Shadow Analysis (view from sun - June 22)

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Rev	Issue	Date
01	Revised Architectural Set	26/11/19
02	Revised Architectural Set	06/12/19
03	Revised Architectural Set	18/12/19
04	DA Re-Issue	17/01/20

Architecture
Project management
Interior design

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NSW GOVERNMENT Family & Community Services
Land & Housing Corporation

Mono Constructions

Residential Apartment Building

56 Beane Street,
Gosford, NSW

Drawn; jok/at/mc/ef
Checked; jok/ at
Plot date; 1/4/20

Scale; as noted @ AI

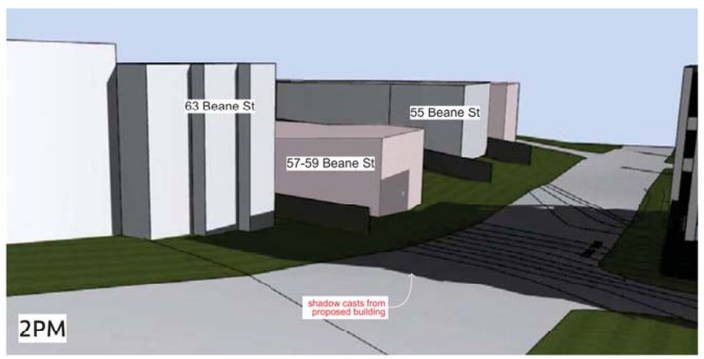
Project No;
2421.19

Drawing No; A025

Revision#; 04

Shadow Analysis (view from sun - sht 1 of 2)

Shadow Analysis (neighbour - June 22) View from Beane Street



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Approved Application No: DA 10132

Granted on: 15 July 2020

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Checked; jok/ at
Plot date; 1/4/20

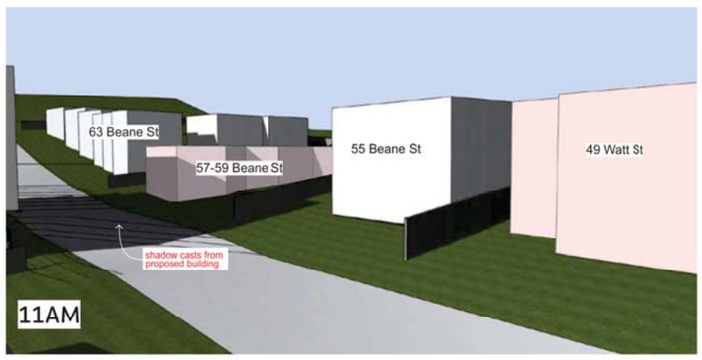
Scale; as noted @ A1

Project No;
2421.19

Drawing No; A026
Revision#; 04

Shadow Analysis
(neighbour - sht 1 of 2)

Shadow Analysis (neighbour - June 22) View from Beane Street



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Residential Apartment Building

56 Beane Street,
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Drawn; jok/at/mc/ef
Checked; jok/ at
Plot date; 1/4/20

Scale; as noted @ A1

Project No;
2421.19

Drawing No; A027

Revision#; 04

Shadow Analysis
(neighbour - sht 2 of 2)

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scale: 1:250 @A1

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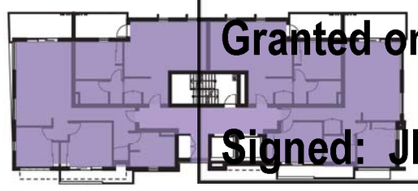
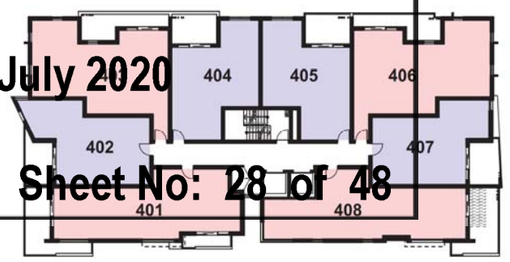
ADG Diagrams

L4 GFA: 557.88 m²



L7 GFA: 302.12 m²



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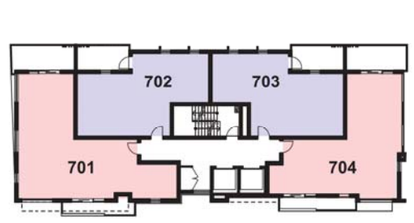
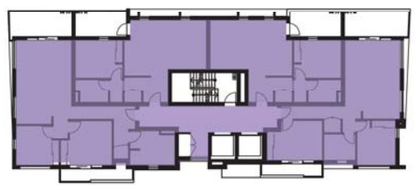


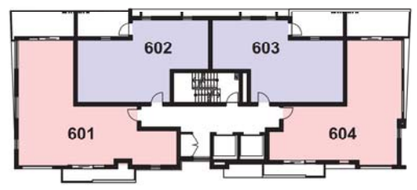
L7

L3 GFA: 557.88 m²



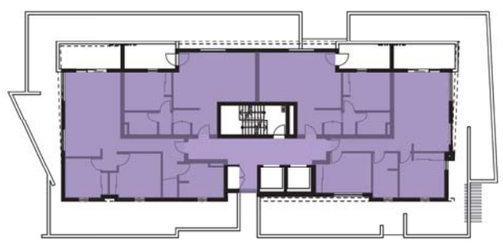
L6 GFA: 302.12 m²

L3

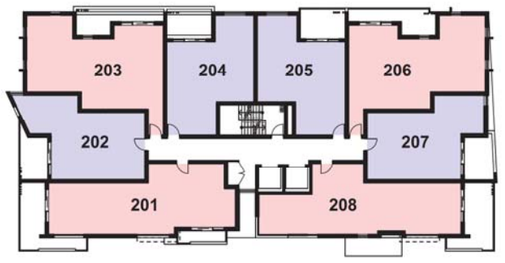


L6

L2 GFA: 557.88 m²



L5 GFA: 302.12 m²



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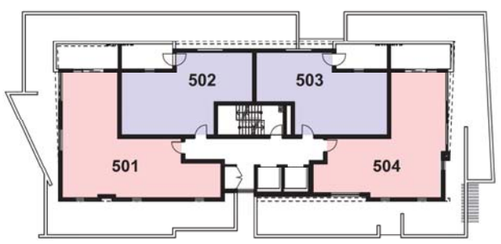

L5

L1 GFA: 471.01 m²

01 GFA Diagram

GFA measured to inner face of external enclosing wall, excluding lifts, stairs, services & voids.

Total GFA: 3051m2

L1

02 Unit Mix Diagram

20x 2 Bedroom Units

21x 1 Bedroom Units

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Architecture
Project management
Interior design

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MONO

NSW GOVERNMENT Family & Community Services Land & Housing Corporation

Mono Constructions

Residential Apartment Building

56 Beane Street, Gosford, NSW

Drawn; jok/at/mc/ef
Checked; jok/ at
Plot date; 1/4/20

Scale; as noted @ AI

Project No; 2421.19

Drawing No; A028

Revision#; 04

ADG Diagrams (Sht 1 of 3)

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scale: 1:250 @A1

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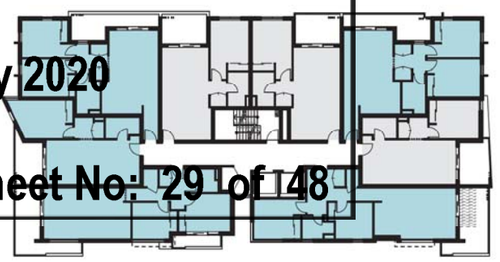
Granted on: 15 July 2020

Signed: JF **Sheet No: 29 of 48**

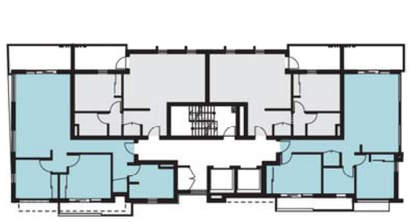
ADG Diagrams

L4

L7

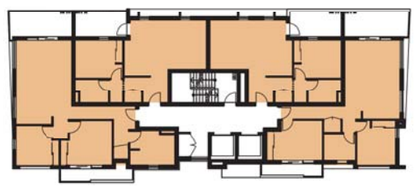


L4



L7

L3



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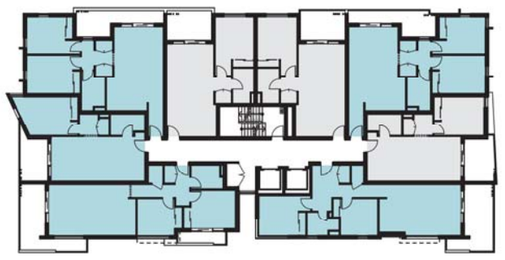
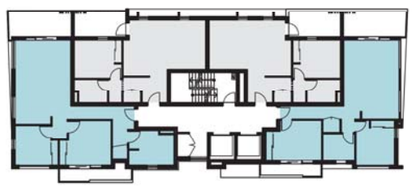


L3



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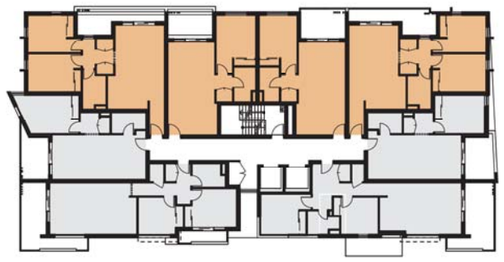
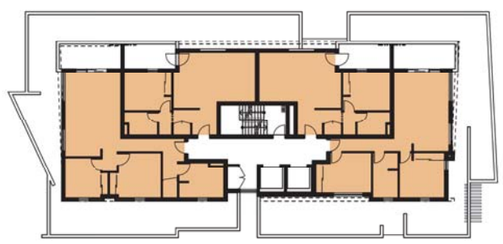
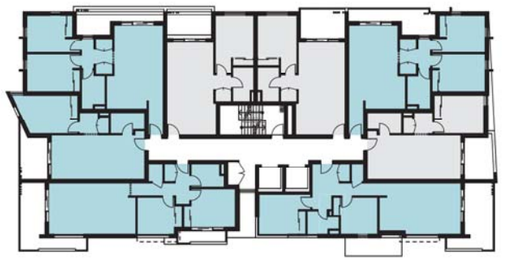


L2



L5



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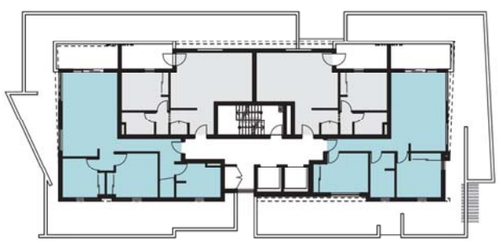

L5

L1

01 Solar Acess Diagram

Units with living rooms and private open spaces receiving a minimum of 3 hours direct sunlight between 9 am and 3 pm

Requirement: At least 70% of apartments in a building

Proposed: 29/ 41 Units (i.e. 70.7%)

L1

02 Cross Ventilation Diagram

Units are naturally cross ventilated

Requirement: At least 60% of apartments in a building

Proposed: 26/ 41 Units (i.e. 63.4%)

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04	DA Re-Issue	17/01/20

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NSW GOVERNMENT Family & Community Services Land & Housing Corporation

Mono Constructions

Residential Apartment Building

56 Beane Street, Gosford, NSW

Drawn; jok/at/mc/ef
Checked; jok/ at
Plot date; 1/4/20

Scale; as noted @ A1

Project No; 2421.19

Drawing No; A029

Revision#; 04

ADG Diagrams (Sht 2 of 3)

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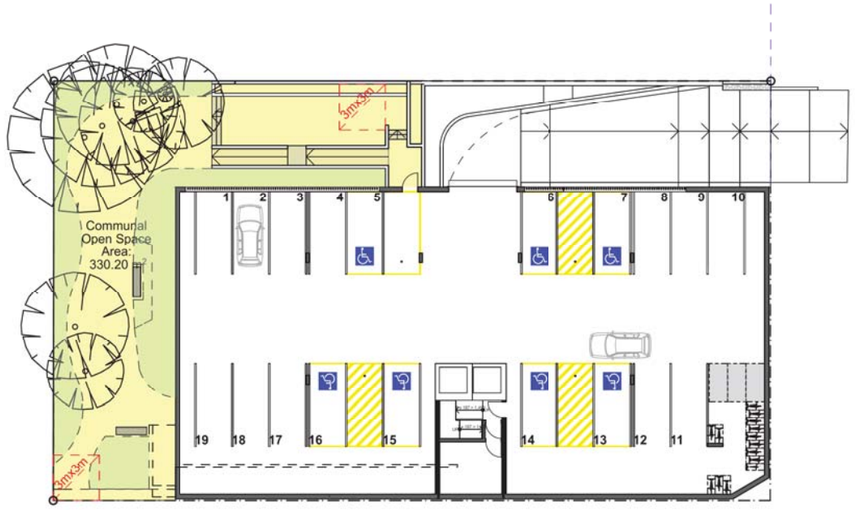
scale: 1:200 @A1

ADG Diagrams

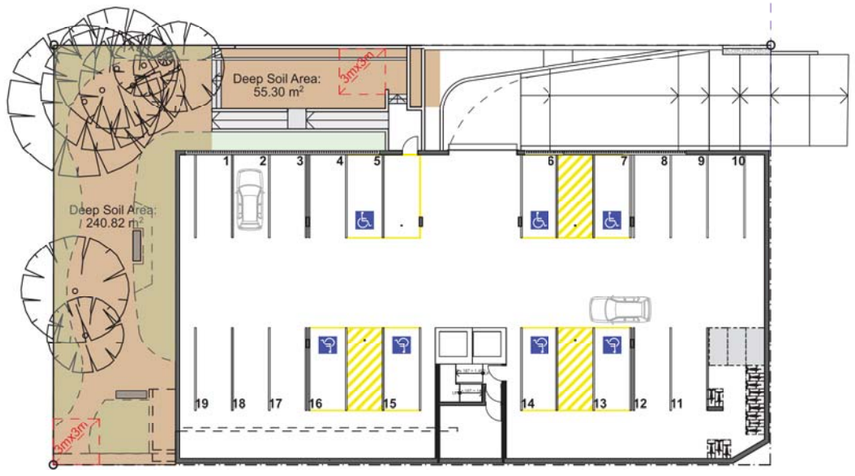


01 **Communal Open Space Diagram**
1:200

Communal Open Space Area

Requirement: minimum 25% of site area (i.e. 321m2)

Proposed: 330.20m2 (i.e. 25.7% of site area)



02 **Deep Soil Diagram**
1:200

Deep Soil Area

Requirement: minimum 7% of site area (i.e. 89.9m2)

Proposed: 296m2 (i.e. 23.06% of site area)

Solar Access by Hour											
unit no.	Hours (am / pm)							0 hours	1 hours	2 hours	> 3 hours
	9	10	11	12	1	2	3				
101											Y
102											Y
103											Y
104											Y
105									Y		
201									Y		
202									Y		
203											Y
204											Y
205											Y
206											Y
207								Y			
208								Y			
301									Y		
302									Y		
303											Y
304											Y
305											Y
306											Y
307								Y			
308								Y			
401											Y
402									Y		
403											Y
404											Y
405											Y
406											Y
407								Y			
408									Y		
501											Y
502											Y
503											Y
504											Y
601											Y
602											Y
603											Y
604											Y
701											Y
702											Y
703											Y
704											Y
								5	7	0	29

Apartments Solar Access Summary - Sepp 65 + ADG				
	Required		Proposed	
	No.	%	No.	%
Apartments receiving 3 (or more) hours sun between 9am-3pm on the 21st June	20.7	min. 70%	29	71%
Apartments receiving no direct sun between 9am-3pm on the 21st June	6.15	max. 15%	5	12%

03 **Solar access calculations**

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04	DA Re-Issue	17/01/20

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Checked; jok/ at
Plot date; 1/4/20

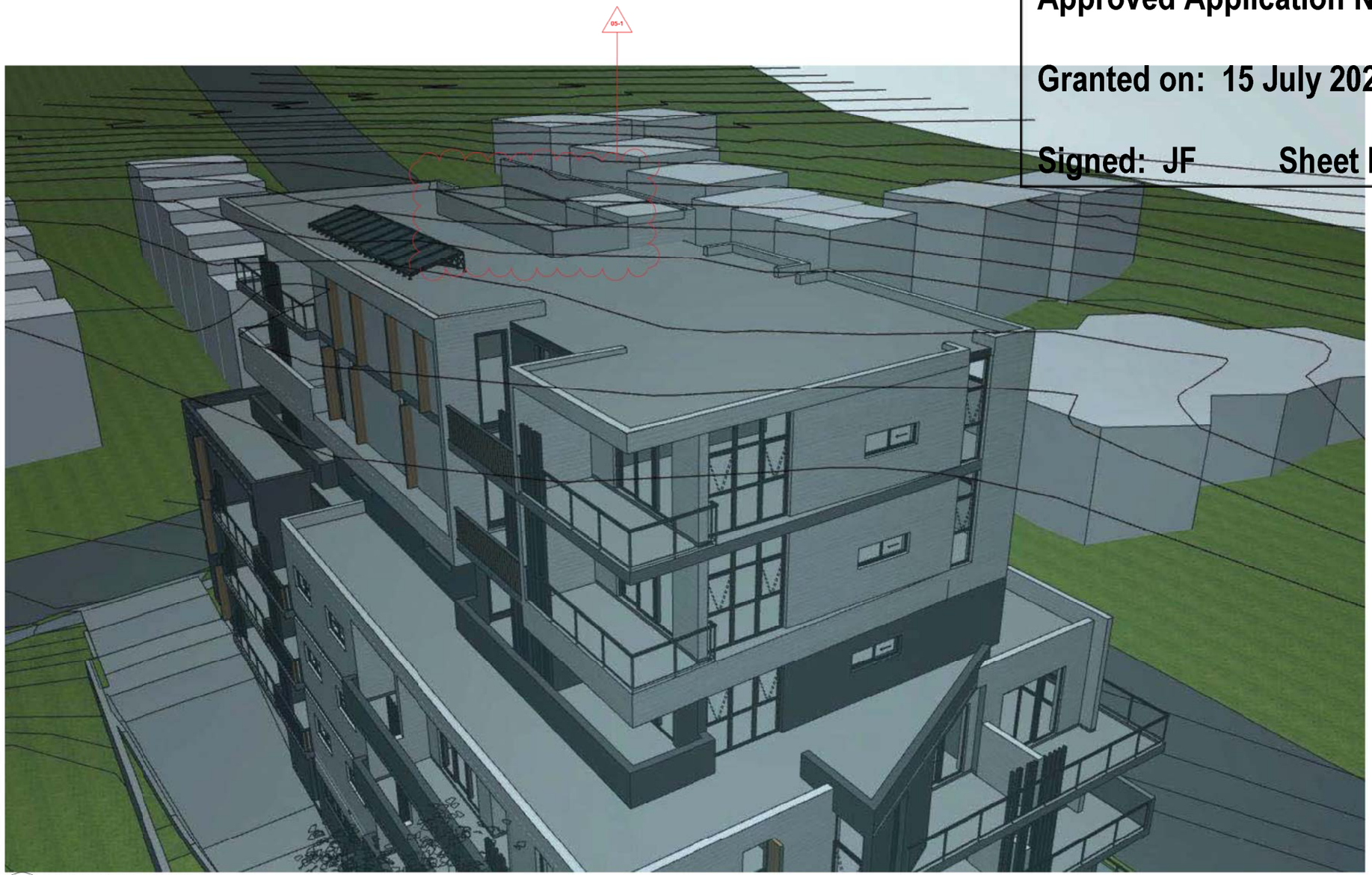
Scale; 1:200, 1:0.714 as noted @ AI

Project No;
2421.19

Drawing No; A030
Revision#; 04

ADG Diagrams (Sht 3 of 3)

SEPP Building Height Plane



01 **Height Plane Diagram**

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Rev	Issue	Date
01	Revised Architectural Set	26/11/19
02	Revised Architectural Set	06/12/19
03	Revised Architectural Set	18/12/19
04	DA Re-Issue	17/01/20
05	DA Re-Issue (Garbage Room Redesign)	31/03/20

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Checked; jok/ at
Plot date; 1/4/20

Scale; as noted @ A1

Project No;
2421.19

Drawing No; A031
Revision#; 05

SEPP Height Plane

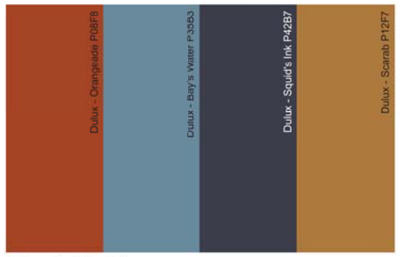
External Colour Selections (Sample)

Face Brickwork + Colour Matched Mortar Joints - fb(1)

Face Brickwork + Colour Matched Mortar Joints - fb(2)

Colour 1

Colour 2



Colours to Main Entry

Wall Cladding - cl(1)

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Scale; 1:1, 1:0.322, 1:4.087, 1:3.381, 1:1.058, 1:0.956, 1:3.980, 1:3.528, 1:0.397, 1:2.117, 1:1.626 as noted @ A1

Project No;
2421.19

Drawing No; A032

Revision#; 05

External & Internal Colour Selections

NOT FOR CONSTRUCTION

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
B	For Approval	PH	RS	05.12.2019
A	For Approval	PH	RS	12.08.2019

A1

LEGEND

- Existing Tree to be Retained
- Existing Tree to be Removed
- Proposed Tree Planting
- Proposed Shrub & Accent Planting
- Proposed Groundcover
- Proposed Turf
- Proposed Concrete Path
- Proposed Entry Paving
- Mulch as
- Proposed Timber Garden Edge

Key Plan:

