

Our Ref: 021008



31 August 2021

Mainway Project Management
hugh.bartsch@mainway.com.au

Attention: Hugh Bartsch

**Re: 102 ILUKA ROAD, PALM BEACH NSW 2108
CIVIL DESIGN CERTIFICATE**

Pursuant to the provisions of Clause A2.2 of the Building Code of Australia, I hereby certify that the civil design for the above project, documented on the drawings listed below, is in accordance with normal engineering practice and meets the requirements of the Building Code of Australia, Northern Beaches Council Water management for Development Policy and relevant Australian Standards particularly AS3500.3:2018 and AS/NZS 2890.1:2004.

- 021007-C01-A_Erosion_&_Sediment_Control_Plan
- 021007-C02-A_Stormwater_Drainage_Plan_Sheet_1
- 021007-C03-A_Stormwater_Drainage_Plan_Sheet_2
- 021007-C04-A_Drainage_Details
- 021007-C05-A_Vehicular_Crossing_Details

I am an appropriately qualified and competent person in this area and as such can certify that the design and performance of the design systems comply with the above and detailed on design plans shown in the following drawing & document list.

Should you have any queries please do not hesitate to contact us.

Yours faithfully,

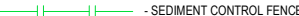
A handwritten signature in blue ink, appearing to read 'Aidan Hogan'.

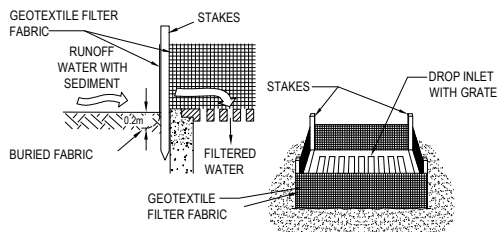
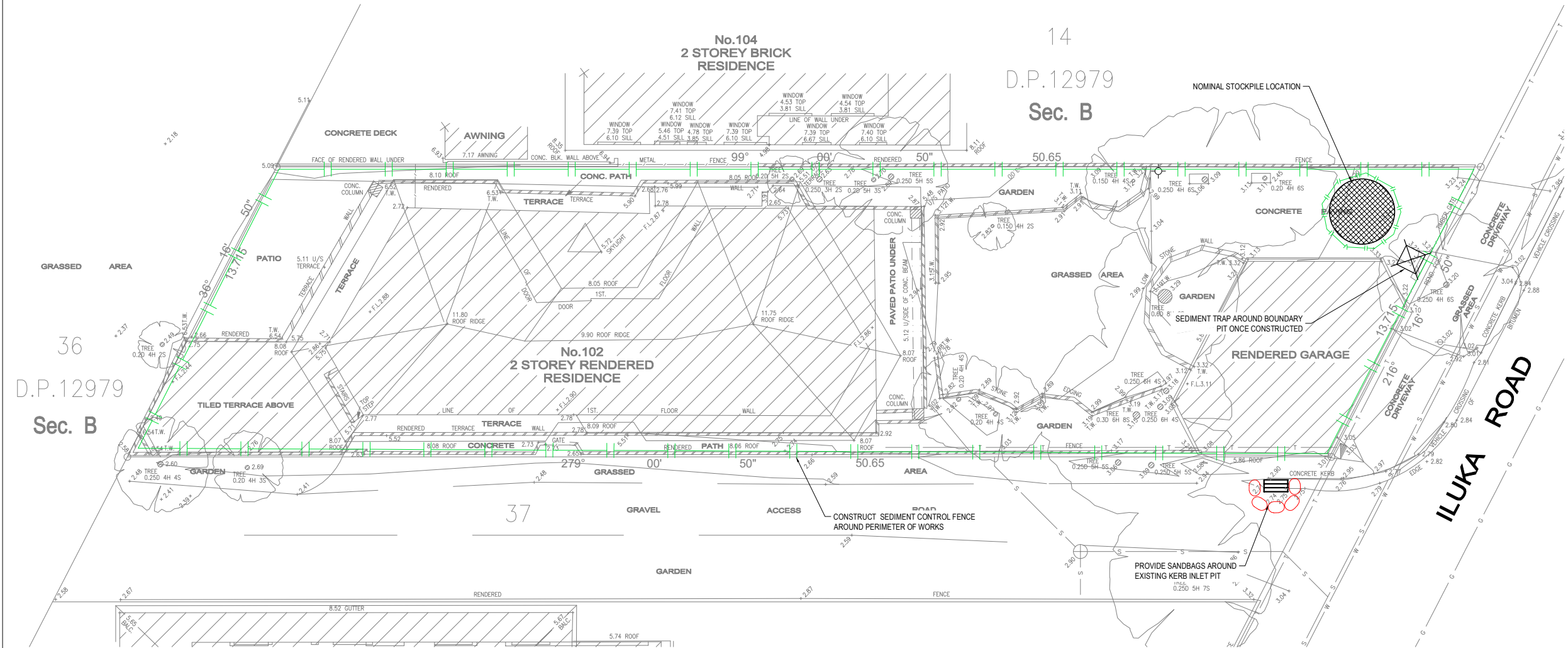
Aidan Hogan, B. Eng (Civil), MIEAust, CPEng, NER 5195425

