

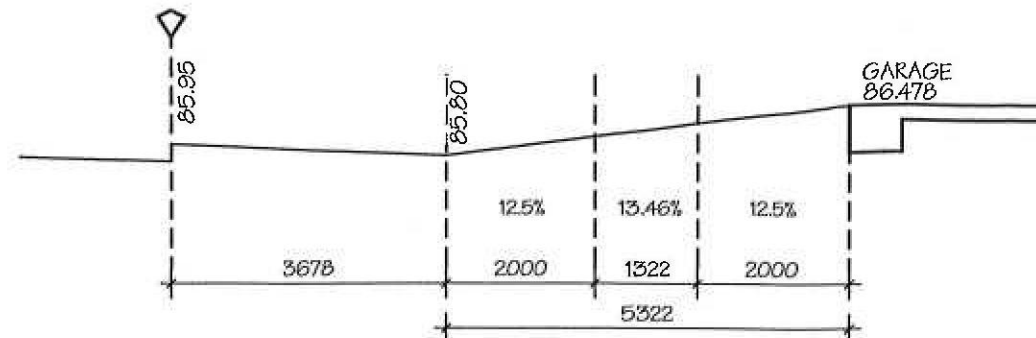
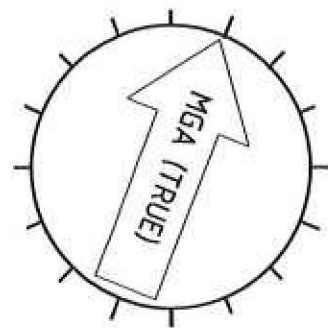
RAWSON HOMES PTY LTD WILL TAKE NO RESPONSIBILITY FOR ANY VERBAL DISCUSSIONS OR INSTRUCTIONS. ALL CHANGES AND SPECIAL INCLUSIONS MUST BE DOCUMENTED IN WRITING

1	COVER SHEET
2	SITE PLAN
3	GROUND FLOOR PLAN
4	FIRST FLOOR PLAN
5	ELEVATIONS 1
6	ELEVATIONS 2
7	SECTION
8	CONCRETE SLAB PLAN
9	ELECTRICAL PLAN
10	WET AREA DETAILS
11	SEDIMENT CONTROL PLAN

COLOUR PLAN

COUNCIL AREA:	SCALE:
MANLY	This is the plan/spec. referred to in Fitzgerald Certificate
JOB No:	Cert. No. DRWG No. ISSUE
J001570	01 2011 0754 9/6/11
Paul Fitzgerald	Accreditation No SPB 0110

NORTH

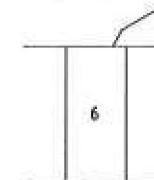


DRIVEWAY GRADIENT
SCALE 1:100

LOCATION PLAN

UBD REF: 196,06

WAKEHURST PARKWAY



B: RIGHT OF ACCESS, EASEMENT FOR SERVICES
& EASEMENT TO DRAIN WATER 4 WIDE
C: RESTRICTION ON USE OF LAND (NO VEHICULAR ACCESS)

AUSTRALIAN HEIGHT DATUM (AHD) ADJUSTMENT
THE BENCHMARK AND SITE LEVELS HAVE BEEN ADJUSTED TO AHD.
CONTOUR LINES HAVE BEEN RE-CREATED BY COMPUTER SOFTWARE.
THE SITE HAS NOT BEEN RE-SURVEYED.

WARNING
ANY CHANGES TO THE LOT AFTER THE ORIGINAL SURVEY DATE
SUCH AS ADDED FILL, CUT OR SITE REGRADING WILL REQUIRE
A NEW CONTOUR AND DETAIL SURVEY TO BE DONE.

KO: DENOTES KERB OUTLET
WC, EC, TC: DENOTES SERVICE CONDUIT
SV: DENOTES STOP VALVE
HYD: DENOTES HYDRANT

NOTE: CONTOURS SHOWN HAVE BEEN INTERPOLATED FROM SPOT
LEVELS TAKEN ON-SITE AND ARE A REPRESENTATION OF THE

DIMENSIONS SHOWN (BEARINGS & DISTANCES) HAVE BEEN
DETERMINED BY LAND AND PROPERTY INFORMATION PLANS
ONLY. BOUNDARIES HAVE NOT BEEN ACCURATELY DETERMINED.

SERVICES SHOWN HAVE BEEN LOCATED WHERE POSSIBLE BY
FIELD SURVEY. PRIOR TO ANY SITE WORKS, THE RELEVANT
AUTHORITY SHOULD BE CONTACTED TO DETERMINE EXACT
POSITION OF ANY UNDERGROUND PIPES, CABLES ETC.

DIMENSIONS OF ANY TREES SHOWN ON THE PLAN ARE APPROXIMATE.

DATUM OF LEVELS: AUSTRALIAN HEIGHT DATUM

ORIGIN OF LEVELS: SSM 144861
RL 82.660
SOURCE OF LEVELS: S C I M S

REFER TO NASSERI ASSOCIATES PLANS
FOR STORMWATER DETAILS REF.#D2498

NOTES:

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TO BE ACCURATE - HOWEVER INFORMATION WRITTEN INTO
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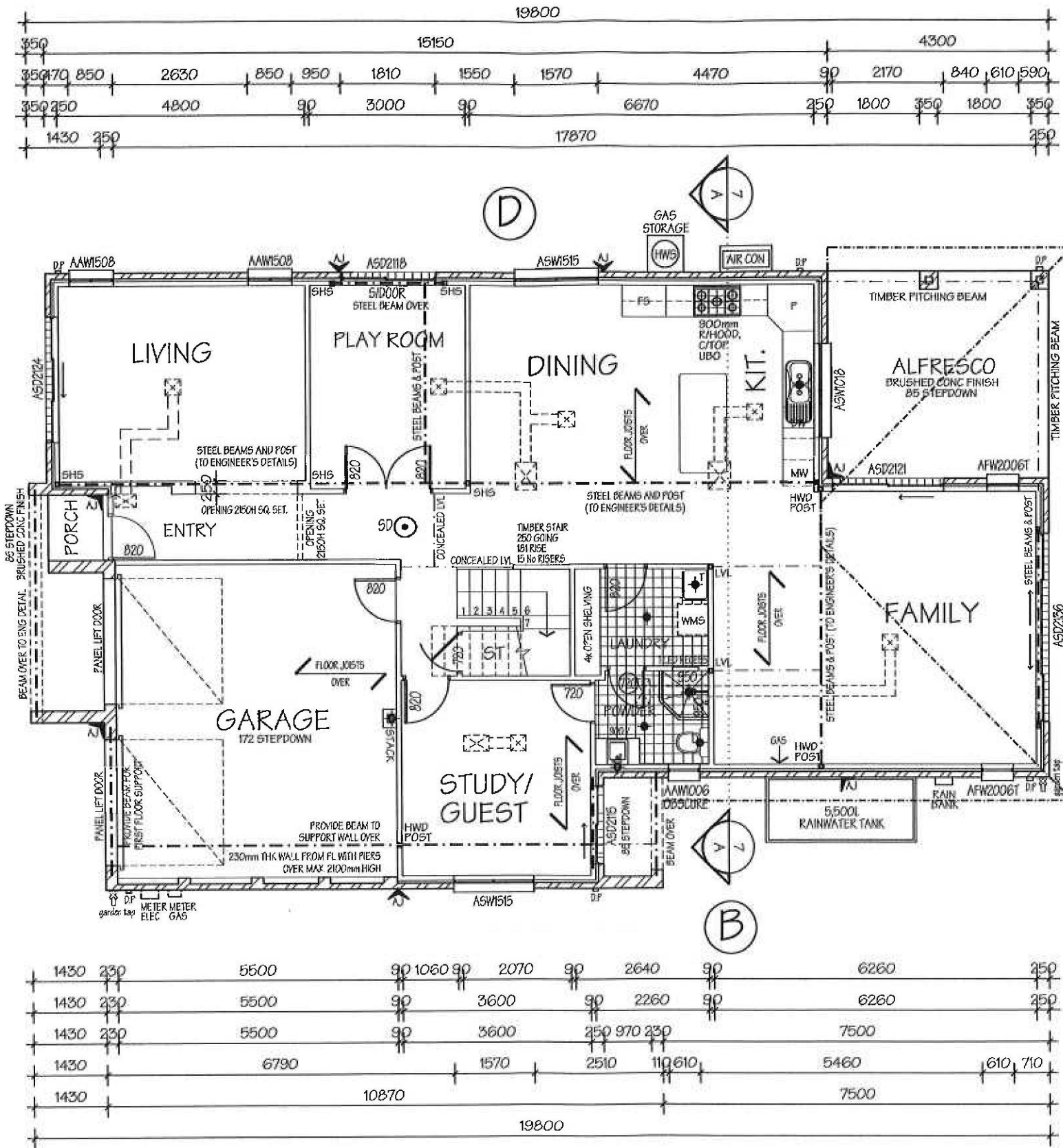
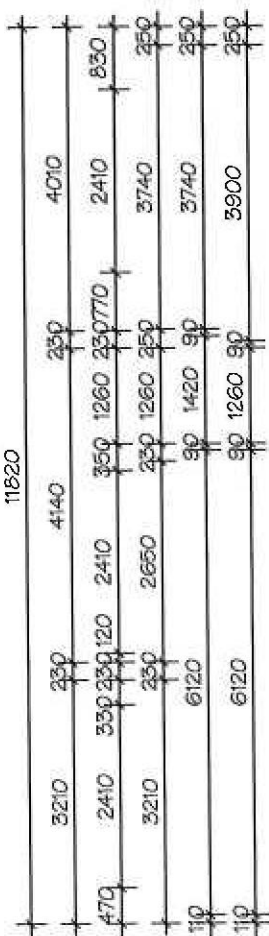
CLIENT:
MR MCVEIGH & MS DAVIDSON

SITE ADDRESS:
LOT 6
WAKEHURST PARKWAY
SEAFORTH

HOUSETYPE:
MODEL: ULMARRA
FACADE: MAJESTIC
TYPE: STANDARD
SPECIFICATION: LUXE+ GOLD

DRAWING TITLE:
SITE PLAN

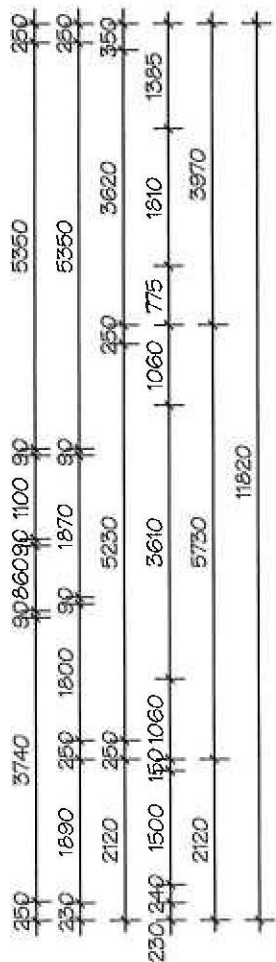
DRAWN BY: ME	DATE DRAWN: 21.04.11	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA: MANLY	SCALE: 1:200	This plan forms part of the approved	
JOB No: J001570	DRWG No: 02	ISSUE: B	Certified as issued by Fitzgerald Building Certifiers Pty Limited



(720) LIFT OFF HINGE TO WC

AC DUCTING
WHEN APPLICABLE

HEIGHT OF ALL SQ. SETS
2150mm FROM FFL
UNLESS OTHERWISE SHOWN



AREAS SCHEDULE:

GROUND FLOOR LIVING	: 150.6 m ²
FIRST FLOOR LIVING	: 114.96 m ²
FRONT PORCH	: 1.82 m ²
GARAGE	: 35.70 m ²
BALCONY/DECK	: 6.57 m ²
ALFRESCO	: 17.07 m ²
GRAND TOTAL	: 326.72 m ²

GROUND FLOOR PLAN

NOTES:

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CLIENT:
MR MCVEIGH & MS DAVIDSON

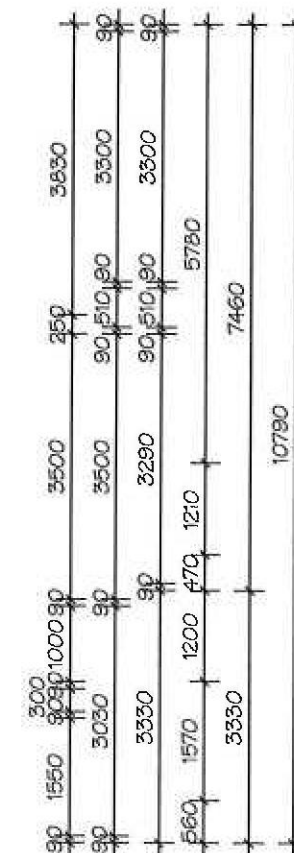
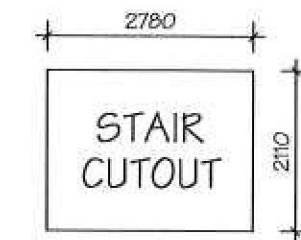
SITE ADDRESS:
LOT 6
WAKEHURST PARKWAY
SEAFORTH

HOUSETYPE:
MODEL: ULMARRA
FACADE: MAJESTIC
TYPE: STANDARD
SPECIFICATION: LUXE+ GOLD

DRAWING TITLE:
GROUND FLOOR PLAN

DRAWN BY: ME
DATE DRAWN: 21.04.11
CHECKED BY:
APPROVED FOR CONSTRUCTION:

COUNCIL AREA: MANLY
SCALE: 1:100
This plan forms part of the approved
Certificate of Issue
J001570
03
By Limited



HEIGHT OF ALL SQ. SETS
2150mm FROM FFL
UNLESS OTHERWISE SHOWN

DRAWN BY: ME	DATE DRAWN: 21.04.11	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA: MANLY		SCALE: This plan forms part of the approved	
JOB No: J001570	Certified By: Gerald Building Pty Limited	DRAWING NO: ISSUED BY: 04	ISSUED BY: B

FLYSCREENS TO ALL
DOORS AND WINDOWS



WEST ELEVATION



SOUTH ELEVATION

NOTES:

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Builder's Licence No.33493C



CLIENT:
MR MCVEIGH & MS DAVIDSON

SITE ADDRESS:
LOT 6
WAKEHURST PARKWAY
SEAFORTH

HOUSETYPE:
MODEL: ULMARRA
FACADE: MAJESTIC
TYPE: STANDARD
SPECIFICATION: LUXE+ GOLD

DRAWING TITLE:
ELEVATIONS 1

DRAWN BY: ME
DATE DRAWN: 21.04.11
CHECKED BY:
APPROVED FOR CONSTRUCTION:

COUNCIL AREA: MANLY
SCALE: 1:100

JOB No:
J001570

DRWG No: 05
ISSUE: B
Certificate issued by

Fitzgerald Building Certifiers Pty Limited



EAST ELEVATION



NORTH ELEVATION

NOTES:

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CLIENT:
MR MCVEIGH & MS DAVIDSON

SITE ADDRESS:
LOT 6
WAKEHURST PARKWAY
SEAFORTH

HOUSETYPE:
MODEL: ULMARRA
FACADE: MAJESTIC
TYPE: STANDARD
SPECIFICATION: LUXE+ GOLD

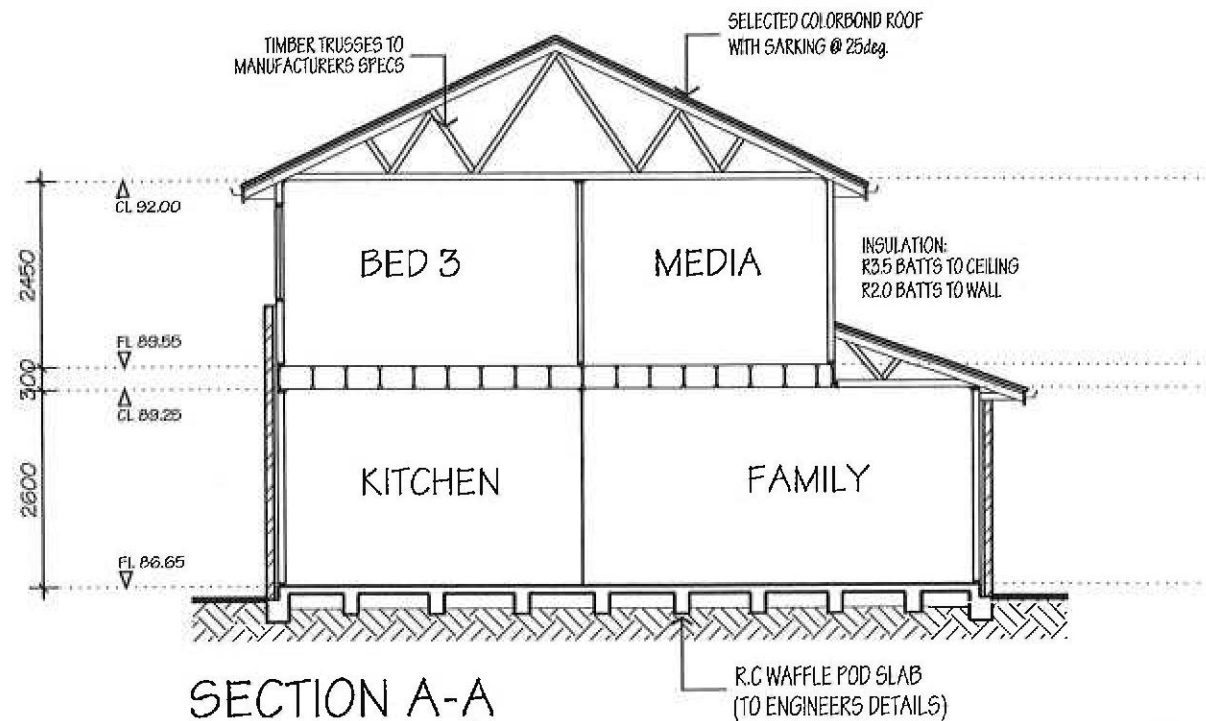
DRAWING TITLE:
ELEVATIONS 2

DRAWN BY: ME
DATE DRAWN: 21.04.11
CHECKED BY:
APPROVED FOR CONSTRUCTION:

COUNCIL AREA: MANLY
SCALE: 1:100

JOB No:
J001570

DRWG No.: 06
ISSUE: B
This plan is part of the approved Certificate as issued by Fitzgerald Building Certifiers Pty Limited



BASIX COMMITMENTS		
PROJECT DETAILS		
Site area	577	m2
Roof area	229	m2
number of bedrooms	4	
Total area of vegetation (garden & lawn)	284	m2
ABSA Certificate Number (if applicable)	n/a	
Net conditioned floor area	265	m2
Net Unconditioned floor area	62	m2
Concession claimed (if applicable)	not applicable	
Cooling load (if applicable)	n/a	MJ/m2/yr
Heating load (if applicable)	n/a	MJ/m2/yr
STORMWATER		
Rainwater tank to collect at least 175m³ of rain runoff from roof area		
Rainwater tank to be connected to all toilets with in the development		
Rainwater tank to be connected to cold water tap to supply water to the washing machine		
Rainwater to be connected to at least one outdoor tap for garden watering		
Rainwater to have a capacity of at least 3500 litres		
WATER		
All showers with in the development are to have a minimum rating of 3A showerheads		
Each toilet is to have a flushing system of no less than a 3A rating		
All basin taps to have a minimum rating of 3A rating		
All taps in the kitchen are to have a minimum rating of 3A		
ENERGY		
ACTIVE COOLING/HEATING		
Cooling system with day/night zoning for bedrooms & living areas with an EER 2.5 -3.0		
Heating system with day/night zoning for bedrooms & living areas with an EER 3.0 -3.5		
ALTERNATIVE ENERGY		
The applicant must install a photovoltaic system with the capacity to generate at least 1.5 peak kilowatts of electricity.		
VENTILATION		
At least 1 Bathroom: individual fan, ducted to façade or roof.		
Kitchen: individual fan, ducted to façade or roof.		
Laundry: natural ventilation only, or no laundry.		
HOT WATER		
Hot water system to be gas storage, 5 STAR		
LIGHTING		
Provide - Natural lighting		
COOKING (KITCHEN APPLIANCES)		
Install a gas cooktop and electric oven		
DESIGN ENHANCEMENTS		
Refrigerator space to be well ventilated		
Install an outdoor clothes drying line		
INSULATION		
External wall R2.0 (excluding garage)		
Ceiling R3.5 (including garage & alfresco)		