SITE IMAGE
Landscape Architects
Level 1, 3-5 Baptist Street
Redfern NSW 2016
Australia
Tel: (61 2) 8332 5600
Fax: (61 2) 9698 2877
www.siteimage.com.au

Client:
MONO Constructions

Architect
Stanton dahl

Project:
Residential Apartment Building
56 Beane Street Gosford
NSW 2250

Drawing Name:
Landscape Colour Composite Plan

Sheet _ of _

DEVELOPMENT APPLICATION

Scale: 1:100 @ A1 (0 1 2 3 4 5m)

Job Number: SS19-4189

Drawing Number: C101 Issue: B

Two Storey
Brick Residence
No.168 (Gertrude St)
Metal Roof

LOT 3
DP 1591
Section 4

LOT 1
DP 706156

LOT 1
DP 1011599

LOT 32
DP 1591
Section 4

metal post fence

Communal Area at LG level

BUILDING LOWER GROUND LEVEL

BUILDING LEVEL 1

BUILDING OVER

2.5 clear height

access to communal area

Stair

COMMS

Lobby

Bins Storage

Storage

Lift 1

Lift 2

Entrance Lobby
RL: 24.70

Fire Exit

MSB

RL: 24.70

letter boxes

4 visitors bicycle racks

street number

existing power pole

Bins colelction

existing sign

existing tel pit

existing SMH

FH Booster

existing tree to be removed

existing trees to be removed

ramp @ 1:8

ramp @ 1:4

ramp @ 1:8

ramp @ 1:20

ramp @ 1:10

walkway @ 1:20

26.18 SV

26.30 SV

Gertrude Street

Beane Street

NOT FOR CONSTRUCTION

Issue	Revision Description	Drawn	Check	Date
B	For Approval	PH	RS	05.12.2019
A	For Approval	PH	RS	12.08.2019

LEGEND

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- Proposed Timber Garden Edge

Key Plan:

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Australia
Tel: (61 2) 8332 5600
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www.siteimage.com.au

Client:
MONO Constructions

Architect
Stanton dahl

Project:
Residential Apartment Building
56 Beane Street Gosford
NSW 2250

Drawing Name:
Landscape Composite Plan

Sheet _ of _

DEVELOPMENT APPLICATION

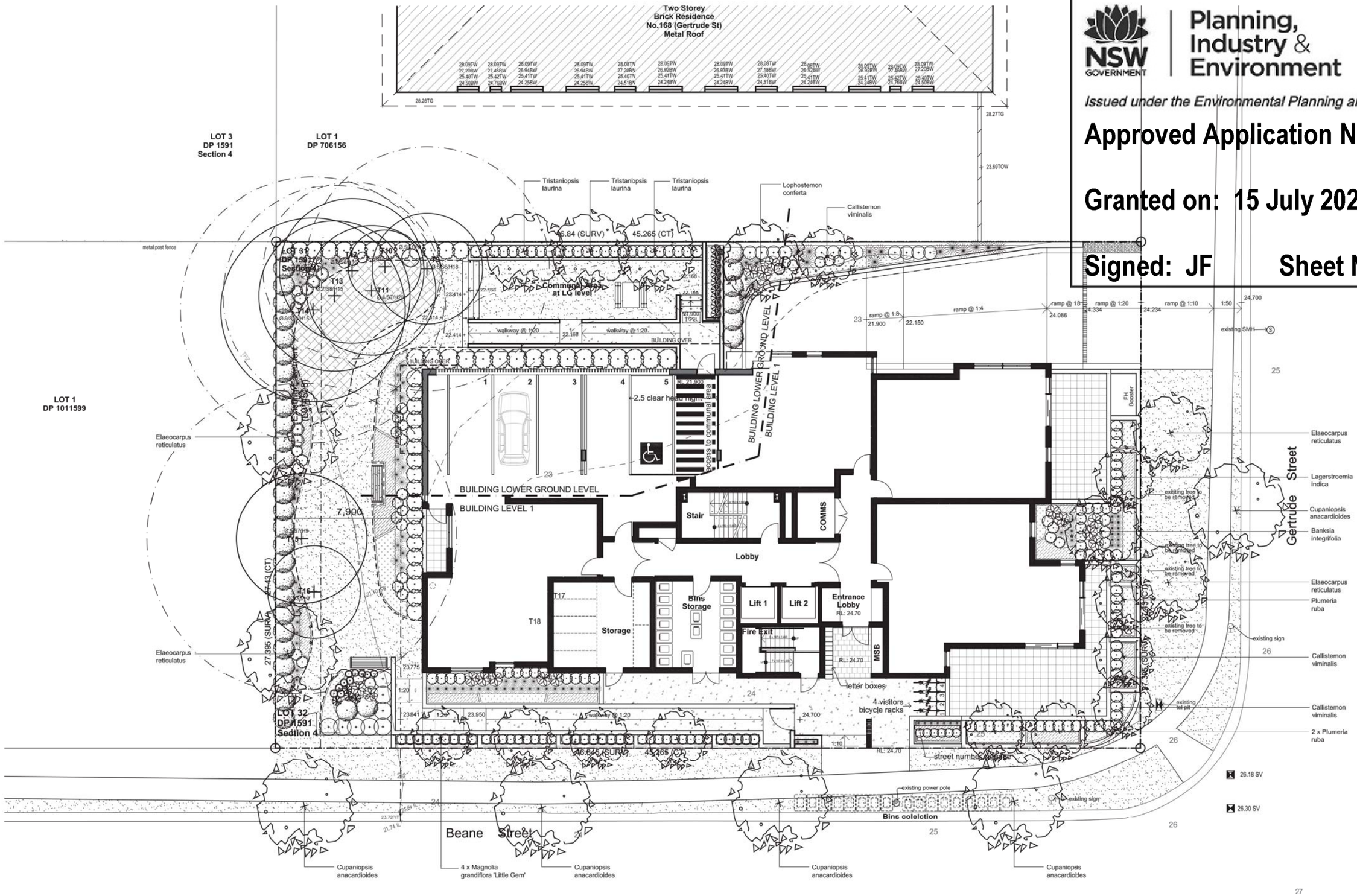
Scale: 1:100 @ A1 (0 1 2 3 4 5m)

Job Number: SS19-4189

Drawing Number: 101

Issue: B

A1



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Issue	Revision Description	Drawn	Check	Date
B	For Approval	PH	RS	05.12.2019
A	For Approval	PH	RS	12.08.2019

LEGEND

- Existing Tree to be Retained
- Existing Tree to be Removed
- Proposed Tree Planting
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Key Plan:

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Fax: (61 2) 9698 2877
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Client:
MONO Constructions

Architect
Stanton dahl

Project:
Residential Apartment Building
56 Beane Street Gosford
NSW 2250

Drawing Name:
Landscape Plan

Sheet _ of _

DEVELOPMENT APPLICATION

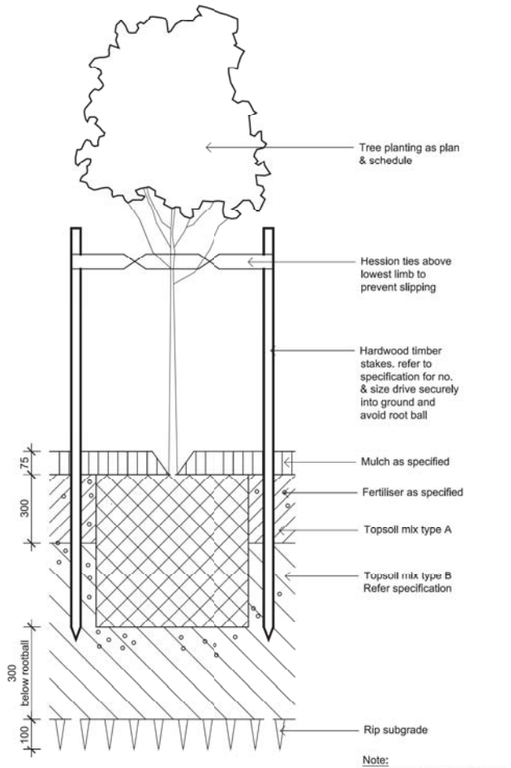
Scale: 1:100 @ A1 (0 1 2 3 4 5m)

Job Number: SS19-4189

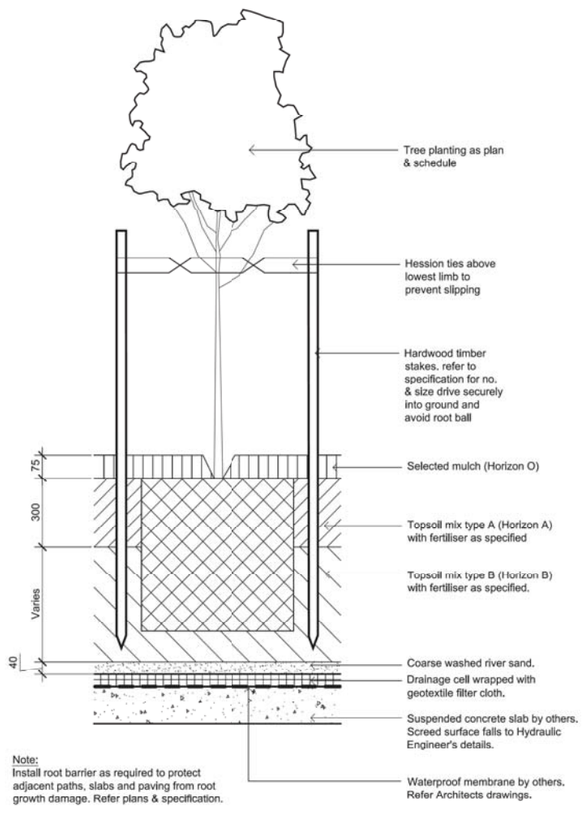
Drawing Number: 102

Issue: B

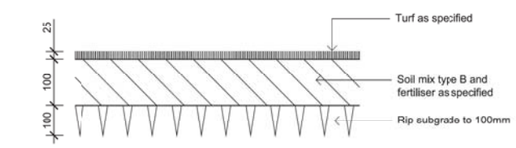
A1



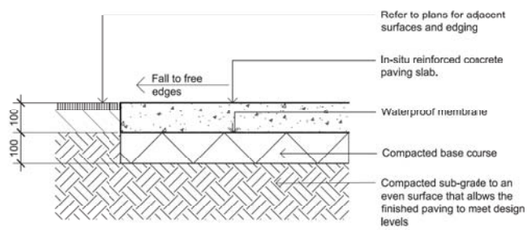
01 501 Detail 75-200L Tree Planting on Grade 1:10



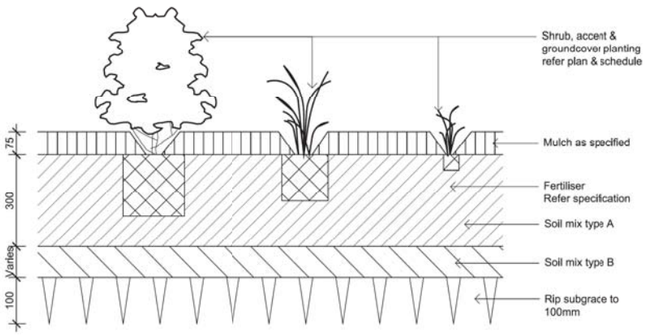
02 501 Detail 75-200L Tree Planting on Structure 1:10



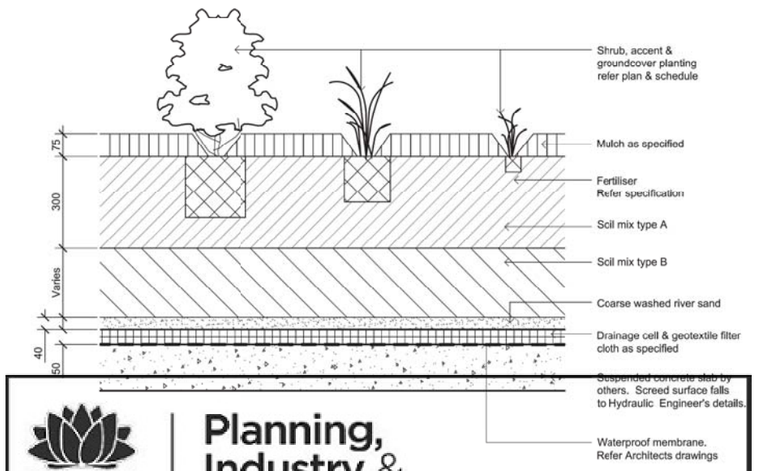
05 501 Detail Turf on Even Grade 1:10



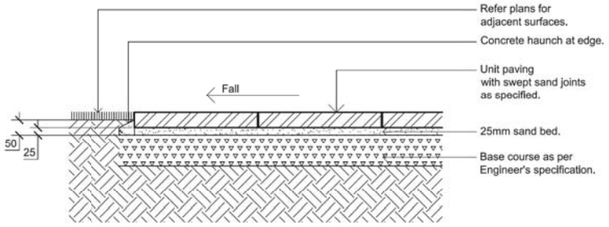
05 501 Insitu Concrete Paving - On grade 1:10



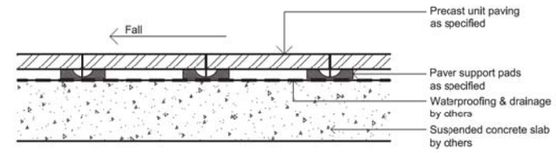
03 501 Detail Shrub Accent & Groundcover Planting on Grade 1:10



04 501 Detail Shrub Accent & Groundcover Planting on Structure 1:10



06 501 Unit Pavers on Grade 1:10



07 501 Precast Unit Pavers on Suspended Slab 1:10

NOT FOR CONSTRUCTION

LEGEND

Issue	Revision Description	Drawn	Check	Date
B	For Approval	PH	RS	05.12.2019
A	For Approval	PH	RS	12.08.2019

A1

NSW GOVERNMENT | Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: DA 10132

Key Plan:

Granted on: 15 July 2020

Signed: JF Sheet No: 36 of 48

SITE IMAGE
Landscape Architects
Level 1, 3-5 Baptist Street
Redfern NSW 2016
Australia
Tel: (61 2) 8332 5600
Fax: (61 2) 9698 2877
www.siteimage.com.au

Client: MONO Constructions

Architect: Stanton dahl

Project: Residential Apartment Building
56 Beane Street Gosford
NSW 2250

Drawing Name: Landscape Details

Sheet _ of _

DEVELOPMENT APPLICATION

Scale:

Job Number: SS19-4189

Drawing Number: 501

Issue: B

SPECIFICATION

GENERAL NOTES

References

All plans and details included in the project documents shall be read in conjunction with this specification. All structural and civil works components of the landscape design shall be referenced to engineers' details and specifications. Read this specification in conjunction with the plant and materials schedules on the drawings. If in doubt about any detail or if conflicts are found in the documents, seek advice.

Workmanship and Materials

The whole of the landscape works shall be carried out by a competent, trained and qualified landscape contractor who is experienced in horticultural practices, landscape construction and planting techniques. The landscape contractor shall hold a current Building Contractors License and/or be a financial member of LNA Landscape Association NSW & ACT or equivalent organisations in other states.

EXISTING TREES AND SHRUBS

Trees and Shrubs to be Retained and Protected

Identify and mark trees and shrubs to be retained using a suitable non-injurious, easily visible and removable means of identification. Protect from damage the trees and shrubs to be retained, including those beyond the site area, both above and below the ground. If a tree becomes damaged during the works or it is proposed to perform work on a tree, give written notice immediately and obtain instructions.

Work Near Trees and Shrubs

Keep the area of the drip-line free from construction material and debris. Do not place bulk materials and harmful materials under foliage canopies or near trees. Do not place spoil from excavations against tree trunks. Prevent wind-blown building materials, such as cement, from covering trees and other plants. Do not remove topsoil from, or add topsoil to, the area within the drip-line of trees.

EARTHWORKS

Excavation, Trimming and Filling

Except as otherwise noted in the contract, bulk excavation is excluded from the landscape works. After the completion of bulk excavation by others, trim and fill the excavated ground surfaces to achieve design levels to accommodate finish materials as detailed. Prepare the sub-grade surface as required for the various finished ground treatments.

Sub-soil Drainage

Keep the excavated works drained and free of standing water. Allow to supply and install sub-soil drainage pipes as required for the new works to ensure that all gardens are well drained. Connect the sub-soil drainage pipes to the nearest downstream stormwater pits. Include pipe filter socks and course sharp aggregate backfilling of trenches.

HARDWORKS

Furniture, Handrails, Balustrades

Supply and install the scheduled items in accordance with the manufacturer's recommendations, as detailed and in the locations shown on plan. Provide all footings and fixings required for the items to be stable and in accordance with applicable codes and standards.

Garden Walls, Fences, Steps, TGSI and Edging

Construct garden walls, fences, steps, TGSI and edging as shown on plan, as detailed and of the material scheduled. Provide footings, step nosings, tactile surfaces to comply with Australian Standards and applicable legislation. Refer to engineer's details for structural retaining walls, concrete stairs, concrete strength, reinforcing and joint placement.

Continuous, Unit and Loose Pavement

Install the scheduled material pavement to the locations shown on plan. Ensure that all subgrade/subsurface works are complete prior to commencing paving. Confer with the engineer to ensure the structural integrity of the subgrade. Ensure that the base course under paved surfaces is a continuous plane offering a constant depth of bedding material not exceeding 50mm. If laying unit pavers in a cement mortar bed on a concrete sub-base ensure that joints in paving match the location of joints in the concrete. Refer to engineer's details for heavy duty slabs, concrete stairs, concrete strength, reinforcing, and joint type and placement.

SOFTWORKS

Site Soil Testing

Where site soil is to be retrieved from site and stored on site for reuse, undertake at least two (2) soil tests in locations as advised by the Project Manager or as shown on the plans. Provide results and recommendations regarding soil additives for the benefit of healthy plant growth and to adjust the soil components to achieve an appropriate planting medium for successful plant development.

Subsoil

Excavate and/or fill all garden beds to bring the top of subsoil to at least 300mm below finished design soil levels. Excavate all turf areas to bring the subsoil to at least 100mm below finished design levels. In all areas shape the subsoil to fall to subsoil drains where applicable. Do not excavate within the drip line of trees and shrubs to be retained. Cultivate or rip the subsoil to a further depth of 100mm before placing top soil. Remove stones of size exceeding 25mm, clods of earth exceeding 50mm, and weeds rubbish or other deleterious material brought to the surface during cultivation. Do not disturb services or existing tree roots. If necessary cultivate these areas by hand. During cultivation, thoroughly mix in materials required to be incorporated into the subsoil, as recommended in the soil testing results and to manufacturer's recommendations. Trim the surface to design levels again after cultivation.

Topsoil

Import topsoil for the garden and turf areas, unless the topsoil can be provided from material recovered from the site, as recommended in the soil testing results. Spread the topsoil on the prepared subsoil and grade evenly, compact lightly and uniformly in 150mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which has the following characteristics:

- Finished to design levels, allowing for mulch or turf, which is to finish flush with adjoining hard surfaces such as paths and edges;
- Smooth and free from inorganic matter, stones or clods of soil,
- Graded to drain freely, without ponding, to catchment and/or sub-soil drains;
- Graded evenly to adjoining surfaces; and
- Ready for planting.

Compost

Provide, in accordance with AS 4454, well rotted vegetative material or animal manure, free from harmful chemicals, inorganic mater, grass, weeds and the reproductive parts of unwanted plants.

Fertiliser

Provide proprietary fertilisers, delivered to the site in sealed containers marked to show manufacturer or vendor, weight, fertiliser type, N:P:K ratio, recommended uses, application rates and safety procedures. Apply appropriate fertiliser suited to the provenance of plants (indigenous or exotic) included in the design.

Plants

Supply plants in accordance with the landscape design drawings and schedules, which have the following characteristics:

- Large healthy root systems, with no evidence of root curl, restriction or damage;
- Vigorous, well established, free from disease and pests, of good form consistent with the species/variety;
- Hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site in full sun, partial shade or full shade conditions;
- Grown in final containers for not less than twelve weeks;
- Trees, unless required to be multi-stemmed, shall have a single leading shoot; and
- Containers shall be free from weeds and of appropriate size in relation to the specified plant size.

Plant Installation

Following excavation of the planting hole, place and spread 15gms of wetting agent pre-mixed with one (1) litre of water. Place the plant correctly orientated to north or for best presentation. Backfill the planting holes with specified topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure that the backfill soil is not placed over the top of the root ball and that the root ball is not higher than the soil in which it is planted. Apply fertiliser, as specified around the plants in the soil at the time of planting.

Embankment Stabilisation

Where necessary and shown on the drawings prevent soil erosion or soil movement by stabilising embankments as follows. As a minimum this should be on slopes steeper than or equal to 1:3 gradient. Stabilise embankments using biodegradable fibre reinforced heavy weight jute fabric. Lay fabric from top to bottom of slope. Install in accordance with manufacturer's specification, including 300 x 300mm anchor trench at top and bottom of slope, backfilled with soil over the fabric and compacted into the trenches. Using U-shaped galvanised steel pegs at 1000 mm centres generaly and 250mm centres at edge overlaps, secure the fabric to the prepared soil surface. Plant through the fabric after it is installed.

Root Barrier

Supply and install root control barriers to all new tree plantings adjacent to walls, paths, kerbs and all service trenches, where their proximity poses a threat to the stability of the built infrastructure. Install in accordance with manufacturer's recommendations.

Mulch

Unless noted otherwise, mulch shall be approved proprietary recycled wood fibre or pine bark material. Place mulch in all garden beds to a depth of 75mm after all specified plants are installed. Keep mulch clear of all plant stems and rake to an even plane, flush with the surrounding surfaces evenly graded between design surface levels. Over fill to allow mulch to settle to the specified depth.