EROSION AND SEDIMENT NOTES

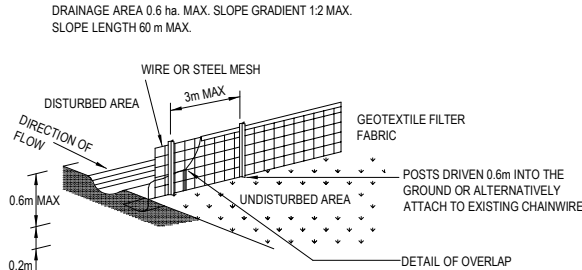
- B1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH EROSION AND SEDIMENT CONTROL DETAILS AS SHOWN
- B2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF COUNCIL PRIOR TO THE COMMENCEMENT OF AND DURING CONSTRUCTION. NO DISTURBANCE TO THE SITE SHALL BE PERMITTED OTHER THAN IN THE IMMEDIATE AREA OF THE WORKS AND NO MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT COUNCIL'S APPROVAL. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARDS OUTLINED IN NSW DEPARTMENT OF HOUSING'S "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTIONS".
- B3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE LINES. THIS TOPSOIL IS TO BE RESPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY. (I.E. ALL FOOTPATHS, BATTERS, SITE REGARDING AREAS, BASINS AND CATCHDRAINS). TOPSOIL SHALL NOT BE RESPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. IF THEY ARE TO REMAIN FOR LONGER THAN ONE MONTH STOCKPILES SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS DOWNSTREAM OF A STOCKPILE TO RETARD SILT LADEN RUNOFF.
- B4. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE ACCUMULATED SILT FROM DEVICES SUCH THAT NO MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL THE SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL DISTURBED AREAS ARE REVEGETATED OR AS DIRECTED BY THE SUPERINTENDENT OR COUNCIL.
- B5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO NOMINATED STABILISED ACCESS POINTS.
- B6. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL BY REGULAR WETTING DOWN (BUT NOT SATURATING) DISTURBED AREA.
- B7. PROVIDE AND MAINTAIN SILT TRAPS AROUND ALL SURFACE INLET PITS UNTIL CATCHMENTS ARE REVEGETATED OR PAVED.
- B8. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.
- B9. ALL DRAINAGE PIPE INLETS TO BE CAPPED UNTIL :
A) DOWNPIPES CONNECTED
B) PITS CONSTRUCTED AND PROTECTED WITH SILT BARRIER
- B10. SILT FENCE MAINTENANCE INSPECTION TO BE CARRIED OUT EVERY 3 MONTHS AND AFTER EACH RAINFALL EVENT.
- B11. EROSION & SEDIMENT CONTROL SIGNAGE AVAILABLE FROM COUNCIL MUST BE ATTACHED TO THE MOST PROMINENT AVAILABLE STRUCTURE AND BE VISIBLE AT ALL TIMES WHEN ENTERING THE SITE FOR THE DURATION OF CONSTRUCTION.

LEGEND

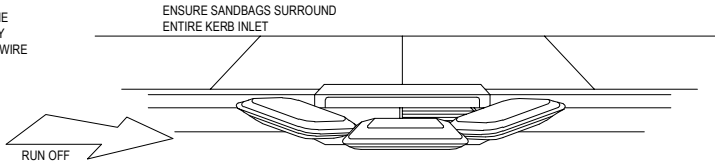
-  -STORMWATER SEDIMENT TRAPS AT ALL PROPOSED PIT INLETS
-  - SEDIMENT CONTROL FENCE
-  -STOCKPILE AREA
-  -SANDBAG KERB INLET SEDIMENT TRAP



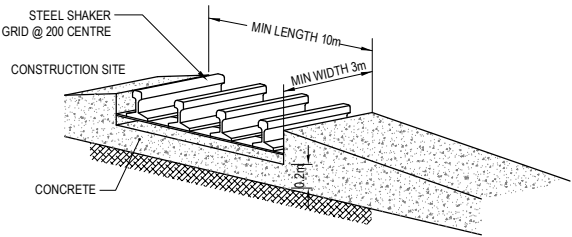
GEOTEXTILE FILTER FABRIC INLET
SEDIMENT TRAP
N.T.S.



SEDIMENT CONTROL FENCE
N.T.S.



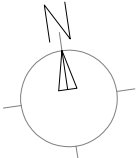
SANDBAG KERB INLET SEDIMENT TRAP
N.T.S.



TEMPORARY CONSTRUCTION
VEHICLE EXIT
N.T.S.

WARNING

BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

REVISIONS:				SCALE BAR			CIVIL ENGINEER AIDAN HOGAN B.Eng. CPEng. MIEAustralia e: hoganaodan@gmail.com	PROJECT TITLE 102 ILUKA ROAD PALM BEACH. NSW 2108	DRAWING STATUS		
No.	FOR APPROVAL	REVISION DESCRIPTION	DATE	0	10m				NOT TO BE USED FOR CONSTRUCTION		
A	FOR APPROVAL		26/08/21	0	10m				DESIGNER AH	SHEET SIZE A1	
									SCALE	PROJECT START DATE AUG 2021	
									JOB No. 021007	DRAWING No. C01	REVISION A

DESIGN SUMMARY

COUNCIL REQUIREMENTS
THIS PROPERTY FALLS WITHIN THE NORTHERN BEACHES LGA. THE STORMWATER REQUIREMENTS ARE DETAILED IN THE COUNCIL DOCUMENT "WATER MANAGEMENT FOR DEVELOPMENT POLICY". THIS STORMWATER PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THIS POLICY.