NOTES:

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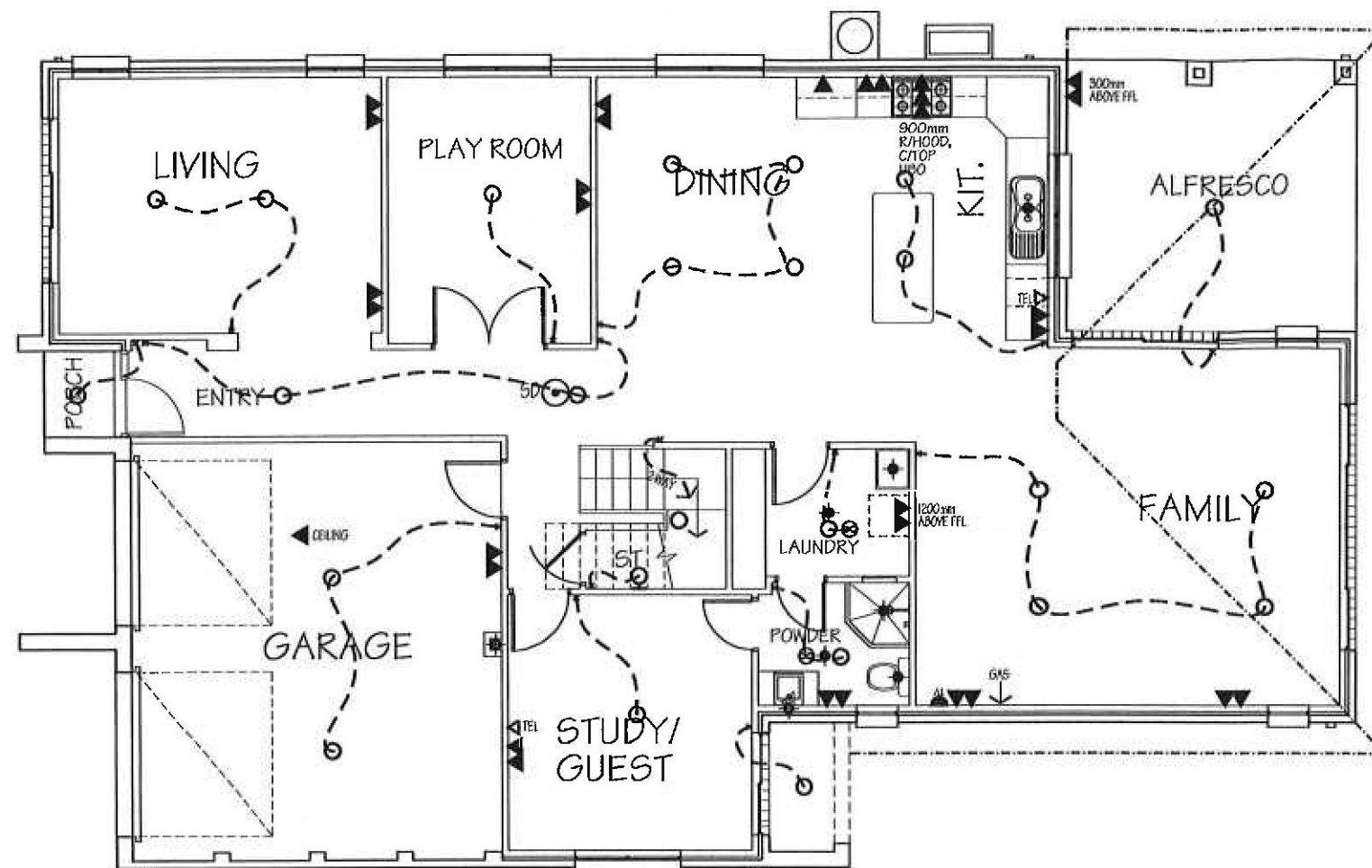
CLIENT:
MR MCVEIGH & MS DAVIDSON

SITE ADDRESS:
LOT 6
WAKEHURST PARKWAY
SEAFORTH

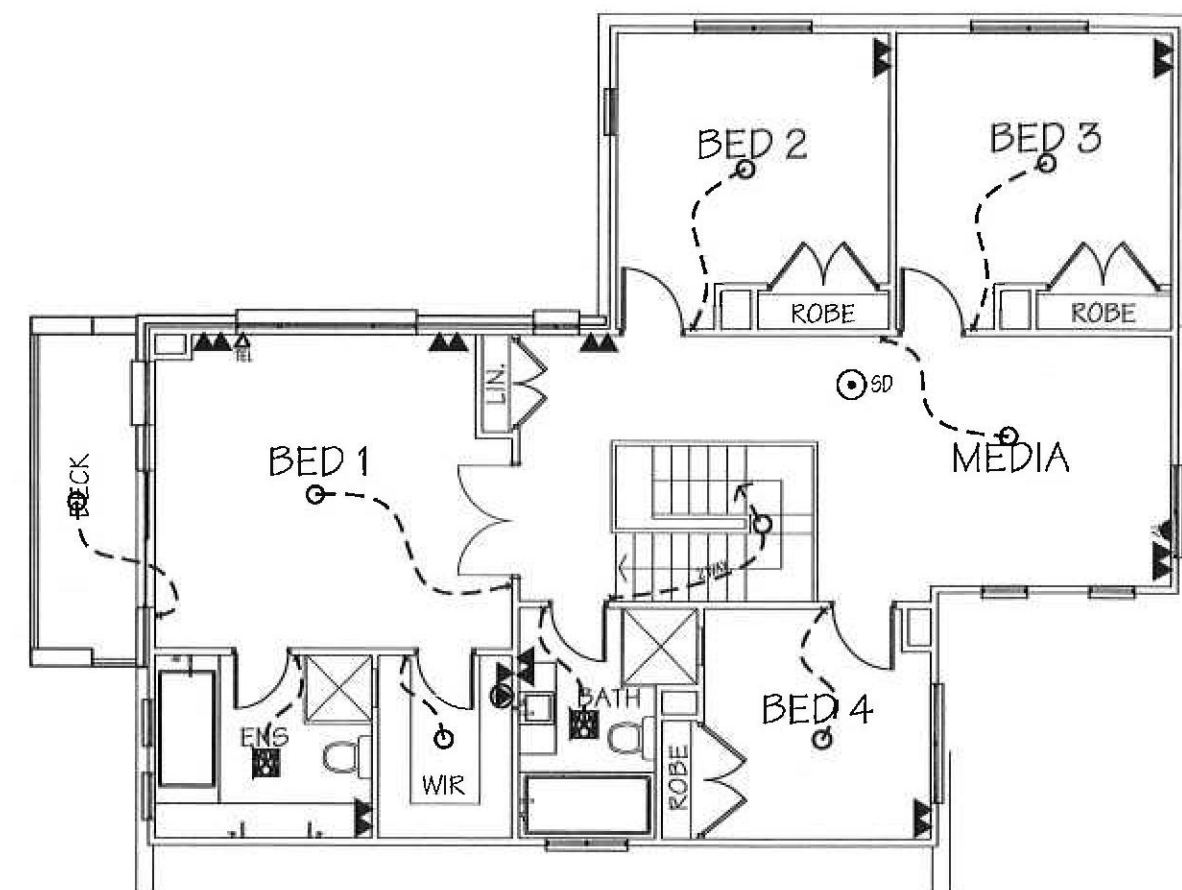
HOUSETYPE:
MODEL: ULMARRA
FACADE: MAJESTIC
TYPE: STANDARD
SPECIFICATION: LUXE+ GOLD

DRAWING TITLE:
SECTION

DRAWN BY: ME	DATE DRAWN: 21.04.11	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA: MANLY	SCALE: 1:100	This plan forms part of the approved	
JOB No: J001570	Drawn by: Gerald Building Certifiers Pty Limited	ISSUE: 07	B



ELECTRICAL LEGEND			
	FLUORESCENT TUBE		EXTERNAL SENSOR LIGHT
	CEILING LIGHT POINT [ATTEN!]		ADJUSTABLE DOWNLIGHT
	JUNCTION BOX FOR FUTURE LIGHT POINT		STAIRLIGHT
	HALOGEN L.V. DOWN LIGHT		COMPACT FLUORESCENT DOWN LIGHT
	TELEVISION POINT		LIGHT SWITCH
	SINGLE GPO		PERMANENT POWER
	DOUBLE GPO		SMOKE DETECTOR
	EXTERIOR SINGLE GPO		DL 2 LIGHT/HEATER/FAN
	EXHAUST FAN		AC OUTLET WHEN APPLICABLE
	TELEPHONE POINT		GAS POINT
	* SINGLE GPO IF ALARM INSTALLED AS STANDARD		



ELECTRICAL PLANS

NOTES:

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RAWSON HOMES

UNIT 34/11-21 UNDERWOOD ROAD
HOMEBUSH NSW 2140
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Builder's Licence No.33493C



CLIENT:
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SITE ADDRESS:
LOT 6
WAKEHURST PARKWAY
SEAFORTH

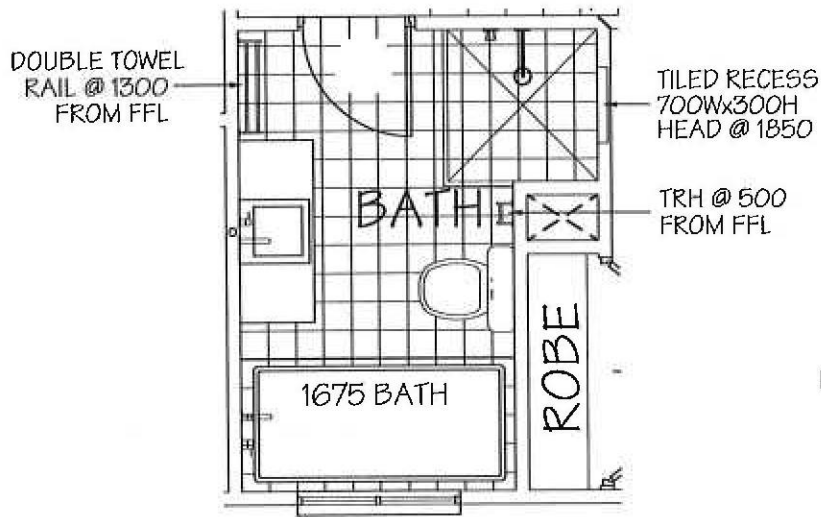
HOUSETYPE:	
MODEL:	ULMARRA
FACADE:	MAJESTIC
TYPE:	STANDARD
SPECIFICATION:	LUXE+ GOLD

DRAWING TITLE:
ELECTRICAL PLAN

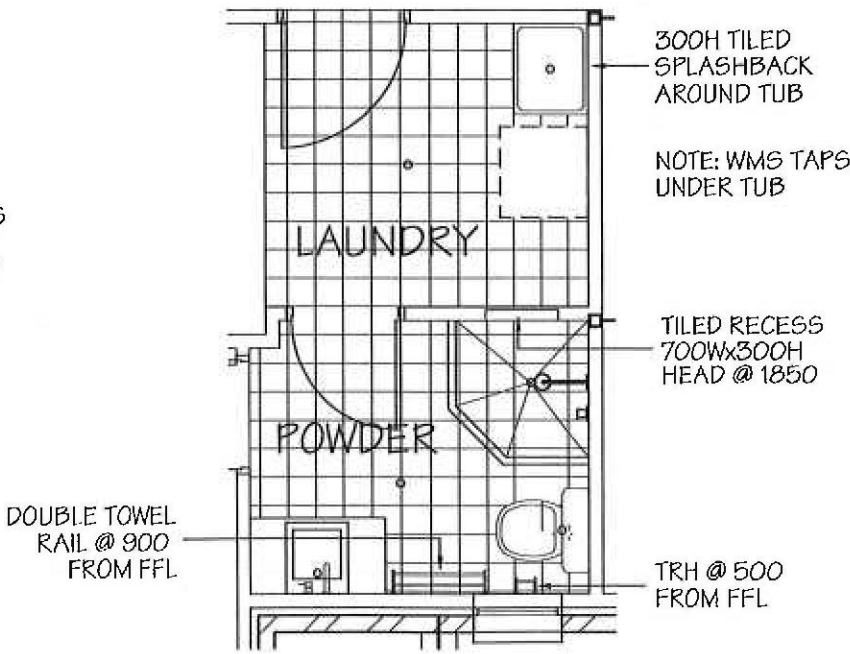
DRAWN BY: ME	DATE DRAWN: 21.04.11	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA:		SCALE:	
MANLY		This plan forms part of the approved	
JOB No:	Certified	Drawn No.:	Issue:
J001570	5 Gerald Building	09	By Limited

REFER TO deGABRIELE'S KITCHEN DETAILS DATED 8/04/11

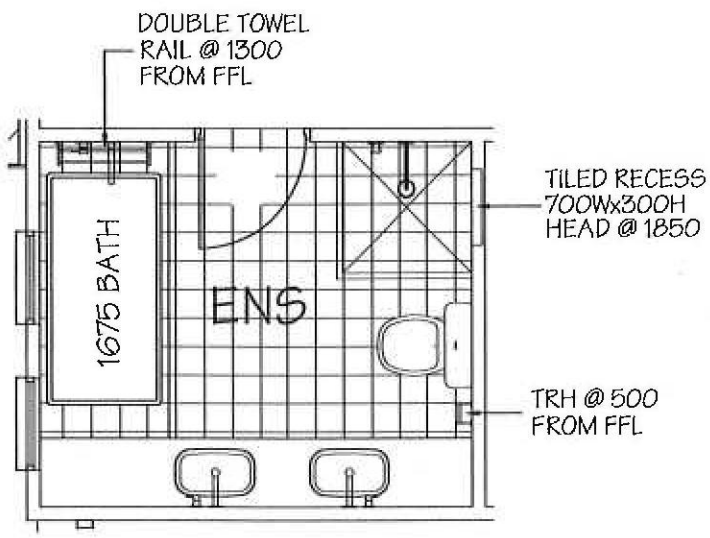
- NOTES:
- TILING HEIGHT ABOVE TOP OF BATH 500mm
 - TILING HEIGHT TO SHOWER 2100mm FROM FFL
 - HEIGHT OF SHOWER SCREENS 2100mm
 - SKIRTING TILE TO REMAINDER OF BATHROOM, ENSUITE AND POWDER
 - RECESSED TILED KICKER TO BATH HOB 140mm HIGH, 70mm WIDE
 - WALL MOUNTED SPOUT TO BATH & VANITY
 - SQ. EDGE POLISHED FLOATING MIRRORS MOUNTED ON 32mm BOARD, 130mm OFFSET FROM EDGE OF VANITY & HEAD HEIGHT @ 2020mm FROM FFL. SPLASHBACK BETWEEN VANITY & MIRROR



BATH DETAILS



L'DRY/POWDER DETAILS



ENSUITE DETAILS

WET AREA DETAILS SCALE 1:50

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HOMEBUSH NSW 2140
TELEPHONE 02 9764 6442
FAX 02 9764 6992
Builder's Licence No.33493C



CLIENT:
MR MCVEIGH & MS DAVIDSON

SITE ADDRESS:
LOT 6
WAKEHURST PARKWAY
SEAFORTH

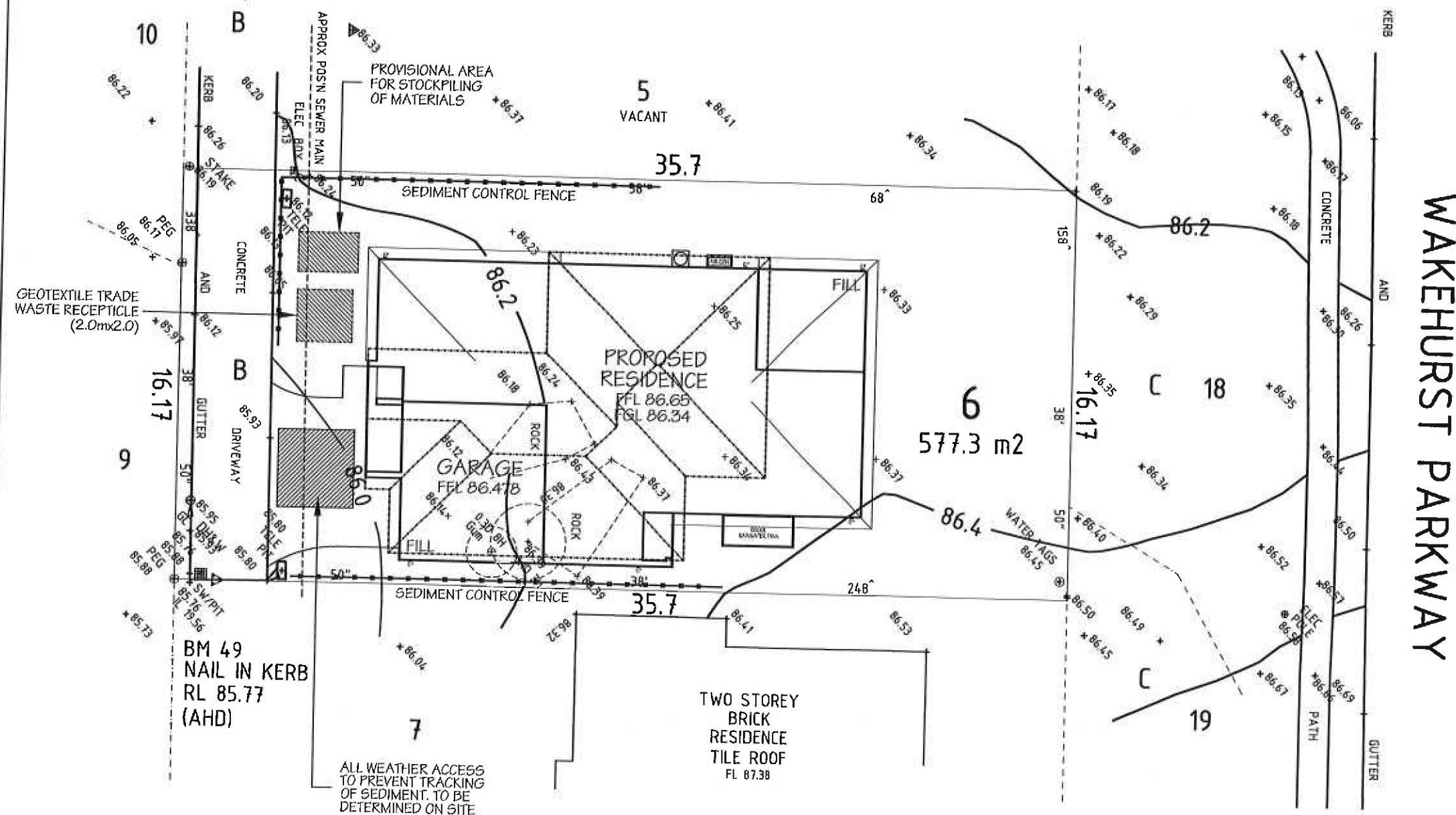
HOUSETYPE:
MODEL: ULMARRA
FACADE: MAJESTIC
TYPE: STANDARD
SPECIFICATION: LUXE+ GOLD

DRAWING TITLE:
WET AREA DETAILS

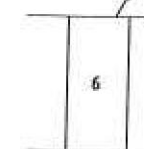
DRAWN BY: ME
DATE DRAWN: 21.04.11
CHECKED BY:
APPROVED FOR CONSTRUCTION:

COUNCIL AREA: MANLY
SCALE: This plan forms part of the approved
JOB No: J001570
Certified by: 10
Issue: 1
Builder's Licence No. 33493C