Stakes and Ties

Stakes shall be durable hardwood, straight, free of knots and twists, pointed at one end, in the following quantities and sizes for each of the various plant pot sizes:

- Plants ≥25 lt: 1 off 38 x 38 x 1200mm;
- Semi-advanced plants ≥75 lt: 2 off 50x50x 1800mm;
- Advanced plants ≥100 lt: 3 off 50 x 50 x 2400mm.

Turf

Turf shall be delivered to site as 25mm minimum thick cut rolls. Obtain turf from a specialist grower of cultivated turf. Turf shall have an even thickness, free from weeds and other foreign matter. Deliver turf to the site within 24 hours of being cut and lay it within 24 hours of delivery. Prevent it form drying out between cutting and laying. Lay the turf in the following manner:

- In stretcher pattern, joints staggered and close buted;
- Parallel long sides of level areas, with contours on slopes; and
- To finish flush, after lightly tamping, with adjacent finished surfaces and design levels.

Species: *Stenotaphrum secundatum* Sir Walter Soft-leaf Buffalo.

IRRIGATION

Scope: Unless otherwise noted or instructed irrigate all planted areas shown on plans including planters, tubs, gardens, turf and the like.

The irrigation system shall be an automatic permanent system, with an irrigation controller self operated via a soil moisture sensor. The system shall be calibrated to deliver the optimum rate and amount of water appropriate to the type of plants in the design. The system shall be adjustable and fully serviceable. The layout of the entire irrigation system shall focus on delivering the required amount of water to maintain healthy vigorous growth. The irrigation system shall be such that component theft, vandalism, over-spray and wetting of paths shall be reduced to a minimum or completely eliminated by the use of drip, pop-up sprinklers and low flow fixed spray emitters. Generally do not use fine mist emitters that create drifting mist that may wet paths and the buildings unless specifically required by the design.

LANDSCAPE MAINTENANCE

The Landscape Contractor shall rectify defects during installation and that become apparent in the works under normal use for the duration of the contract Defects Liability Period. Unless contracted otherwise, the Landscape Contractor shall maintain the contract areas by the implementation of industry accepted horticultural practices for 52 weeks from Practical Completion of the works. The landscape maintenance works shall include, but not be limited to:

- Replacing failed plants;
- Pruning;
- Insect and pest control;
- Fertilising;
- Maintaining and removing stakes and ties;
- Maintaining mulch;
- Mowing and top dressing;
- Irrigation and watering;
- Erosion control; and
- Weeding and rubbish removal.

Maintenance Log Book

Implement and keep a maintenance log book recording when and what maintenance work has been undertaken and what materials, actions and decisions have been used, implemented and concluded to keep the landscape always looking its best. Enter data daily and review information every 2 weeks. Observe trends and develop a maintenance regime around seasonal and observed event occurrences.

Maintenance Activities

During the defects maintenance period schedule the following activities to occur on a timely basis.

- **Plant replacement -** Replace plants that have failed to mature, die or are damaged. Replacement plants shall be in a similar size and quality and identical species or variety to the plant that has failed. Replacement of plants shall be at the cost of the landscape contractor unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing plants. Observe and replace failed plants within 2 weeks of observation.
- **Pruning -** Prune dead wood, broken limbs, dead or infected foliage and as needed to develop strong, healthy plants to achieve the shape and form expected of the plant type. Observe daily and prune plants on a needs basis.
- **Insect, disease and pest control -** Avoid spraying:
  - if ever possible;
  - in wet weather or if wet weather is imminent;
  - if target plants are still wet after rain
  - in windy weather; and
  - if non-target species are too close.

  Immediately report to the Project Manager any evidence of intensive weed infestation, insect attack or disease amongst plant material. Submit all proposals to apply chemicals and obtain approval before starting this work. When approved, spray with herbicide, insecticide, fungicide as appropriate in accordance with the manufacturers' recommendations. Observe daily and act as necessary to control any infestation or disease. Record in the logbook all relevant details of spraying activities including:
  - Product brand / manufacturer's name,
  - Chemical / product name,
  - Chemical contents,
  - Application quantity and rate,
  - Date of application and location,
  - Results of application, and
  - Use approval authority.
- **Fertilising -** Fertilise gardens with a proprietary slow release fertiliser applied in accordance with the manufacturer's directions and recommendations. Apply 6-12 monthly. Record in the logbook all relevant details of fertilising including:
  - Product brand / manufacturer's name,
  - Fertiliser / product name,
  - Application quantity and rate, and
  - Date of application and location.
- **Stakes and ties -** Adjust and replace as required to ensure plants remain correctly staked. Remove those not required at the end of the planting establishment period (Defects Liability Period). Inspect and act at least every 2 weeks.
- **Maintaining mulch -** Maintain the surface in a clean, tidy and weed free condition and reinstate the mulch as necessary to ensure correct depth as specified. Observe weekly and replenish mulch as required.
- **Mowing and top dressing -** Mow the turf to maintain a grass height of between 30-50mm. Do not remove more than one third of the grass height at any one time. Remove grass clippings from the site after each mowing. Top dress to a maximum of 10mm to fill depressions and hollows in the surface. Mow weekly/fortnightly in warmer months. Mow monthly or as required in cooler months. Top dress at approximately 6 monthly intervals.
- **Irrigation and watering -** Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy and vigorous growth. Adjust and calibrate as required. Provide additional watering, if necessary but inspect irrigation weekly and make repairs as necessary.
- **Erosion control -** Where necessary, maintain the erosion control fabric in a tidy and weed free condition and reinsate as necessary to ensure control measures are effective where deemed necessary. Inspect every 2 weeks and act to repair any damage as soon as possible.
- **Weeding and rubbish removal -** During the plant establishment period remove by hand, rubbish and weed growth that may occur or re-occur throughout all planted, mulched and paved areas. The contractor shall target weeds that are capable of producng a major infestation of unwanted plants by seed distribution. Whenever possible, time weed removal to [illegible] and seed set. Constant observation and removal of weeds is essential.

SS19-4189 56 Beane St, Gosford

Indicative Planting Schedule

Symbol	Botanical Name	Common Name	Mature Height (m.)	Mature Spread (m.)
Trees & Palms				
Bi	*Banksia integrifolia*	Coastal Banksia	12	5
Ca	*Cupaniopsis anacardioides*	Tuckeroo	12	7
Cv	*Callistemon viminalis*	Weeping Bottlebrush	6	5
Er	*Elaeocarpus reticulatus*	Blueberry Ash	12	4
Lc	*Lophostemon conferta*	Brush Box	6-8	4-5
Li	*Lagerstroemia indica*	Crepe Myrtle	6	3
ML	*Magnolia grandiflora 'Little Gem'*	Dwarf Magnolia	5	3
Pr	*Plumeria ruba*	Frangipani	6	3
Tl	*Tristaniopsis laurina*	Water Gum	12	4
Shrub & Accent Planting				
An	*Asplenium nidus*	Birds Nest Fern	0.7	0.7
Asm	*Acmena smithii 'Minor'*	Lilly Pilly	2	1.5
Bs	*Buxus sempervirons*	Buxus	1	1
CBB	*Crassula* 'Blue Bird'	Blue Bird Jade Plant	0.7	0.7
Cp	*Crinum pedunculatum*	Swamp Lily	1.5	1.5
Cr	*Cycas revoluta*	Sago Palm	1.5	1.5
CRS	*Cordyline 'Red Sensation'*	Red Cordyline	2	1
Cs	*Cordyline stricta*	Cordyline	3	2
CW	*Callistemon citrinus 'White Anzac'*	Lemon Scented Bottlebrush	3	2
Da	*Dicksonia antarctica*	Soft Tree Fern	5	3
De	*Doryanthes excelsa*	Gymea Lily	3	2
Dv	*Dodonaea viscosa subsp. Cuneata*	Sticky Hopbush	3	2
GaF	*Gardenia augusta 'Florida'*	Gardenia	0.5	1.5
Gr	*Grevillea rosmarinifolia*	Rosemary Grevillea	1.5	1.5
LCP	*Loropetalum 'China Pink'*	Chinese Frince Flower	2	1.5
Mp	*Murraya paniculata*	Orange Jessamine	3	2
NGS	*Nandina 'Gulf Stream'*	Nandina	0.7	0.5
Pa	*Plectranthus* 'Argentatus'	Silver Spurflower	0.7	1
PBB	*Phormium 'Bronze Baby'*	Bronze NZ Flax	0.7	0.8
PML	*Plectranthus* 'Mona Lavender'	Mona Lavender	0.7	0.7
PX	*Philodendron xanadu*	Xanadu	0.7	0.7
PYW	*Phormium 'Yellow Wave'*	Yellow Wave NZ Flax	1	1
Re	*Rhapis excelsa*	Lady Palm	4.5	1
ROP	*Rhaphiolepis* 'Oriental Pearl'	Oriental Pearl	1	0.8
RSM	*Rhaphiolepis* 'Snow Maiden'	Snow Maiden	0.6	0.6
Sa	*Syzygium australe 'Tiny Trev'*	Dwarf Lilly Pilly	0.7	0.5
SC	*Syzygium 'Cascade'*	Weeping 'Cascade' Lilly Pilly	0.7	0.5
Sg	*Strobilanthes gossypinus*	Persian Shied	1.5	1.5
Sr	*Strelitzia reginae*	Bird Of Paradise	1.2	1.5
SR	*Syzygium australe 'Resilience'*	Resilience Lily Pily	5	3
Vo	*Viburnum odoratissimum*	Sweet Viburnum	4	2
WWG	*Westringia 'Wynyabbie Gem'*	Wynyabbie Rosemary	1	1
Zf	*Zamia furfuracea*	Cardboard Cycad	0.5	0.8
Grasses & Groundcovers				
ABR	*Anigozanthos 'Big Red'*	Kangaroo Paw	1.5	0.5
Ac	*Arthropodium cirratum*	New Zealand Rock Lily	0.8	1
Ae	*Aspidistra eliator*	Cast Iron Plant	0.8	0.5
Cap	*Carex appressa*	Tall Sedge	0.6	0.4
Cg	*Carpobrotus glaucescens*	Pig Face	0.2	0.9
CKF	*Calamagrostis x acutifolra 'Karl Foerster'*	Reed Grass	1.7	1.4
Cm	*Clivea miniata*	Kaffir Lily	0.45	0.3
Ca	*Cissus antarctica*	Kangaroo Vine	4	3
Com	*Convolvulus mauritanicus 'Blue Moon'*	Morning Glory	0.1	0.9
DB	*Dianella 'Breeze'*	Breeze Flax Lily	0.7	0.6
DCB	*Dianella 'Cassa Blue'*	Cassa Blue Flax Lily	0.4	0.4
Dg	*Dietes grandiflora*	Wild Iris	0.7	0.7
DSS	*Dianella 'Silver Streak'*	Silver Streak Flax Lily	0.5	0.4
Fp	*Ficus pumila*	*Creeping Fig*	*4*	*Spreading*
Gs	*Gazania sp.*	Gazania	0.2	0.4
Hs	*Hibbertia scandens*	Snake Vine	4	3
LfM	*Lomandra filiformis Mondra*	Lomandra	0.15	0.2
LJR	*Liriope muscari 'Just Right'*	Turf Lily	0.5	0.5
LT	*Lomandra longifolia 'Tanika'*	Tanika Mat Rush	0.7	0.7
Mp	*Myoporum parvifolium*	Creeping Boobialla	0.2	0.8
Pj	*Pandorea jasminoides*	Bower Vine	3	3
PN	*Pennisetum 'Nafray'*	Swamp Foxtail	0.8	0.8
Tj	*Trachelospermum jasminoides*	Star Jasmine	0.3	0.5

NOT FOR CONSTRUCTION

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
B	For Approval	PH	RS	05.12.2019
A	For Approval	PH	RS	12.08.2019

A1

NSW Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: DA 10132

LEGEND

Granted on: 15 July 2020

Signed: JF Sheet No: 37 of 48

Key Plan:

SITE IMAGE
Landscape Architects
Level 1, 3-5 Baptist Street
Redfern NSW 2016
Australia
Tel: (61 2) 8332 5600
Fax: (61 2) 9698 2877
www.siteimage.com.au

Client: MONO Constructions

Architect: Stanton dahl

Project: Residential Apartment Building
56 Beane Street Gosford
NSW 2250

Drawing Name: Landscape Specifications & Plant Schedule

Sheet _ of _

DEVELOPMENT APPLICATION

Scale:

Job Number: SS19-4189

Drawing Number: 502

Issue: B

STORMWATER MANAGEMENT PLANS (DA SUBMISSION)
PROPOSED RESIDENTIAL FLAT BUILDING
No.56 BEANE STREET, GOSFORD
LOT 30 DP:1250970

DRAINAGE NOTES

PIPE SIZE:
THE MINIMUM PIPE SIZE SHALL BE:
- 90mm DIA WHERE THE LINE ONLY RECEIVES ROOFWATER RUNOFF; OR
- 100mm DIA WHERE THE LINE RECEIVES RUNOFF FROM PAVED OR UNPAVED AREAS ON THE PROPERTY

THE MINIMUM PIPE VELOCITY SHOULD BE 0.6 m/s AND A MAXIMUM PIPE VELOCITY OF 6.0 m/s DURING THE DESIGN STORM.

PIPE GRADE:
THE MINIMUM PIPE GRADE SHALL BE:
- 1.0% FOR PIPES LESS THAN 225mm DIA
- 0.5% FOR ALL LARGER PIPES

PIPES WITH A GRADIENT GREATER THAN 20% WILL REQUIRE ANCHOR BLOCKS AT THE TOP AND BOTTOM OF THE INCLINED SECTION; AND AT INTERVALS NOT EXCEEDING 3.0m

ANCHOR BLOCKS ARE DESIGNED ACCORDING TO *CLAUSE 3.5.3 OF AS3500.3-1990*

DEPTH OF COVER FOR PVC PIPES:
MINIMUM PIPE COVER SHALL BE AS FOLLOWS:

LOCATION	MINIMUM COVER
NOT SUBJECT TO VEHICLE LOADING	100mm SINGLE RESIDENTIAL 300mm ALL OTHER DEVELOPMENTS
SUBJECT TO VEHICLE LOADING	450mm WHERE NOT IN A ROAD
UNDER A SEALED ROAD	600mm
UNSEALED ROAD	700mm
PAVED DRIVEWAY	100mm PLUS DEPTH OF CONCRETE

SEE AS2032 INSTALLATION OF UPVC PIPES FOR FURTHER INFORMATION.

CONCRETE PIPE COVER SHALL BE IN ACCORDANCE WITH *AS3725-1989 LOADS ON BURIED CONCRETE PIPES*, HOWEVER A MINIMUM COVER OF 450mm WILL APPLY.

WHERE INSUFFICIENT COVER IS PROVIDED, THE PIPE SHALL BE COVERED AT LEAST 50mm THICK OVERLAY AND SHALL THEN BE PAVED WITH AT LEAST:
- 150mm REINFORCED CONCRETE WHERE SUBJECT TO HEAVY VEHICLE TRAFFIC;
- 75mm THICKNESS OF BRICK OR 100mm OF CONCRETE PAVING WHERE SUBJECT TO LIGHT VEHICLE TRAFFIC; OR
- 50mm THICK BRICK OR CONCRETE PAVING WHERE NOT SUBJECT TO VEHICLE TRAFFIC.

CONNECTIONS TO STORMWATER DRAINS UNDER BUILDINGS:
SHALL BE CARRIED OUT IN ACCORDANCE WITH *SECTION 3.10 OF AS3500.3-1990*

ABOVE GROUND PIPEWORK:
SHALL BE CARRIED OUT IN ACCORDANCE WITH *SECTION 6 OF AS3500.3-1990*

PIT SIZES AND DESIGN:

DEPTH (mm)	MINIMUM PIT SIZE (mm)
UP TO 450mm	450 x 450
450mm TO to 600mm	600 x 600
600mm TO 900mm	600 x 900
900mm TO 1500mm	900 x 900 (WITH STEP IRONS)
1500mm TO 2000mm	1200 x 1200 (WITH STEP IRONS)

ALL PIPES SHOULD BE CUT FLUSH WITH THE WALL OF THE PIT.

PITS GREATER THAN 600mm DEEP SHALL HAVE A MINIMUM ACCESS OPENING OF 600 x 600mm

THE GRATED COVERS OF FITS LARGER THAN 600 x 600mm ARE TO BE HINGED TO PREVENT THE GRATE FROM FALLING INTO THE PIT.

THE BASE OF THE DRAINAGE PITS SHOULD BE AT THE SAME LEVEL AS THE INVERT OF THE OUTLET PIPE. RAINWATER SHOULD NOT BE PERMITTED TO POND WITHIN THE STORMWATER SYSTEM

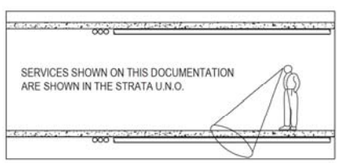
- **TRENCH DRAINS:**
  CONTINUOUS TRENCH DRAINS ARE TO BE OF WIDTH NOT LESS THAN 150mm AND DEPTH NOT LESS THAN 100mm. THE BARS OF THE GRATING ARE TO BE PARALLEL TO THE DIRECTION OF SURFACE FLOW.

- **STEP IRONS:**
  PITS BETWEEN 1.2m AND 6m ARE TO HAVE STEP IRONS IN ACCORDANCE WITH AS1657. FOR PITS GREATER THAN 6m OTHER MEANS OF ACCESS MUST BE PROVIDED.

- **PVC PITS:**
  PVC PITS WILL ONLY BE PERMITTED IF THEY ARE NOT A GREATER SIZE THAN 450 x 450mm (MAXIMUM DEPTH 450mm) AND ARE HEAVY DUTY

- **IN-SITU PITS:**
  IN-SITU PITS ARE TO BE CONSTRUCTED ON A CONCRETE BED OF AT LEAST 150mm THICK. THE WALLS ARE TO BE DESIGNED TO MEET THE MINIMUM REQUIREMENTS OF CLAUSE 4.6.3 OF AS3500.4-1990. PITS DEEPER THAN 1.8m SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE.

- **GRATES:**
  GRATES ARE TO BE GALVANISED STEEL GRID TYPE. GRATES ARE TO BE OF HEAVY-DUTY TYPE IN AREAS WHERE THEY MAY BE SUBJECT TO VEHICLE LOADING.



GENERAL NOTES

1. FINAL LOCATION OF NEW DOWNPIPES TO BE DETERMINED BY BUILDER/ARCHITECT AT TIME OF CONSTRUCTION.
2. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHTECTS AND OTHER CONSULTANTS DRAWINGS. ANY DISCREPANCIES TO BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
3. ALL MATERIALS AND WORKMANSHIP TO BE IN ACCORDANCE WITH AS/NZS 3500.3:2003 STORMWATER DRAINAGE, BCA AND LOCAL COUNCIL POLICY/CONSENT/REQUIREMENTS.
4. ALL DIMENSIONS AND LEVELS TO BE VERIFIED BY BUILDER ON-SITE PRIOR TO COMMENCEMENT OF WORKS. THESE DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS NOR TO BE USED FOR SETOUT PURPOSES.
5. ALL SURVEY INFORMATION AND PROPOSED BUILDING AND FINISHED SURFACE LEVELS SHOWN IN THESE DRAWINGS ARE BASED ON LEVELS OBTAINED FROM DRAWINGS BY OTHERS.
6. THESE DRAWINGS DEPICT THE DESIGN OF SURFACE STORMWATER RUNOFF DRAINAGE SYSTEMS ONLY AND DO NOT DEPICT ROOF DRAINAGE OR SUBSOIL DRAINAGE SYSTEMS UNLESS NOTED OTHERWISE. THE DESIGN OF ROOF AND SUBSOIL DRAINAGE SYSTEMS IS THE RESPONSIBILITY OF OTHERS.
7. ALL STORMWATER DRAINAGE PIPES ARE TO BE uPVC AT MINIMUM 1% GRADE UNLESS NOTED OTHERWISE.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND LEVEL ALL EXISTING SERVICES OR OTHER STRUCTURES WHICH MAY AFFECT/BE AFFECTED BY THIS DESIGN PRIOR TO COMMENCEMENT OF WORKS.
9. ALL PITS WITHIN DRIVEWAYS TO BE 150mm THICK CONCRETE OR EQUAL.
10. THIS PLAN IS THE PROPERTY OF QUANTUM ENGINEERS AND MAY NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMSSION FROM QUANTUM ENGINEERS.

