

STORMWATER MANAGEMENT PLAN (FOR CDC)

PROPOSED ALTERATION AND ADDITION

LOT 4, No.55 BANGAROO STREET, NORTH BALGOWLAH

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 ARCHITECTS 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. ALL STORMWATER DRAINAGE PIPES ARE TO BE uPVC AT MINIMUM 1% GRADE UNLESS NOTED OTHERWISE.
7. 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.
8. ALL PITS WITHIN DRIVEWAYS TO BE 150mm THICK CONCRETE OR EQUAL.
9. THIS PLAN IS THE PROPERTY OF DONOVAN ASSOCIATES AND MAY NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM DONOVAN ASSOCIATES.

PLAN SPECIFIC 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:
 - i) FOR TYPICAL STANDARD QUAD GUTTER WITH $A_e = 6000\text{mm}^2$ AND GUTTER SLOPE 1:500 AND STEEPER, THIS REQUIRES ONE DOWNPIPE PER 30m^2 ROOF AREA.
 - ii) DOWNPIPES TO BE MINIMUM 90mm DIA. OR 100 x 50mm FOR GUTTERS SLOPE 1:500 AND STEEPER.
 - iii) 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

SURFACE INLET PIT



SURFACE INLET PIT
(WITH ENVIROPOD 200 MICRON)



ACCESS GRATE
(WITH ENVIROPOD 200 MICRON)



450 SQUARE INTERVAL

450 X 450

GRATE LEVEL = 75.50

SL 75.50

INVERT LEVEL = RL 75.20

IL 75.20

PROPOSED DOWNPIPE
90mm DIA. OR 100mm x 50mm MIN.



NATURAL GROUND FINISHED
DESIGN LEVEL

x 10.00

LEGEND

GRATED TRENCH DRAIN



ABSORPTION TRENCH



PROPOSED ROOF GUTTER FALL



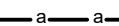
PROPOSED DOWNPIPE SPREADER



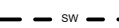
STORMWATER PIPE 100mm DIA. MIN. UNO



SUBSOIL PIPE



EXISTING STORMWATER PIPE



INSPECTION RISER



RAINWATER HEAD



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 (UNO)
- 0.5% FOR ALL LARGER PIPES (UNO)

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 UNDER A SEALED ROAD | 450mm WHERE NOT IN A ROAD 600mm |
| UNSEALED ROAD | 750mm |
| 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*

CONNECTIONS TO COUNCIL SYSTEM:

IF PROPOSED DRAINAGE SYSTEM IS DESIGNED TO CONNECT TO COUNCIL'S DRAINAGE SYSTEM, IT IS ADVISED THAT A 'WORKS PERMIT' IS OBTAINED FROM THE RESPECTIVE COUNCIL PRIOR TO COMMENCEMENT OF WORKS

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 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 PITS 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.

DRAWING TITLE:

DETAILS, NOTES &
LEGEND

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DRAWN

DATE

DESCRIPTION

ISSUE

FOR

APPROVED BY:

DESIGNED BY:

J.D

ISSUE

Y.R

09.01.2019

ISSUED FOR CDC

A

PREMIER POOLS PTY LTD

SITE ADDRESS:

LOT 4, No. 55

BANGAROO STREET
NORTH BALGOWLAH

JOHN DONOVAN, M.I.E. Aust. C.P.Eng.

CHECKED BY:

J.D

A

SCALE

-

SHEET SIZE

A3

SHEET No.

CLIENT REF.

DRAWING No.