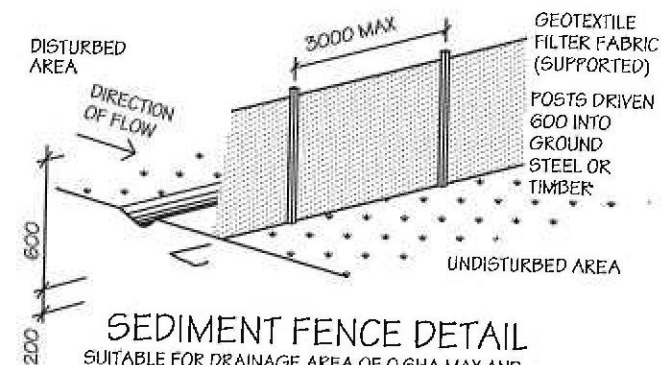
©



UBD REF: 196,Q6
WAKEHURST PARKWAY

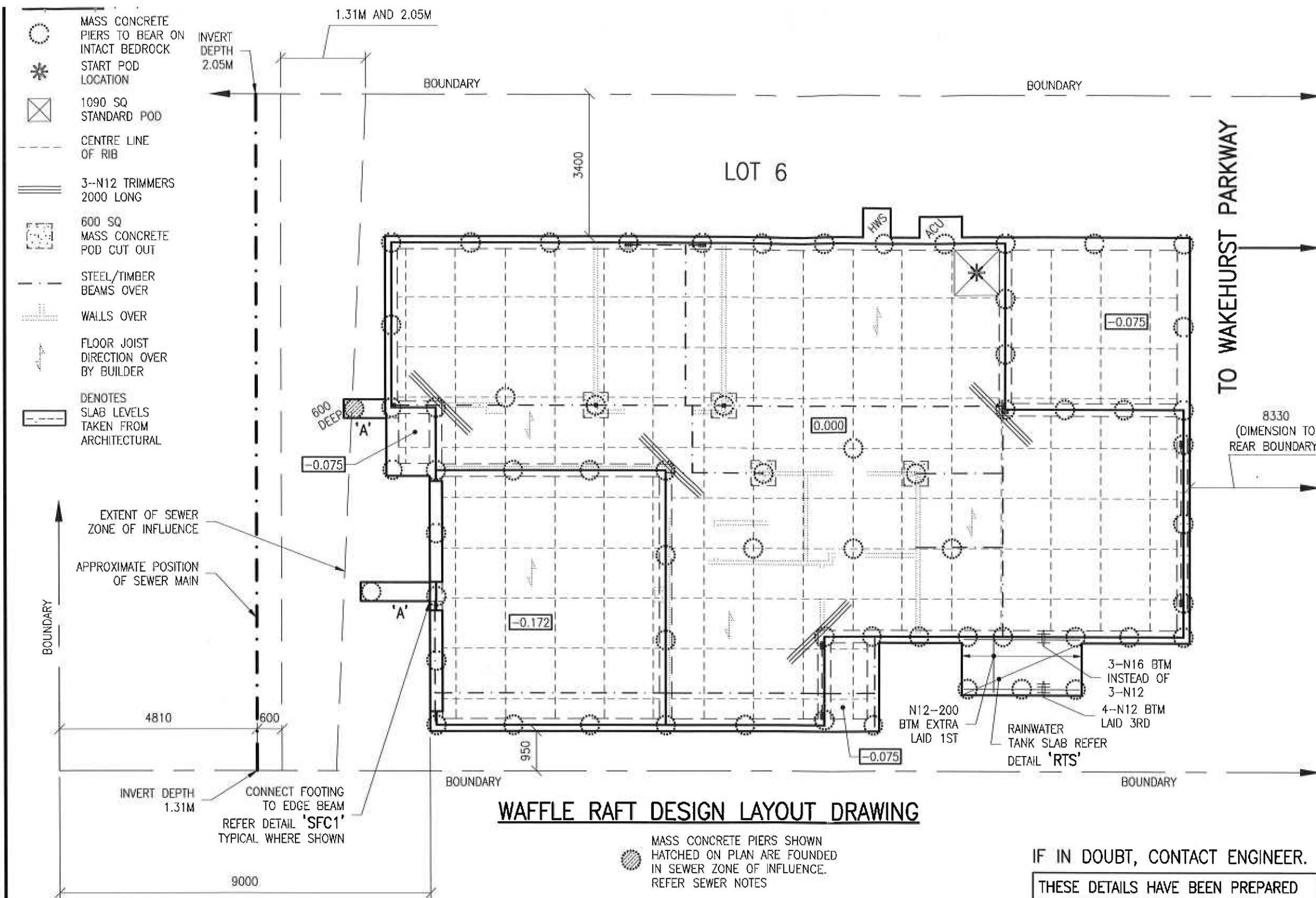


IF ADDITIONAL MEASURES ARE REQUIRED FOR EROSION AND CONTROL OR BY COUNCIL REQUIREMENTS, REFER TO "URBAN EROSION AND SEDIMENT CONTROL" GUIDELINES PREPARED BY THE DEPARTMENT OF CONSERVATION AND LAND MANGEMENT.



SUITABLE FOR DRAINAGE AREA OF 0.6HA MAX AND
SLOPE GRADIENT OF 1:2 MAX WITH LENGTH OF 60M MAX

PRINTED NO.	ISSUE:
01-01-01-01-01-01	01-01-01-01-01-01



WAFFLE RAFT DESIGN LAYOUT DRAWING

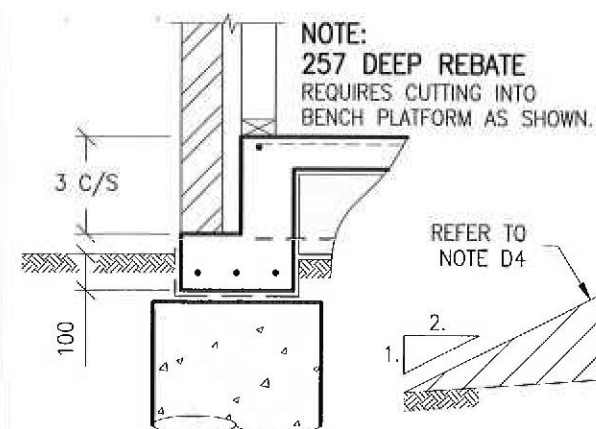
WAFFLE RAFT SPECIFICATION	
SLAB THICKNESS:	85
SLAB FABRIC:	SL72
F'c AT 28 DAYS:	N20 U.N.O
SLUMP:	100
MAXIMUM SIZE AGGREGATE	20
THE OWNERS ATTENTION SHALL BE DRAWN TO APPENDIX 'A' 'PERFORMANCE REQUIREMENTS AND FOUNDATION MAINTENANCE' OF AS 2870 AND CSIRO PUBLICATION 'GUIDE TO HOME OWNERS ON FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE'. CURRENT EDITIONS.	
ARTICULATION NOTE: THIS SLAB IS DESIGNED FOR ARTICULATED MASONRY VENEER TYPE CONSTRUCTION AND ARTICULATION JOINTS ARE TO BE PROVIDED AS PER THE B.C.A. VOL.2 CURRENT EDITION	
TRUSSED ROOF NOTE: SLAB HAS BEEN DESIGNED FOR ROOF LOADING TO BE SUPPORTED BY PROPRIETARY TRUSSES ONTO EXTERNAL WALLS ONLY.	

PIER SPECIFICATION	
DIAMETER Ø	400
F'c AT 28 DAYS:	N15 U.N.O
SLUMP:	80
MAXIMUM SIZE AGGREGATE	20
EXPECTED CONCRETE PIERS/FOOTINGS REQUIRED TO UNIFORM BEARING. ENGINEER AND COUNCIL TO INSPECT GROUND BEARING OF PIERS/FOOTINGS PRIOR TO POURING OF CONCRETE.	
ENGINEER TO BE NOTIFIED IF PIERS/FOOTINGS COLLAPSE IN CONSTRUCTION. BUCKET OR SCREW PIERS MAY NEED TO BE USED	

SITE CLASSIFICATION	M
WIND CLASSIFICATION	N2
SITE LOCATION CLASSIFICATION	SL2
SL1. LESS THAN 1km FROM BREAKING SURF OR LESS THAN 100m FROM SALT WATER NOT SUBJECT TO BREAKING SURF OR WITHIN HEAVY INDUSTRIAL AREAS.	
SL2. 1km OR MORE BUT LESS THAN 10km FROM BREAKING SURF OR 100m OR MORE BUT LESS THAN 1km FROM SALT WATER NOT SUBJECT TO BREAKING SURF	
SL3. 10km OR MORE FROM BREAKING SURF OR 1km OR MORE FROM SALT WATER NOT SUBJECT TO BREAKING SURF.	
REFER BCA CLASS 1 AND CLASS 10 BUILDINGS HOUSING PROVISIONS VOLUME 2 FOR TABLES: • PROTECTIVE COATINGS FOR STEELWORK (TABLE 3.4.4.2) • CORROSION PROTECTION OF BUILT-IN STRUCTURAL STEEL MEMBERS (TABLE 3.3.3.2) • CORROSION PROTECTION FOR WALL TIES (TABLE 3.3.3.1)	

IF IN DOUBT, CONTACT ENGINEER.	
THESE DETAILS HAVE BEEN PREPARED IN ACCORDANCE WITH ARCHITECTURAL	
PREPARED BY:	RAWSON HOMES
DRAWING/JOB No.	-
REVISION/ISSUE:	-
DATED:	-

DRAWN	DATE	AMENDMENT	REV	CLIENT: RAWSON HOMES UNIT 34/11-21 UNDERWOOD ROAD HOME BUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6092 Builder's License No.334930	FOR: McVEIGH AND DAVIDSON SITE ADDRESS: LOT 6 WAKEHURST PARKWAY SEAFORTH	RESIDENTIAL ENGINEERING CONSULTING ENGINEERS 1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au Tel: 02 9896 5494 Fax: 02 9636 1064	NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	APPROVED BY: <i>Adam McCarthy</i> A.W. McCarthy B.Sc.(Eng), M.I.E.Aust, N.I.P.E.R., C.P.Eng. NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	JOB No. RW467 DATE: 20/05/11 SHEET No. 1 of 1 DRAWN: 11/6/11 CHECKED: 11/6/11 Paul Fitzgerald Accreditation No BPB A319
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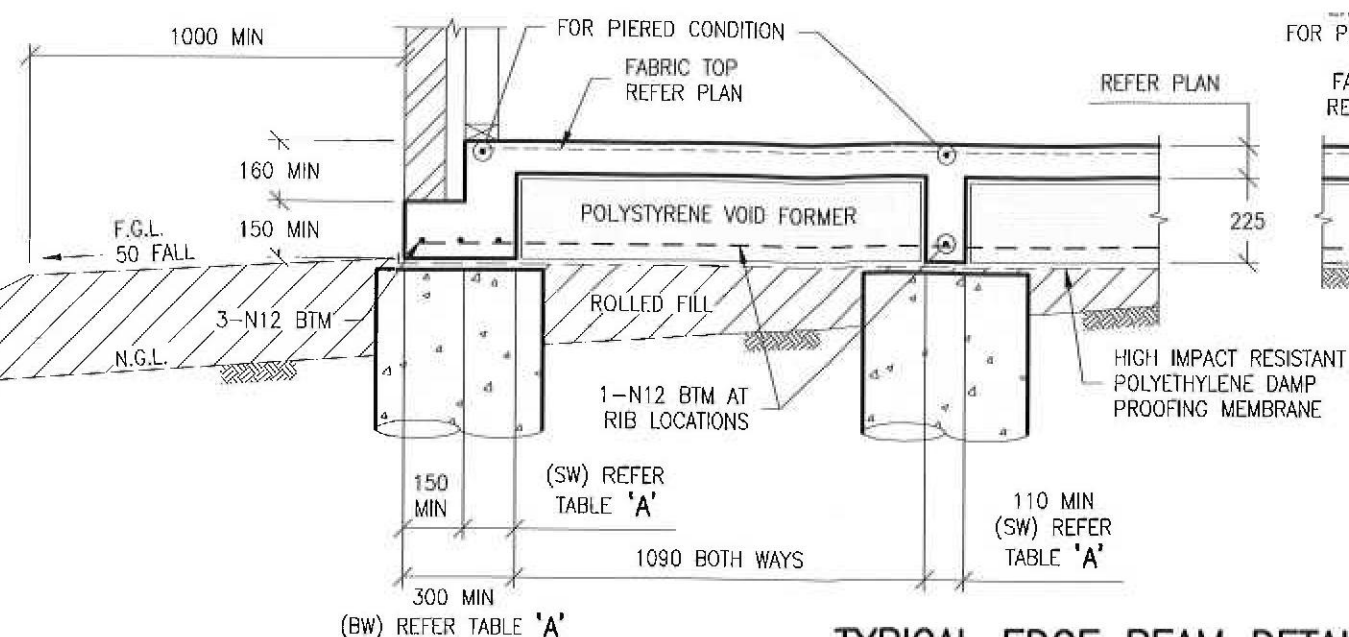
RW11(RIBBED WIRE GRADE 500RW)
MAY BE USED IN LIEU OF N12'S

TOTAL REINFORCEMENT REQUIREMENTS WITHIN
FOOTING BEAMS, FIGURE 3.4 AS 2870

TABLE 'B'

MAX HEIGHT (H)	STEM WIDTH (SW)
UP TO 1200	150
1201 TO 1600	200
1601 TO 2000	250

STEM WIDTH REINFORCEMENT FOR DEEPEMED BEAMS



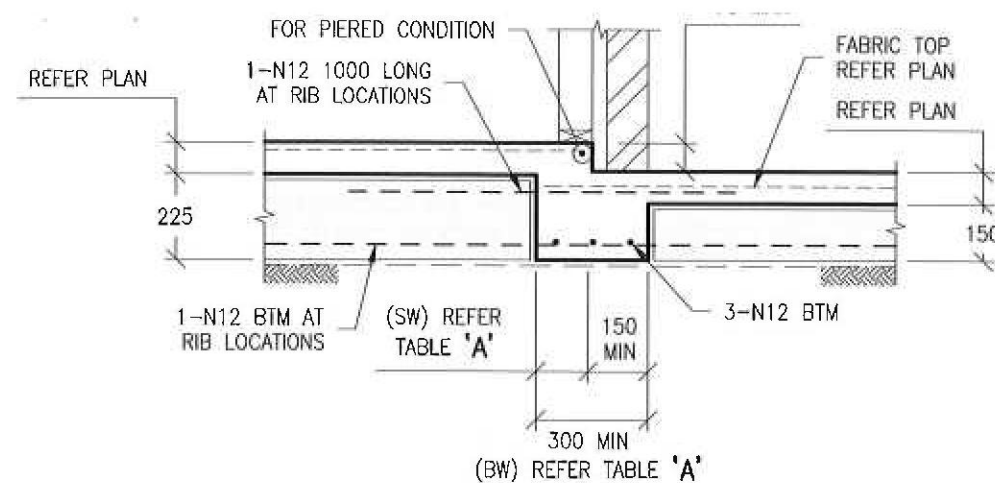
MASS CONCRETE PIERS MAY BE OMITTED WHERE THE
SLAB IS ON CONTROLLED FILL PLACED, TESTED AND
CERTIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER

TYPICAL DEEPENED EDGE BEAM DETAIL

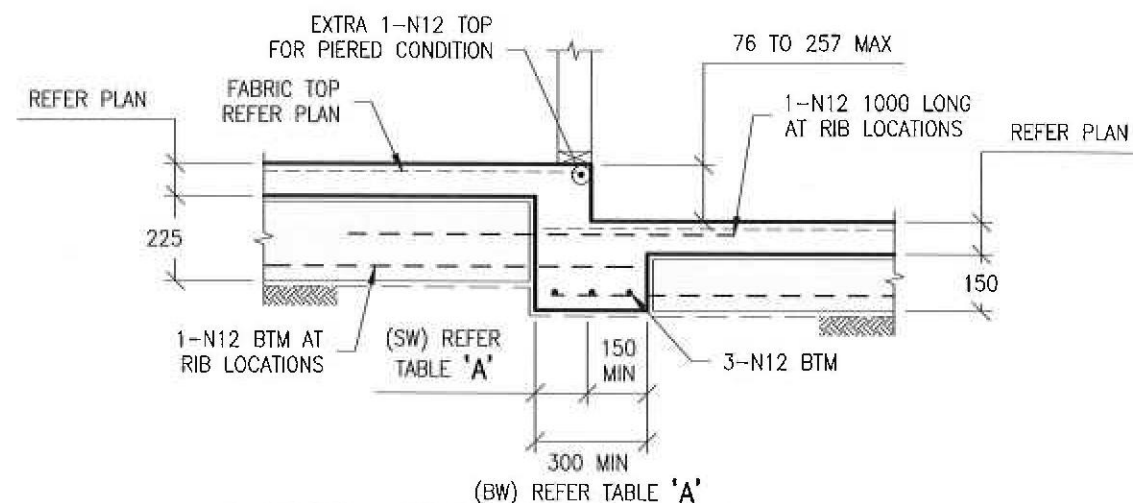
THE FULL EXTENT OF DEEPENED EDGE BEAMS TO BE CARRIED OUT IN ACCORDANCE WITH ARCHITECTURAL

TYPICAL DEEPEMED EDGE BEAM
TRANSITION DETAIL
(ELEVATION)

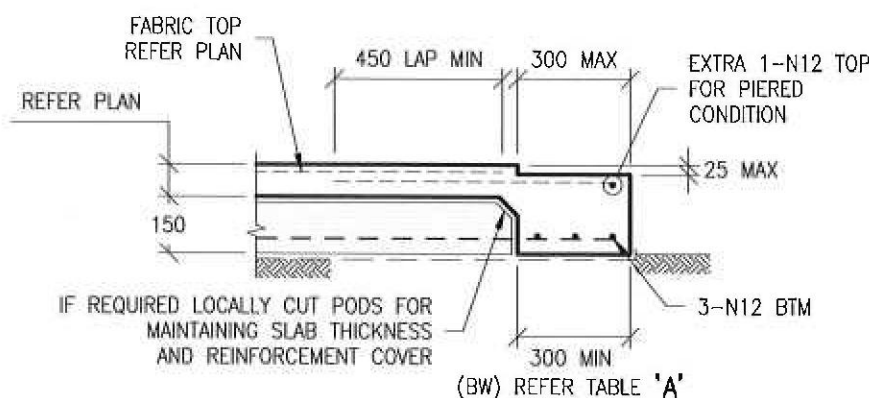
IF IN DOUBT, CONTACT ENGINEER.