PLAN NOTES

1. **ROOF DRAINAGE NOTE:** AS 3500 ROOF DRAINAGE REQUIRES EAVES GUTTERS TO BE SIZED FOR 20 YEAR 5 MIN. STORM = 205mm/hr. FOR EAVES GUTTERS, AS 3500.3:2003 THEN HAS THE FOLLOWING REQUIREMENTS:
   1.1 FOR TYPICAL STANDARD QUAD GUTTER WITH Ae = 6000mm² AND GUTTER SLOPE 1:500 AND STEEPER, THIS REQUIRES ONE DOWNPIPE PER 30m² ROOF AREA.
   1.2 DOWNPIPES TO BE MINIMUM 90mm DIA. OR 100 x 50mm FOR GUTTERS SLOPE 1:500 AND STEPPER.
   1.3 OVERFLOW METHOD TO FIGURE G1 OF AS 3500.3:2003 IT IS THE RESPONSIBILITY OF THE PLUMBER AND / OR BUILDER TO COMPLY WITH THIS. THIS DRAWING SHOWS PRELIMINARY LOCATIONS / NUMBERS OF DOWNPIPES ONLY WHICH ARE TO BE VERIFIED BY BUILDER / PLUMBER
2. **TREE PRESERVATION:** IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY PRIOR APPROVAL REQUIRED FROM COUNCIL WITH RESPECT TO POTENTIAL IMPACT ON TREES FOR ANY WORKS SHOWN ON THIS DRAWING PRIOR TO THE COMMENCEMENT OF THOSE WORKS
3. ALL ROOF GUTTERS TO HAVE OVERFLOW PROVISION IN ACCORDANCE WITH AS 3500.3:2003 AND SECTIONS 3.5.3, 3.7.5 AND APPENDIX G OF AS 3500.3:2003
4. THIS DRAWING IS NOT TO BE USED FOR SET-OUT PURPOSES - REFER TO ARCHITECTURAL DRAWINGS
5. LOCATION OF SURFACE STORMWATER GRATED INLET PITS MAY BE VARIED OR NEW PITS INSTALLED AT THE CONSTRUCTION STAGE PROVIDED DESIGN INTENT OF THIS DRAWING IS MAINTAINED

STORMWATER LEGEND

SURFACE INLET PIT		GRATED TRENCH DRAIN	
SURFACE INLET PIT (WITH OCEANGUARD 200)		ABSORPTION TRENCH	
ACCESS GRATE (WITH OCEANGUARD 200)		PROPOSED ROOF GUTTER FALL	→
ACCESS GRATE (TO HED PIT)		PROPOSED DOWNPIPE SPREADER	SP
450 SQUARE INTERVAL	450 X 450	STORMWATER PIPE 100mm DIA. MIN. UNO	
GRATE LEVEL = 75.50	SL 75.50	SUBSOIL PIPE	
INVERT LEVEL = RL 75.20	IL 75.20	EXSTING STORMWATER PIPE	
PROPOSED DOWNPIPE 90mm DIA. OR 100mm x 50mm MIN.	DP 90	INSPECTION RISER	IR
		RAINWATER HEAD	RWH

UNDERGROUND SERVICES LEGEND

E — E	UNDERGROUND ELECTRICITY CABLES
G — G	UNDERGROUND GASMAIN
NBN — NBN	UNDERGROUND NBN NETWORK CABLE
O — O	UNDERGROUND OPTUS CABLES
S — S	UNDERGROUND SEWERMAIN
T — T	UNDERGROUND TELSTRA COMMUNICATIONS CABLES
W — W	UNDERGROUND SYDNEY WATER LINE

} APPROXIMATE POSITION ONLY VIA DIAL BEFORE YOU DIG PLANS. WHERE CRITICAL TO DESIGN UNDERGROUND SERVICES SHOULD BE LOCATED BY GROUND PENETRATING RADAR PRIOR TO DESIGN OR EXCAVATION.

STORMWATER DRAWINGS LIST		6/12/2019
DRAWING No.	DRAWING TITLE	REVISION
D1	DETAILS, NOTES & LEGEND	A
D2	LOWER GROUND FLOOR PLAN & DETAILS	A
D3	SITE / LEVEL 1 FLOOR PLAN	A
D4	ROOF PLAN	A
D5	COMBINED STORMFILTER / OSD & RAINWATER TANK DETAILS / CALCULATIONS	A
D6	WATER QUALITY CATCHMENT DETAILS & CALCULATIONS	A
D7	SEDIMENT CONTROL PLAN	A
D8	STORMWATER & SEDIMENT CONTROL DETAILS	A

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Approved Application No: DA 10132

Granted on: 15 July 2020

Signed: JF Sheet No: 38 of 48

QUANTUM ENGINEERS
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b) ALL CURRENT AUSTRALIAN STANDARDS
c) ALL LOCAL COUNCIL REGULATIONS AS WELL AS ALL DCP & LEP ASSOCIATED.

APPROVED BY: ROBERT ELTOBBAGI, *MIEAust CPEng*

CLIENT: MONO CONSTRUCTIONS

ARCHITECT: STANTON DAHL ARCHITECTS, REF No.2421.19

DIAL BEFORE YOU DIG — DIAL BEFORE YOU DIG www.1100.com.au

DRAWING TITLE: DETAILS, NOTES & LEGEND

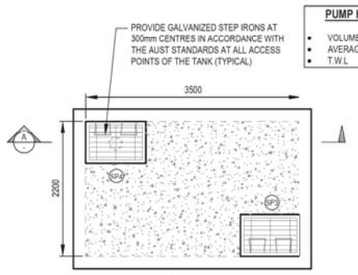
PROPOSED RESIDENTIAL FLAT BUILDING: Lot 30, 56 BEANE STREET GOSFORD

APPROX TRUE NORTH: N

REVISION	DRAWN	DESCRIPTION	DATE
A	J.FISHER	ISSUED FOR DA	06.12.2019

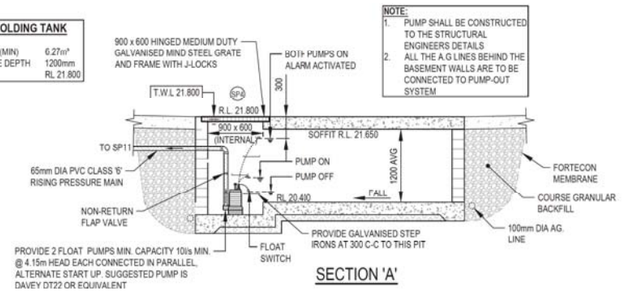
ISSUED FOR DEVELOPMENT APPLICATION

DESIGNED BY	No. IN SET	JOB NUMBER
J.FISHER	8	190210-SW
SCALE - SIZE	REVISION	DRAWING No.
-	A	D1



SITE PLAN

PUMP HOLDING TANK	
VOLUME (MIN)	6.27m³
AVERAGE DEPTH	1200mm
T.W.L	RL 21.800



SECTION 'A'

NOTE:
1. PUMP SHALL BE CONSTRUCTED TO THE STRUCTURAL ENGINEERS DETAILS
2. ALL THE A.G LINES BEHIND THE BASEMENT WALLS ARE TO BE CONNECTED TO PUMP-OUT SYSTEM

PUMP-CUT STORAGE TANK

NTS

SUBSOIL DRAINAGE CALCULATIONS:

THE PUMP-OUT TANK HAS BEEN DESIGNED FOR A 100YR 2 HOUR STORM EVENT

- 100YR 2HR ARI STORM = 54.1mm/hr
- D = ARI x 2HRS = 108.2mm/hr ('D')
- AREA DRAINING TO PUMP-OUT TANK = 61m² ('A')
- REQUIRED PUMP-OUT TANK VOLUME = 'A' x 'D'/1000 = 6.27m³

THEREFORE, PROVIDE 6.27m³ MINIMUM PUMP-OUT TANK VOLUME

STANDARD PUMP OUT DESIGN NOTES:

THE PUMP OUT SYSTEM SHALL BE DESIGNED TO OPERATE IN THE FOLLOWING MANNER-

- THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY SO AS TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.
- A LOW LEVEL FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THE FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS.
- A SECOND FLOAT HALL BE PROVIDED AT A HIGHER LEVEL, APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL WHEREBY ONE OF THE PUMPS WILL OPERATE AND DRAIN THE TANK TO THE LEVEL OF THE LOW-LEVEL FLOAT.
- A THRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THISFLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPEARTING AND ACTIVATE THE ALARM.
- AN A.ARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.

CONFINED SPACE DANGER SIGN

COLOURS - "DANGER" AND BACKGROUND - WHITE
ELLIPTICAL AREA
RECTANGLE CONTAINING ELLIPSE - RED
OTHER LETTERING AND BORDER - BLACK

A) A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED AT ALL ACCESS POINTS, SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANKS CONFINED SPACE.

B) MINIMUM DIMENSIONS OF THE SIGN
- 300mm x 450mm (LARGE ENTRIES, SUCH AS DOORS)
- 250mm x 180mm (SMALL ENTRIES SUCH AS GRATES AND MANHOLES)

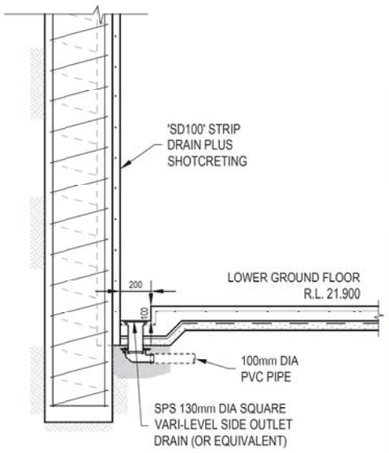
C) THE SIGN SHALL BE MANUFACTURED FROM COLOUR BONDED ALUMINIUM OR POLYPROPYLENE.

D) SIGN SHALL BE AFFIXED USING SCREWS AT EACH CORNER OF THE SIGN.

BASEMENT PUMP-OUT FAILURE WARNING SIGN

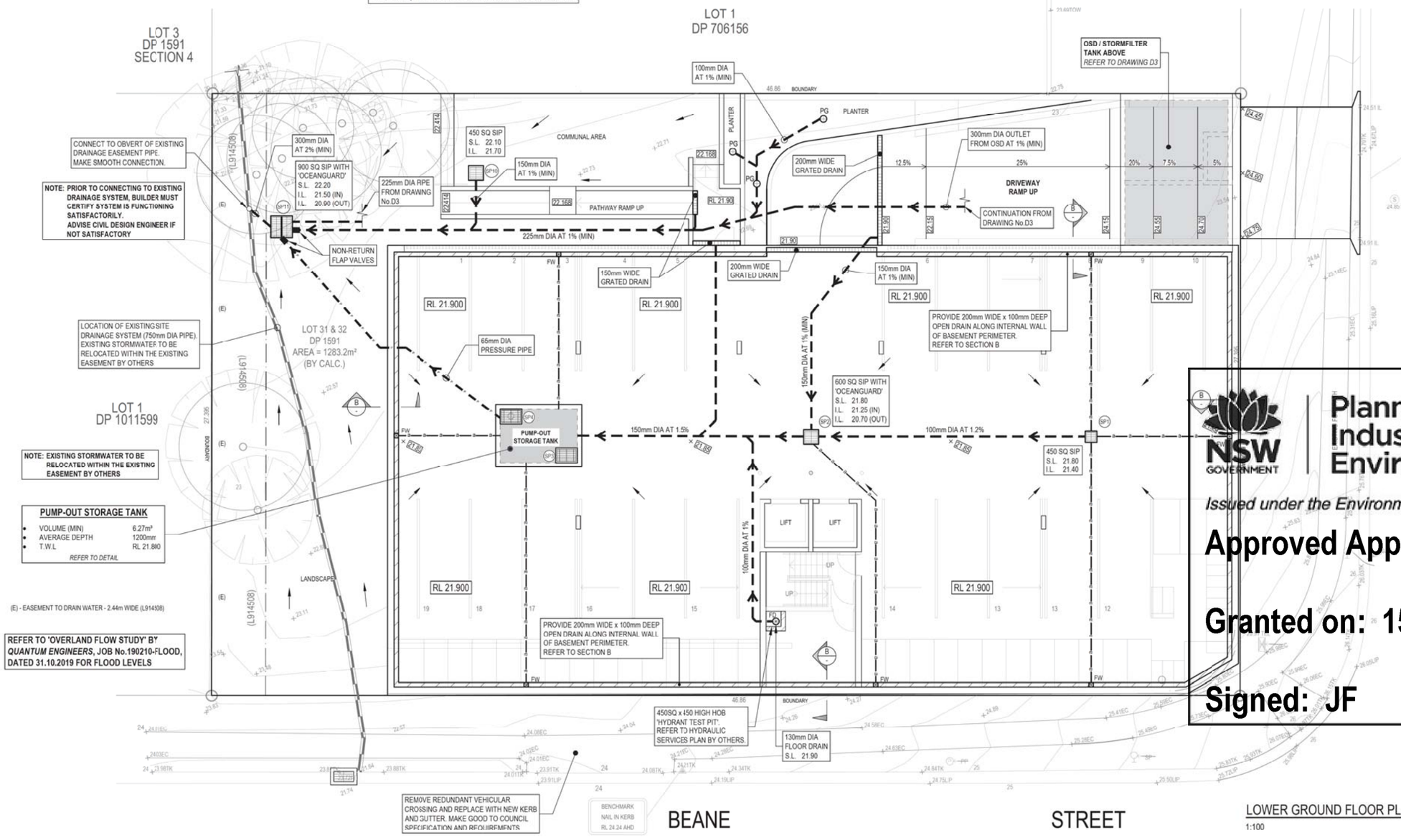
NOTE:
1. SIGN SHALL BE IN CLEAR AND VISIBLE LOCATION WHERE VEHICLES ENTER THE BASEMENT

COLOURS:
WARNING - RED
ALL OTHERS - BLACK



SECTION 'B' - PILING WALL DETAIL

120



LOWER GROUND FLOOR PLAN

1:100

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Approved Application No: DA 10132

Granted on: 15 July 2020

Signed: JF Sheet No: 39 of 48

QUANTUM ENGINEERS
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APPROVED BY	CLIENT	DIAL BEFORE YOU DIG	DRAWING TITLE	APPROX TRUE NORTH
ROBERT ELTOBBAGI MIEAust CPEng	MONO CONSTRUCTIONS	DIAL BEFORE YOU DIG www.1100.com.au	LOWER GROUND FLOOR PLAN & DETAILS	N
	ARCHITECT: STANTON DAHL ARCHITECTS REF No.2421.19		PROPOSED RESIDENTIAL FLAT BUILDING: Lot 30, 56 BEANE STREET GOSFORD	

REVISION	DRAWN	DESCRIPTION	DATE
A	J.FISHER	ISSUED FOR DA	06.12.2019

ISSUED FOR DEVELOPMENT APPLICATION

DESIGNED BY	No. IN SET	JOB NUMBER
J.FISHER	8	190210-SW
SCALE - SIZE	REVISION	DRAWING No.
AS NOTED - A1	A	D2

OSD SUMMARY

LGA: CENTRAL COAST COUNCIL
CODE: GOSFORD DCP 2013 CHAPTER 6.7

STORMWATER RETENTION VOLUME:
V = STORMWATER RETENTION VOLUME
A = 1283.2m² TOTAL SITE AREA
F = 80% FRACTION IMPERVIOUS AREA (1026.4m²)
V = 0.01 x A x (0.02F)²
V = 32.85m³

TOTAL STORMWATER RETENTION VOLUME = **32.85m³**

STORMWATER DETENTION VOLUME:
'LIMIT POST DEVELOPMENT FLOW FROM THE PROPOSED DEVELOPMENT SITE TO LESS THAN OR EQUAL TO PREDEVELOPMENT FLOWS FOR ALL STORM EVENTS UP TO AND INCLUDING 1% YEP STORM EVENT'

50% OFFSET FROM RAINWATER TANK (32.85m³ x 0.5) = 16.43m³

OSD VOULME REQUIRED ACCORDING TO 'DRAINS' MODEL = 29.7m³ (REFER TO 'DRAINS' DETAILS ON D5)

THEREFORE,
FINAL OSD VOLUME (WITH RAINWATER OFFSET) = 29.7m³ - 16.43m³ = 13.27m³

DRAINAGE PIPE LEGEND

- DRAINAGE PIPES VIA GRAVITY
- CHARGED DRAINAGE PIPES
- DRAINAGE PIPES TO RAINWATER TANK
- PRESSURE PIPE (65mm)

NOTE: ALL PIPES TO BE 100mm DIA UNO

DOWNPIPE LEGEND

- INDICATES DOWNPIPE TO RWT
- INDICATES DOWNPIPE DIAMETER
- INDICATES DOWNPIPE DIRECTLY TO OSD SYSTEM
- INDICATES DOWNPIPE DIAMETER
- DOWNPIPE PENETRATING FLOOR SLAB
- DOWNPIPE COMMENCING BELOW FLOOR SLAB

BELOW GROUND OSD / STORMFILTER TANK

OSD TANK:
- STORAGE VOLUME (MIN) 13.27m³
- STORAGE VOLUME (PROVIDED) 15.18m³
- SURFACE AREA 13.80m²
- AVERAGE DEPTH 1100mm
- T.W.L RL 24.05

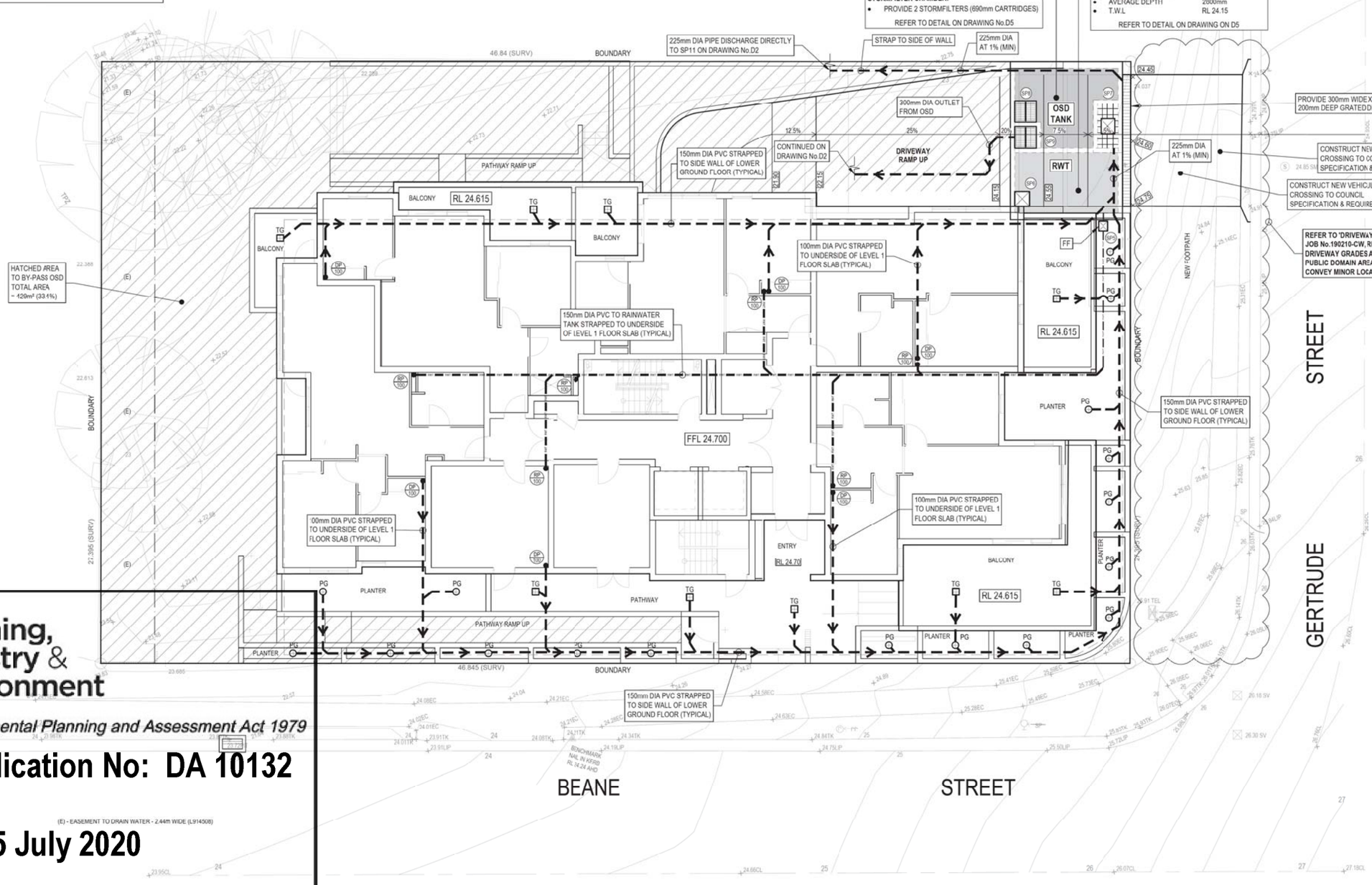
STORMFILTER CHAMBER:
- PROVIDE 2 STORMFILTERS (690mm CARTRIDGES)

REFER TO DETAIL ON DRAWING No.D5

BELOW GROUND RAINWATER RE-USE TANK

- STORAGE VOLUME (MIN) 32.85m³
- SURFACE AREA (MIN) 11.73m²
- AVERAGE DEPTH 2800mm
- T.W.L RL 24.15

REFER TO DETAIL ON DRAWING ON D5



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Signed: JF Sheet No: 40 of 48

SITE / LEVEL 1 FLOOR PLAN
1:100

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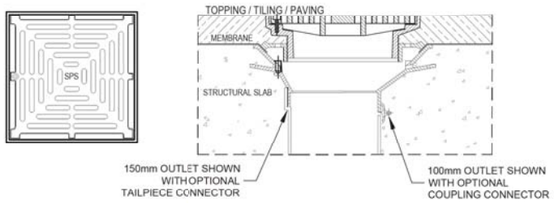
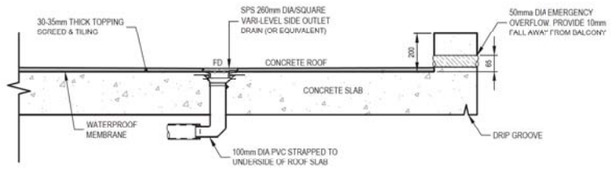
SPS 225mm Square Vari-Level Floor Drain
With Side-Outlet Lower Body

SPECIFICATION CODE:
Q225AB/C150 (ALUMINIUM-BRONZE GRATE, CI LOWER BODY)
Q225N/C150 (NICKEL-BRONZE GRATE, CI LOWER BODY)
Q225S/C150 (316 STAINLESS STEEL GRATE, CI LOWER BODY)
FOR A 100MM OUTLET, USE SUFFIX "C100" NOT "C150"