Q-2984

E-315401

D1

| AREA CALCULATIONS | | |
|----------------------------------|--------|----------------|
| TOTAL SITE AREA | 897.9 | m ² |
| EXISTING DEVELOPMENT | | |
| ROOF AREA | 229.4 | m ² |
| PAVED AREA | 185.7 | m ² |
| DRIVEWAY AREA | 57.9 | m ² |
| IMPERVIOUS AREA | 473.0 | m ² |
| TOTAL IMPERVIOUS AREA PERCENTAGE | 52.68% | |
| PROPOSED DEVELOPMENT | | |
| PROPOSED ROOF AREA | 0.0 | m ² |
| PROPOSED PAVED AREA | 22.8 | m ² |
| PROPOSED DRIVEWAY AREA | 0.0 | m ² |
| TOTAL IMPERVIOUS AREA | 548.5 | m ² |
| TOTAL IMPERVIOUS AREA PERCENTAGE | 61.08% | |

NOTE: ENSURE ANY PROPOSED PAVING IS GRADED SO THAT IT IS NOT IMPACTING ADJOINING PROPERTIES.

INSPECTION RISER (IR)
PROVIDE 'SCREW CAP' INSPECTION RISER AT LOWEST POINT OF 'CHARGED LINES'

OSD WARRANT

LGA:

WARRINGAH COUNCIL

RELEVANT CODE:

ON-SITE STORMWATER DETENTION TECHNICAL SPECIFICATION, SECTION 2.1: "PLANNING & DESIGN - APPLICATIONS"

SECTION:

"ALL DEVELOPMENT APPLICATIONS FOR ALTERATIONS AND ADDITIONS FOR SINGLE RESIDENTIAL DWELLINGS WILL NOT REQUIRE OSD"

THEREFORE, NO OSD REQUIRED

**COMPLYING DEVELOPMENT
STORMWATER DESIGN CERTIFICATE**

THE STORMWATER MANAGEMENT DESIGN DEPICTED ON DRAWINGS **E315401/ D1, D2 & D3, ISSUE A**, HAS BEEN PREPARED HAVING A REGARD FOR RESPECTIVE COUNCILS DEVELOPMENT CONTROL PLAN, BUILDING CODE OF AUSTRALIA AND AUSTRALIAN STANDARDS AS/NZS 3500:2003

WE CERTIFY THAT IN OUR OWN OPINION THIS STORMWATER MANAGEMENT DESIGN COMPLIES GENERALLY WITH THESE REQUIREMENTS

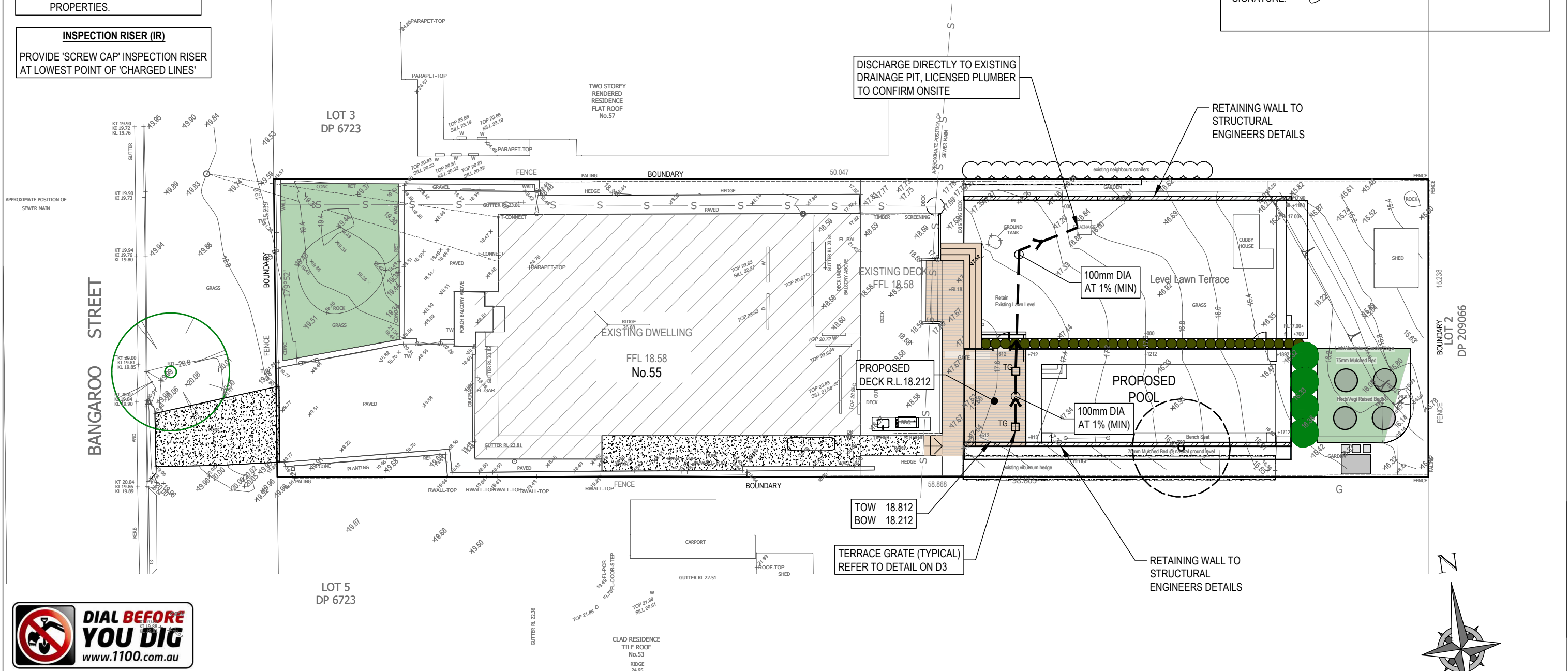
NAME:

JOHN DONOVAN
MIEAust C.P.Eng.

DATE:

10 January 2020


SIGNATURE:

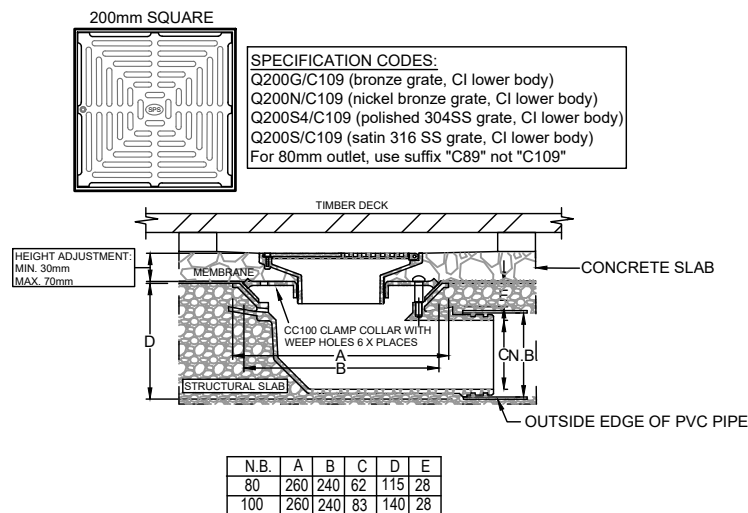


DONOVAN

ASSOCIATES

INCORPORATED ENG SURVEY PTY LTD ABN: 84 134 616 078
PH/ 02 9806 3000 F/ 02 9891 2806 E/ admineng@donovanassociates.com.au
15 PARKES STREET PARRAMATTA NSW 2150

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| DRAWING TITLE: STORMWATER MANAGEMENT PLAN | DRAWN | DATE | DESCRIPTION | ISSUE | FOR | APPROVED BY: | DESIGNED BY: | J.D | ISSUE |
| | Y.R | 09.01.2019 | ISSUED FOR CDC | A | PREMIER POOLS PTY LTD |  JOHN DONOVAN, M.I.E. Aust. C.P.Eng. | CHECKED BY: | J.D | A |
| | | | | | SITE ADDRESS: | | SCALE | 1:200 | |
| | | | | | LOT 4, No. 55 | | SHEET SIZE | A3 | SHEET No. |
| | | | | | BANGAROO STREET | | CLIENT REF. | DRAWING No. | D2 |
| | | | | NORTH BALGOWLAH | Q-2984 | | E-315401 | | |
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TERRACE GRATE (SPS) - TG UNDER DECK
NTS