TYPICAL PORCH STEP BEAM DETAIL

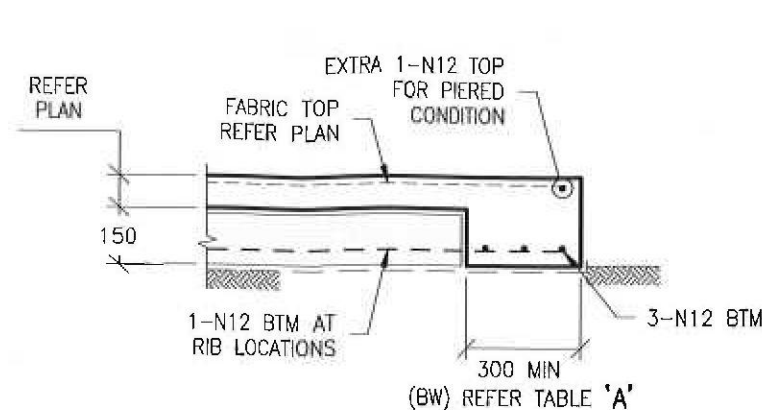


TYPICAL GARAGE STEP BEAM DETAIL

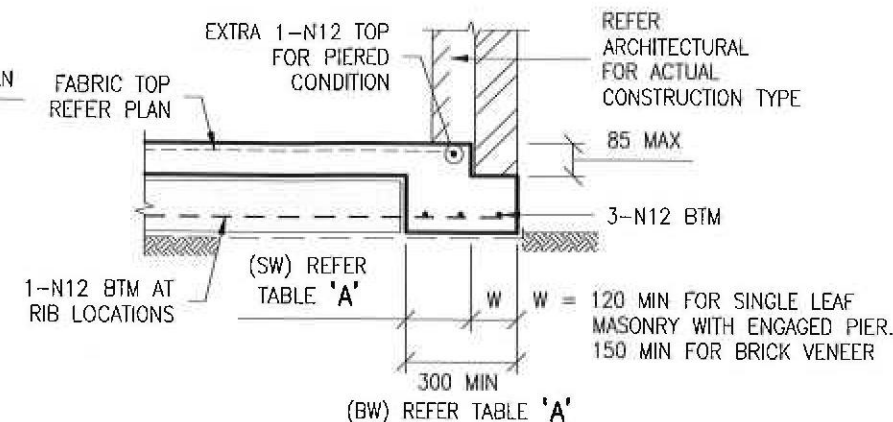


TYPICAL GARAGE DOOR REBATE DETAIL

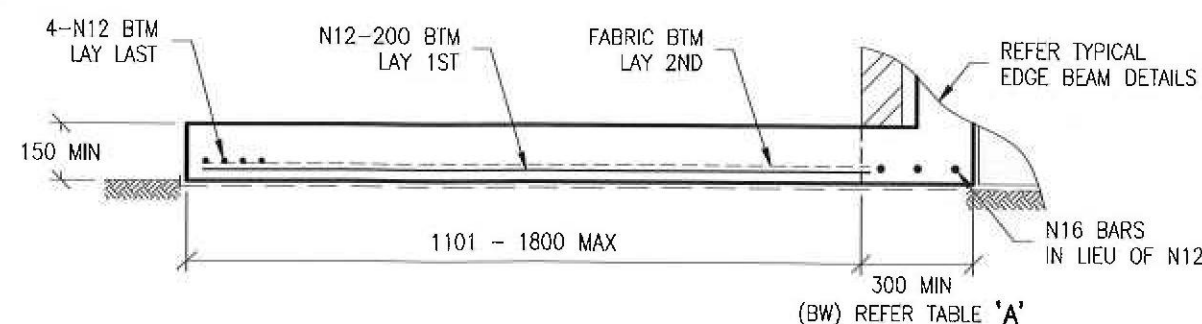
- NOTE:**
- GARAGE DOOR REBATE SHOWN IS DIAGRAMMATIC ONLY AND SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL FOR ACTUAL REBATE DEPTH x WIDTH.
 - IF REQUIRED PROVIDE 10mm FALL FROM BACK OF GARAGE TO GARAGE DOOR OPENING



TYPICAL PORCH EDGE BEAM DETAIL

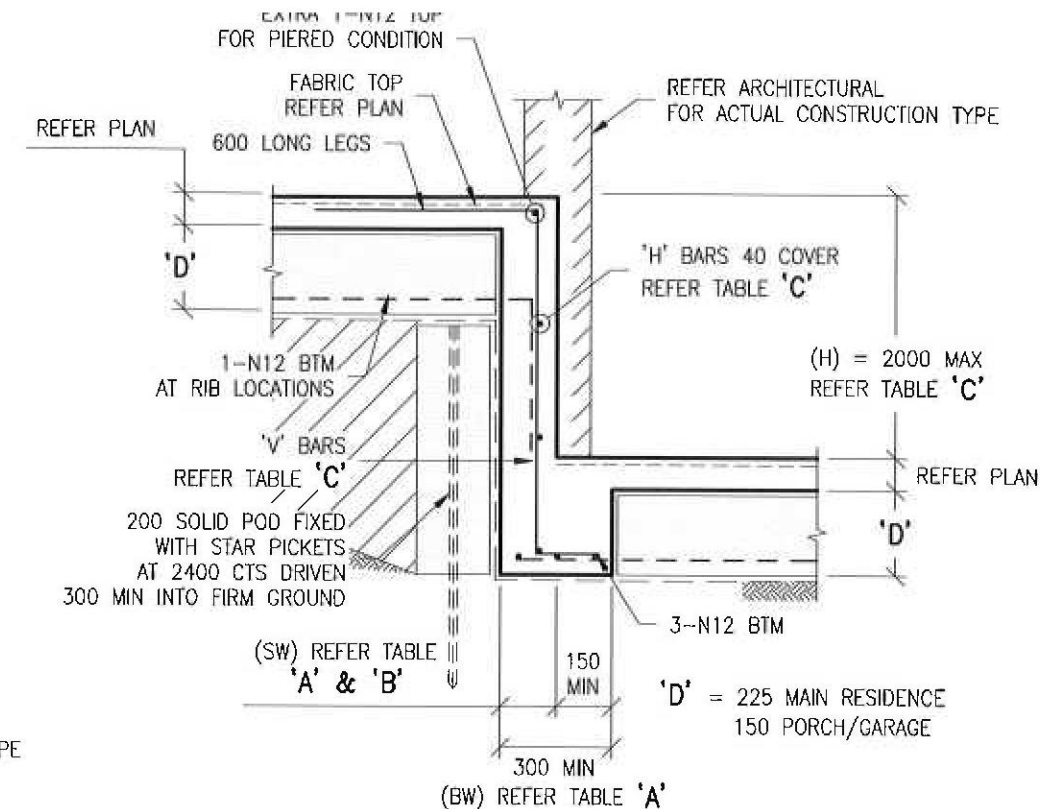


TYPICAL GARAGE EDGE BEAM DETAIL



TYPICAL RAINWATER TANK SLAB DETAIL

THIS DETAIL IS APPLICABLE AT ALL TYPICAL EDGE BEAMS.
CONSTRUCTION TYPE MAY VARY FROM SHOWN

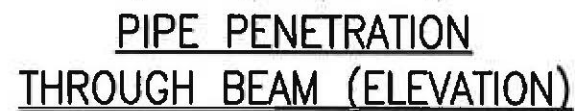
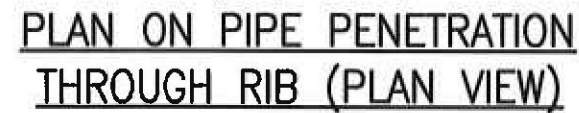


TYPICAL DEEPEENED STEP BEAM DETAIL

THE FULL EXTENT OF DEEPEENED STEP BEAMS TO BE CARRIED OUT IN ACCORDANCE WITH ARCHITECTURAL

IF IN DOUBT, CONTACT ENGINEER.

DRAWN	DATE	AMENDMENT	REV	CLIENT:	FOR:	RESIDENTIAL ENGINEERING CONSULTING ENGINEERS	APPROVED BY:	JOB No.	REVISION
				RAWSON HOMES	McVEIGH AND DAVIDSON	1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au Tel: 02 9896 5494 Fax: 02 9636 1064	A.W. McCARTHY B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng. NSW: BPE 0255 VIC: EC 24609 QLD: RPEQ 4109	RW467	
				UNIT 34/11-21 UNDERWOOD ROAD HOMEBUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No.33493C	SITE ADDRESS: LOT 6 WAKEHURST PARKWAY SEAFORTH			DATE: 20.5.11 SCALE: 1:20 SHEET No. 4/10	

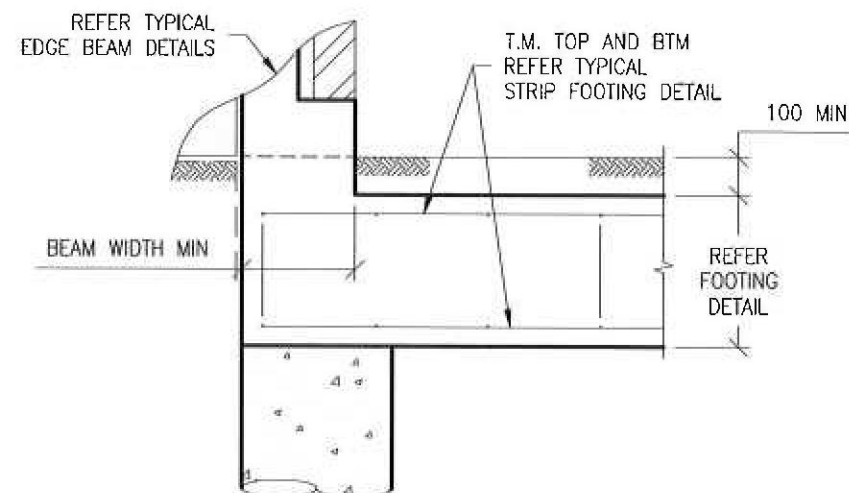


PIPE PENETRATION
THROUGH SLAB (PLAN VIEW)



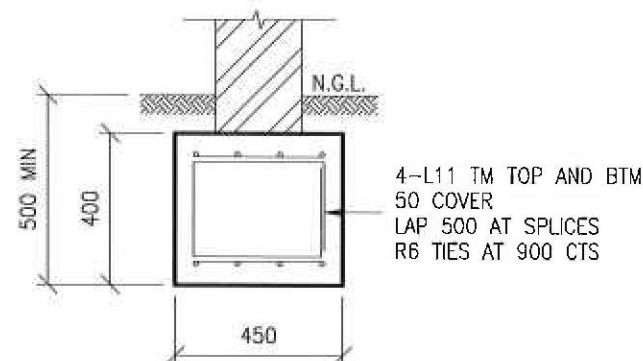
WET AREA EARTHING DETAIL

31

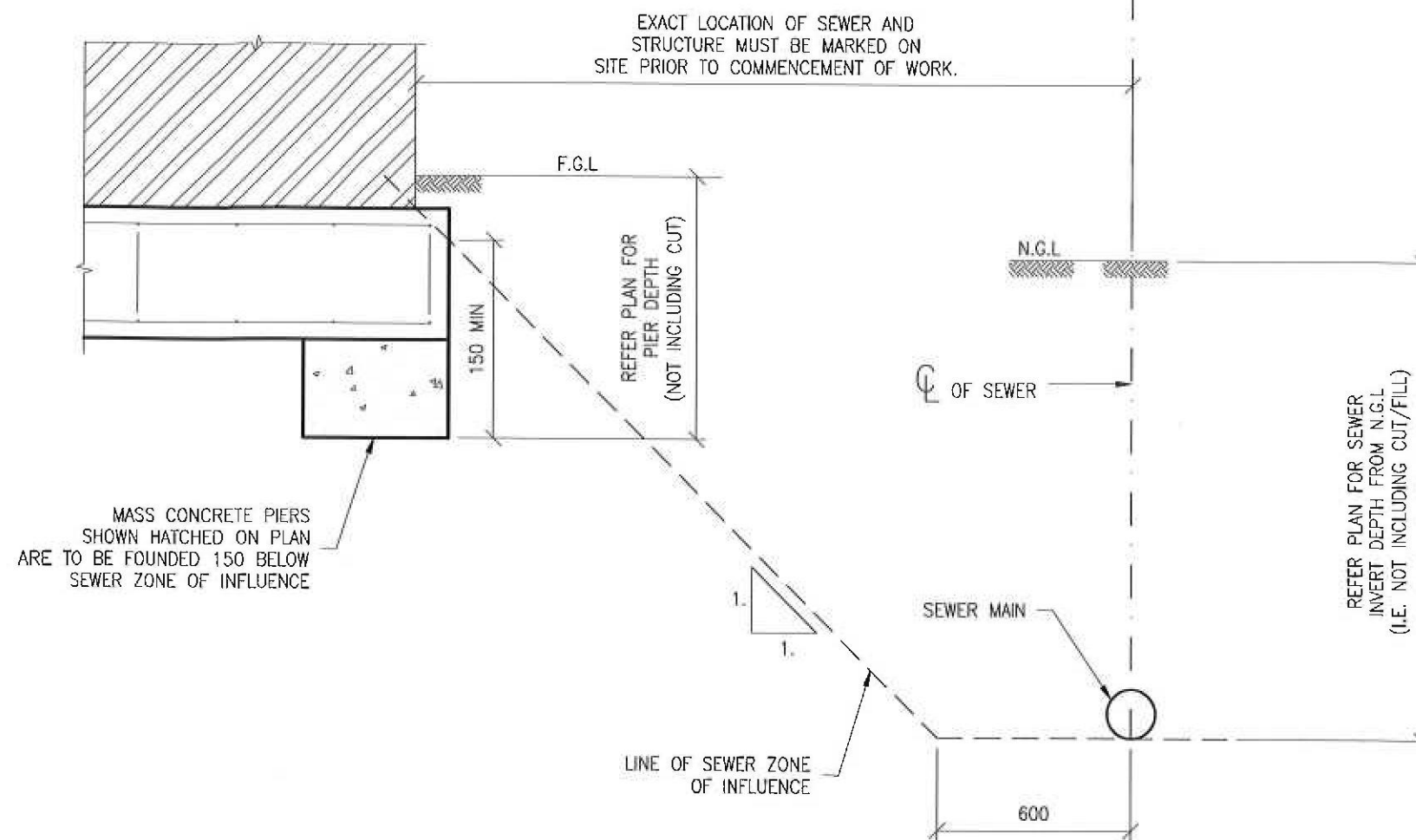


TYPICAL STRIP FOOTING CONNECTION DETAIL 'SFC1'

THIS DETAIL IS APPLICABLE AT ALL TYPICAL EDGE BEAMS.
CONSTRUCTION TYPE MAY VARY FROM SHOWN



TYPE 'A' FOOTING BEAM



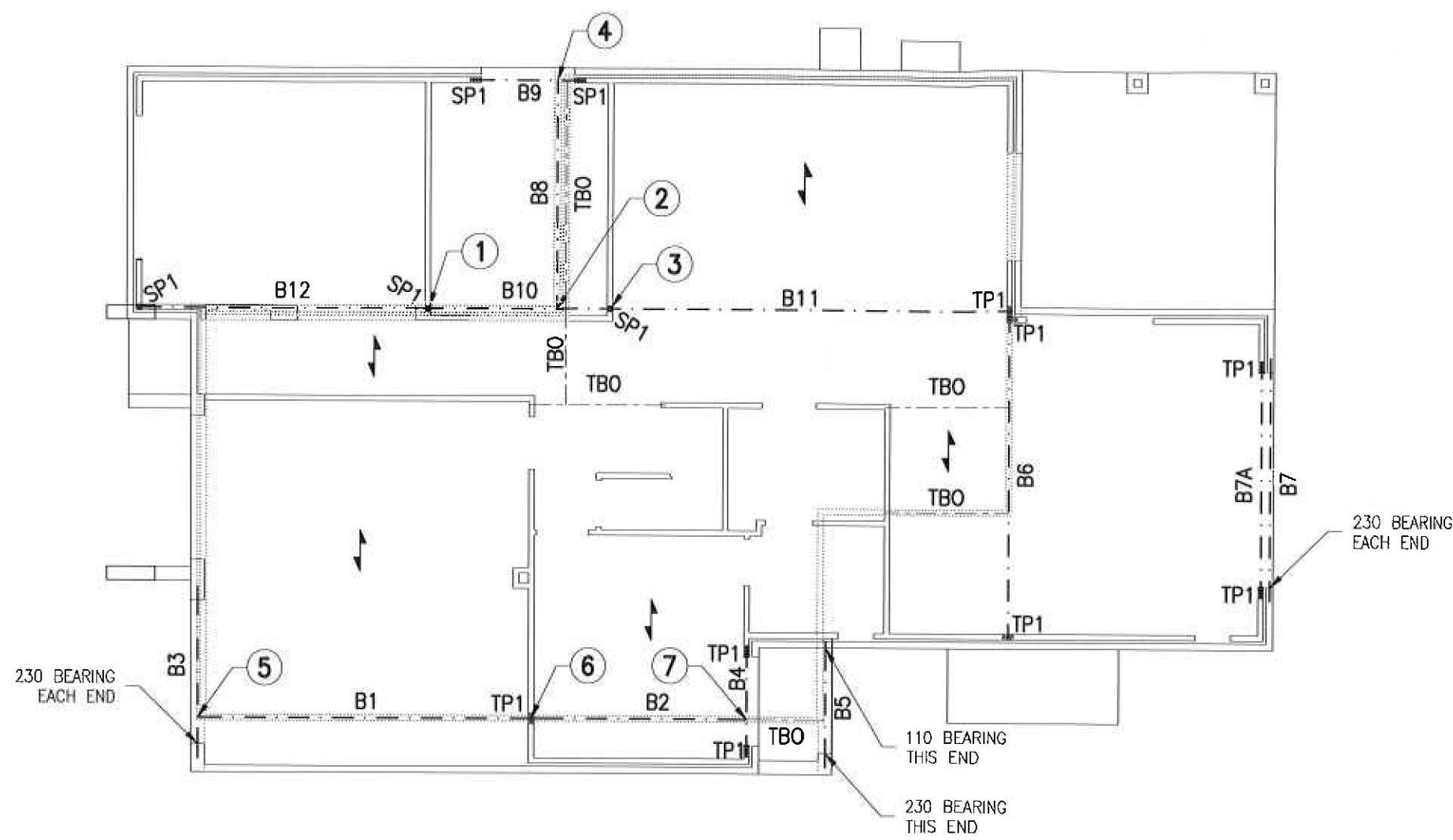
TYPICAL B.A.S. DETAIL

THIS DETAIL IS APPLICABLE AT ALL TYPICAL EDGE BEAMS.
CONSTRUCTION TYPE MAY VARY FROM SHOWN

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				RAWSON HOMES  UNIT 34/11-23 UNDERWOOD ROAD HOME BUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No. 33493C	McVEIGH AND DAVIDSON		 A.W. McCARTHY B.Sc.(Eng), M.I.E.Aust., N.P.E.R., C.P.Eng. NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	RW467	
					SITE ADDRESS: LOT 6 WAKEHURST PARKWAY SEAFORTH		DATE: 20.5.11	SCALE: 1:20	SHEET No. 6/10

STEEL BEAM PROFILE NOTE:
THE BEAM(S) SPECIFIED ON THIS DRAWING DOES NOT REPRESENT THE ONLY POSSIBLE STRUCTURAL SOLUTION. PLEASE CONTACT RESIDENTIAL ENGINEERING IF AN ALTERNATIVE BEAM PROFILE WOULD BE PREFERRED FOR ARCHITECTURAL OR CONSTRUCTABILITY REASONS.

GALINTEL T-BAR NOTE:
THE INSTALLATION OF GALINTEL T-BARS TO BE STRICTLY IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS. PROVIDE 230 MIN END BEARING UNO. MINIMUM 6 C/S BONDED BRICKWORK OVER



STEELWORK DESIGN MARKING DRAWING

MEMBER SCHEDULE

ITEM	DESCRIPTION
B1	310UB32
B2	200UB18
B3	200PFC + 200 x 10 MS PL
B4	180PFC + 200 x 10 MS PL
B5	200 x 200 x 7 GALINTEL 'T' BAR
B6	250UB25
B7	150 x 100 x 10 RSA + 130 x 10 MS PL (BRICKWORK ONLY)
B7A	180PFC
B8	200UB18
B9	200PFC
B10	200UB22
B11	310UB32
B12	310UB32
SP1	75 x 75 x 4.0 SHS
TP1	4 / 90 x 45 MCP10 STUDS
TB0	TIMBER BEAM BY OTHERS

IF IN DOUBT, CONTACT ENGINEER.

DRAWN

DATE

AMENDMENT

REV

CLIENT:

RAWSON HOMES

UNIT 34/11-21 UNDERWOOD ROAD
HOMEBUSH NSW 2140
TELEPHONE 02 9764 6443
FAX 02 9764 6992
Builder's License No.334930

FOR:

McVEIGH AND DAVIDSON

SITE ADDRESS:
LOT 6 WAKEHURST PARKWAY
SEAFORTH

NSW: BPB 0255
VIC: EC 24609
QLD: RPEQ 4109

RESIDENTIAL ENGINEERING

CONSULTING ENGINEERS

1/19 Jonathan Street
Greystanes NSW 2145
www.residentialengineering.com.au
enquiries@residentialengineering.com.au
Tel: 02 9896 5494
Fax: 02 9636 1064

APPROVED BY:

A.W. McCarthy
B.Sc.(Eng), M.I.C.Aust, N.P.E.R., C.P.Eng.
NSW: BPB 0255
VIC: EC 24609
QLD: RPEQ 4109

JOB No.

RW467

DATE

20.5.11

SCALE

1:100

CLIENT REF.