HEIGHT ADJUSTMENT:
MIN. 32mm
MAX. 80mm**



FLOOR DRAIN (SPS) - FD
NTS



ROOF DRAINAGE DETAIL
NTS

DRAINAGE PIPE LEGEND

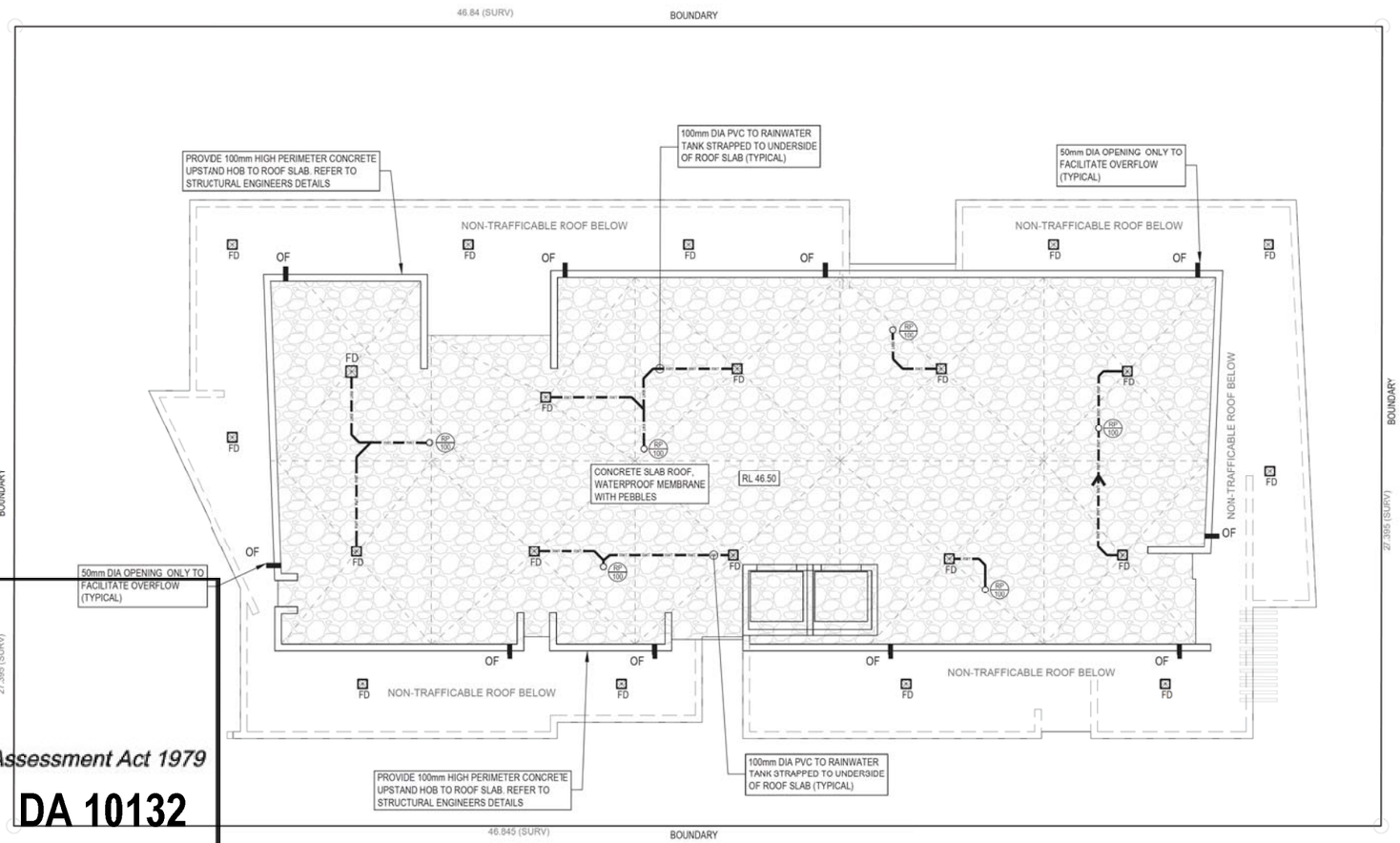
- DRAINAGE PIPES VIA GRAVITY
- CHARGED DRAINAGE PIPES
- DRAINAGE PIPES TO RANWATER TANK
- PRESSURE PIPE (65mm)

NOTE: ALL PPES TO BE 100mm DIA UNO

DOWNPIPE LEGEND

- INDICATES DOWNPIPE TO RWT
- INDICATES DOWNPIPE DIAMETER
- INDICATES DOWNPIPE DIRECTLY TO OSD SYSTEM
- INDICATES DOWNPIPE DIAMETER
- DOWNPIPE PENETRATING FLOOR SLAB
- DOWNPIPE COMMENCING BELOW FLOOR SLAB

PROVIDE 50mm DIA OVERFLOW PIPE TO ALL TERRACES



ROOF PLAN
1:100

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ARCHITECT	STANTON DAHL ARCHITECTS REF No 2421.19
DIAL BEFORE YOU DIG	DIAL BEFORE YOU DIG www.1100.com.au
DRAWING TITLE	ROOF PLAN
PROPOSED RESIDENTIAL FLAT BUILDING	Lot 30, 56 BEANE STREET GOSFORD
APPROX TRUE NORTH	N

REVISION	DRAWN	DESCRIPTION	DATE
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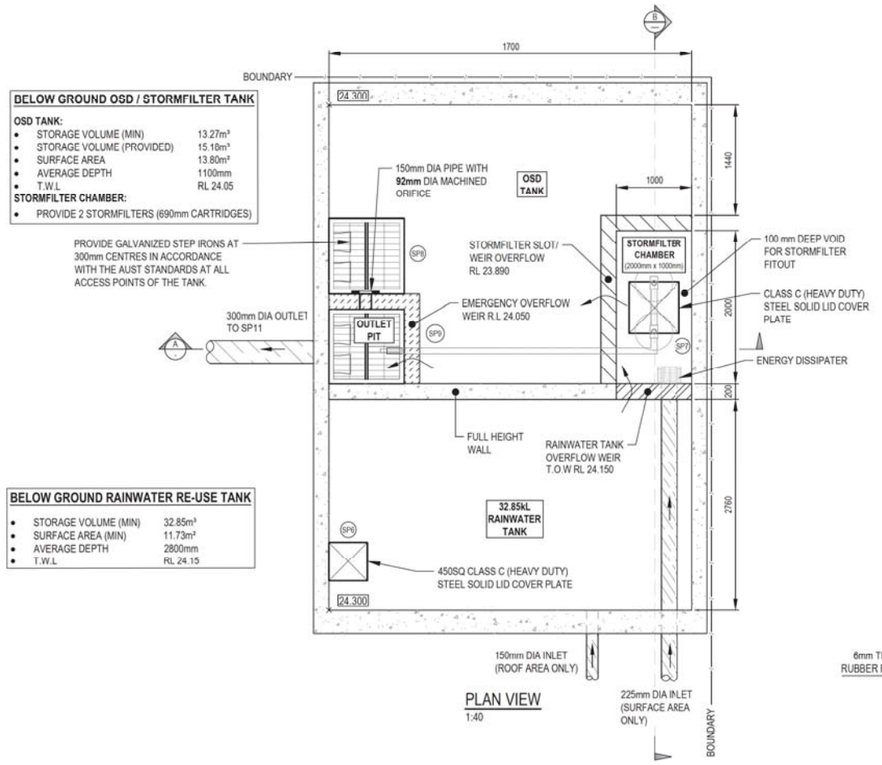


DELOW GROUND OSD / STORMFILTER TANK

OSD TANK:

• STORAGE VOLUME (MIN)	13.27m³
• STORAGE VOLUME (PROVIDED)	15.18m³
• SURFACE AREA	13.80m²
• AVERAGE DEPTH	1100mm
• T.W.L	RL 24.05

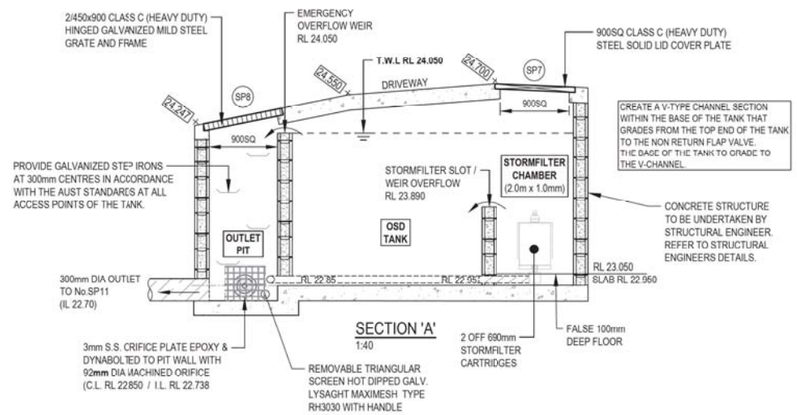
STORMFILTER CHAMBER:

- PROVIDE 2 STORMFILTERS (690mm CARTRIDGES)

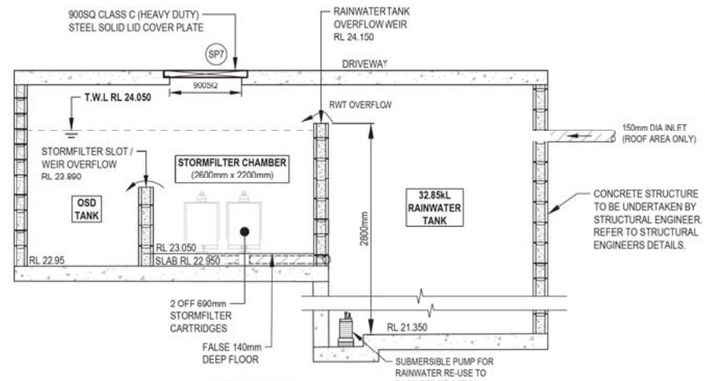
BELOW GROUND RAINWATER RE-USE TANK

• STORAGE VOLUME (MIN)	32.85m³
• SURFACE AREA (MIN)	11.73m²
• AVERAGE DEPTH	2800mm
• T.W.L	RL 24.15

PLAN VIEW
1:40



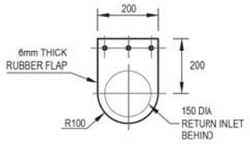
SECTION 'A'
1:40



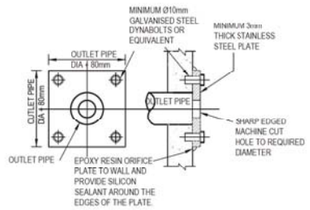
SECTION 'B'
1:40

CALCULATIONS (WEIR BETWEEN OUTLET PIT & OSD TANK):

AREA DETAINED TO OSD TANK	= 4636 m^2
MAX FLOW TO OSD TANK (0.86 x 220 x 0.0855/360)	= 0.045 m^3/s
CAPACITY OF WEIR (1.86 x 1.8 x $0.09^{0.5}$)	= 0.090 m^3/s



FLAP VALVE
NTS



ORIFICE PLATE DETAIL
NTS

'DRAINS' DATA

PIT / NODE DETAILS — Version15

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow Factor (cu.m/s)	Blocking (%)	x	y	Bolt-down id	Part Full Shook Loss	Inflow Hydrograph	Pit is	Internal Width (mm)	Inflow is Misaligned	Minor Safe Pond Depth (m)	Major Safe Pond Depth (m)
Existing O	Node					182.93		0		707.137	-408.14		3	No					
Pit1	Sag	Downpipe	Downpipe	1	1.5	24.7	0.2	0	0	691.062	-462.796	No	110	1 x Ku	No	New		No	0.3	0.3
easement	Node					23.97		0		671.204	-492.385		134		No					
N4181	Node							0		800.116	-409.491		909271		No					
Pit1696	Sag	Downpipe	Downpipe	1	1.5	24.7	0.2	0	0	685.532	-507.292	No	934835	1 x Ku	No	New		99999		

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length	id
OSD Tank	23.1	23		Orifice		92	23.22			800.775	-492.585	No		117	
	24.4	23													

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Slope(%)	Grass Slope	Supp Slope	Paved Rough	Grass Rough	Supp Rough	Lag Time or Factor	Gutter Length (m)	Gutter Slope	Gutter Flow	Rainfall Factc Multiplier %
Existing SI	Existing O	0.1283	0	100	0	10	20	0										0				1
Post Area	Pit1	0.0423	100	0	0	5	10	0										0				1
Post Area	N4181	0.046	41	59	0	10	20	0										0				1
Post Area	Pit1696	0.04	100	0	0	5	10	0										0				1

PIPE DETAILS

Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	Alt Chg	Chg (m)	Inl (m)	Chg (m)	RL (m)	etc (m)
Pipe to OS	Pit1	OSD Tank	40	24.4	23.1	3.25	uPVC, unc	225	242	0.03	New	Fixed	1	Pit1	0				
Pipe 3	OSD Tank	easement	45	23.1	20.9	4.89	uPVC, unc	225	242	0.03	New	Fixed	1	OSD Tank	0	0	186.6	9.58	186.6	9.78	183.15	12.8	182.89
Pipe to OS	Pit1696	OSD Tank	40	24.4	23.1	3.25	uPVC, unc	225	242	0.03	New	Fixed	1	Pit1696	0								

DETAILS of SERVICES CROSSING PIPES

Pipe	Chg	Bottom Elev (m)	Height of (m)	Chg (m)	Bottom Elev (m)	Height of (m)	Chg (m)	Bottom Elev (m)	Height of (m)	etc
Pipe 3	1.2	185.3	03	10.78	181.3	0.4	11.34	181.5	0.15	

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Dept Major Sto (m)	Safe Dept Minor Sto (m)	Safe Dept Dev (m)	Bed Slope (sq.m/sec) (%)	D/S Area Contributing %	id	U/S IL	D/S IL	Length (m)
OF 1	Pit1	OSD Tank	04				4 m wide	0.3	0.15	0.4	0.75	0		145	24.7	24.4	40
OF 3	OSD Tank	easement	02	24.4	1.8	1.7	4 m wide	0.3	0.15	0.4	6.07	0		158	24.4	21.67	45
OF 2	Pit1696	OSD Tank	04				4 m wide	0.3	0.15	0.4	0.75	0		914864	24.7	24.4	40

'DRAINS' RESULTS (1% AEP)

DRAINS results prepared from Version 2019.09

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit1	24.53	24.71	0.038	0	0.17	0.002	Inlet Capacity
easement drainage	20.95		0				
Pit1696	24.53	24.71	0.036	0	0.17	0.002	Inlet Capacity

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
Existing Site	0.047	0	0.047	10	20		0 AR&R 100 year, 1.5 hours storm, average 66.8 mm/h, Zone 1
Post Area to OSD 1	0.038	0.038	0	5	10		0 AR&R 100 year, 5 minutes storm, average 249 mm/h, Zone 1
Post Area Bypass OSD	0.02	0.01	0.01	10	20		0 AR&R 100 year, 2 hours storm, average 56.7 mm/h, Zone 1
Post Area to OSD 2	0.026	0.026	0	5	10		0 AR&R 100 year, 5 minutes storm, average 249 mm/h, Zone 1

Overflow Volumes for Total Catchment (0.15 impervious + 0.36 pervious = 0.36 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 100 year, 5 minutes storm, average 249 mm/h, Z	53.18	34.41 (64.7%)	19.95 (95.2%)	14.46 (44.9%)
AR&R 100 year, 10 minutes storm, average 194 mm/h,	83.08	61.55 (74.1%)	31.74 (96.9%)	29.81 (59.2%)
AR&R 100 year, 15 minutes storm, average 165 mm/h,	105.58	81.46 (77.5%)	40.61 (97.6%)	41.24 (64.5%)
AR&R 100 year, 20 minutes storm, average 145 mm/h,	123.97	98.37 (79.3%)	47.86 (97.9%)	50.51 (67.3%)
AR&R 100 year, 25 minutes storm, average 131 mm/h,	139.67	111.48 (80.0%)	54.05 (98.2%)	57.44 (68.1%)
AR&R 100 year, 30 minutes storm, average 120 mm/h,	153.47	123.60 (80.5%)	59.49 (98.3%)	64.10 (69.0%)
AR&R 100 year, 45 minutes storm, average 97.4 mm/h,	187.41	152.93 (81.6%)	72.87 (98.6%)	80.06 (70.5%)
AR&R 100 year, 1 hour storm, average 83.6 mm/h, Zone	214.41	176.22 (82.2%)	83.52 (98.8%)	92.70 (71.4%)
AR&R 100 year, 1.5 hours storm, average 66.8 mm/h, Z	257.08	212.71 (82.7%)	100.34 (99.0%)	112.37 (72.2%)
AR&R 100 year, 2 hours storm, average 56.7 mm/h, Zor	291.14	241.44 (82.9%)	113.76 (99.1%)	127.68 (72.4%)

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S Pipe HGL (m)	Max D/S Pipe HGL (m)	Due to Storm
Pipe to OSD	0.024	2.96	24.46	24.393	AR&R 100 year, 15 minutes storm, average 165 mm/h, Zone 1
Pipe 3	0.02	2.65	23.13	20.953	AR&R 100 year, 2 hours storm, average 56.7 mm/h, Zone 1
Pipe to OSD 2	0.023	2.39	24.44	24.393	AR&R 100 year, 15 minutes storm, average 165 mm/h, Zone 1

OVERFLOW ROUTE DETAILS

Name	Max Q U/S (cu.m/s)	Max Q D/S (cu.m/s)	Safe Q (cu.m/s)	Max D (m)	Max DxV	Max Width (m)	Max V (m/s)	Due to Storm
OF1	0.002	0.002	1.45	0.006	0.01	0.6	1.17	AR&R 100 year, 15 minutes storm, average 165 mm/h, Zone 1
OF3	0	0	1.82	0	0	0	0	
OF2	0.002	0.002	1.45	0.006	0.01	0.57	1.19	AR&R 100 year, 15 minutes storm, average 165 mm/h, Zone 1

DETENTION BASIN DETAILS

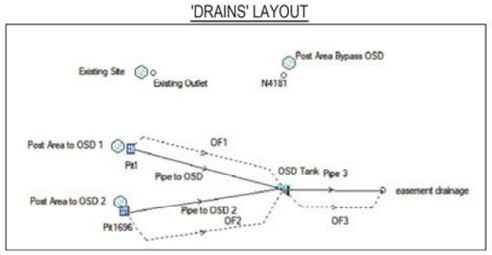
Name	Max WL (m)	Max Vol (cu.m)	Max Q Total (cu.m/s)	Max Q Low Level (cu.m/s)	Max Q High Level (cu.m/s)
OSD Tank	24.39	28.7	0.02	0.02	0

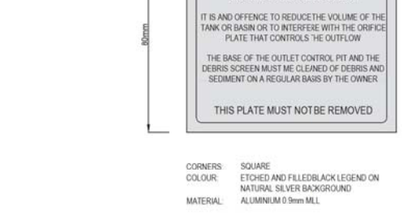
CONTINUITY CHECK for AR&R 100 year, 1.5 hours storm, average 66.8 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Change (cu.m)	Difference %
Existing Outlet	92.75	92.75	0	0
Pit1	41.96	41.82	0	0.3
OSD Tank	81.36	79.39	1.97	0
easement drainage	79.39	79.39	0	0
N4181	38.33	38.33	0	0
Pit1696	39.67	39.54	0	0.3

Run Log for 190210_SK.run at 14:12:10 on 29/11/2019
No water upwelling from any pit. Investment was adequate on all pits.
Flows were safe in all overflow routes.