REGION
THE SITE IS WITHIN NORTHERN BEACHES STORMWATER REGION 1.

RAINWATER REUSE
A RAINWATER REUSE TANK OF 10,000L IS PROPOSED WHICH EXCEEDS THE REQUIREMENT OF THE BASIX CERTIFICATE. RAINWATER TANK IS BETWEEN GROUND AND BASEMENT LEVEL WITH OVERFLOW TO MAIN DRAINAGE SYSTEM.

ON-SITE DETENTION (OSD)
OSD DETERMINED USING TABLE 7 OF THE POLICY.
TOTAL SITE AREA= 617.5m²
EXISTING HARD SURFACE AREA = 501m²
PROPOSED HARD SURFACE AREA = 360m²
HARD SURFACE AREA WILL BE REDUCED.

ADDITIONAL AREA IS LESS THAN 50m².
=> OSD IS NOT REQUIRED.

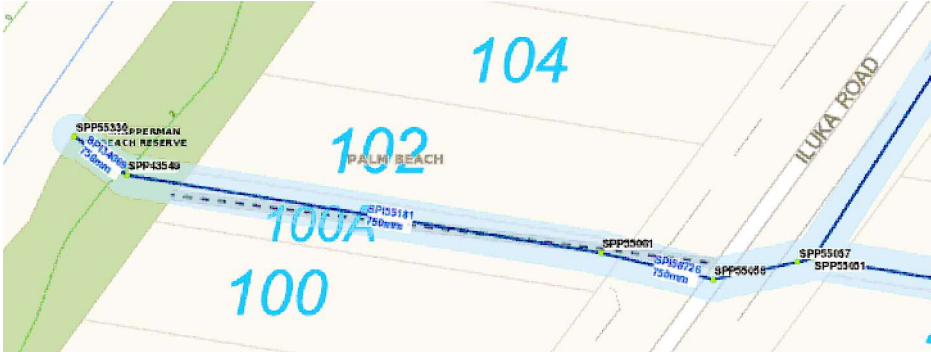
STORMWATER DISCHARGE
THE EXISTING GARAGE AT THE STREET BOUNDARY DISCHARGES TO THE KERB AND GUTTER ON ILUKA ROAD. IT IS PROPOSED TO MAINTAIN THIS ARRANGEMENT.

THE PROPERTY FALLS TO THE REAR OF THE SITE. THE HOUSE RUN-OFF DISCHARGES TO COUNCIL DRAINAGE SYSTEM. RUN-OFF FROM NEW ROOF TO DISCHARGE TO COUNCIL DRAINAGE SYSTEM.

RUN-OFF AREA = 361 m²
INTENSITY = 195 mm/hr (APP 12 DIAGRAM 6min DURATION 20 yr ARI)
TOTAL SITE DISCHARGE = 21 L/S (RATIONAL METHOD)
• DISCHARGE TO PIT = 15 L/S
• DISCHARGE TO KERB (GARAGE) = 6 L/S