Fitzgerald Building

REVISION

7/10

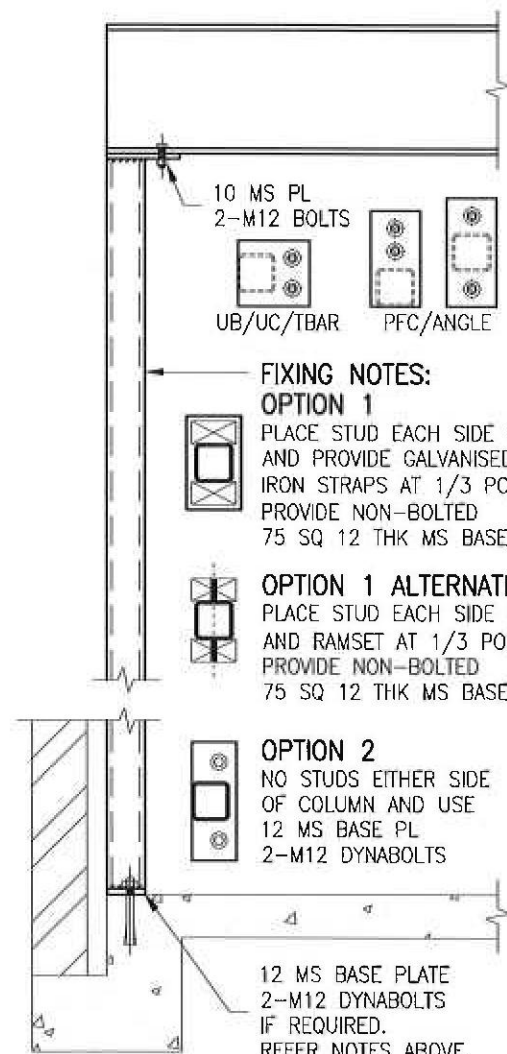
Approved by

Conifers Pty Limited

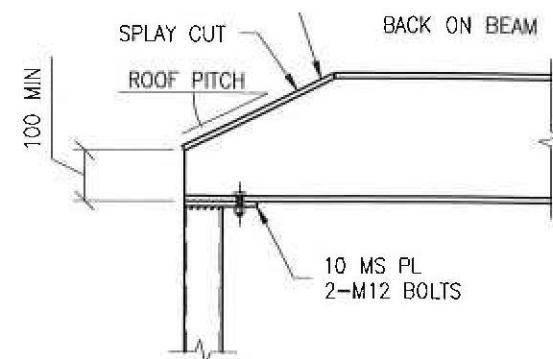
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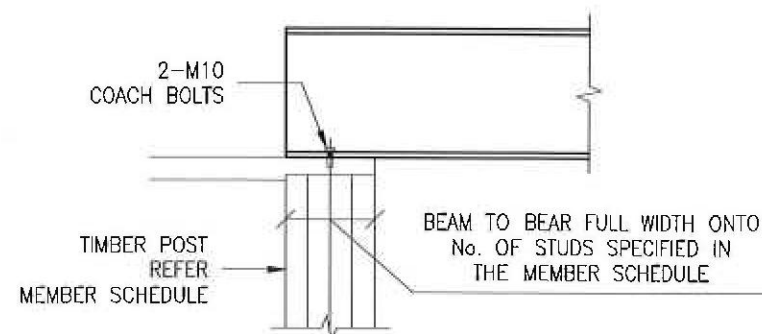
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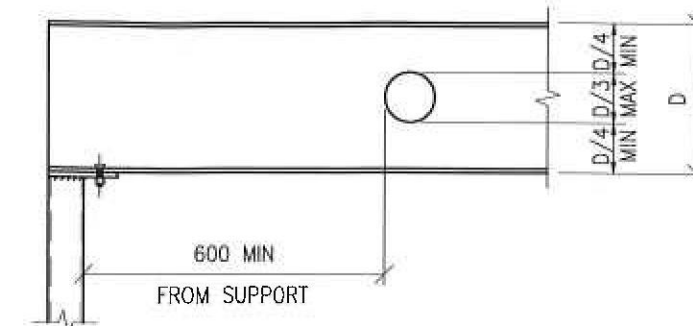
TYPICAL STEEL POST DETAIL



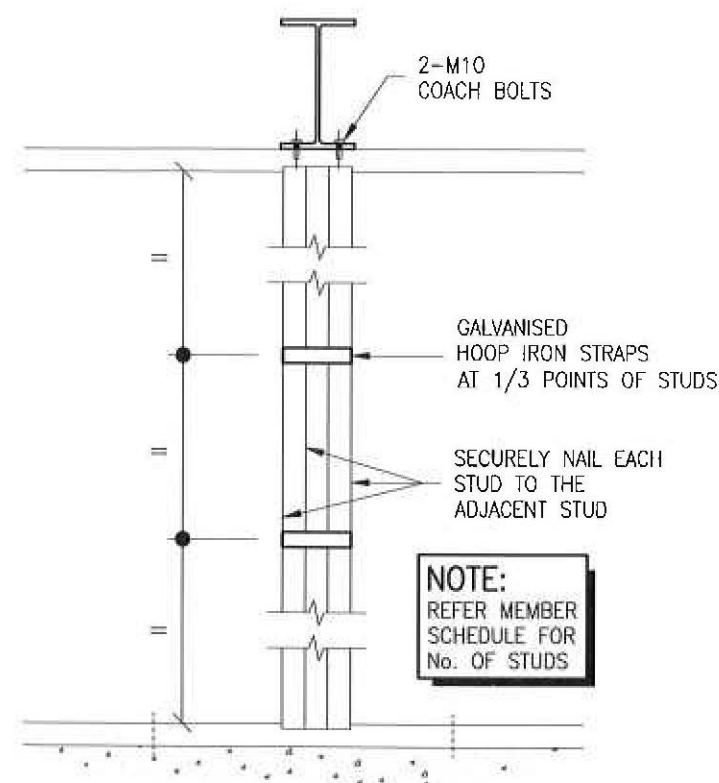
TYPICAL SPLAY DETAIL



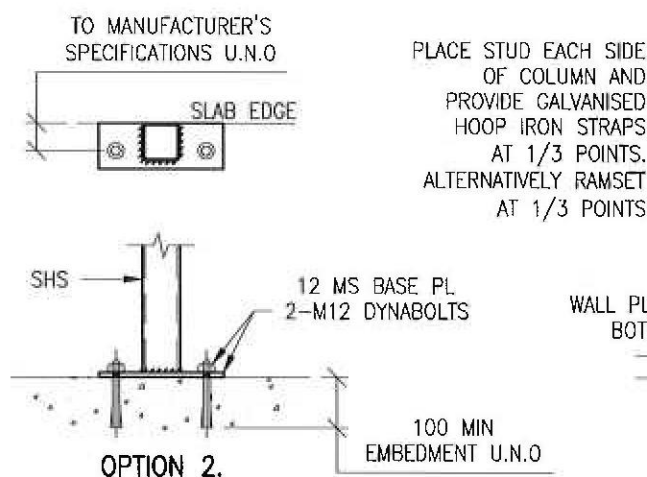
TYPICAL TIMBER POST DETAIL (SIDE ELEVATION)



STEEL BEAM PENETRATION DETAIL



TYPICAL TIMBER POST DETAIL



COLUMN BASE PLATE CONNECTION DETAILS

COLUMN BASE PLATE DETAILS

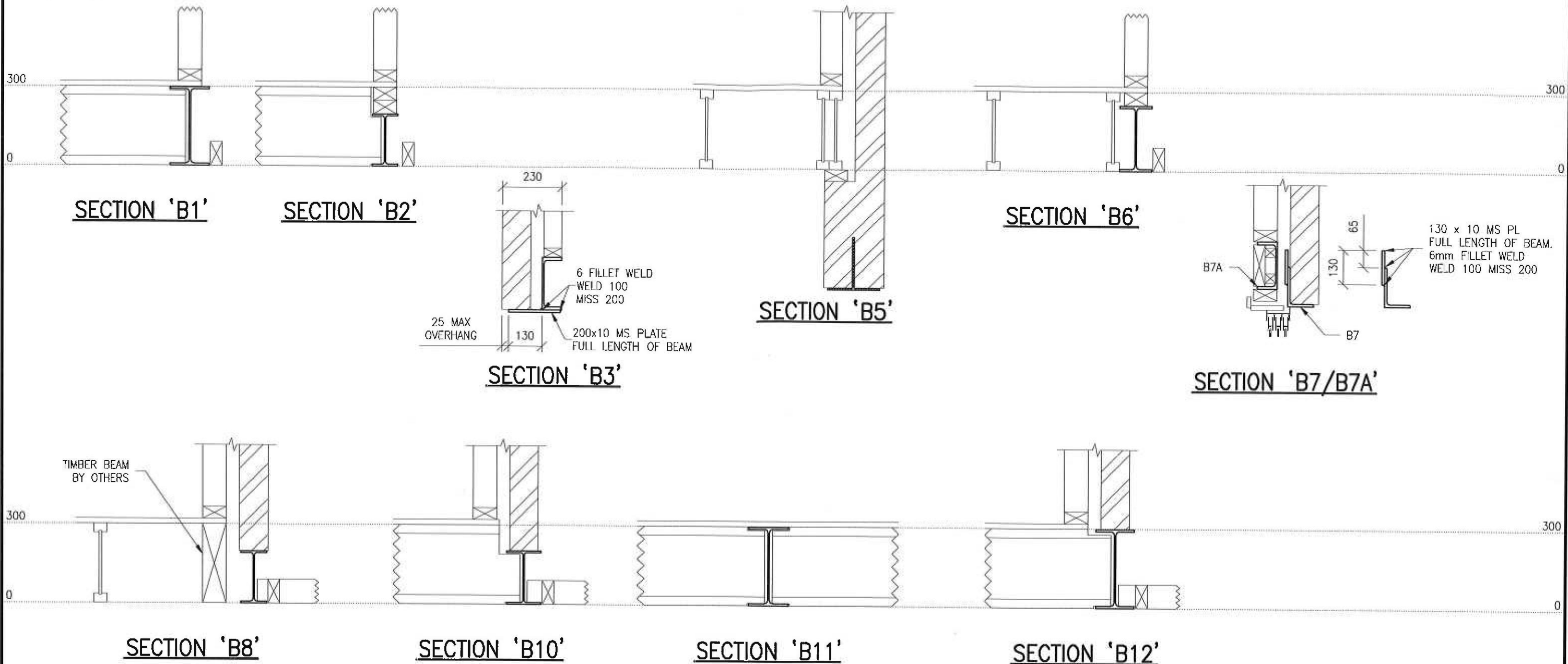
- ORIENTATE BASE PLATE TO SUIT WALL LOCATION
- 12mm THICK BASE PLATE U.N.O.
- 2-M12 DYNABOLTS, 100 MIN EMBEDMENT U.N.O.
- 6mm CFW CONNECTION OF COLUMN TO BASE PLATE

- NOTE:**
- ALL WELDS TO BE 6mm CFW U.N.O.
 - ALL BOLTS TO BE SPANNER TIGHTENED

STRUCTURAL STEEL NOTES

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 4100.
- STEELWORK DESIGNED IN ACCORDANCE WITH AS 4100 "STEEL STRUCTURES CODE" AND AS 1170.1/AS 1170.2 "DEAD AND LIVE LOADS AND WIND LOADS". STRUCTURAL STEEL TO BE GRADE (BHP 300 PLUS)
- SURFACE PREPARATION AND FINISH TO COMPLY WITH AS/NZS 2312 AND BUILDING CODE OF AUSTRALIA CLASS 1 AND 10 BUILDINGS VOLUME 2. THE BUILDER MUST CLARIFY HIS CONTRACTUAL OBLIGATIONS IN THIS REGARD.
- THE INSTALLATION OF GALINTELS AND 'T' BARS TO BE STRICTLY IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
- THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION IS THE BUILDERS RESPONSIBILITY. ADEQUATE TEMPORARY BRACING SHALL BE PROVIDED AS IS NECESSARY TO STABILISE THE STRUCTURE DURING CONSTRUCTION.
- WELDS:
 - ALL WELDS TO BE 6mm CONTINUOUS FILLET WELD U.N.O.
 - BUTT WELDS WHERE INDICATED IN THE DOCUMENTS TO BE COMPLETE PENETRATION BUTT WELDS AS DEFINED IN AS 1554.
 - ALL SHOP WELDS TO BE FULLY WELDED U.N.O.
 - USE E41XX ELECTRODES FOR ALL WELDING U.N.O.
- SITE WELDING OF HOT DIP GALVANISED STEEL IS PERMISSIBLE IF UPON COMPLETION THE WELDS ARE TREATED WITH THE APPROPRIATE COATING FOR SEVERE AS PER THE B.C.A AND AS/NZS 2312.
- BOLT DESIGNATION:
 - 4.6/S - COMMERCIAL BOLT OF GRADE 4.6 TO AS 1111 SNUG TIGHTENED
 - 8.8/S - HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 SNUG TIGHTENED
 - BOLTS TO BE PROVIDED WITH THREADS CLEAR OF SHEAR PLANE.
- ALL BOLTS TO BE COMMERCIAL GRADE U.N.O. NO CONNECTION SHALL HAVE LESS THAN TWO BOLTS. ALL BOLTS AND WASHERS TO BE GALVANISED.
- BEAMS SUPPORTED ON BRICKWORK (BEARING NOTED ON PLAN) TO HAVE INCOMPRESSIBLE PACKING AS REQUIRED UNDER THE ENDS OF THE BEAM TO ENSURE EVEN BEARING ON THE BRICKWORK.
- THE BUILDER SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING STEEL TO STEEL AND TIMBER TO STEEL, WHETHER OR NOT DETAILED IN THE DRAWINGS.
- ALL GUSSET PLATES TO BE 10mm THICK U.N.O.
- ALL COLUMNS AND BEAMS SHOWN ON THE DRAWINGS FOR TIMBER FRAMED BUILDINGS SHALL BE Laterally RESTRAINED BY THE BUILDING FRAME AT EACH SUPPORT LOCATION THROUGH POSITIVE SCREW FIXING OF WALL STUDS TO THE COLUMNS AND EITHER JOISTS OR NOGGINGS TO THE BEAMS. FOR ARTICULATED FULL MASONRY BUILDINGS, COLUMNS WILL BE Laterally RESTRAINED BY BRICKWORK AT EACH SUPPORT LOCATION THROUGH POSITIVE FIXING OF WALL TIES. WHERE A BEAM DIRECTLY SUPPORTS A CONCRETE SLAB NO ADDITIONAL RESTRAINT IS REQUIRED.
- THE BUILDER IS TO MAKE GOOD AND/OR REPAIR ALL DAMAGED SURFACES DURING PERFORMANCE OF THE WORK.

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				RAWSON HOMES	McVEIGH AND DAVIDSON	1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au Tel: 02 9896 5494 Fax: 02 9636 1064	<i>John McCarthy</i> A.W. MCCARTHY B.Sc.(Eng), M.I.E.Aust., N.P.E.R., C.P.Eng. NSW: BPH 0255 VIC: EC 24609 QLD: RPEQ 4109	RW467	
				UNIT 34/11-21 UNDERWOOD ROAD HOMEBUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6592 Builder's License No.33493C	SITE ADDRESS: LOT 6 WAKEHURST PARKWAY SEAFORTH			DATE: 20.5.11 SCALE: 1:50 SHEET No. 8/10	



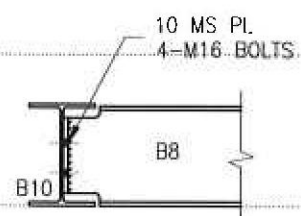
NOTE:

- ALL WELDS TO BE 6mm CFW U.N.O.
- ALL BOLTS TO BE SPANNER TIGHTENED

ALL STEEL BEAM CROSS SECTIONS ARE DIAGRAMMATIC ONLY

- REFER TO THE MANUFACTURERS SPECIFICATIONS FOR INSTALLATION DETAILS OF I-JOISTS, LVL'S AND ROOF TRUSSES WHERE APPLICABLE.
- SOLID TIMBER JOISTS SHALL NOT TO BE NOTCHED IN EXCESS OF THE RECOMMENDATIONS OF AS 1684.1. WHERE NECESSARY PROVIDE TIMBER PLATE OVER STEEL BEAM AND PROVIDE TOP MOUNT JOIST HANGERS. ALTERNATIVELY USE TIMBER BLOCKING BETWEEN FLANGES OF STEEL BEAM SUPPORTING JOISTS AND USE FACE MOUNTED JOIST HANGERS.

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				RAWSON HOMES	McVEIGH AND DAVIDSON	NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	<i>Wm. Carthy</i> A.W. McCARTHY B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng. NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	RW467	
				UNIT 34/11-21 UNDERWOOD ROAD HOMEBUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No. 33493C	SITE ADDRESS: LOT 6 WAKEHURST PARKWAY SEAFORTH	1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au Tel: 02 9896 5494 Fax: 02 9636 1064		DATE: 20.5.11 SCALE: 1:15 SHEET No. 9/10	
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2-10 MS PL'S
4-M20 BOLTS

B10

B11

12 MS PL
4-M16 BOLTS

B8/B2

50 MAX

MILD STEEL PACKERS TO DEPTH OF TOP PLATE 2-M12 BOLTS

10 MS STIFFENER PL LOCATED CENTRAL UNDER THE WEB OF BEAM B8

B9/B4

300

0

SHOP WELD

B1

75 x 75 x 4.0 SHS
STUB COLUMN

SHOP WELD

10 MS PL
2-M12 BOLTS

200 x 10 MS PL
FULL LENGTH OF BEAM
6mm FILLET WELD
WELD 100 MISS 200

10 MS STIFFENER PL
LOCATED CENTRAL UNDER
STUB COLUMN

B3

NOTE:
ALL WELDS TO BE
6mm CFW U.N.O.
ALL BOLTS TO BE
SPANNER TIGHTENED

- REFER TO THE MANUFACTURERS SPECIFICATIONS FOR INSTALLATION DETAILS OF I-JOISTS, LVL'S AND ROOF TRUSSES WHERE APPLICABLE.
- SOLID TIMBER JOISTS SHALL NOT TO BE NOTCHED IN EXCESS OF THE RECOMMENDATIONS OF AS 1684.1. WHERE NECESSARY PROVIDE TIMBER PLATE OVER STEEL BEAM AND PROVIDE TOP MOUNT JOIST HANGERS. ALTERNATIVELY USE TIMBER BLOCKING BETWEEN FLANGES OF STEEL BEAM SUPPORTING JOISTS AND USE FACE MOUNTED JOIST HANGERS.

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				 RAWSON HOMES UNIT 34/11-21 UNDERWOOD ROAD HOWESBUSH NSW 2140 TELEPHONE 02 9784 0442 FAX 02 9764 6992 Builder's License No.33493C	McVEIGH AND DAVIDSON SITE ADDRESS: LOT 6 WAKEHURST PARKWAY SEAFORTH		 A.W. MCCARTHY B.Sc. (Eng), M.I.E. Aust., N.P.E.R., C.P. Eng. NSW: 8PB 0255 VIC: EC 24609 QLD: RPEQ 4109	RW467		
						This plan forms part of the approved		DATE: 20.5.11	SCALE: 1:15	SHEET No.
						CLIENT REF: 10/10		DRAWN: GLD		10/10
						Fitzgerald Building Consultants Pty Limited				
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- G1. ENGINEERS STRUCTURAL DRAWINGS ARE SIGNED AND ISSUED ON THE UNDERSTANDING THAT THE BUILDER MAINTAINS IN FORCE, PROPER AND ADEQUATE CONTRACT WORKS INSURANCE AND PUBLIC LIABILITY INSURANCE DURING THE FULL COURSE OF THE CONSTRUCTION, AND/OR ANY MAINTENANCE PERIOD. CLAIMS OF DAMAGE TO ANY ADJACENT PROPERTY OR BUILDING IS NOT THE RESPONSIBILITY OF THE ENGINEER.
- G2. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- G3. DURING CONSTRUCTION THE BUILDING SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED AT ANY TIME. TEMPORARY BRACING SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE WORKS DURING CONSTRUCTION.
- G4. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITIONS OF THE SAA CODES AND THERE-BY LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITY.
- G5. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR SET OUT PLAN MEASUREMENTS. ANY SET OUT DIMENSIONS SHOWN ON THIS DOCUMENT SHALL BE VERIFIED BY THE BUILDER.
- G6. ANY DISCREPANCIES/SUBSTITUTION IN THESE DOCUMENTS SHALL BE REFERRED TO THE ENGINEER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- G7. THE SECTIONS/DETAILS ON THESE DRAWINGS ARE INTENDED TO GIVE THE STRUCTURAL SPECIFICATIONS ONLY. ARCHITECTURAL SECTIONS/DETAILS ON THESE DRAWINGS ARE ILLUSTRATIVE ONLY.
- G8. THESE DOCUMENTS ARE SIGNED SUBJECT TO CERTIFICATE OF INSPECTION BEING ISSUED BY THIS FIRM. ALL PIERS, SLAB AND FOOTING REINFORCEMENT SHALL BE INSPECTED BY THE ENGINEER PRIOR TO THE POURING OF CONCRETE. GIVE 24hrs NOTICE TO THE ENGINEER.

