RP

Authorised

Job No
101226

Drawing No
C07

Revision
P3

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