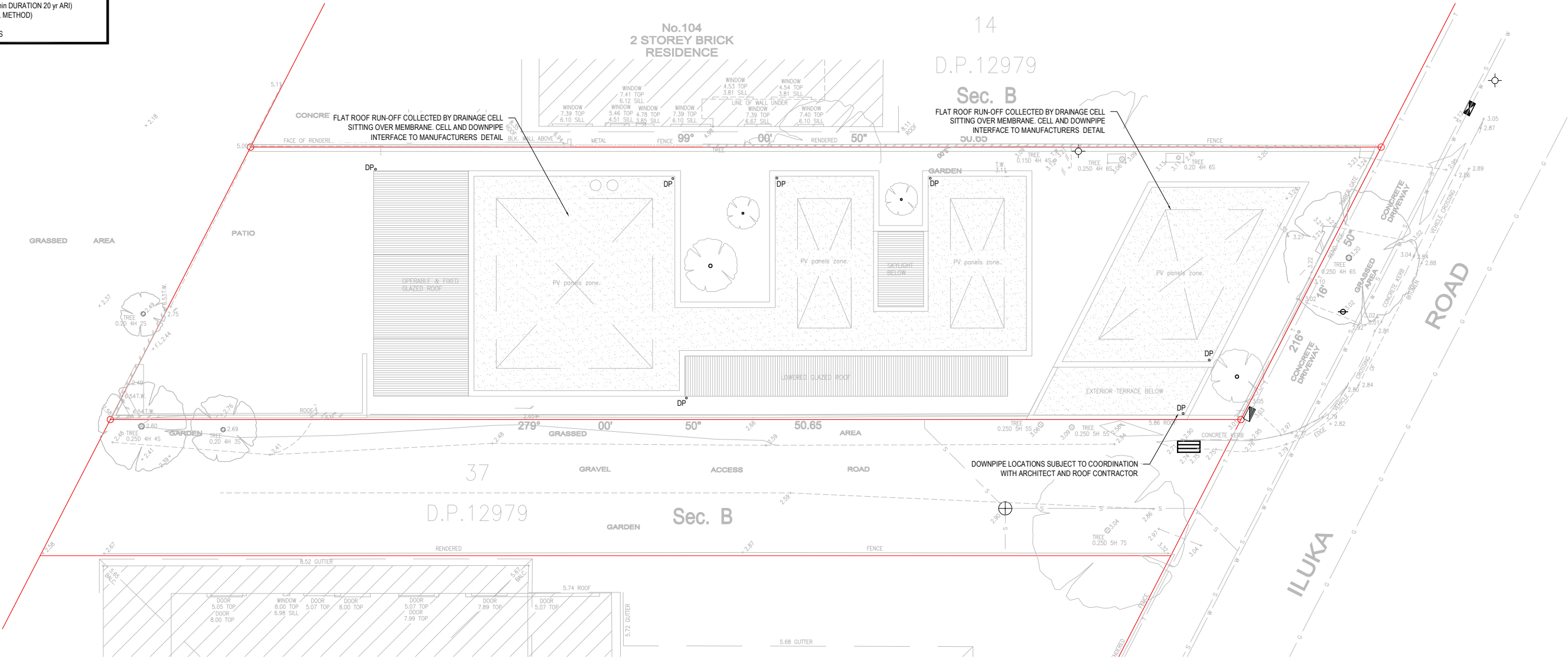
LEGEND

DP DOWNPIPE CONNECTION SHOWN INDICATIVELY. 1000 U.N.O. NUMBER AND POSITION SUBJECT TO COORDINATION WITH MEMBRANE ROOF CONTRACTOR AND ARCHITECT.



EXCERPT OF COUNCIL DRAINAGE MAPPING

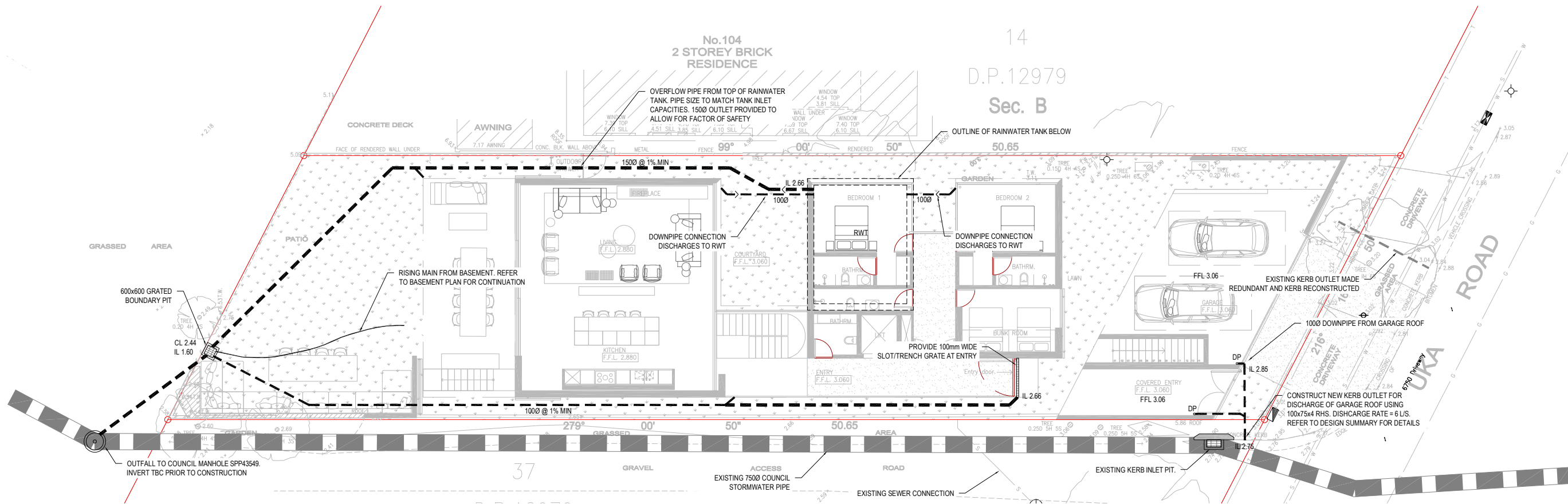
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ROOF PLAN