SITE CLASSIFICATION

- C1. THE SITE HAS BEEN CLASSIFIED BY RESIDENTIAL ENGINEERING IN ACCORDANCE WITH AS 2870 RESIDENTIAL SLABS AND FOOTINGS. THESE DOCUMENTS HAVE BEEN PREPARED USING THE ABOVE CODE ON THE BASIS OF A 'M' CLASSIFICATION, HOWEVER, THE SOIL TYPE AND SITE CONDITIONS SHOULD BE CHECKED BY THIS CONSULTANCY PRIOR TO THE PLACEMENT OF CONCRETE.
- C2. THE FOOTING DETAILS SHOWN ARE FOR THE SITE CLASSIFICATION STIPULATED. WHILE EVERY CARE HAS BEEN TAKEN TO VERIFY THAT THE INFORMATION SHOWN IS CORRECT, RESIDENTIAL ENGINEERING TAKES NO RESPONSIBILITY FOR VARIATIONS WHICH MAY OCCUR IN SITE CONDITIONS SUBSEQUENT TO CONSTRUCTION.
- C3. IF THE SITE HAS BEEN THE SUBJECT OF A GEOTECHNICAL INVESTIGATION REQUIRING ADHERENCE TO PARTICULAR CONSTRUCTION PROCEDURES AND/OR TECHNIQUES. THE REQUIREMENTS OF THE APPROPRIATE QUALIFIED GEOTECHNICAL ENGINEER'S REPORT SHALL BE COMPLIED WITH IN FULL.

ALL REFERENCE TO AUSTRALIAN STANDARDS AND B.C.A TO BE CURRENT EDITION.

IF IN DOUBT CONTACT ENGINEER.

- D1. STRIP TOPSOIL AND VEGETATION TO A 100mm MINIMUM DEPTH AND STOCKPILE.
- D2. THE SITE IS TO BE BENCHED BY CUT AND FILL TO DESIRED LEVELS.
- D3. ANY FILL USED IN THE CONSTRUCTION OF A SLAB EXCEPT WHERE THE SLAB IS SUSPENDED SHALL CONSIST OF "ROLLED OR CONTROLLED FILL".
- D3A. ROLLED FILL SHALL BE PLACED IN LAYERS OF 150mm MAXIMUM IN ACCORDANCE WITH AS 2870 AND THOROUGHLY COMPACTED USING AN EXCAVATOR. UNLESS THIS FILL IS COMPACTED IN ACCORDANCE WITH AS 2870 IT IS NOT ADEQUATE FOR THE LONG TERM STRUCTURAL SUPPORT TO THE SLAB/FOOTING SYSTEM, THEREFORE PIERS MUST BE INSTALLED.
- D3B. CONTROLLED FILL SHALL BE PLACED, TESTED AND CERTIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER AS DEFINED IN AS 3798. THIS IS THEN DEEMED TO BE ADEQUATE TO SUPPORT THE SLAB/FOOTING SYSTEM.
- D4. THE FILL IS TO EXTEND PAST THE EDGE OF THE SLAB BY AT LEAST ONE METRE AND SHALL BE BATTERED OFF NOT STEEPER THAN TWO HORIZONTALLY TO ONE VERTICAL OR RETAINED BY A SUITABLE STRUCTURE PROVIDED BY THE OWNER OR BUILDER AS SOON AS POSSIBLE.
- D5. THE FINISHED LEVELS ABOVE THE ADJACENT GROUND SHALL ALLOW FOR THE MAIN SLAB TO BE AT LEAST:
- D5A. STIFFENED RAFT: 150mm
- D5B. WAFFLE RAFT: 300mm
- D6. SURFACE DRAINAGE SHALL BE PROVIDED AS REQUIRED TO AVOID THE POSSIBILITY OF WATER PONDING NEAR THE SLAB. A FALL OF 50mm OVER A DISTANCE OF ONE METRE AWAY FROM THE SLAB IS CONSIDERED ADEQUATE. SUBSOIL DRAINS (AGRICULTURAL DRAINS) ARE CONSIDERED DESIRABLE BUT SHOULD BE AVOIDED BEING LOCATED DIRECTLY ADJACENT TO THE FOOTINGS.
- D7. IF ANY FOOTING IS LOCATED SUCH THAT A LINE DRAWN AT 45° FOR CLAY AND 30° FOR SAND FROM ITS BASE INTERSECTS A SERVICE TRENCH THEN PIERS ARE REQUIRED, REFER SERVICE TRENCH DETAIL.

PIERS

- P1. PIER DIAMETER AND LOCATIONS ARE SHOWN ON PLAN. ONLY WITH THE PRIOR APPROVAL OF THE ENGINEER MAY THE PIER DIAMETER BE VARIED AS PER THE "PIER DIAMETER TABLE".
- P2. U.N.O MINIMUM PIER DEPTH IS 600mm BELOW FOOTING TRENCH AND WHEREVER NOMINATED SHOULD BE SOCKETED A MINIMUM 300mm INTO STIFF CLAY.
- P3. ALL PIER HOLES SHALL BE CLEANED AND DE-WATERED PRIOR TO THE PLACEMENT OF CONCRETE.
- P4. ALL PIERS SHALL BE POURED SEPARATE TO RAFT SLAB.
- P5. IT SHOULD BE NOTED THAT IF ANY OF THE FOOTING BEAMS ENCOUNTER ROCK OR SHALE, THEN ALL BEAMS AND LOAD BEARING SPINE BEAMS SHALL BE PIERED TO ROCK OR SHALE. IF PARTIALLY PIERED TO ROCK THEN BRICK JOINTS ARE TO BE PROVIDED AT THE ROCK/NON-ROCK INTERFACE.

PIER DIAMETER TABLE			
STRATA	MINIMUM BEARING CAPACITY 'kPa'	SINGLE STOREY	DOUBLE STOREY
STIFF CLAY	250	Ø400 AT 2.0m CTS	Ø450-2.0m CTS OR Ø400-1.5m CTS
ROCK AND SHALE	600	Ø400 AT 2.0m CTS	Ø400-2.0m CTS
NATURAL SAND	150	REFER PLAN	REFER PLAN

- F1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 AND AS 2870
- F2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE PIER TOPS ARE CLEAN OF FOREIGN MATTER PRIOR TO THE PLACEMENT OF THE MEMBRANE AND CONCRETE SLAB. ENGINEER'S SPOT CHECK DOES NOT RELEASE THE CONTRACTOR FROM THIS RESPONSIBILITY.
- F3. 50 THICK SAND LEVELLING LAYER:
- F3A. STIFFENED RAFT: PLACE A NOMINAL 50 THICK SCREEDED SAND LEVELING LAYER. DROP PANELS IF REQUIRED ARE TO BE FORMED UP IN THE SAND SCREED.
- F3B. WAFFLE RAFT: OPTIONAL
- F4. SUBTERRANEAN TERMITE PROTECTION IS TO BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF AS 3660.1
- F5. A HIGH IMPACT RESISTANT DAMP PROOF MEMBRANE MUST BE PLACED BENEATH THE SLAB SO THAT THE BOTTOM OF THE SLAB IS ENTIRELY UNDERLAIN. THE DAMP PROOF MEMBRANE MUST BE 0.2mm NOMINAL THICKNESS POLYTHENE FILM AND OF HIGH IMPACT RESISTANCE. LAPS SHALL BE 200mm MINIMUM AT JOINTS. ALL PLUMBING PENETRATIONS AND JOINTS ARE TO BE TAPED AND MADE WATERPROOF. THE SITE IS TO BE PROPERLY DRAINED TO ELIMINATE SURFACE AND SUBSOIL WATER FLOW.
- F6. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON INSULATED STEEL, PLASTIC OR CONCRETE CHAIRS. BAR CHAIRS SHALL BE PLACED SUCH THAT REINFORCEMENT IS ALWAYS POSITIONED WITH SPECIFIED COVER
- F7. IF TRENCH MESH IS USED REINFORCEMENT SHALL BE LAPPED 500 AT SPLICES AND PLACED ON CHAIRS TO GIVE SPECIFIED COVER. LAP REINFORCEMENT AT 'T' AND 'L' JUNCTIONS FULL WIDTH ACROSS THE JUNCTION.
- F8. IF SLAB FABRIC IS USED IT IS TO BE SUPPLIED IN FLAT SHEETS AND IS TO BE LAPPED ONE FULL SQUARE PLUS 25mm AT SPLICES AND PLACED ON BAR CHAIRS AT ONE METRE CENTRES BOTH WAYS UNLESS REDUCED SPACING IS SPECIFIED.
- F8A. STIFFENED RAFT: AT EACH DROP PANEL PLACE A 100mm CHAIR ON THE PIER TOP TO ENSURE ACCURATE FABRIC LOCATION.
- F9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. THE WRITTEN APPROVAL OF THE ENGINEER SHALL BE OBTAINED FOR ANY OTHER SPLICES. WHERE LAP LENGTHS ARE NOT SHOWN THEY SHALL SATISFY THE REQUIREMENTS OF AS 3600.
- F10. WELDING OF REINFORCEMENT OTHER THAN TACK WELDING FOR PURPOSE OF MAINTAINING BARS IN CORRECT POSITION IS NOT PERMITTED UNLESS SPECIFICALLY NOMINATED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- F11. BEAM WIDTH:
- F11A. STIFFENED RAFT: WHERE EXTERNAL BEAMS ARE WIDER THAN THAT SPECIFIED, AN EXTRA BOTTOM BAR OR EQUIVALENT OF THE SAME BAR SIZE IS REQUIRED FOR EACH 100mm ADDITIONAL WIDTH.
- F11B. WAFFLE RAFT: REFER TO TABLE(S) TOTAL REINFORCEMENT REQUIREMENTS WITHIN FOOTING BEAMS AND STEM WIDTH REQUIREMENTS FOR DEEPENED BEAMS
- F12. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY ONLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- F13. PIPE PENETRATIONS IN THE EDGE AND SPINE BEAMS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE DETAILS. WHERE SLAB FABRIC IS CUT TO PERMIT PENETRATIONS OF PIPES, A 600x600 PIECE OF FABRIC IS TO BE SPLICED OVER THE PENETRATION.
- F14. FOR 'H' AND 'E' CLASS SITES - ALL PENETRATIONS THROUGH FOOTINGS AND EDGE BEAMS SHALL BE SLEAVED TO ALLOW MINIMUM 20mm ('H1' CLASS) AND 40mm ('H2' & 'E' CLASS) MOVEMENT AS PER AS 2870. ALL PLUMBING AND DRAINAGE SERVICES ARE TO BE FITTED WITH FLEXIBLE CONNECTIONS AS PER AS 2870.
- F15. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.
- F16. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS IF ANY. THICKNESS OF APPLIED FINISHES ARE NOT INCLUDED.

AND SLAB MAINTENANCE

- K1. WATER IS NOT TO BE ADDED TO THE CONCRETE ON SITE SO AS TO INCREASE THE SLUMP ABOVE THAT SPECIFIED.
- K2. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. VIBRATORS SHALL NOT BE USED TO SPREAD CONCRETE.
- K3. CURING THE CONCRETE SHALL START IMMEDIATELY AFTER FINISHING BY CONTINUALLY WETTING FOR 7 DAYS MINIMUM. PLASTIC OR WAX LIQUID SPRAYS MAY BE USED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. EXTRA PRECAUTION SUCH AS THE METHOD OF EVAPORATIVE RETARDATION (THE USE OF ALIPHATIC ALCOHOLS) IS RECOMMENDED DURING HOT WEATHER POURS TO HELP AVOID THERMAL RELATED SLAB CRACKING.
- K4. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
- K5. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE ELEMENTS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- K6. CAUTION SHOULD BE EXERCISED WHEN APPLYING BRITTLE FINISHES SUCH AS CERAMIC TILES TO THE FLOOR SLAB. BRITTLE FLOOR COVERINGS ARE TO BE LAID ON A SUITABLE FLEXIBLE TYPE BEDDING SYSTEM AND SUPPLIED WITH CONTROL JOINTS AT 400mm CENTRES MAXIMUM. ALTERNATIVELY SL92 FABRIC CAN BE USED, AS/IF ADVISED BY THE BUILDER. ALTERNATIVELY FINISHES TO BE DELAYED FOR 3 MONTHS. REFER TO AS 2870 OR AS 3958.
- K7. THE OWNERS ATTENTION SHALL BE DRAWN TO APPENDIX 'A' 'PERFORMANCE REQUIREMENTS AND FOUNDATION MAINTENANCE' OF AS 2870 AND CSIRO PUBLICATION 'GUIDE TO HOME OWNERS ON FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE'.

REINFORCEMENT LAP TABLE

NOTE: BAR REINFORCEMENT IS TO BE TIED BENEATH THE FABRIC IF USED OR OTHERWISE PLACED ON BAR CHAIRS AND LAPPED AT SPLICES AS FOLLOWS:

BAR SIZE	N12	N16	N20	N24	N28	N32
LAP LENGTH	450	600	800	1200	1350	1650

REINFORCEMENT COVER TABLE

ELEMENT	SHELTERED AREAS			EXPOSED AREAS		
	TOP	BTM	SIDES	TOP	BTM	SIDES
SLAB	20	40	40	40	40	40
BEAMS	-	40	40	40	40	40
STRIP FOOTINGS	-	-	-	50	50	50
PIERS	-	-	50	-	-	50

NOTE: BEAMS AND SLAB IN THIS TABLE ARE CONSIDERED TO HAVE AN INTACT MEMBRANE IN CONTACT WITH THE GROUND. BEAMS AND SLABS POURED DIRECTLY AGAINST THE GROUND ARE TO HAVE 50mm CLEAR COVER ALL-ROUND

STRIP FOOTING NOTES

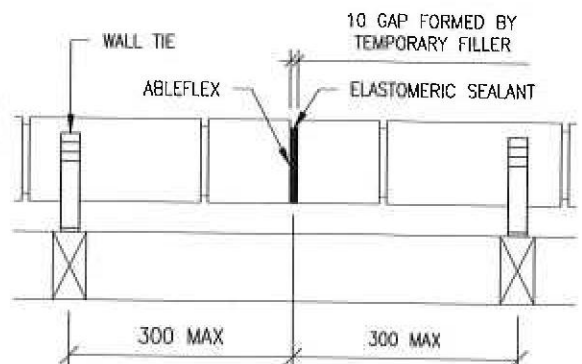
- FN1. FOOTINGS TO BEAR ON FIRM UNIFORM NATURAL STRATA WITH A SAFE/MINIMUM BEARING CAPACITY AS PER THE PIER DIAMETER TABLE
- FN2. MASS CONCRETE PIERS MAY BE REQ'D: REFER PIERS NOTES AND THE PIER SPECIFICATION.
- FN3. CONCRETE TO BE STRENGTH N20 UNO WITH A 20mm MAXIMUM AGGREGATE SIZE AND 100mm SLUMP.

TERMITE PROTECTION

- T1. ALL WORKS TO BE IN ACCORDANCE WITH AS 3660.1
- T2. ANY FUTURE CRACKING OCCURRING IN THE SLAB/FOOTING SYSTEM IS TO BE ASSESSED BY A QUALIFIED PEST EXPERT AND WHERE DIRECTED BE SEALED BY EPOXY INJECTION.
- T3. INSPECTIONS OF THE RESIDENCE AND IMMEDIATE SURROUNDS TO BE CARRIED OUT BY A QUALIFIED PEST EXPERT ON AN ANNUAL BASIS BY THE HOME OWNER.
- T4. SITE MAINTENANCE IS THE RESPONSIBILITY OF THE HOME OWNER. ALL RECOMMENDATIONS OUTLINED BY THE CSIRO SHEET 10-91 SHOULD BE CARRIED OUT.

MASONRY NOTES

- M1. LOAD BEARING MASONRY SHALL COMPLY WITH AS 3700
- M2. MASONRY AND MORTAR DURABILITY SHALL COMPLY WITH THE B.C.A CLASS 1 AND 10 BUILDINGS VOLUME 2.
- M3. MASONRY SHALL BE ARTICULATED IN ACCORDANCE WITH THE B.C.A CLASS 1 AND 10 BUILDINGS VOLUME 2.
- M4. INTERNAL BRICKWORK BUILT OFF THE SLAB SHALL BE LAID ON TWO LAYERS OF 'ALCOR' OR '3 PLY MALTHOID' OR SIMILAR SLIP JOINT MATERIAL.
- M5. MASONRY WALLS MUST NOT BE BUILT ON CONCRETE SLABS OR BEAMS UNTIL ALL FORMWORK/PROPS SUPPORTING THESE SLABS AND BEAMS HAVE BEEN REMOVED.



ARTICULATION JOINT AND WALL TIE DETAIL

ALL WALL TIES TO BE BUILT IN AND FIXED TO FRAME PROGRESSIVELY AS CONSTRUCTION PROCEEDS SPACED AT EACH SIDE OF EXPANSION JOINTS AND AT EACH THIRD COURSE. THE SPACING OF ALL OTHER TIES SHALL BE AS DESCRIBED IN THE B.C.A CLASS 1 AND 10 BUILDINGS HOUSING PROVISIONS VOLUME 2.

WIND/WALL TIE CLASSIFICATION

WIND		WALL TIE (DUTY)	HORIZONTAL SPACING	VERTICAL SPACING
CLASS	(Vp)			
N1	W28N1	LIGHT	600mm	600mm
N2	W33N2	MEDIUM	600mm	600mm
N3	W41N3	MEDIUM	600mm	430mm (5 COURSES)

NOTE:

- WALL TIE SPACINGS AROUND OPENINGS 300cts EW.
- POLYMER WALL TIES RATED "LIGHT DUTY ONLY" (W28N1).
- (Vp = PERMISSABLE STRESS METHOD).

DRAWN	DATE	AMENDMENT	REV	CLIENT	FOR	RESIDENTIAL ENGINEERING CONSULTING ENGINEERS	NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	APPROVED BY:	JOB No.	REVISION
				RAWSON HOMES	McVEIGH AND DAVIDSON			<i>Wm. Carthy</i>	RW467	
				UNIT 34/11-21 UNDERWOOD ROAD HOMEBUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No. 33493C	SITE ADDRESS: LOT 6 WAKEHURST PARKWAY SEAFORTH	1/19 Jonathan Street Glenstanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au	Tel: 02 9896 5494 Fax: 02 9636 1064	A.W. McCARTHY B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	DATE: 20/5/11 SCALE: 1:50 CLIENT REF: 20/5/11 DRAWN: 20/5/11	SHEET No. 2/10

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Hydraulic Design

Including OSD Calculations,
OSD Basin & Control Pit Details,
Overland Flow Path Details,
Aboveground Rainwater Tank Details,
Elevation Details,
Retaining Wall Details
and
Stormwater Systems
for

Proposed Single Residential Development at

Lot 6, D.P. 1112545,
Wakehurst Parkway,
SEAFORTH

8 April 2011

Manly Council
Our Job Number: D2498

Nasseri Associates

Civil, Hydraulic and Structural Engineering
Suite 51, No. 14 Narabang Way, Belrose NSW 2085
P O Box 714, Balgowlah NSW 2093

Phone: (02) 9986 3875

Mobile: 0410 308 064

Fax: (02) 9986 3876

Email: nasseriassociates@bigpond.com

Web Site: www.nasseriassociates.com.au

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IMPORTANT NOTE:

The following hydraulic plans should be read in conjunction with;

1. Architectural plans from Nicholas Gray (Rawson Homes) revision 00 dated January 2011 (Phone: (02) 9764 6442).
2. Manly Council policy on Stormwater Requirements for residential developments and BASIX Requirements.