'DRAINS' LAYOUT





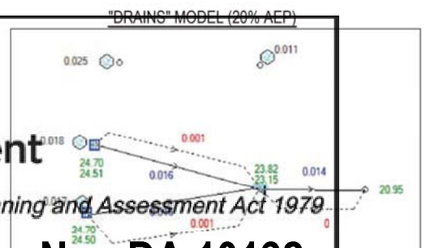
CORNERS: SQUARE
COLOUR: ETCHED AND FILLED BLACK LEGEND ON NATURAL SILVER BACKGROUND
MATERIAL: ALUMINUM 0.9mm MLL

OSD PLAQUE
NTS

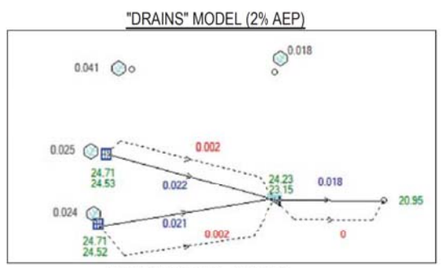
PSD COMPUTATION SUMMARY

LGA:	CENTRAL COASTE COUNCIL		
DURATION: 100 YEAR ARI	PRE-DEVELOPMENT FLOW:	0.0470	m^3/s
	POST-DEVELOPMENT BY-PASS FLOW:	0.0200	m^3/s
	Hence, PERMISSIBLE SITE DISCHARGE:	**27.00**	**L/s**
	DRAINS' MODELLING - resulting discharge rate	***20.00***	***L/s***
DURATION: 50 YEAR ARI	PRE-DEVELOPMENT FLOW:	0.0410	m^3/s
	POST-DEVELOPMENT BY-PASS FLOW:	0.0180	m^3/s
	Hence, PERMISSIBLE SITE DISCHARGE:	**23.00**	**L/s**
	DRAINS' MODELLING - resulting discharge rate	***18.00***	***L/s***
DURATION: 20 YEAR ARI	PRE-DEVELOPMENT FLOW:	0.0360	m^3/s
	POST-DEVELOPMENT BY-PASS FLOW:	0.0160	m^3/s
	Hence, PERMISSIBLE SITE DISCHARGE:	**20.00**	**L/s**
	DRAINS' MODELLING - resulting discharge rate	***17.00***	***L/s***
DURATION: 10 YEAR ARI	PRE-DEVELOPMENT FLOW:	0.0300	m^3/s
	POST-DEVELOPMENT BY-PASS FLOW:	0.0130	m^3/s
	Hence, PERMISSIBLE SITE DISCHARGE:	**17.00**	**L/s**
	DRAINS' MODELLING - resulting discharge rate	***16.00***	***L/s***
DURATION: 5 YEAR ARI	PRE-DEVELOPMENT FLOW:	0.0260	m^3/s
	POST-DEVELOPMENT BY-PASS FLOW:	0.0110	m^3/s
	Hence, PERMISSIBLE SITE DISCHARGE:	**14.00**	**L/s**
	DRAINS' MODELLING - resulting discharge rate	***14.00***	***L/s***
	HENCE, OSD REQUIRED VOLUME =29.7m3/s		
	and		
	Orifice Diameter = 92mmdia		

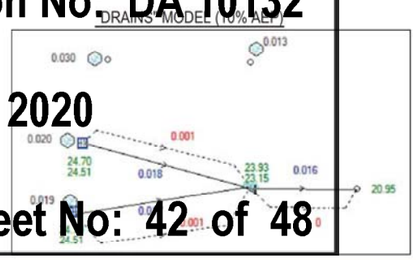
"DRAINS" MODEL (20% AEP)



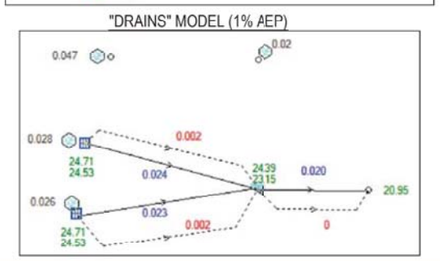
"DRAINS" MODEL (2% AEP)



"DRAINS" MODEL (10% AEP)



"DRAINS" MODEL (1% AEP)



Planning, Industry & Environment
NSW GOVERNMENT

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: DA 10132

Granted on: 15 July 2020

Signed: JF **Sheet No: 42 of 48**

QUANTUM ENGINEERS Suite 1A, Level 2, 2 Rowe Street, EASTWOOD NSW 2122 02 9857 7800 admin@quantumengineers.com.au quantumengineers.com.au	GENERAL NOTES ALL DIMENSIONS SHOWN IN DRAWINGS ARE TO BE CONFIRMED ON SITE BEFORE COMMENCEMENT OF WORKS. DO NOT SCALE OFF DRAWINGS. DRAWING TO BE READ IN CONJUNCTION WITH ARCHITECTS PLANS. ALL EXISTING GROUND LINES & TREES ARE APPROXIMATE ONLY, TO BE VERIFIED ON-SITE BY BUILDER. ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH: a) ALL RELEVANT & CURRENT BUILDING CODES, ACTS & REGULATIONS. b) ALL CURRENT AUSTRALIAN STANDARDS c) ALL LOCAL COUNCIL REGULATIONS AS WELL AS ALL DCP & LEP ASSOCIATED. COPYRIGHT INFORMATION: THE DRAWINGS IS THE EXCEPTIONAL OF QUANTUM ENGINEERS' COPYING OR USING THIS DRAWING WITHOUT WRITTEN CONSENT IS COPYRIGHT.	APPROVED BY ROBERT ELTOBBAGI *MIEAust CPEng*	CLIENT MONO CONSTRUCTIONS ARCHITECT STANTON DAHL ARCHITECTS REF No.2421.19	DIAL BEFORE YOU DIG DIAL BEFORE YOU DIG www.1100.com.au	DRAWING TITLE COMBINED STORMFILTER / OSD & RAINWATER TANK DETAILS / CALCULATIONS PROPOSED RESIDENTIAL FLAT BUILDING Lot 30, 56 BEANE STREET GOSFORD	APPROX TRUE NORTH N	REVISION	DRAWN	DESCRIPTION	DATE	ISSUED FOR DEVELOPMENT APPLICATION	DESIGNED BY	No. IN SET	JOB NUMBER
								A	J.FISHER	ISSUED FOR DA	06.12.2019		J.FISHER	8	190210-SW
													SCALE - SIZE	REVISION	DRAWING No.
													AS NOTED - A1	A	D5

STORMFILTER DESIGN TABLE

STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED.
THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S).
FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm.

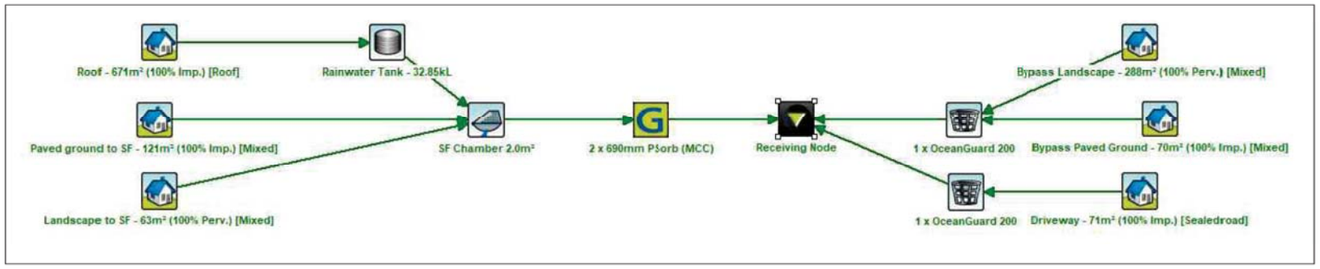
CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
TYPICAL WEIR HEIGHT [H] (mm)	920	690	540
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39

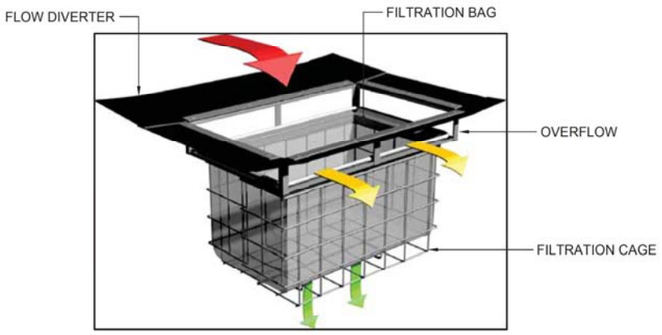
GENERAL NOTES

1. INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
2. A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SUSPENSION OF SCLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
3. ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
4. SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
5. THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
6. CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900 X 900 ABOVE CARTRIDGES. OH&S REGARDING ACCESS COVERS AND TANK ACCESS TO BE ASSESSED BY OTHERSON SITE.
7. THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
8. DRAWINGS NOT TO SCALE.

INSTALLATION NOTES

1. UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.





'OCEANGUARD' DETAIL

NSW GOVERNMENT | Planning, Industry & Environment

MUSIC MODELLING RESULT

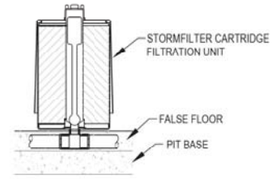
Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: DA 10132

Granted on: 15 July 2020

Signed: JF Sheet No: 43 of 48

	SOURCES	RESIDUAL LOADS	% REDUCTION
FLOW (ML/yr)	1.2	0.97	18.8
TOTAL SUSPENDED SOLIDS (kg/yr)	110	19.5	82.2
TOTAL PHOSPHORUS (kg/yr)	0.264	0.101	61.7
TOTAL NITROGEN (kg/yr)	2.64	1.21	54.2
GROSS POLLUTANTS (kg/yr)	26.6	2.99E-5	100

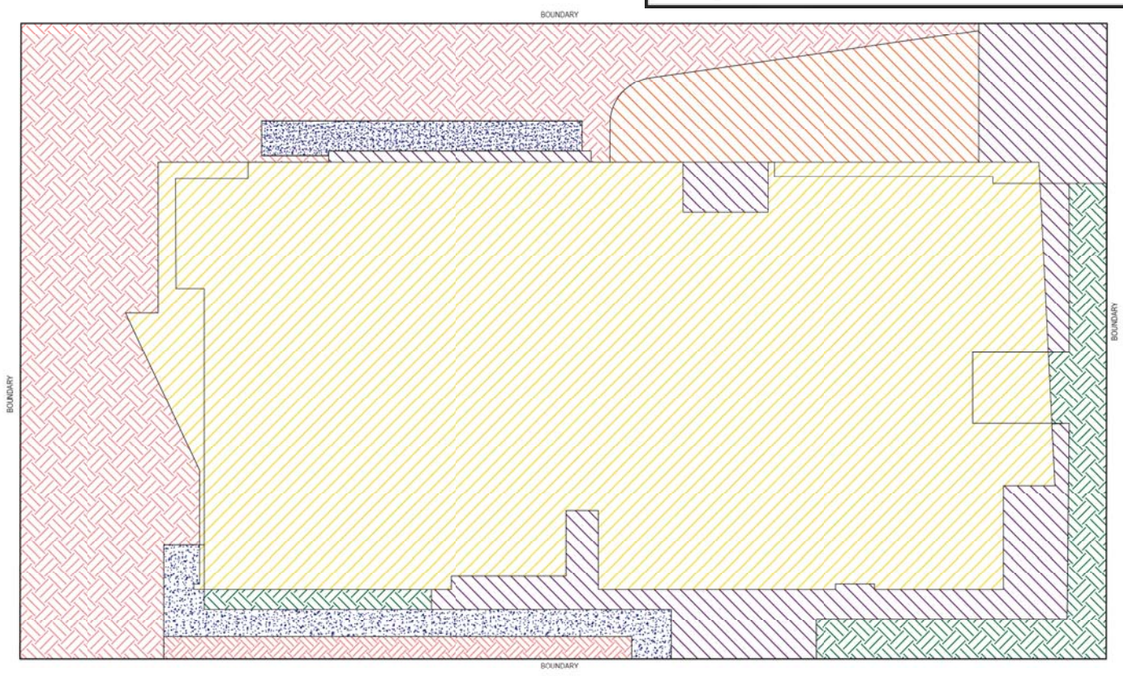


STORMFILTER CARTRIDGE DETAIL
NTS

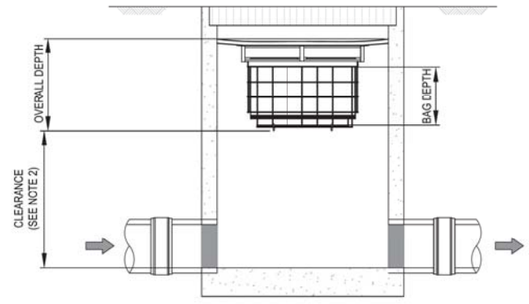
LEGEND

SITE AREA: 1283.2m²

- ROOF AREA DRAINING TO STORMFILTER TANK = 670.9m²
- PAVED AREA DRAINING TO STORMFILTER TANK = 120.5m²
- PERVIOUS AREA DRAINING TO STORMFILTER TANK = 62.6m²
- PERVIOUS AREA TO BY-PASS STORMFILTER TANK = 287.9m²
- IMPERVIOUS AREA TO BY-PASS STORMFILTER TANK = 69.9m²
- DRIVEWAY AREA TO BY-PASS STORMFILTER TANK = 71.4m²



WATER QUALITY CATCHMENT AREA
NTS



SIP WITH OCEANGUARD DETAIL
NTS

GENERAL NOTES

1. THE MINIMUM CLEARANCE DEPENDS ON THE CONFIGURATION (SEE NOTE 2) AND THE LOCAL COUNCIL REQUIREMENTS.
2. CLEARANCE FOR ANY PIT WITHOUT AN INLET PIPE (ONLY USED FOR SURFACE FLOW) CAN BE AS LOW AS 50mm. FOR OTHER PITS, THE RECOMMENDED CLEARANCE SHOULD BE GREATER OR EQUAL TO THE PIPE OBVERT SO AS NOT TO INHIBIT HYDRAULIC CAPACITY.
3. OCEAN PROTECT PROVIDES TWO FILTRATION BAG TYPES - 200 MICRON BAGS FOR HIGHER WATER QUALITY FILTERING AND A COARSE BAG FOR TARGETING GROSS POLLUTANTS.
4. DRAWINGS NOT TO SCALE.

QUANTUM ENGINEERS
Suite 1A, Level 2, 2 Rowe Street, EASTWOOD NSW 2122
02 9857 7800
admin@quantumengineers.com.au
quantumengineers.com.au

GENERAL NOTES

ALL DIMENSIONS SHOWN IN DRAWINGS ARE TO BE CONFIRMED ON SITE BEFORE COMMENCEMENT OF WORKS. DO NOT SCALE OFF DRAWINGS.
DRAWING TO BE READ IN CONJUNCTION WITH ARCHITECTS PLANS.
ALL EXISTING GROUND LINES & TREES ARE APPROXIMATE ONLY, TO BE VERIFIED ON-SITE BY BUILDER.
ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH:
a) ALL RELEVANT & CURRENT BUILDING CODES, ACTS & REGULATIONS.
b) ALL CURRENT AUSTRALIAN STANDARDS
c) ALL LOCAL COUNCIL REGULATIONS AS WELL AS ALL DCP & LEP ASSOCIATED.

APPROVED BY
ROBERT ELTOBBAGI
MIEAust CPEng

CLIENT
MONO CONSTRUCTIONS

ARCHITECT
STANTON DAHL ARCHITECTS
REF No.2421.19

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DRAWING TITLE
WATER QUALITY CATCHMENT DETAILS & CALCULATIONS

PROPOSED RESIDENTIAL FLAT BUILDING
Lot 30, 56 BEANE STREET
GOSFORD

APPROX TRUE NORTH: N

REVISION	DRAWN	DESCRIPTION	DATE
A	J.FISHER	ISSUED FOR DA	06.12.2019

ISSUED FOR DEVELOPMENT APPLICATION

DESIGNED BY	No. IN SET	JOB NUMBER
J.FISHER	8	190210-SW
SCALE - SIZE	REVISION	DRAWING No.
AS NOTED - A1	A	D6

DUST CONTROL:

• NOTE: DURING EXCAVATION, DEMOLITION AND CONSTRUCTION, ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT DUST FROM AFFECTING THE AMENITY OF THE NEIGHBORHOOD.

THE FOLLOWING MEASURES MUST BE ADOPTED:

1. PHYSICAL BARRIERS SHALL BE ERECTED AT RIGHT ANGLES TO PREVENT WIND DIRECTION OR SHALL BE PLACED AROUND OR OVER DUST SOURCES TO PREVENT WIND OR ACTIVITY FROM GENERATING DUST.
2. EARTHWORKS AND SCHEDULING ACTIVITIES SHALL BE MANAGED TO COINCIDE WITH THE NEXT STAGE OF DEVELOPMENT TO MINIMISE THE AMOUNT OF TIME THE SITE IS LEFT TO CUT OR EXPOSED.
3. ALL MATERIALS SHALL BE STORED OR STOCKPILED AT THE BEST LOCATIONS.
4. THE GROUND SURFACE SHOULD BE DAMPENED SLIGHTLY To PREVENT DUST FROM BECOMING AIRBORNE BUT SHOULD NOT BE WET TO THE EXTENT THAT RUN-OFF OCCURS.
5. ALL VEHICLES CARRYING SOIL OR RUBBLE TO OR FROM THE SITE SHALL AT ALL TIMES BE COVERED TO PREVENT THE ESCAPE OF DUST.
6. ALL EQUIPMENT WHEELS SHALL BE WASHED BEFORE EXISTING THE SITE USING MANUAL OR AUTOMATED SPRAYERS AND DRIVE - THROUGH WASHING BAYS.
7. GATES SHALL BE CLOSED BETWEEN VEHICLE MOVEMENTS SHALL BE FITTED WITH SHADE CLOTH.
8. CLEANING OF FOOTPATHS AND ROADWAYS SHALL CARRIED OUT DAILY.
9. ALL BUILDERS REFUSE, SPOIL AND/OR MATERIAL UNSUITABLE FOR USE IN LANDSCAPE AREAS SHALL BE REMOVED FROM SITE ON COMPLETION OF THE BUILDING WORKS.

NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSPECTED AND MAINTAINED DAILY BY SITE MANAGER IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
2. ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTTERS AND FOOTPATHS.
3. DRAINAGE IS TO BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE
4. ROADS AND FOOTPATH TO BE SWEPT DAILY AS REQUIRED BY COUNCIL.
5. IF YOU DO NOT COMPLY WITH COUNCIL REQUIREMENTS & DOCUMENTATION, YOU MAY BE LIABLE TO PROSECUTION FROM GOVERNMENT AUTHORITIES .

LEGEND:

UNDISTURBED VEGETATION

SEDIMENT FENCE

STOCK PILES

STABILIZED SITE ACCESS

MESH & GRAVEL INLET FILTER

WATER DIVERSION

STORMWATER PIT WITH SEDIMENT BARRIER

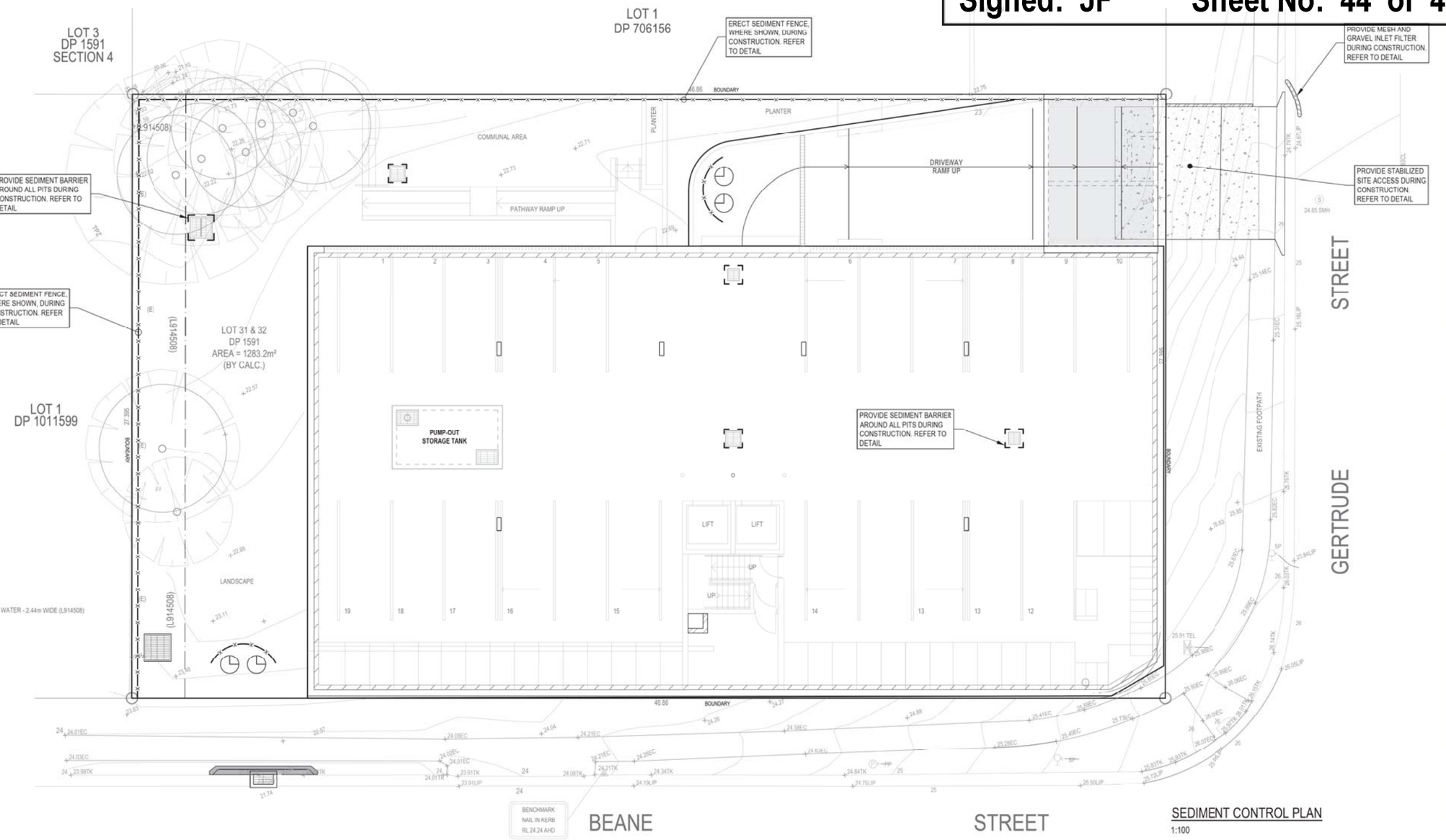
NSW GOVERNMENT | Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: DA 10132

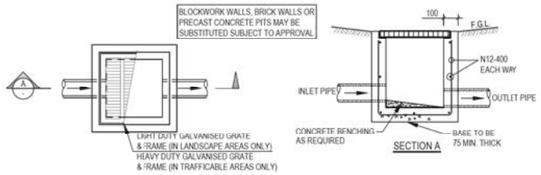
Granted on: 15 July 2020

Signed: JF Sheet No: 44 of 48



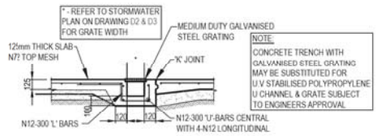
SEDIMENT CONTROL PLAN
1:100

QUANTUM ENGINEERS Suite 1A, Level 2, 2 Rowe Street, EASTWOOD NSW 2122 02 9807 7800 admin@quantumengineers.com.au quantumengineers.com.au	GENERAL NOTES ALL DIMENSIONS SHOWN IN DRAWINGS ARE TO BE CONFIRMED ON SITE BEFORE COMMENCEMENT OF WORKS. DO NOT SCALE OFF DRAWINGS. DRAWING TO BE READ IN CONJUNCTION WITH ARCHITECTS PLANS. ALL EXISTING GROUND LINES & TREES ARE APPROXIMATE ONLY, TO BE VERIFIED ON-SITE BY BUILDER. ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH: a) ALL RELEVANT & CURRENT BUILDING CODES, ACTS & REGULATIONS. b) ALL CURRENT AUSTRALIAN STANDARDS. c) ALL LOCAL COUNCIL REGULATIONS AS WELL AS ALL DCP & LEP ASSOCIATED. COPYRIGHT INFORMATION: THE DRAWING IS THE COPYRIGHT OF 'QUANTUM ENGINEERS'. COPYING OR USING THIS DRAWING IN WHOLE OR PART WITHOUT WRITTEN CONSENT IS STRICTLY FORBIDDEN & COPYRIGHT.	APPROVED BY ROBERT ELTOBBAGI *MIEAust CPEng*	CLIENT MONO CONSTRUCTIONS ARCHITECT STANTON DAHL ARCHITECTS REF No.2421.19	DIAL BEFORE YOU DIG DIAL BEFORE YOU DIG www.1100.com.au	DRAWING TITLE SEDIMENT CONTROL PLAN PROPOSED RESIDENTIAL FLAT BUILDING Lot 30, 56 BEANE STREET GOSFORD	APPROX TRUE NORTH N	REVISION / DRAWN / DESCRIPTION / DATE A / J.FISHER / ISSUED FOR DA / 06.12.2019	ISSUED FOR DEVELOPMENT APPLICATION	DESIGNED BY / No. IN SET / JOB NUMBER J.FISHER / 8 / 190210-SW SCALE - SIZE / REVISION / DRAWING No. 1:100 - A1 / A / D7

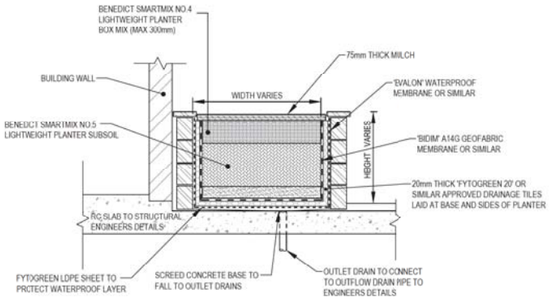


TYPICAL PIT (SIP)
NTS

NOTE:
ALL PROPOSED SITE PITS ARE TO BE CONSTRUCTED IN CONCRETE CAST IN SITU. PLASTIC OR BRICK PITS ARE NOT ACCEPTABLE. HOWEVER, COUNCIL MAY CONSIDER PRE-CAST UNITS IF THE UNITS ARE PLACED ON A SOLID BASE OF GRAVEL OR CONCRETE OF 75mm THICK AND BACKFILL UP TO HALF THE DEPTH OF THE PIT SURROUND WITH CONCRETE.