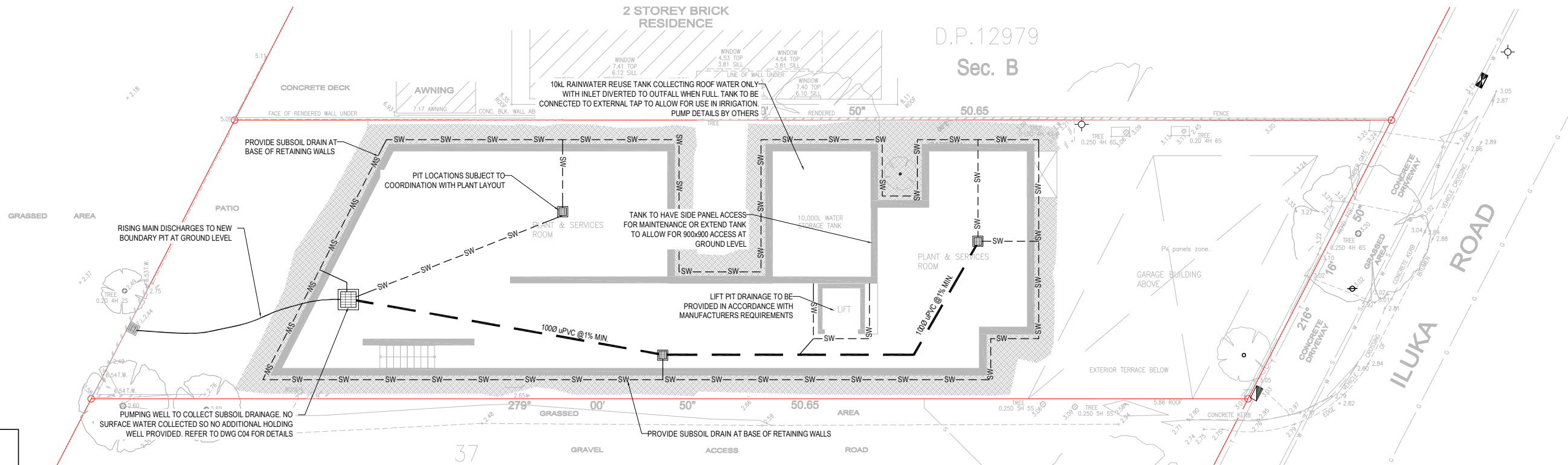
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REVISIONS:				SCALE BAR 012345m SCALE 1:50				CIVIL ENGINEER AIDAN HOGAN B.Eng. CPEng. MIEAustralia e: hoganadon@gmail.com		PROJECT TITLE 102 ILUKA ROAD PALM BEACH. NSW 2108		DRAWING STATUS APPROVAL ISSUE NOT TO BE USED FOR CONSTRUCTION	
				DISCLAIMER THIS DRAWING IS COPYRIGHT AND THE PROPERTY OF AIDAN HOGAN. IT MUST NOT BE RETAINED, COPIED OR USED WITHOUT THE AUTHORITY OF AIDAN HOGAN. WHERE THE DRAWING HAS BEEN ALTERED, AMENDED OR CHANGED EITHER MANUALLY OR ELECTRONICALLY BY ANY THIRD PARTY, SUCH ALTERATIONS ARE THE PROPERTY OF AIDAN HOGAN AND WILL NOT BE ACCEPTED FOR ANY CONSEQUENCES ARISING FROM THE USE OF THIS DRAWING FOR OTHER THAN ITS INTENDED PURPOSES OR WORKS OR FABRICATION IF IN DOUBT, ASK.						DESIGNER AH SHEET SIZE A1			
										PROJECT START DATE AUG 2021			
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GROUND FLOOR PLAN

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BASEMENT PLAN

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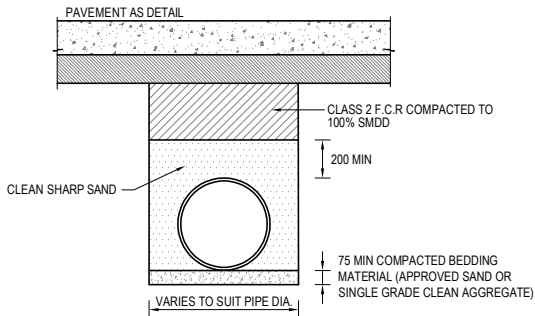
WARNING

BEWARE OF UNDERGROUND SERVICES

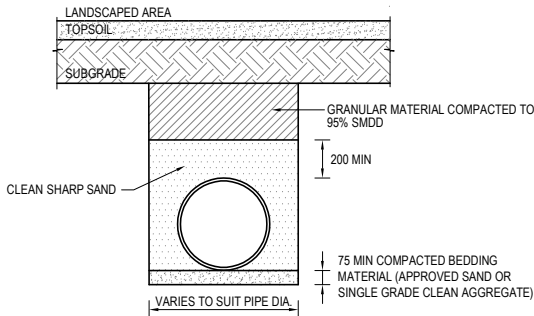
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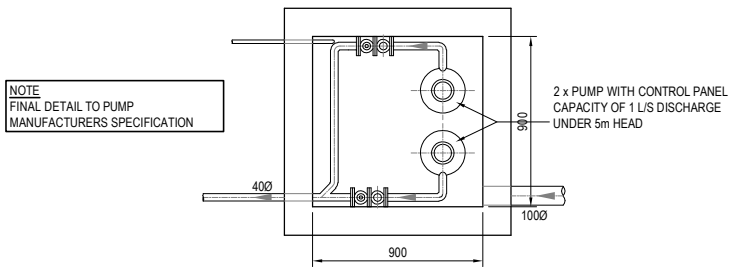
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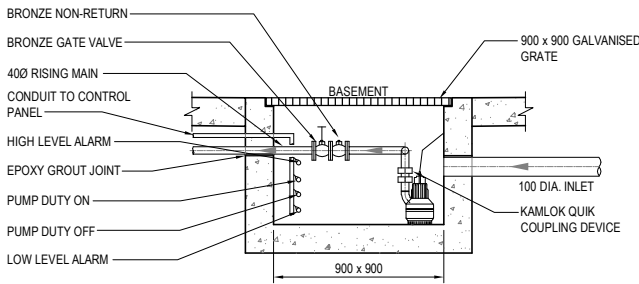
UNDER PAVEMENT PIPE BEDDING
NTS