EXIST
LOT 6 WAKEHURST PARKWAY, SEAFORTH D2498

*Existing Area

ONE AAA -1 2

1 1 1 1 0 -1

10 0 0 0 0

0.0577 15 0 5 8 5 0 85 17 2 0.33 0 0 0

End

LOT 6 WAKEHURST PARKWAY, SEAFORTH D2498^{OSD}

* Analysis of developed site with OSD

* Area draining to OSD

OSD Dev -1 2

10 4 1 1 0 -1

OSD Out 0

4

0 0 0 0

0.1 4.53

0.2 9.07

0.3 13.60

0.0024 0

0.0034 0

0.0041 0.1

0 0.0500 40 0 1 8 5 0 60 17 2.0 0.33 0 0 0

* Dummy Reach

OSD Out -1 -1

1 1 1 1 0 -1

10 0 0 0 0

0 0 0 0 0 0

* Area not drained to OSD

Par udn -1 2

1 1 1 1 0 -1

10 0 0 0 0

0.0077 90 0 1 8 5 0 10 17 2.0 0.33 0 0 0

Add Par to OSD

* Dummy Reach

OSD Out -1 -1

1 1 1 1 0 -1

10 0 0 0 0

0 0 0 0 0 0

End

Existing 1 in 100 years 1 in 100 years (Existing & Proposed)

LOT 6 WAKEHURST PARKWAY, SEAFORTH D2498
 PEAK FLOWS AMONG RUNOFFS FROM 11 RAINFALL PATTERNS
 (The following lines give Branch and Reach names;
 Maximum surface flow arriving at an entry point or pit,
 Maximum flow in the pit before routing through downstream reach,
 Maximum surface overflow and Total flows to this point (m3/s);
 Pipe Diameter or Normal Depth (open sections) (mm) & Capacity (m3/s).
 Other information is given for non-circular reaches
 - refer to the program code for details.) 381. .226
 ONE AAA .032 .000 .032 .226
 END

Proposed 1 in 100 years

LOT 6 WAKEHURST PARKWAY, SEAFORTH D2498
 PEAK FLOWS AMONG RUNOFFS FROM 11 RAINFALL PATTERNS
 (The following lines give Branch and Reach names;
 Maximum surface flow arriving at an entry point or pit,
 Maximum flow in the pit before routing through downstream reach,
 Maximum surface overflow and Total flows to this point (m3/s);
 Pipe Diameter or Normal Depth (open sections) (mm) & Capacity (m3/s).
 Other information is given for non-circular reaches
 - refer to the program code for details.) 381. .000
 OSD Dev .030 .000 .024 .030 381. .000
 OSD Out .024 .028 .000 .028 381. .226
 par udn .005 .005 .000 .005 381. .226
 OSD Out .000 .032 .000 .032 381. .226
 END

1 in 5 years (Existing & Proposed)

Existing 1 in 5 years

LOT 6 WAKEHURST PARKWAY, SEAFORTH D2498
PEAK FLOWS AMONG RUNOFFS FROM 11 RAINFALL PATTERNS
(The following lines give Branch and Reach names;
Maximum surface flow arriving at an entry point or pit,
Maximum flow in the pit before routing through downstream reach,
Maximum surface overflow and Total flows to this point (m3/s);
Pipe Diameter or Normal Depth (open sections) (mm) & Capacity (m3/s).
Other information is given for non-circular reaches
- refer to the program code for details.)

ONE AAA	.014	.000	.014	381.	.226
---------	------	------	------	------	------

END

Proposed 1 in 5 years

LOT 6 WAKEHURST PARKWAY, SEAFORTH D2498
PEAK FLOWS AMONG RUNOFFS FROM 11 RAINFALL PATTERNS
(The following lines give Branch and Reach names;
Maximum surface flow arriving at an entry point or pit,
Maximum flow in the pit before routing through downstream reach,
Maximum surface overflow and Total flows to this point (m3/s);
Pipe Diameter or Normal Depth (open sections) (mm) & Capacity (m3/s).
Other information is given for non-circular reaches
- refer to the program code for details.)

OSD Dev	.015	.000	.004	.015	381.	.000
OSD Out	.004	.008	.000	.008	381.	.226
Par Udn	.003	.003	.000	.003	381.	.226
OSD Out	.000	.008	.000	.008	381.	.226

END

GENERAL NOTES:
1. ALL WORKS TO BE IN ACCORDANCE WITH MANLY COUNCIL'S STANDARD SPECIFICATIONS AND TO THE SUPERVISING ENGINEER'S SATISFACTION.

2. THESE PLANS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL PLANS FROM RAWSON HOMES PTY. LTD. (NICHOLAS GRAY) REVISION 00 DATED JANUARY 2011. (PHONE: (02) 9764 6442).

3. ALL STORMWATER PIPES TO BE 100 DIA UPVC UNLESS NOTED OTHERWISE. PIPES UNDER DRIVEWAY TO BE SEWER GRADE.

4. DEPTH AND LOCATION OF SEWER & SERVICES TO BE CONFIRMED PRIOR TO COMMENCEMENT OF DRAINAGE WORKS.

5. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENTATION CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF COUNCIL PRIOR TO COMMENCEMENT OF CONSTRUCTION AND DURING CONSTRUCTION.

6. ENSURE FINISHED GROUND LEVELS ARE SLOPPING AWAY FROM THE DEVELOPMENT & INTO PITS OR YARD SUMPS, AS SHOWN ON THE ATTACHED DRAINAGE PLAN.

7. HYDRAULIC PLANS ARE SUBJECT TO COUNCIL APPROVAL.

CALCULATIONS:
TOTAL SITE AREA = 577.30 m²
TOTAL ROOF AREA INTO RWT = 229.00 m²
TOTAL EXISTING IMPERVIOUS AREA = VACANT BLOCK EXISTING CONCRETE DRIVE = 69.80 (APPROX.)
TOTAL PROPOSED IMPERVIOUS AREA = 298.80 m² (52%) (INCLUDING ROOF, GARAGE, DRIVEWAY & PAVED AREA)

BASIX REQUIREMENT:
3500 LITRES CAPACITY RAINWATER TANK FOR 175 m² OF ROOF AREA.
PROVIDED 5,000 LITRES CAPACITY RWT FOR TOTAL ROOF AREA.

- IMPORTANT NOTES:
1. SITE INSPECTION WAS CARRIED OUT ON 22 FEBRUARY 2011. THE SITE FALLS TO THE FRONT & REAR OF THE PROPERTY. THE BEST OPTION FOR OSD SYSTEM IS IN FRONT OF THE PROPERTY & TO DRAIN TO WAKEHURST PARKWAY (THIS IS DUE TO THE LACK OF AVAILABLE SPACE AT REAR OF THE PROPERTY FOR OSD SYSTEM).
 2. AN ABOVEGROUND RAINWATER TANK HAS BEEN PLACED ON THE SOUTHERN SIDE OF THE DWELLING WITH TOTAL CAPACITY OF 5000 LITRES TO COLLECT ALL ROOF WATER ONLY FOR RE-USE OF WATER SUCH AS TOILET FLUSHING, LAUNDRY & IRRIGATION SYSTEMS - 100 DIA SEWER GRADE OVERFLOW FROM TOP OF RWT TO BE CONNECTED TO STORMWATER LINE AT 1% MIN FALL (REFER TO DRAINAGE PLAN ON SHEET No.2).
 3. AN ABOVEGROUND ON-SITE DETENTION (OSD) SYSTEM HAS BEEN DESIGNED IN FRONT OF THE PROPERTY TO COLLECT PART OF STORMWATER AND THE OVERFLOW FROM TOP OF THE RWT PRIOR TO DISCHARGING TO STREET GUTTER AT 1% MIN FALL.
(REFER TO DRAINAGE PLAN ON SHEET No.2).
 4. LEVELS ARE CRITICAL. PRIOR TO ANY CHANGES CONTACT ENGINEER.
 5. PRIOR TO BACKFILLING STORMWATER PIPES & RETAINING WALL FOR OSD BASIN CONTACT ENGINEER FOR INSPECTIONS.
 6. WORK-AS EXECUTED PLANS & COMPLIANCE CERTIFICATE WILL BE ISSUED AFTER COMPLETION OF ALL HYDRAULIC WORKS.

OSD CALCULATIONS:
MANLY COUNCIL REQUIRES THE FOLLOWING:
A DETAILED STORMWATER MANAGEMENT PLAN SHALL BE PREPARED TO FULLY COMPLY WITH COUNCIL'S "SPECIFICATIONS FOR ON-SITE STORMWATER MANAGEMENT 2003" AND SHALL BE SUBMITTED WITH THE CONSTRUCTION CERTIFICATE APPLICATION.
IT IS A NEW ALLOTMENT CREATED FROM A GREENFIELDS SUBDIVISION - IN THIS CASE, AN OSD SYSTEM SHALL BE REQUIRED FOR ANY DEVELOPMENT ON THIS ALLOTMENT.
USING ILSDX TO CALCULATE OSD VOLUME (REFER TO OSD CALCULATION ATTACHED)
VOLUME REQUIRED = 13.60 m³
EXISTING PSD₅ = 14 l/sec
EXISTING PSD₁₀₀ = 32 l/sec
PROPOSED PSD₅ = 8 l/sec
PROPOSED PSD₁₀₀ = 32 l/sec
ORIFICE = 65 mm
*PROVIDED 5000 LITRES CAPACITY RWT FOR RETENTION SYSTEM.
*PROVIDED 9.60m³ ABOVEGROUND OSD BASIN FOR DETENTION SYSTEM.

SYMBOLS & NOTATIONS
--- STORMWATER LINES
o DOWNPIPE
o 100 DIA YARD SUMP
225x100 GRATED BOX DRAIN
INV INVERT LEVEL (PIPE / PIT)
--- PROPOSED BOUNDARY
--- SEDIMENT CONTROL BARRIER
FPL FINISHED PLATFORM LEVEL
FPL FINISHED FLOOR LEVEL
SL FINISHED SURFACE LEVEL

DESIGNED	HA	DRAWN	HA	CHECKED	JN	SCALE	AS SHOWN
CLIENT: RAWSON HOMES (MR McVEIGH & MS DAVIDSON)							LOT 6 WAKEHURST PARKWAY, SEAFORTH
ISSUE	AMENDMENTS						DATE

HYDRAULIC DETAILS

NOTES & CALCULATIONS DETAILS

Fitzgerald Building Certifiers Pty Limited

Job No 024986 as issued by No. 1

NASSERI ASSOCIATES
CIVIL, HYDRAULIC & STRUCTURAL ENGINEERING
SUITE 51, No.14 NARABANG WAY, BELROSE 2085
PO BOX 714, BALGOWLAH, NSW 2093
TEL. (02) 9986 3876
FAX. (02) 9986 3876
MOB. 0410 308 064
EMAIL. nasserlassociates@bigpond.com

J. NASSERI
BE, FIEAust.
MPER, CPENG.
8 April 2011.

LOT 6
577.30 m²

(B) RIGHT OF ACCESS, EASEMENT FOR SERVICES & EASEMENT TO DRAIN WATER 4 WIDE
(C) RESTRICTION ON USE OF LAND (NO VEHICULAR ACCESS)

600 SQ CONTROL PIT
INV. PIT 85.65
INV. OUTLET 85.90
REFER TO OSD
BASIN DETAILS ON
SHEET NOS. 3 TO 5

SL 85.95 (APPROX.)
INV. 85.80

100 DIA SEWER GRADE (1m ONLY)
- CHANGE TO 125x75x5.0 RHS HOT
DIPPED GALV. & CONNECT TO STREET
GUTTER AT 1% MIN FALL (THE EXACT
LOCATION OF THE OUTLET PIPE TO
BE DETERMINED ON SITE DURING
CONSTRUCTION - MAKE GOOD)

1m WIDE WEIR
(ESCAPE ROUTE)
TOP RL 86.35

PROPOSED RETAINING
WALL AROUND OSD BASIN
(REFER TO SHEET NO. 7
FOR ALL DETAILS)
TOP RL 86.45 (MIN)
100 DIA SEWER GRADE
DOWNPIPES TO BE
FULLY SEALED)

100 DIA UPVC
TO PIT ① AT
1% MIN FALL

100 DIA YARD
SUMP OR 250
SQUARE GRATED
PIT (TYPICAL)

ENSURE NO WATER
AROUND DWELLING
-SLOPE FINISHED
TOWARDS YARD SUMPS
OR PITS (AS SHOWN)

100 DIA SEWER GRADE
OVERFLOW FROM TOP OF
RWT TO BE CONNECTED
TO STORMWATER LINE
AT 1% MIN FALL

RWT
5000 LITRES CAPACITY
RAINWATER TANK
(REFER TO ELEVATION A
ON SHEET NO. 6)

CREATE A SWALE OR EARTH
MOUND TO DIVERT SURFACE
WATER TO PIT ② AT REAR
OF THE PROPERTY
(REFER TO DETAIL 3)

GARAGE
F.F.L. 86.48

PROPOSED
RESIDENCE
F.F.L. 86.65

ALFRESCO

VACANT
LOT 5

BM 49
NAIL IN KERB
RL 85.77
(AHD)

EXISTING 450 SQ.
GRADED PIT
SL 85.76 (APPROX.)
INV. 85.21

NEW CONCRETE DRIVEWAY
TO BE CONNECTED TO THE
EXISTING CONCRETE DRIVE
IN ACCORDANCE WITH
COUNCIL'S REQUIREMENTS

PLEASE NOTE:
1. THE EXACT LOCATION OF STORMWATER LINE, PITS AND RWT MAY
ALTER DURING CONSTRUCTION, TO SUIT THE SITE CONDITION.
2. ENSURE NO DAMAGE OCCURS TO EXISTING TREE ROOTS WHILE
CONSTRUCTING THE STORMWATER SYSTEM.
3. THE EXISTING GROUND LEVELS FALLS TO THE FRONT & REAR OF
THE PROPERTY (TWO WAYS FALL). DUE TO THE EXISTING GROUND
LEVELS, SURFACE WATER AT THE REAR CAN NOT BE COLLECTED &
DRAINED TO OSD BASIN IN FRONT. ENSURE NO WATER PONDAGE
OCCURS AT REAR OF THE PROPERTY. THE FINISH GROUND LEVELS
SHOULD DRAIN AWAY FROM DWELLING.

LEGEND:
100 DIA UPVC OR SEWER GRADE FOR SURFACE WATER DRAINAGE
100 DIA SEWER GRADE FOR ROOF WATER DRAINAGE ONLY

DRAINAGE PLAN
SCALE 1:200

500 OR 300mm WIDE EARTH MOUND OR DISH DRAIN
DETAIL 3
NTS

HYDRAULIC DETAILS

DRAINAGE PLAN

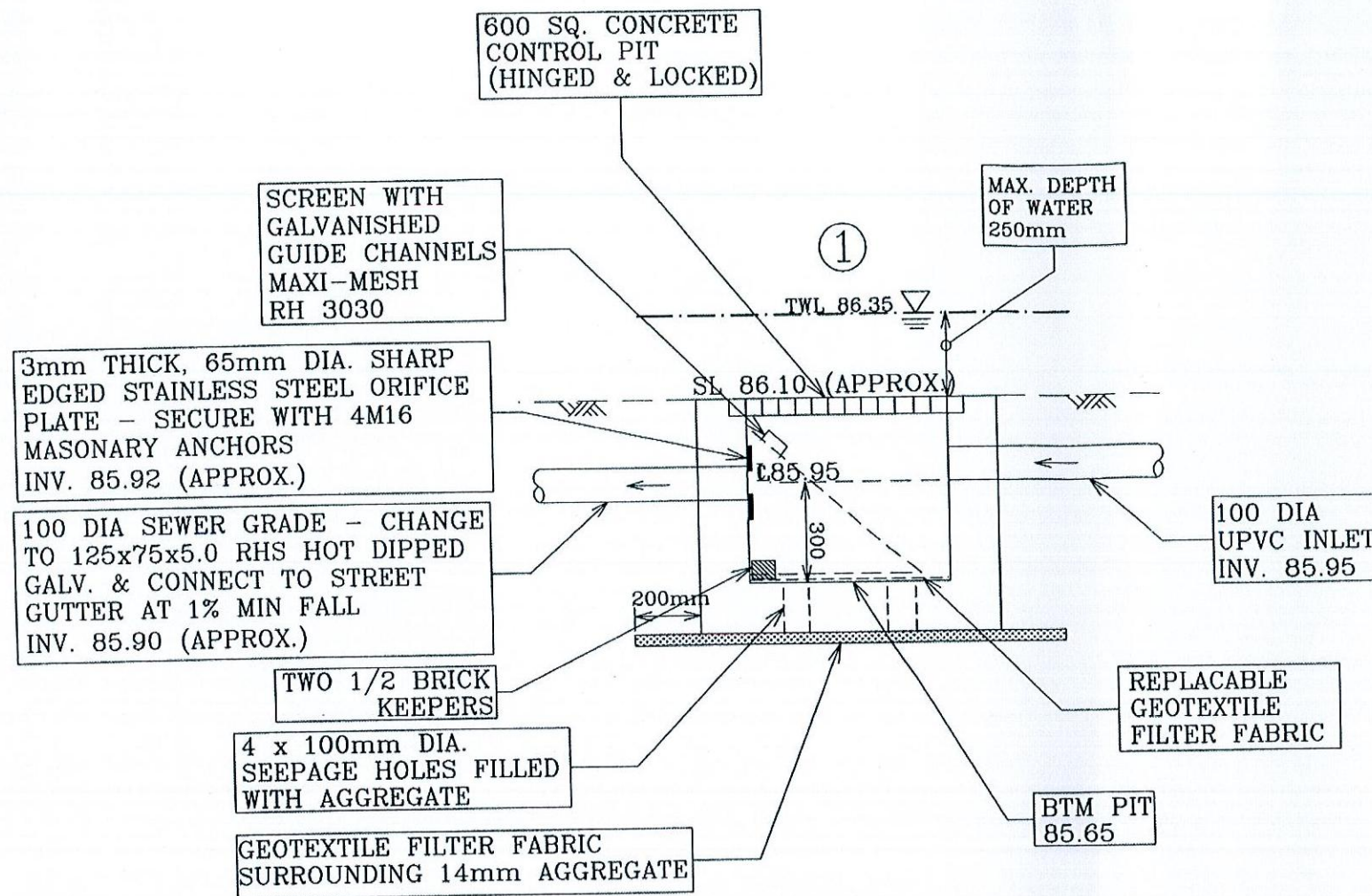
DESIGNED	HA	DRAWN	HA	CHECKED	JN	SCALE	AS SHOWN	CAD REF.	ENG/RAWSON	JOB NO.	02498	SHEET NO.	2
CLIENT:	RAWSON HOMES (MR McVEIGH & MS DAVIDSON)												
DATE													
ISSUE													
SYMBOLS & NOTATIONS													
SL	FINISHED SURFACE LEVEL												
F.F.L.	FINISHED FLOOR LEVEL												
R.F.L.	FINISHED PLATFORM LEVEL												
X	SEWAGE CONTROL BARRIER												
225x100	GRADED BOX DRAIN												
INV	INVERT LEVEL (PIPE / PIT)												
100 DIA	YARD SUMP												
DOWNPIPE													
STORMWATER LINES													

NASSERI ASSOCIATES

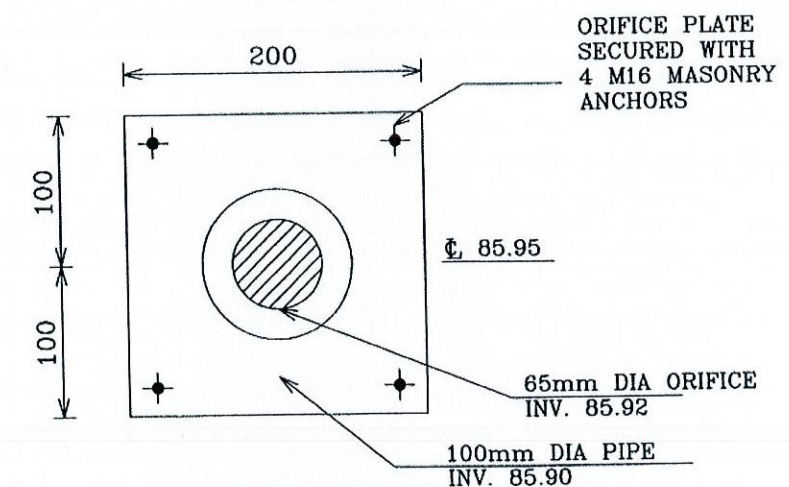
CIVIL, HYDRAULIC & STRUCTURAL ENGINEERING
SUITE 51, NO. 14 NARABANG WAY, BELROSE 2085
PO BOX 714, BALGOWRIAH, NSW 2093
TEL. (02) 9986 3875
FAX. (02) 9986 3876
MOB. 0410 308 064
EMAIL: nasseriasociates@bigpond.com

J. NASSERI
BE, PLEAUST.
NPER, CPEng
8 April 2011

This plan forms part of the approved
Certificate as issued by
Fitzgerald Building Certifiers Pty Limited



DETAIL 1
CONTROL PIT
SCALE 1:20



DETAIL 2
ORIFICE DETAILS
SCALE 1 : 5

NASSERI ASSOCIATES

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EMAIL nasseriassociates@bigpond.com

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NPER, CPEng.