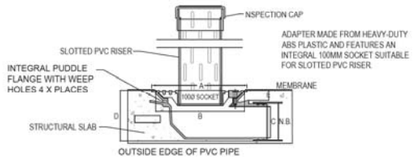
GRATED DRAIN
NTS



PLANTER BOX - ATLANTIS DRAINAGE
NTS

SPS TRUFLO 80MM & 100MM 90° RWO WITH ALL-PURPOSE PLANTER BOX ADAPTER

SPECIFICATION CODE:
TIA80/90PB (80MM CI BODY WITH PLANTER BOX INSERT)
TIA100/90PB (100MM CI BODY WITH PLANTER BOX INSERT)



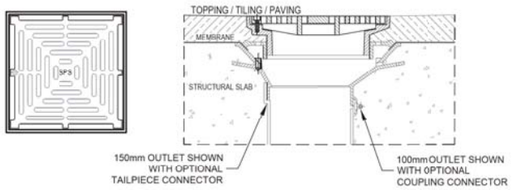
N.B.	A	B	C	D	E	FLOW RATE L/S
80	260	240	62	115	28	N/A
100	260	240	83	140	28	N/A

PLANTER GRATE (SPS) - PG
NTS

SPS 225mm Square Vari-Level Floor Drain
With Side-Outlet Lower Body

SPECIFICATION CODE:
Q225ABC150 (ALUMINIUM-BRONZE GRATE, CI LOWER BODY)
Q225N/C150 (NICKEL-BRONZE GRATE, CI LOWER BODY)
Q225S/C150 (316 STAINLESS STEEL GRATE, CI LOWER BODY)
FOR A 100MM OUTLET, USE SUFFIX "C100" NOT "C150"

HEIGHT ADJUSTMENT:
MIN. 32mm
MAX. 80mm**

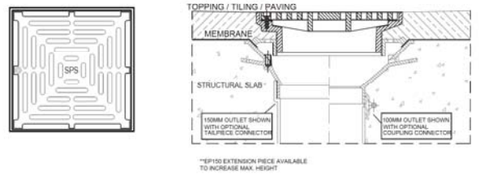


FLOOR DRAIN (SPS) - FD
NTS

SPS 130mm Square Vari-Level Floor Waste
With Side-Outlet Lower Body

SPECIFICATION CODE:
Q130ABC150 (ALUMINIUM-BRONZE GRATE, CI LOWER BODY)
Q130N/C150 (NICKEL-BRONZE GRATE, CI LOWER BODY)
Q130S/C150 (316 STAINLESS STEEL GRATE, CI LOWER BODY)
FOR A 100MM OUTLET, USE SUFFIX "C100" NOT "C150"

HEIGHT ADJUSTMENT:
MIN. 22mm
MAX. 80mm**



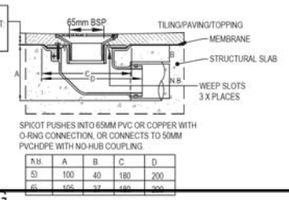
**EP150 EXTENSION PIECE AVAILABLE TO INCREASE MAX. HEIGHT

FLOOR WASTE (SPS) - FW
NTS

SPS 130MM SQUARE VARI-LEVEL SIDE OUTLET DRAIN 65/50MM OUTLET

SPECIFICATION CODE:
Q130S4/C100 (POLISHED 304 STAINLESS STEEL, ABS LOWER BODY)
Q130S/C100 (SATIN 316 STAINLESS STEEL GRATE, ABS LOWER BODY)

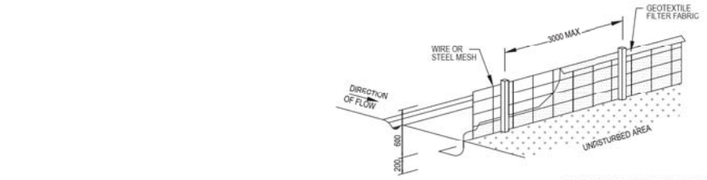
- SQUARE GRATE POLISHED 304 OR SATIN 316 STAINLESS STEEL.
- UPVC 100° BODY AND REVERSIBLE MEMBRANE CLAMP COLLAR WITH FEMALE 65MM BSP THREAD.



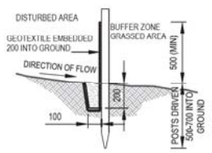
SPIGOT PUSHES INTO 65MM PVC OR COPPER WITH O-RING CONNECTION, OR CONNECTS TO 50MM PVC/HDPE WITH NO-HUB COUPLING.

N.B.	A	B	C	D
50	100	40	180	200
65	105	37	180	200

TERRACE GRATE (SPS) - TG
NTS

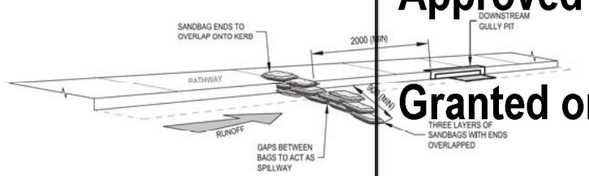


SEDIMENT FENCE DETAIL
NTS

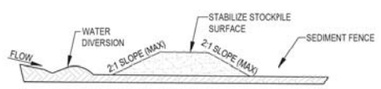


CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENTS AREA OF ANY ONE SECTION. THE CATCHMENTS AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT 2.5m INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



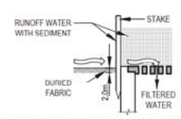
SANDBAG - KERB SEDIMENT TRAP
NTS



STOCKPILE
NTS

NOTE:

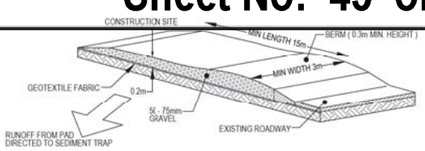
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILIZE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (LOW FLOW) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES ON THE DOWNSLOPE.



SEDIMENT BARRIER AROUND PIT
NTS

CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STRAW FILTER AND SEDIMENT FENCE FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.



STABILIZED SITE ACCESS
NTS

CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASED OR 3mm AGGREGATE
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILD ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILIZED ACCESS, CONSTRUCT A HUMP IN THE STABILIZED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

NSW GOVERNMENT | Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: DA 10132

Granted on: 15 July 2020

Signed: JF **Sheet No: 45 of 48**

QUANTUM ENGINEERS
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GENERAL NOTES

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b) ALL CURRENT AUSTRALIAN STANDARDS
c) ALL LOCAL COUNCIL REGULATIONS AS WELL AS ALL DCP & LEP ASSOCIATED.

APPROVED BY	CLIENT	DIAL BEFORE YOU DIG	DRAWING TITLE	APPROX TRUE NORTH
ROBERT ELTOBBAGI MIEAust CPEng	MONO CONSTRUCTIONS	DIAL BEFORE YOU DIG www.1100.com.au	STORMWATER & SEDIMENT CONTROL DETAILS	N
	ARCHITECT: STANTON DAHL ARCHITECTS REF No 2421.19		PROPOSED RESIDENTIAL FLAT BUILDING: Lot 30, 56 BEANE STREET GOSFORD	

REVISION	DRAWN	DESCRIPTION	DATE
A	J.FISHER	ISSUED FOR DA	06.12.2019

ISSUED FOR DEVELOPMENT APPLICATION

DESIGNED BY	No. IN SET	JOB NUMBER
J.FISHER	8	190210-SW
SCALE - SIZE	REVISION	DRAWING No.
AS NOTED - A1	A	D8

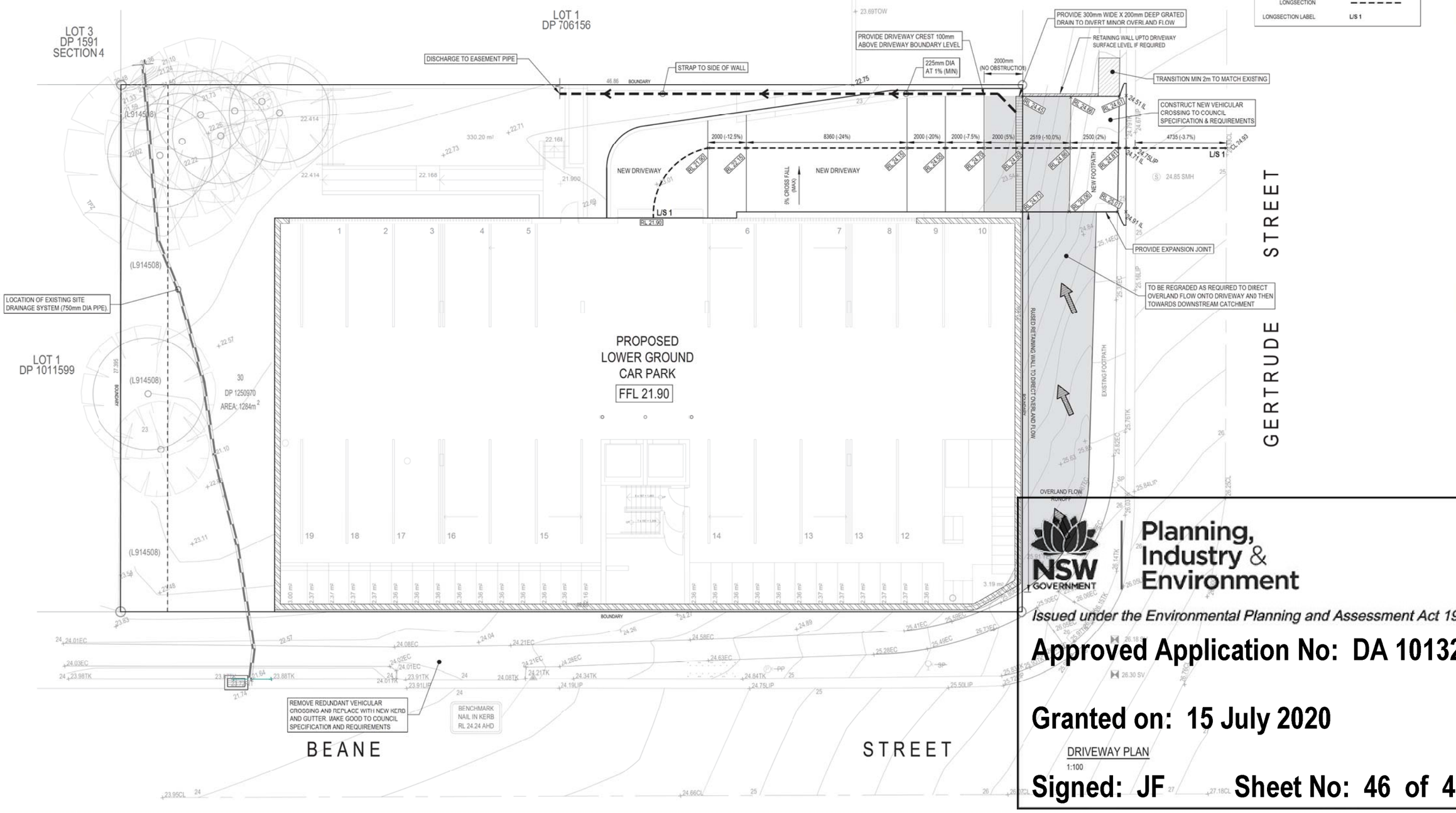
DRIVEWAY PLANS (DA SUBMISSION)
PROPOSED RESIDENTIAL FLAT BUILDING
LOT 30, No.56 BEANE STREET, GOSFORD

REFER TO 'OVERLAND FLOW STUDY' BY *QUANTUM ENGINEERS*, J0B No.190210-FLOOD, DATED 31.10.2019 FOR FLOOD LEVELS

SERVICES IN ROAD AND FOOTPATH AREAS APPLICABLE TO THE WORKS 'MUST' BE CHECKED FOR LOCATION AND DEPTH PRIOR TO COMMENCING WORKS

LEGEND

CENTERLINE	—·—·—
LONGSECTION	– – – –
LONGSECTION LABEL	L/S 1



NSW GOVERNMENT | Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: DA 10132

Granted on: 15 July 2020

DRIVEWAY PLAN
1:100

Signed: JF **Sheet No: 46 of 48**

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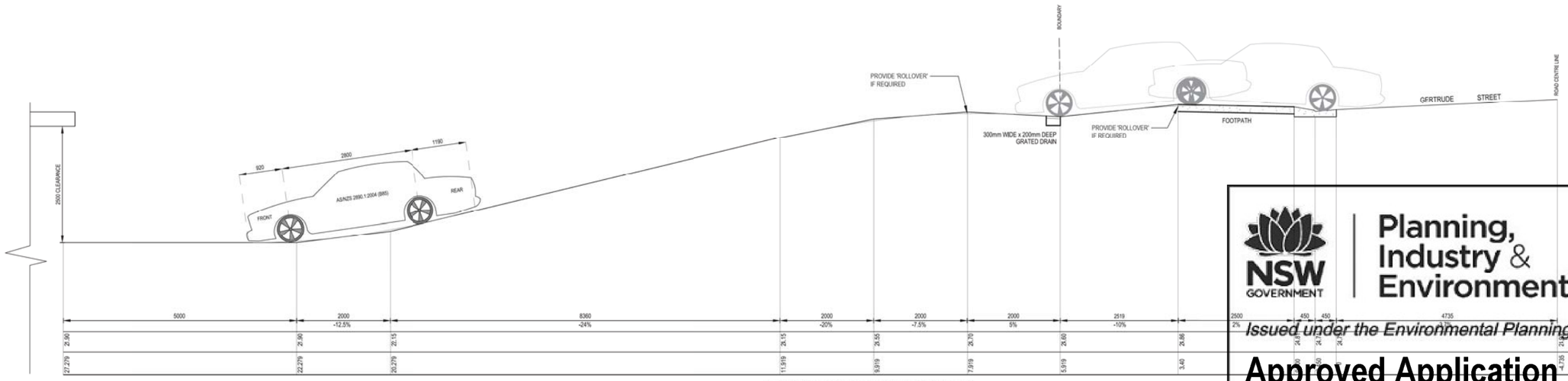
b) ALL CURRENT AUSTRALIAN STANDARDS
c) ALL LOCAL COUNCIL REGULATIONS AS WELL AS ALL DCP & LEP ASSOCIATED.

APPROVED BY	ROBERT ELTOBBAGI MIEAust CPEng
CLIENT	MONO CONSTRUCTIONS
ARCHITECT	STANTON DAHL ARCHITECTS
DIAL BEOFRE YOU DIG	DIAL BEFORE YOU DIG www.1100.com.au
DRAWING TITLE	NOTES & SITE MAP
PROPOSED RESIDENTIAL FLAT BUILDING	LOT 30, No.56 BEANE STREET, GOSFORD
APPROX TRUE NORTH	N

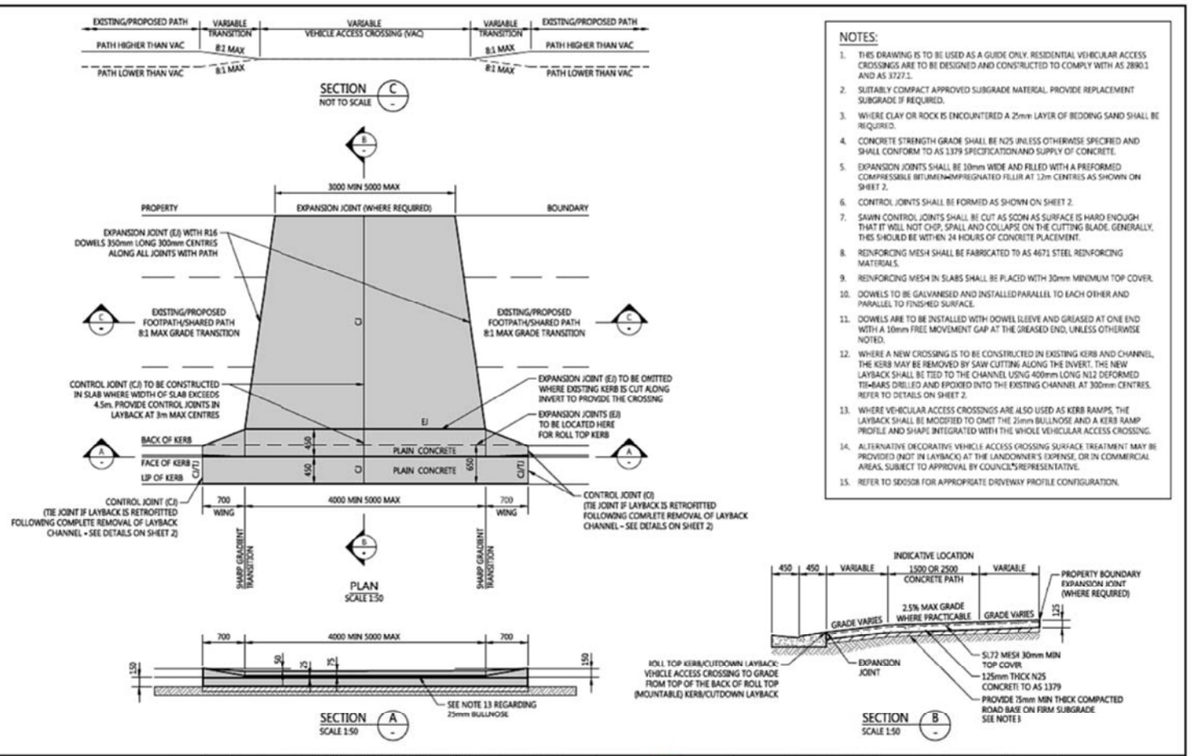
REVISION	DRAWN	DESCRIPTION	DATE
A	J.LI	PRELIMINARY DRIVEWAY DESIGN	28.11.2019
B	J.FISHER	ISSUED FOR DA	06.12.2019

ISSUED FOR DEVELOPMENT APPLICATION

DESIGNED BY	No. IN SET	JOB NUMBER
J.LI	3	190210-CW
SCALE - SIZE	REVISION	DRAWING No.
-	B	D1



LONGITUDINAL DRIVEWAY SECTION LS - 1
1:50 HORIZONTAL
1:50 VERTICAL



NOTES:

1. THIS DRAWING IS TO BE USED AS A GUIDE ONLY. RESIDENTIAL VEHICULAR ACCESS CROSSINGS ARE TO BE DESIGNED AND CONSTRUCTED TO COMPLY WITH AS 2890.1 AND AS 1727.1.
2. SUITABLY COMPACT APPROVED SUBGRADE MATERIAL. PROVIDE REPLACEMENT SUBGRADE IF REQUIRED.
3. WHERE CLAY OR ROCK IS ENCOUNTERED A 25mm LAYER OF BEDDING SAND SHALL BE REQUIRED.
4. CONCRETE STRENGTH GRADE SHALL BE N25 UNLESS OTHERWISE SPECIFIED AND SHALL CONFORM TO AS 1379 SPECIFICATION AND SUPPLY OF CONCRETE.
5. EXPANSION JOINTS SHALL BE 10mm WIDE AND FILLED WITH A PREFORMED COMPRESSIBLE BITUMEN-IMPREGNATED FILLER AT 12m CENTRES AS SHOWN ON SHEET 2.
6. CONTROL JOINTS SHALL BE FORMED AS SHOWN ON SHEET 2.
7. SAWN CONTROL JOINTS SHALL BE CUT AS SOON AS SURFACE IS HARD ENOUGH THAT IT WILL NOT CHIP, SPALL AND COLLAPSE ON THE CUTTING BLADE. GENERALLY, THIS SHOULD BE WITHIN 24 HOURS OF CONCRETE PLACEMENT.
8. REINFORCING MESH SHALL BE FABRICATED TO AS 4671 STEEL REINFORCING MATERIALS.
9. REINFORCING MESH IN SLABS SHALL BE PLACED WITH 30mm MINIMUM TOP COVER.
10. DOWELS TO BE GALVANISED AND INSTALLED PARALLEL TO EACH OTHER AND PARALLEL TO FINISHED SURFACE.
11. DOWELS ARE TO BE INSTALLED WITH DOWEL SLEEVE AND GREASED AT ONE END WITH A 10mm FREE MOVEMENT GAP AT THE GREASED END, UNLESS OTHERWISE NOTED.
12. WHERE A NEW CROSSING IS TO BE CONSTRUCTED IN EXISTING KERB AND CHANNEL, THE KERB MAY BE REMOVED BY SAW CUTTING ALONG THE INVERT. THE NEW LAYBACK SHALL BE TIED TO THE CHANNEL USING 450mm LONG N12 DEFORMED TIE-BARS DRILLED AND EPOXIED INTO THE EXISTING CHANNEL AT 300mm CENTRES. REFER TO DETAILS ON SHEET 2.
13. WHERE VEHICULAR ACCESS CROSSINGS ARE ALSO USED AS KERB RAMPS, THE LAYBACK SHALL BE MODIFIED TO OMIT THE 25mm BULLNOSE AND A KERB RAMP PROFILE AND SHAPE INTEGRATED WITH THE WHOLE VEHICULAR ACCESS CROSSING.
14. ALTERNATIVE DECORATIVE VEHICLE ACCESS CROSSING SURFACE TREATMENT MAY BE PROVIDED (NOT IN LAYBACK) AT THE LANDOWNER'S EXPENSE, OR IN COMMERCIAL AREAS, SUBJECT TO APPROVAL BY COUNCIL'S REPRESENTATIVE.
15. REFER TO SD0508 FOR APPROPRIATE DRIVEWAY PROFILE CONFIGURATION.