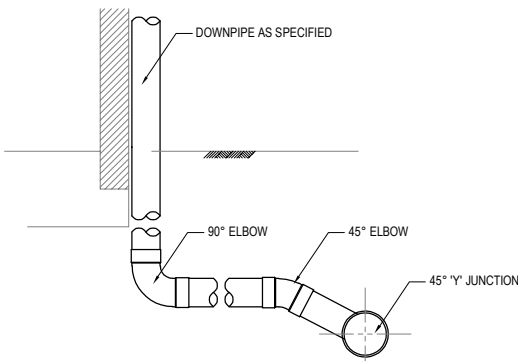
UNDER LANDSCAPING PIPE BEDDING
NTS



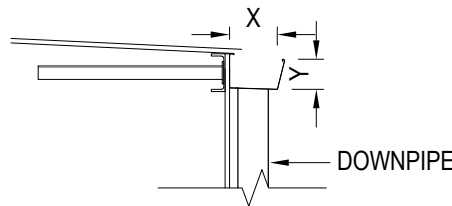
PUMPING WELL DETAIL
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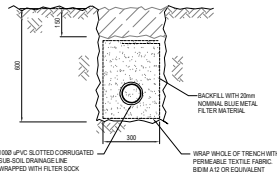
SECTION THROUGH
PUMPING WELL
SCALE 1:20