8 April 2011.

SYMBOLS & NOTATIONS

--- STORMWATER LINES	SL FINISHED SURFACE LEVEL
o DOWNPIPE	FFL FINISHED FLOOR LEVEL
o 100 DIA YARD SUMP	FPL FINISHED PLATFORM LEVEL
225x100 GRATED BOX DRAIN	-X- SEDIMENT CONTROL BARRIER
INV INVERT LEVEL (PIPE / PIT)	--- PROPOSED BOUNDARY
	-S- SEWER

ISSUE	AMENDMENTS	DATE
CLIENT: RAWSON HOMES (MR McVEIGH & MS DAVIDSON)		
LOT 6 WAKEHURST PARKWAY, SEAFORTH		
DESIGNED HA	DRAWN HA	CHECKED JN
SCALE AS SHOWN		

HYDRAULIC DETAILS

CONTROL PIT & ORIFICE DETAILS

CAD REF. ENG/RAWSON

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8/12/11
 J. NASSERI
 BE, RIBAust.
 NPER, CPEng

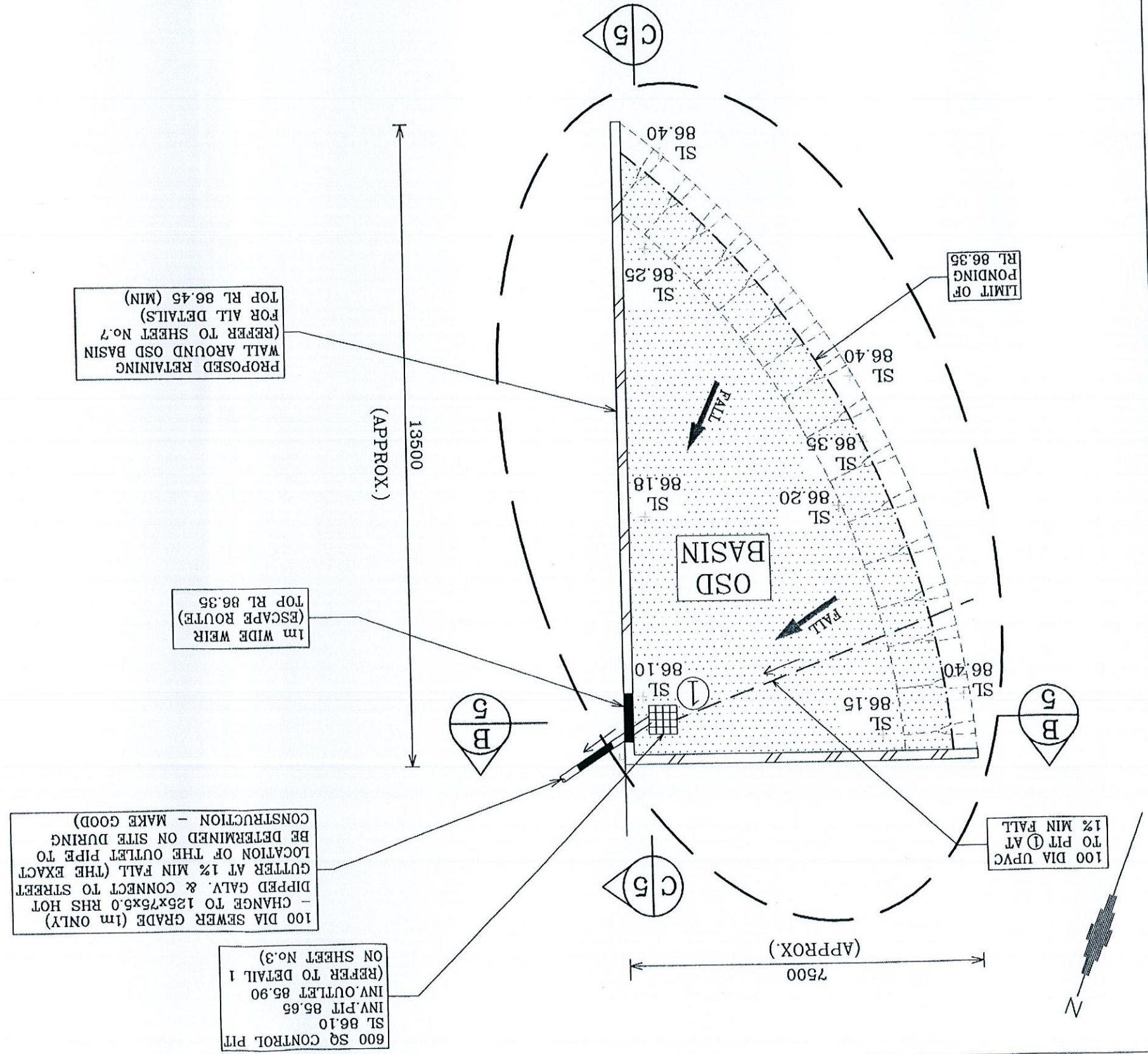
- SYMBOLS & NOTATIONS**
- SL FINISHED SURFACE LEVEL
 - FFL FINISHED FLOOR LEVEL
 - FPL FINISHED PLATFORM LEVEL
 - X SEWAGE CONTROL BARRIER
 - INVERT LEVEL (PIPE / PIT)
 - 225x100 GRATED BOX DRAIN
 - 100 DIA YARD SUMP
 - DOWNSPIPE
 - STORMWATER LINES
 - SEWER

DESIGNED HA	DRAWN HA	CHECKED JN	SCALE AS SHOWN	CAD REF. ENG/RAWSON
CLIENT: RAWSON HOMES (MR McVEIGH & MS DAVIDSON)				
LOT 6 WAKEHURST PARKWAY, SEAFORTH				
ISSUE	AMENDMENTS			
DATE				

OSD BASIN DETAILS
 HYDRAULIC DETAILS
 This plan forms part of the approved
 Certificate as issued by
 Job No. 02498
 Fitzgerald Building Certifiers Pty Limited
 SHEET No. 4

OSD BASIN DETAILS

SCALE 1:100

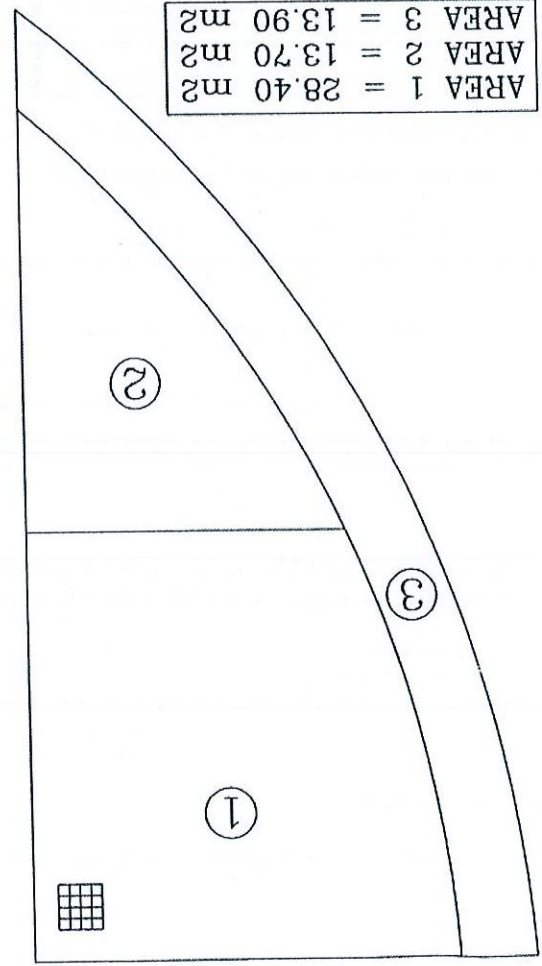


OSD BASIN VOLUME

VOLUME PROVIDED
 = (AREA 1 x 0.22m AVERAGE DEPTH)
 + (AREA 2 x 0.15m AVERAGE DEPTH)
 + (AREA 3 x 0.08m AVERAGE DEPTH)
 + (VOLUME WITHIN THE CONTROL PIT)
 = 6.25 + 2.05 + 1.11 + 0.16
 = 9.60 m3 > 8.60 m3OK

OSD BASIN AREAS
 SCALE 1:100

AREA 1 = 28.40 m2
 AREA 2 = 13.70 m2
 AREA 3 = 13.90 m2



600 SQ CONTROL PIT
 INV. PIT 85.65
 INV. OUTLET 85.90
 (REFER TO DETAIL 1 ON SHEET No.3)

NASSERI ASSOCIATES

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TEL. (02) 9986 3875
FAX. (02) 9986 3876
MOB. 0410 308 064
EMAIL: nasseriasociates@btgpond.com

J. NASSERI
BE, FIEAUST,
NPER, CPEng.
8 April 2011.

SYMBOLS & NOTATIONS

---	STORMWATER LINES
o	DOWNSPIPE
o	100 DIA YARD SUMP
o	225x100 GRATED BOX DRAIN
---	INVERT LEVEL (PIPE / PIT)
---	SEWER
---	PROPOSED BOUNDARY
-X-	SEDIMENT CONTROL BARRIER
FPL	FINISHED PLATFORM LEVEL
FFL	FINISHED FLOOR LEVEL
SL	FINISHED SURFACE LEVEL

DESIGNED	HA
DRAWN	HA
CHECKED	JN
SCALE	AS SHOWN
CAD REF.	ENG/RAWSON
JOB NO.	02498
Certificate as issued by Fitzgerald Building Certifiers Pty Limited	

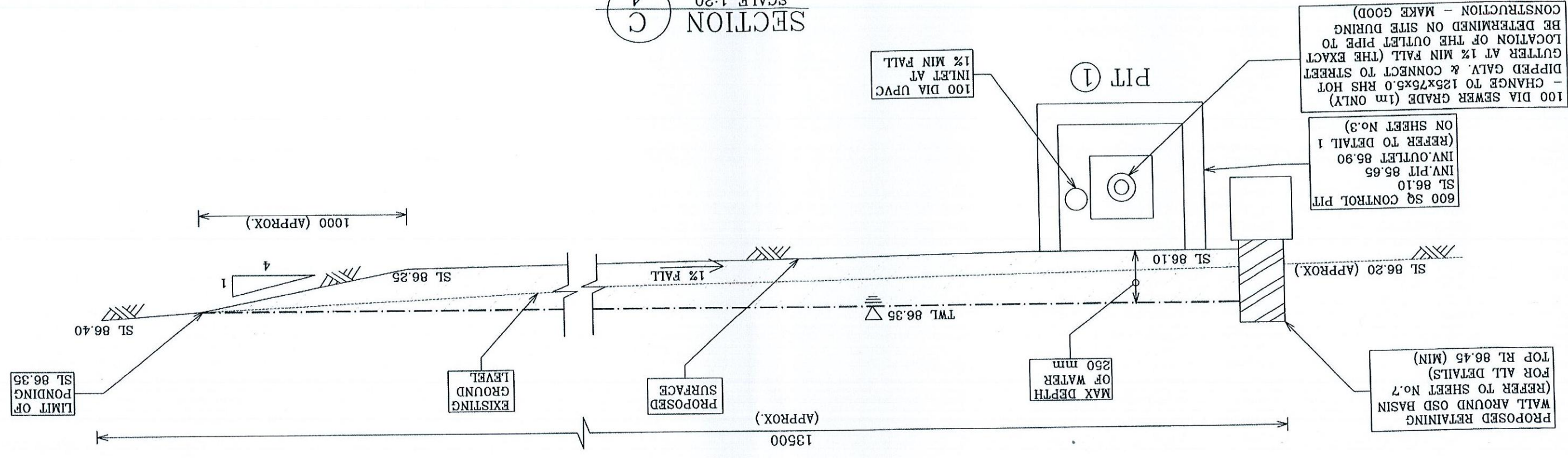
CLIENT: RAWSON HOMES (MR McVEIGH & MS DAVIDSON)
LOT 6 WAKEHURST PARKWAY, SEAFORTH

ISSUE	AMENDMENTS	DATE

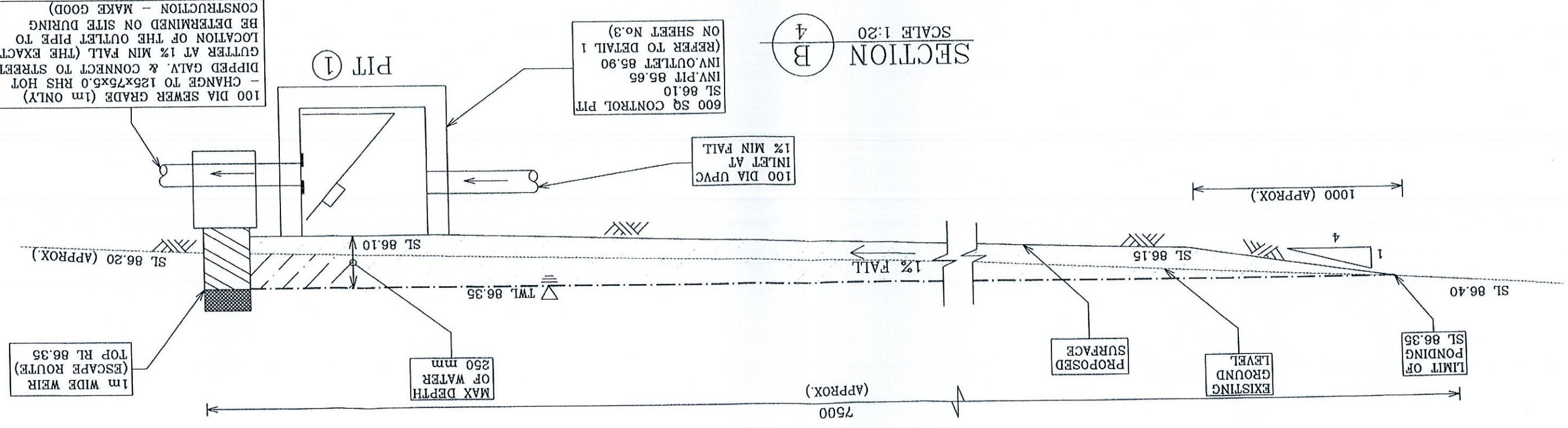
HYDRAULIC DETAILS

OSD BASIN DETAILS (SECTION B & C)
This plan is not to be used for construction without the approval of the Engineer.

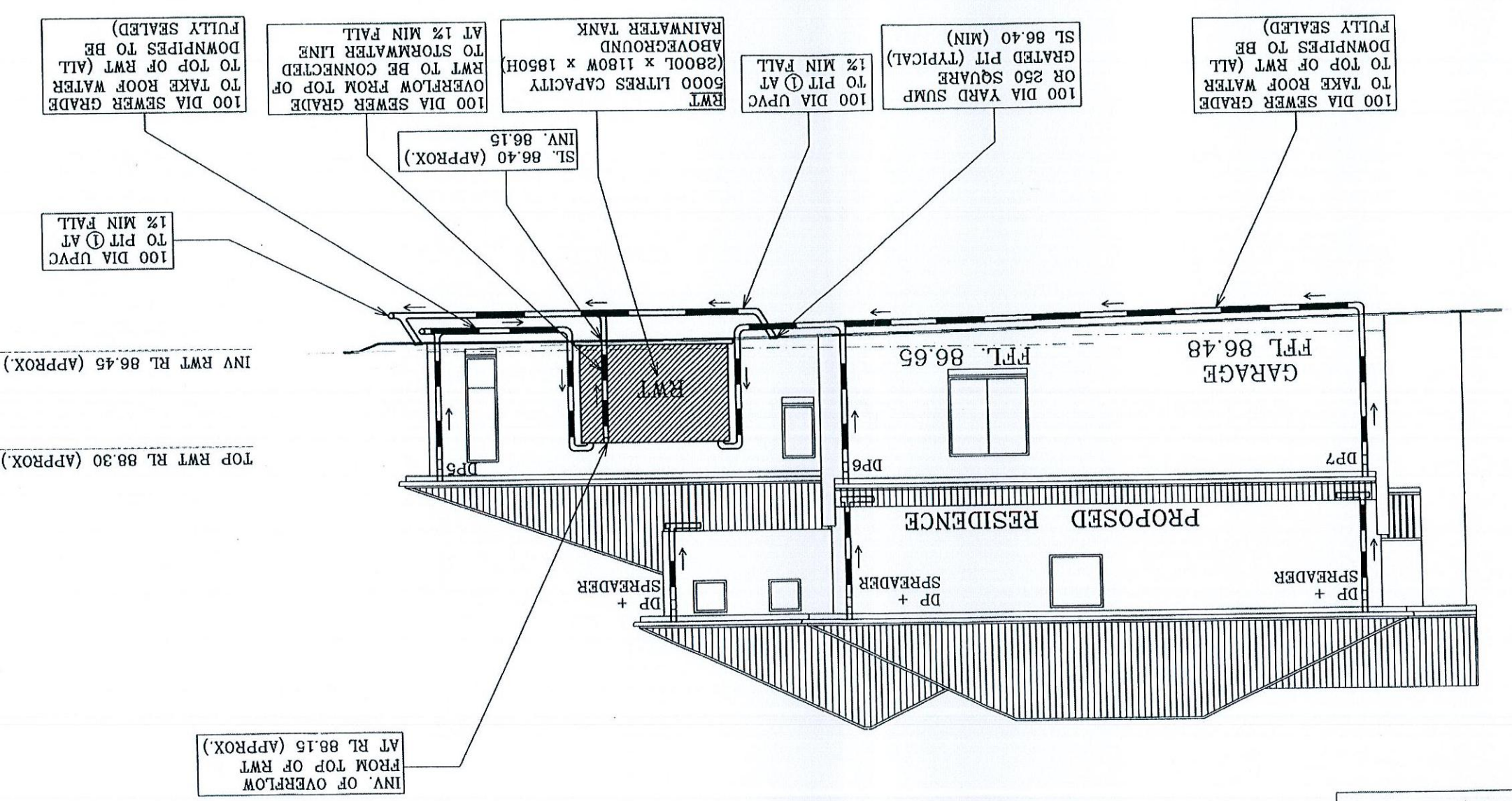
SECTION C
SCALE 1:20
4



SECTION B
SCALE 1:20
4



IMPORTANT NOTES:
1. RAINWATER TANK IS FROM BLUESCOPE WATER PTY LTD. OR SIMILAR.
(PH: 9623 2414)
2. A FIRST FLUSH DEVICE IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS SHALL BE FITTED TO THE SYSTEM TO DIVERT THE FIRST 0.5mm OF RUN-OFF FROM THE AREA DRAINING AWAY FROM THE STORAGE TANK.(eg.0.5 l/m2)



ELEVATION A
SCALE 1:100

SYMBOLS & NOTATIONS

SL	FINISHED SURFACE LEVEL
FPL	FINISHED FLOOR LEVEL
FPL	FINISHED PLATFORM LEVEL
X	SEDIMENT CONTROL BARRIER
---	PROPOSED BOUNDARY
---	SEWER
---	INVERT LEVEL (PIPE / PIT)
---	225x100 GRATED BOX DRAIN
o	100 DIA YARD SUMP
o	DOWNPIPE
---	STORMWATER LINES

DESIGNED	HA
DRAWN	HA
CHECKED	JN
SCALE	AS SHOWN
CAD REF.	ENG/RAWSON
JOB NO.	02498
DATE	
AMENDMENTS	
ISSUE	
CLIENT:	RAWSON HOMES (MR McVEIGH & MS DAVIDSON)
LOT	6 WAKEHURST PARKWAY, SEAFORTH

ELEVATION A & RWT DETAILS

HYDRAULIC DETAILS

As shown on the approved plan
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J. NASSERI
BE, FIBAust.,
NPER, CPEng.
8 Apr 2011

NPÉR, CPENG.

OTATIONS

[illegible]

PAATHIC DETAILS

B	1200	1000	800	600	500
H	2000	1600	1200	800	600