REV	AMENDMENT	DATE	DRAWN	APRVD

ALL DIMENSIONS IN mm UNLESS OTHERWISE SHOWN

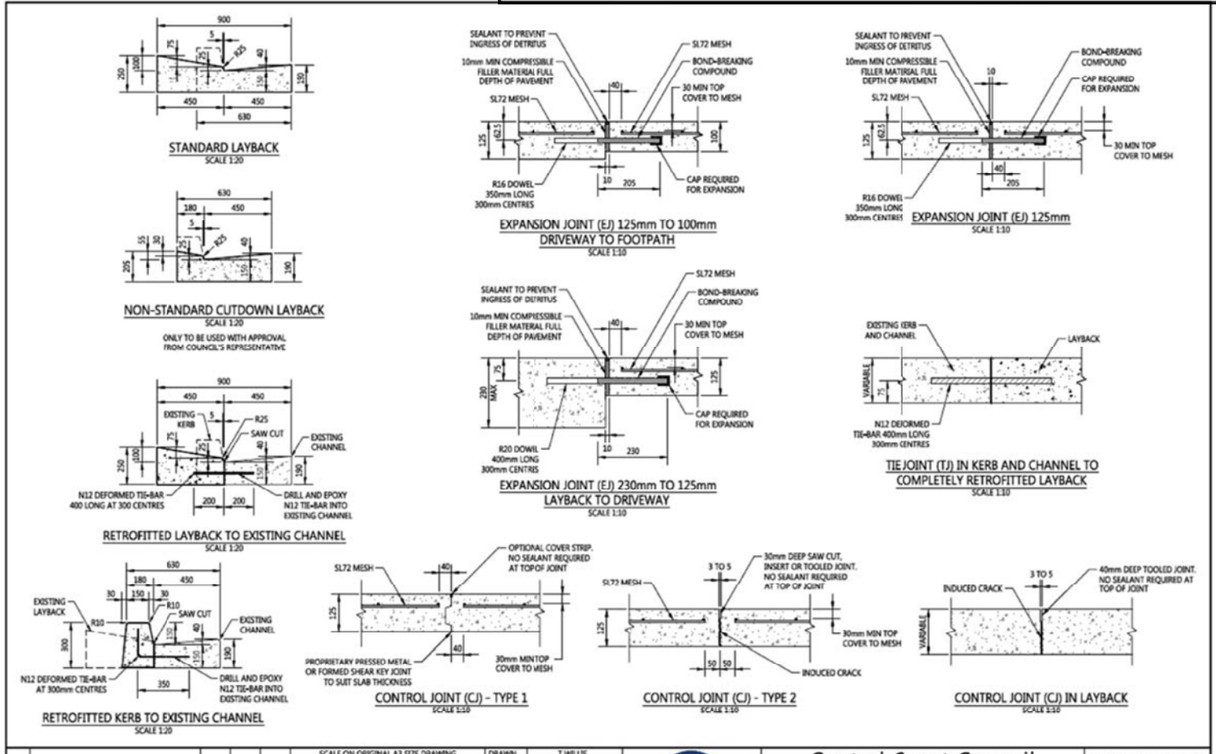
SCALE ON ORIGINAL A3 SIZE DRAWING: 0 500 1000 1500 2000 2500 — 1:50

DRAWN: T WILLIS
CHECKED: M BAMBER
DATE: 01/07/18
UNIT MANAGER APPROVAL
ASSETS PLANNING AND DESIGN

Central Coast Council
ROADS TRANSPORT AND DRAINAGE

Central Coast Council
KERB AND CHANNEL SERIES
RESIDENTIAL VEHICLE ACCESS CROSSING FOR ROADS WITH KERB AND CHANNEL

STANDARD DRAWING
DRAWING NUMBER: SD0503
REV: -
SHEET 1 OF 2
A3



REV	AMENDMENT	DATE	DRAWN	APRVD

ALL DIMENSIONS IN mm UNLESS OTHERWISE SHOWN

SCALE ON ORIGINAL A3 SIZE DRAWING: AS SHOWN

DRAWN: T WILLIS
CHECKED: M BAMBER
DATE: 01/07/18
UNIT MANAGER APPROVAL
ASSETS PLANNING AND DESIGN

Central Coast Council
ROADS TRANSPORT AND DRAINAGE

Central Coast Council
KERB AND CHANNEL SERIES
RESIDENTIAL VEHICLE ACCESS CROSSING FOR ROADS WITH KERB AND CHANNEL

STANDARD DRAWING
DRAWING NUMBER: SD0503
REV: -
SHEET 2 OF 2
A3

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c) ALL LOCAL COUNCIL REGULATIONS AS WELL AS ALL DCP & LEP ASSOCIATED.

APPROVED BY: ROBERT ELTOBBAGI, MIEAust CPEng

CLIENT: MONO CONSTRUCTIONS

ARCHITECT: STANTON DAHL ARCHITECTS

DIAL BEOFRE YOU DIG: DIAL BEFORE YOU DIG www.1100.com.au

DRAWING TITLE: DRIVEWAY LONGITUDINAL SECTION & COUNCILS STANDARD DRAWING

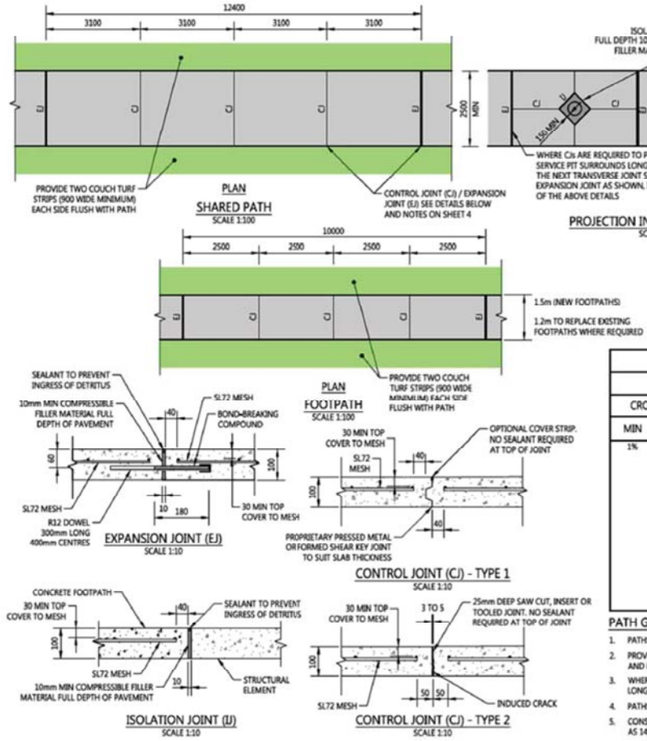
PROPOSED RESIDENTIAL FLAT BUILDING
LOT 30, No.56 BEANE STREET, GOSFORD

APPROX TRUE NORTH: N

REVISION	DRAWN	DESCRIPTION	DATE
A	J.LI	PRELIMINARY DRIVEWAY DESIGN	28.11.2019
B	J.FISHER	ISSUED FOR DA	06.12.2019

ISSUED FOR DEVELOPMENT APPLICATION

DESIGNED BY	No. IN SET	JOB NUMBER
J.LI	3	190210-CW
SCALE - SIZE	REVISION	DRAWING No.
AS NOTED - A1	B	D2



GENERAL NOTES:

1. WHEN REPLACING EXISTING FOOTPATHS, ADOPT 1.5m WIDE 100mm MINIMUM THICK REINFORCED PATH.
2. ALL NEW FOOTPATHS AND SHARED PATHS SHALL BE 100mm MINIMUM THICK REINFOICED CONCRETE.
3. AVOID SERVICE PITS AND VALVES LOCATED WITHIN PATHS, WHERE PRACTICABLE.
4. SHARED PATH WIDTHS SHALL BE DETERMINED BY REFERRING TO THE TABLE BELOW AND THE ASSOCIATED AUSTROADS GUIDE TO ROAD DESIGN. JOINT SPACINGS FOR SHARED PATHS >2.5m WIDE SHALL BE ADJUSTED ACCORDINGLY.
5. WHERE PATHS ARE LOCATED WITHIN AREAS SUBJECT TO FLOODING, CONSIDER AN APPROPRIATE DESIGN STORM FLOOD LEVEL AND THE POTENTIAL NEED FOR FLOOD WARNING AND DEPTH MARKER SIGNS.
6. THE MAXIMUM JOINT SPACINGS ARE BASED ON A STANDARD MESH SIZE OF 6 x 2.4m, WITH MESH ORIENTATED ACCORDINGLY.

SHARED PATH WIDTH

	LOCAL ACCESS PATH	REGIONAL PATH	RECREATIONAL PATH
DESIRABLE WIDTH	2.5	3.0	3.5
ACCEPTABLE WIDTH RANGE	2.0 - 3.0	2.5 - 4.0	3.0 - 4.0

SOURCE: AUSTROADS GUIDE TO ROAD DESIGN PART 6A

FOOTPATH AND SHARED PATH GRADIENTS

PATHS IN ROAD RESERVES				PATHS NOT IN ROAD RESERVES			
CROSSFALL		LONGITUDINAL GRADE		CROSSFALL		LONGITUDINAL GRADE	
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
1%	2.5%	NEW ROADS		1%	2.5%	1%	5%[3]
		1%	5%				LANDING SPACING
		EXISTING ESTABLISHED ROADS (ADOPT GRADE OF EXISTING ROAD)					<3% N/A
		1% DESIRABLE MIN 0.3% ABSOLUTE MIN	10% DESIRABLE MAX 15% ABSOLUTE MAX				3% 25m MAX
							5% 15m MAX
							7%+ 9m MAX
							3% - 7% BY INTERPOLATION

PATH GRADIENT NOTES:

1. PATHS WITH GRADIENTS STEEPER THAN 5% ARE TO BE CONSIDERED AS RAMPS FOR DESIGN PURPOSES.
2. PROVIDE PATH GRADIENTS AND FLAT LANDINGS AS REQUIRED IN ACCORDANCE WITH AS 1428.1 AND THE ABOVE TABLE, WHERE CONSIDERED APPROPRIATE AND PRACTICABLE.
3. WHERE SHARED PATHS WITH GRADIENTS THAT REQUIRE FLAT LANDINGS FOR PEDESTRIANS UNDER AS 1428.1 AND RAMPS WHICH ARE GREATER THAN 200m LONG, THESE LANDINGS SHOULD BE PROVIDED ON BOTH SIDES ADJACENT TO THE SHARED PATH.
4. PATHS NOT IN ROAD RESERVES AND ON STEEP TERRAIN SHOULD BE MEANDERED TO MINIMISE LONGITUDINAL GRADIENTS, WHERE PRACTICABLE.
5. CONSIDER THE USE OF HANDRAILS ON BOTH SIDES OF SHARED PATHS NOT IN ROAD RESERVES, WHICH ARE CONSIDERED AS RAMPS, IN ACCORDANCE WITH AS 1428.1, WHERE PRACTICABLE.

REV	AMENDMENT	DATE	DRAWN	APRVD

SCALE ON ORIGINAL A3 SIZE DRAWING: 0 100 200 300 400 500 1:10; 0 1000 2000 3000 4000 5000 1:100

ALL DIMENSIONS IN mm UNLESS OTHERWISE SHOWN

DRAWN	D MILLER/T WILLIS
CHECKED	M BAMBER
DATE	01/07/18

UNIT MANAGER APPROVAL

ASSETS PLANNING AND DESIGN

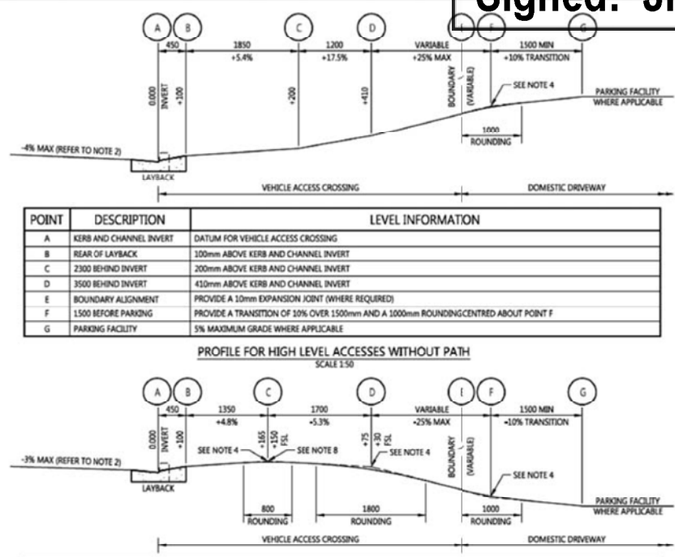
ROADS TRANSPORT AND DRAINAGE

Central Coast Council

PEDESTRIAN AND CYCLIST SERIES
FOOTPATH AND SHARED PATH

STANDARD DRAWING

DRAWING NUMBER	REV
SD0601	-
SHEET 1 OF 7	A3



POINT	DESCRIPTION	LEVEL INFORMATION
A	KERB AND CHANNEL INVERT	DATUM FOR VEHICLE ACCESS CROSSING
B	REAR OF LAYBACK	100mm ABOVE KERB AND CHANNEL INVERT
C	2300 BEHIND INVERT	200mm ABOVE KERB AND CHANNEL INVERT
D	3500 BEHIND INVERT	410mm ABOVE KERB AND CHANNEL INVERT
E	BOUNDARY ALIGNMENT	PROVIDE A 10mm EXPANSION JOINT (WHERE REQUIRED)
F	1500 BEFORE PARKING	PROVIDE A TRANSITION OF 10% OVER 1500mm AND A 1000mm ROUNDING CENTRED ABOUT POINT F
G	PARKING FACILITY	5% MAXIMUM GRADE WHERE APPLICABLE

PROFILE FOR HIGH LEVEL ACCESSES WITHOUT PATH
SCALE 1:50

POINT	DESCRIPTION	LEVEL INFORMATION
A	KERB AND CHANNEL INVERT	DATUM FOR VEHICLE ACCESS CROSSING
B	REAR OF LAYBACK	100mm ABOVE KERB AND CHANNEL INVERT
C	1800 BEHIND INVERT	165mm ABOVE KERB AND CHANNEL INVERT. THE FINISHED SURFACE LEVEL (FSL) SHALL BE 150mm ABOVE THE KERB AND CHANNEL INVERT (15mm BELOW FORMWORK) BY PROVIDING AN 800mm ROUNDING CENTRED ABOUT POINT C
D	3500 BEHIND INVERT	75mm ABOVE KERB AND CHANNEL INVERT. THE FINISHED SURFACE LEVEL SHALL BE 30mm ABOVE THE KERB AND CHANNEL INVERT (45mm BELOW FORMWORK) BY PROVIDING AN 1800mm ROUNDING CENTRED ABOUT POINT D
E	BOUNDARY ALIGNMENT	PROVIDE A 10mm EXPANSION JOINT (WHERE REQUIRED)
F	1500 BEFORE PARKING	PROVIDE A TRANSITION OF 10% OVER 1500mm AND A 1000mm ROUNDING CENTRED ABOUT POINT F
G	PARKING FACILITY	5% MAXIMUM GRADE WHERE APPLICABLE

PROFILE FOR LOW LEVEL ACCESSES WITHOUT PATH
SCALE 1:50

NOTES:

1. VEHICLE ACCESS CROSSING PROFILES ON THIS STANDARD DRAWING ARE BASED ON AS/NZS 2890.1 OFF-STREET CAR PARKING AND THE 8B5 DESIGN VEHICLE WITH A GROUND CLEARANCE OF 120mm (LADEN). REFER TO COUNCIL'S STANDARD PASSENGER CAR VERTICAL CLEARANCE PROFILE STANDARD DRAWING SD0509.
2. A SITE SPECIFIC DESIGN BY A SUITABLY QUALIFIED AND EXPERIENCED CIVIL DESIGNER MAY BE REQUIRED DUE TO EXISTING CONSTRAINTS SUCH AS LOWER CLEARANCE VEHICLES OR WHERE LONGITUDINAL AND CROSSFALL GRADES ARE EXCESSIVE.
3. THE MAXIMUM GRADIENT OF DOMESTIC DRIVEWAYS SHALL BE 25%. THE MAXIMUM GRADIENT OF THE ASSOCIATED ACCESS DRIVEWAY ACROSS A PROPERTY LINE OR BUILDING ALIGNMENT SHALL BE 5% AND ACROSS A FOOTPATH OR SHARED PATH ALIGNMENT SHALL BE 2.5% WHERE PRACTICABLE.
4. TO PREVENT VEHICLES SCRAPING OR BOTTOMING, CHANGES IN GRADE IN EXCESS OF 12.5% FOR SUMMIT GRADE CHANGES AND 15% FOR SAG GRADE CHANGES REQUIRE INTRODUCTION OF A GRADE TRANSITION OR ROUNDING BETWEEN THE MAIN GRADE LINES.
5. ENSURE ALL ADJACENT AREAS ARE ADEQUATELY SHAPED, GRADED AND TURFED/CONCRETED OR HAVE STORMWATER DRAINAGE PROVIDED SHOULD THE VEHICLE ACCESS CROSSING ADVERSELY AFFECT STORMWATER RUNOFF OR ROAD USER SAFETY.
6. REFER TO COUNCIL'S VEHICLE ACCESS CROSSING STANDARD DRAWINGS FOR FURTHER DESIGN AND CONSTRUCTION DETAILS.
7. DEPTH OF SECONDARY GAP FLOW IN ROAD IS CRITICAL. PROVIDE 100mm MINIMUM FREEBOARD FROM MAJOR DESIGN STORM EVENT FLOW LEVEL TO HIGH POINT IN VEHICLE ACCESS CROSSING.
8. THE HIGHEST POINT IN LOW LEVEL ACCESSES SHALL BE 150mm MINIMUM ABOVE INVERT OF KERB IRRESPECTIVE OF THE TYPE OF LAYBACK USED.
9. ALL SERVICES UNDER VEHICLE ACCESS CROSSING SHALL BE LOCATED BY POTHOLING AND RELOCATED WHERE REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
10. THE VEHICLE ACCESS CROSSING APPLICANT IS TO PROVIDE INTERIM CONSTRUCTION PADS FOR SERVICE AUTHORITIES ENSURING CORRECT COVER IS PROVIDED TO FINISHED SURFACE LEVELS WHERE REQUIRED.
11. COUNCIL WILL NOT BE RESPONSIBLE IF VEHICLES CANNOT TRAVERSE THE DESIGN VEHICLE ACCESS CROSSING WHERE THE ABOVE GUIDELINES HAVE NOT BEEN TAKEN INTO ACCOUNT.

REV	AMENDMENT	DATE	DRAWN	APRVD

SCALE ON ORIGINAL A3 SIZE DRAWING: 0 500 1000 1500 2000 2500 1:50

ALL DIMENSIONS IN mm UNLESS OTHERWISE SHOWN

DRAWN	T WILLIS
CHECKED	M BAMBER
DATE	01/07/18

UNIT MANAGER APPROVAL

ASSETS PLANNING AND DESIGN

ROADS TRANSPORT AND DRAINAGE

Central Coast Council

KERB AND CHANNEL SERIES
VEHICLE ACCESS CROSSING
AND DRIVEWAY PROFILES

STANDARD DRAWING

DRAWING NUMBER	REV
SD0508	-
SHEET 2 OF 4	A3

QUANTUM ENGINEERS
Suite 1A, Level 2, 2 Rowe Street, EASTWOOD NSW 2122
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