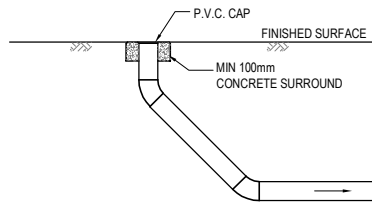
uPVC DOWNPIPE CONNECTION
SCALE 1:20



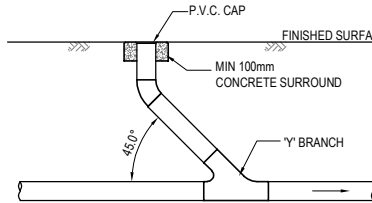
EAVES GUTTER
NTS



SUB-SOIL DRAIN DETAIL
SCALE 1:20



FLUSH POINT DETAIL
SCALE 1:20



FLUSH POINT DETAIL (INLINE)
SCALE 1:20

DRAINAGE NOTES

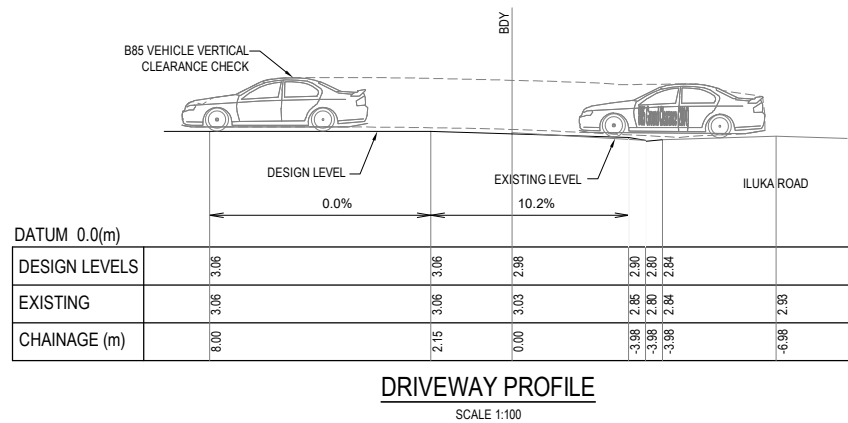
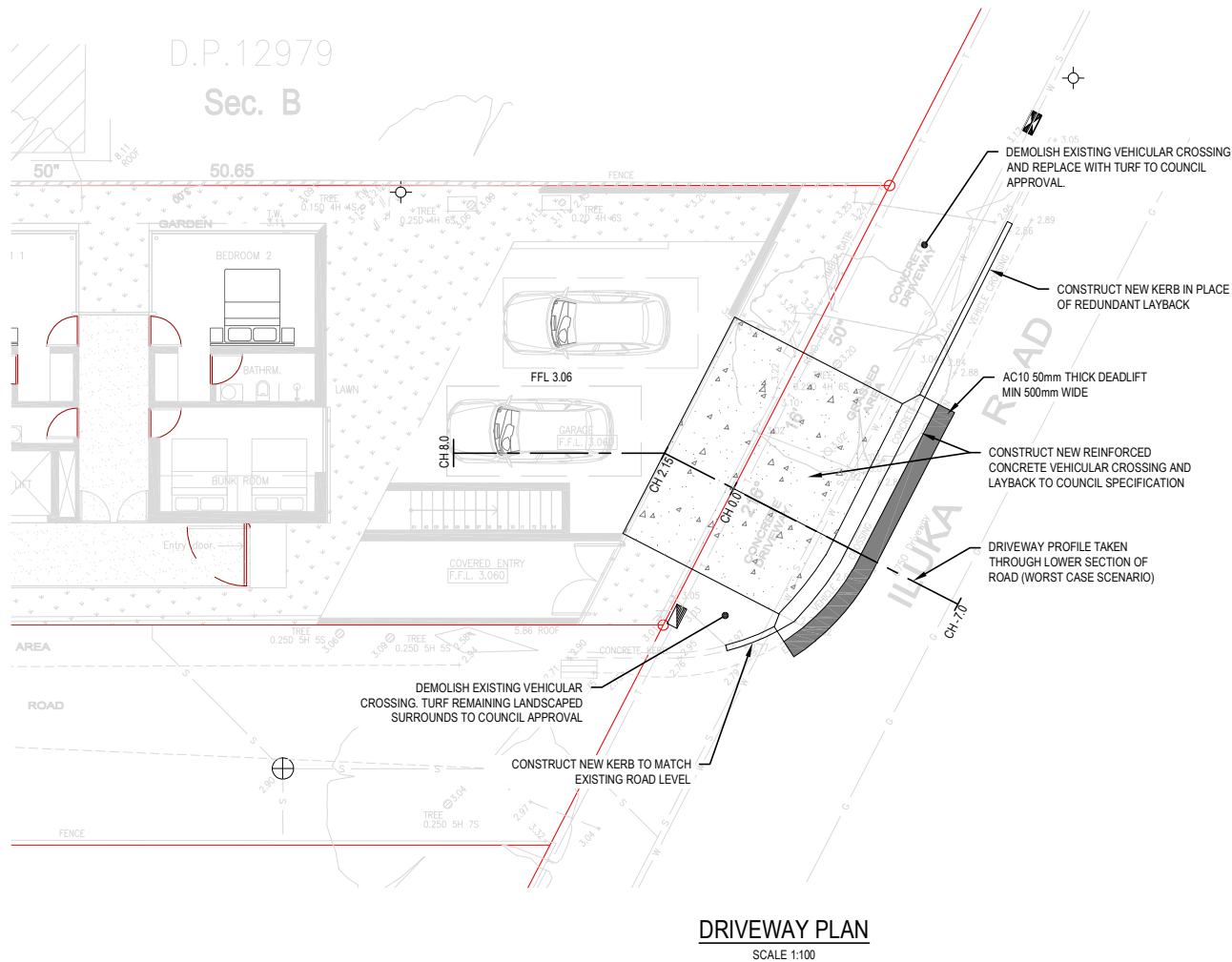
- D1. PIT LEVELS SHOWN ON STORMWATER DRAINAGE PLANS ARE FOR INFORMATION. EXACT PIT LEVELS TO BE ADJUSTED TO SUIT FALLS IN PAVEMENT/LANDSCAPED AREA.
- D2. PITS GREATER THAN 1.2m DEEP TO BE FITTED WITH STEP IRONS.
- D3. DRAINAGE PIPES SHALL BE BACKFILLED WITH COMPACTED CLEAN SHARP SAND TO 200 ABOVE PIPE OBVERT. ADDITIONAL BACKFILL UNDER ROADS SHALL CONSIST OF CLASS 2 F.C.R. MATERIAL COMPACTED IN 200mm LAYERS TO 98% SMDD. UNDER LANDSCAPED AREAS ADDITIONAL BACKFILL SHALL CONSIST OF GRANULAR MATERIAL COMPACTED IN 200mm LAYERS TO 95% SMDD.
- D4. A 3m LENGTH OF 100 Ø SLOTTED AGRICULTURAL LINE SURROUNDED BY GEOTECH STOCKING SHALL BE PROVIDED ON THE UPSTREAM SIDE OF ALL PITS.
- D5. CONCRETE STORMWATER PIPES TO BE CLASS '3' UNDER ROADS AND CLASS '2' IN NON-TRAFFICED AREAS. ALL PIPES GREATER THAN 3000 ARE TO BE RUBBER RING JOINTS U.N.O.
- D6. CONCRETE PITS GREATER THAN 1.0m DEEP TO BE REINFORCED WITH N12-200 EACH WAY CENTRED, MIN. 300 LAP, CONCRETE - Fc 25MPa
- D7. 1500, 2250 & 3000 uPVC PIPES TO BE SEWER GRADE PIPE UNDER TRAFFICABLE PAVEMENT. MIN. 400 COVER UNDER NON-TRAFFICABLE PAVEMENT.
- D8. PIT COVERS & GRATED DRAINS IN TRAFFICABLE PAVEMENT TO BE AS 3996 CLASS D "HEAVY DUTY" & IN NON-TRAFFICABLE AREAS TO BE AS 3996 CLASS C "LIGHT DUTY".

ROOF DRAINAGE NOTES

- RD1. CONTRACTOR SHALL ALLOW FOR ALL FLASHING AND WATERPROOFING IN ACCORDANCE WITH THE AUSTRALIAN STANDARD HB 39:2015 AND AS REQUIRED TO PROVIDE A "WATERTIGHT" JOINT.
- RD2. FOR BOX GUTTERS CONTRACTOR SHALL ALLOW TO INSTALL 100% EMERGENCY OVERFLOW MEASURES TO ATMOSPHERE IN ACCORDANCE WITH AS3500.
- RD3. CONTRACTOR SHALL ALLOW FOR FALL IN GUTTERS AT A MINIMUM OF 1:200 TO ALLOW FOR ADEQUATE FALL TO THE SUMP/DOWNSPIPE.
- RD4. WHERE RAINHEADS ARE USED, OVERFLOW WEIR OF RAINHEAD TO BE MINIMUM 25mm BELOW SOLE OF THE GUTTER. TOP OF RAINHEAD TO BE NO HIGHER THAN HALF THE DEPTH OF THE GUTTER.
- RD5. DOMESTIC BOX GUTTERS TO BE MINIMUM 200mm WIDE & MINIMUM 75mm DEEP AT HIGH END.
- RD6. COMMERCIAL AND INDUSTRIAL BOX GUTTERS TO BE MINIMUM 300mm WIDE & MINIMUM 75mm DEEP AT HIGH END.
- RD7. BOX GUTTER SUMPS TO BE MINIMUM 150mm DEEP AND 400mm LONG.
- RD8. EAVES GUTTERS TO BE OFFSET FROM FASCIA MINIMUM OF 4mm.
- RD9. BACK OF EAVES GUTTERS TO BE MINIMUM 10mm BELOW TOP OF FASCIA.
- RD10. CONTRACTOR SHALL ALLOW FOR ALL REQUIRED EXPANSION JOINTS AND ADJUSTMENTS FOR THERMAL VARIATION. ALL EXPANSION SPACE SHALL BE A MINIMUM OF 50mm.
- RD11. CONTRACTOR SHALL ALLOW TO INSTALL GUTTER GUARDS AND MESH SCREENS ON ALL GUTTERS, DOWNPIPES AND SUMPS.
- RD12. CONTRACTOR TO PROVIDE A MAINTENANCE SCHEDULE FOR REGULAR CLEANING AND HOSE FLUSHING OF ALL DOWN PIPES AND GUTTERS.
- RD13. CONTRACTOR TO PROVIDE A WATER TEST FOR ALL INTERNAL DOWNPIPES FOR 10 MINUTES AT 100mm OF HEAD WATER/OR AIR TEST PRESSURE OF NOT LESS THAN 30 kPa FOR A MINIMUM OF 3 MINUTES IN ACCORDANCE WITH AS3500.

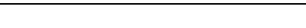
REVISIONS:				SCALE BAR 012345 1m 1.5 2m SCALE 1:20								CIVIL ENGINEER AIDAN HOGAN B.Eng. CPEng. MIEAustralia e: hoganoadan@gmail.com				PROJECT TITLE 102 ILUKA ROAD PALM BEACH. NSW 2108				DRAWING STATUS APPROVAL ISSUE NOT TO BE USED FOR CONSTRUCTION			
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WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.



NOTE

- LEVELS SHOWN ON PROFILE ARE INDICATIVE.
- BEFORE MAKING CHANGES TO YOUR DRIVEWAY, AN APPLICATION FOR STREET LEVELS FORM MUST BE COMPLETED AND LODGED WITH COUNCIL BY MAIL, OR IN PERSON AT THE COUNCIL'S CUSTOMER SERVICE CENTRE WITH THE RELEVANT INSPECTION FEE LISTED IN COUNCIL'S FEES AND CHARGES. ONCE THIS APPLICATION HAS BEEN RECEIVED, COUNCIL'S DEVELOPMENT ENGINEERS WILL CARRY OUT AN INSPECTION OF THE DRIVEWAY AND ISSUE THE APPROPRIATE LEVELS. YOU MUST THEN BOOK AN INSPECTION WITH COUNCIL'S DEVELOPMENT ENGINEERING SECTION BEFORE LAYING THE FORMWORK. AN APPLICATION FOR STREET LEVELS WILL ONLY BE APPROVED WHEN REPLACING AN EXISTING CROSSING OR A CONDITION OF DEVELOPMENT CONSENT REQUIRES THE CONSTRUCTION OF A VEHICLE CROSSING.

REVISIONS:				SCALE BAR			CIVIL ENGINEER		PROJECT TITLE		DRAWING STATUS				
				0 1 2 3 4 5m			AIDAN HOGAN B.Eng. CPEng. MIEAustralia		102 ILUKA ROAD		APPROVAL ISSUE				
				SCALE 1:50			e: hoganaodan@gmail.com		PALM BEACH. NSW 2108		NOT TO BE USED FOR CONSTRUCTION				
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