- 2. DO NOT SCALE FROM THESE DRAWING.
- 3. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE BY THE BUILDER BEFORE COMMENCING WITH ASSOCIATED WORK

STORMWATER NOTES:

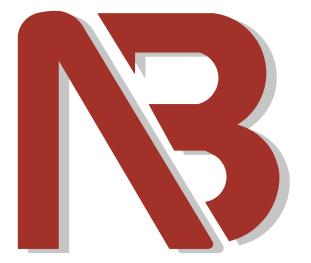
- A: GENERAL:
- AL ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH AUSTRALIAN STANDARDS (LATEST VERSION) AND THE REQUIREMENTS OF THE LOCAL COUNCIL AND ANY APPLICABLE AUTHORITIES.
- A2. ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE
- A3. THE LOCATION OF ALL DRAINAGE ELEMENTS ARE SHOWN INDICATIVELY BASED ON AVAILABLE SURVEY OR OTHER INFORMATION. ALL DRAINAGE ELEMENTS ARE TO BE INSTALLED WITH CONSIDERATION TO SITE CONSTRAINTS AND THE INTENT OF THE DRAINAGE CONCEPT.
- A4. ANY MATERIAL VARIATIONS TO THE DRAINAGE CONCEPT OR DETAILED STORMWATER ELEMENTS MUST BE APPROVED BY NORTHERN BEACHES CONSULTING ENGINEERS PTY LTD **E: SURFACE DRAINAGE**: PRIOR TO COMMENCEMENT
- B: GENERAL CONSTRUCTION NOTES:
- BI. CONTRACTORS TO LOCATE ALL EXISTING SERVICES PRIOR TO EXCAVATION AND NOTIFY ENGINEER OF ANY POTENTIAL CLASHES WITH THE PROPOSED STORMWATER DRAINAGE SYSTEM
- B2. ANY ELEMENTS OF THE EXISTING STORMWATER SYSTEM WHICH ARE PROPOSED TO BE RETAINED MUST BE INSPECTED AND APPROVED BY AN ENGINEER PRIOR TO CONSTRUCTION AS BOTH HAVING ADEQUATE CAPACITY TO CATER FOR THE RUNOFF DIRECTED TO IT AND BEING IN ADEQUATE CONDITION FOR USE.
- B3. EXISTING STORMWATER SYSTEM ALSO TO BE INSPECTED BY A SUITABLY QUALIFIED PLUMBER PRIOR TO CONSTRUCTION AND UPGRADED AS REQUIRED IN ACCORDANCE WITH AS3500.3
- B4. CARE SHOULD BE TAKEN WHEN UNDERTAKING WORKS IN THE VICINITY OF TREES NOT TO DISTURB THE TREE ROOT SYSTEM. HAND DIGGING OF TRENCHES MAY BE REQUIRED SUBJECT TO THE PROJECT ARBORISTS REQUIREMENTS. REFER TO THE ARBORIST REPORT FOR EXCAVATION REQUIREMENTS SURROUNDING PROTECTED TREE ROOT ZONES.
- B5. SWIMMING POOL SURCHARGE OVERFLOW TO BE CONNECTED VIA GRAVITY TO THE SEWER IN ACCORDANCE WITH AS3500. DETAILS AND CERTIFICATION BY OTHERS.
- B6. EXTENT, ALIGNMENT, DEPTH AND CONDITION OF ANY COUNCIL STORMWATER PIPELINE WITHIN A DEVELOPMENT SITE MUST BE VERIFIED PRIOR TO CONSTRUCTION AND THE ENGINEER MUST BE NOTIFIED UPON VERIFICATION. ANY NEW CONNECTION TO A COUNCIL STORMWATER PIPELINE WILL BE SUBJECT TO COUNCIL APPROVAL AND MUST BE INSTALLED IN ACCORDANCE WITH THE LOCAL COUNCIL SPECIFICATIONS.
- B7. BUILDER TO PROVIDE A MINIMUM 100mm WIDE x 30mm HIGH OR 50mm DIA OVERFLOW FOR EVERY 6m2 OF EXPOSED AREA THAT IS TRAPPED OR SURROUNDED BY HOBS/BALUSTRADES/WALLS/ETC. THE FULL OVERFLOW DEPTH MUST BE LOCATED BELOW ANY ADJACENT INTERNAL FLOOR LEVELS OR OPENINGS TO PROTECT AGAINST WATER INGRESS DUE TO BLOCKAGE OF THE PRIMARY OUTLET(S).

C: PIPEWORK INSTALLATION:

- CI. ALL PIPES TO BE MINIMUM 100mm & UNLESS NOTED OTHERWISE.
- C2. ALL PIPES TO BE UPVC SEWER GRADE TO AS 1254 UNLESS NOTED OTHERWISE.
- C3. ALL PIPES TO BE LAYED AT 1 % MINIMUM GRADE UNLESS NOTED OTHERWISE. C4. ALL CONNECTIONS INTO EXISTING PIPES MUST BE MADE IN THE DIRECTION OF FLOW
- C5. ANY NEW UPVC CONNECTIONS INTO EXISTING R.C. PIPES MUST BE MADE INTO THE TOP
- HALF OF THE PIPE USING A FLOWCON CONCONECT FITTING U.N.O C6. ALL PIPES SHALL BE LAID ON A 75mm SAND BED, COMPACTED TO 100% S.M.D.D. BELOW
- PAVEMENTS. (NO COMPACTION REQUIRED BELOW LANDSCAPING) COVER TO SURFACE FROM TOP OF PIPE TO BE 300mm MINIMUM. BACKFILL TO BE ADEQUATELY CONSOLIDATED AROUND PIPES BY METHOD OF RAMMING AND WATERING IN. TRENCHES TO BE FILLED WITH NO-FINES GRANULAR MATERIAL AS SPECIFIED.
- C7. ALL EXISTING EARTHENWARE PIPES TO BE UPGRADED TO UPVC.
- C8. MINIMUM PIPE COVER TO ALL IN-GROUND PIPEWORK SHALL BE CARRIED OUT IN ACCORDANCE WITH TABLE 7.1 - AS3500.3.
- C9. ALL SUSPENDED PIPE FIXINGS ARE TO BE CARRIED OUT IN ACCORDANCE WITH AS2032. CIO. ENSURE THAT ALL STORMWATER PITS AND PIPES ARE LOCATED CLEAR FROM TREE ROOT SYSTEMS
- CII. ALL PIPEWORK MUST BE INSTALLED WITHIN THE SITE BOUNDARY OF THE DEVELOPMENT SITE. ANY NEW OR EXISTING PIPEWORK EXTENDING THROUGH PRIVATE PROPERTY BEYOND THE BOUNDARY OF THE DEVELOPMENT SITE MUST BE CONTAINED SOLELY WITHIN A DRAINAGE EASEMENT. IF NO DRAINAGE EASEMENT EXISTS, A NEW DRAINAGE EASEMENT MUST BE SOUGHT AND REGISTERED PRIOR TO UTILISING OR INSTALLING PIPEWORK THROUGH NEIGHBOURING PROPERTIES. CONTACT THE ENGINEER IF A DRAINAGE EASEMENT CANNOT BE OBTAINED.

D: ROOF DRAINAGE:

- DI. ALL DOWN PIPES TO BE 100mm \$\phi\$ UNLESS NOTED OTHERWISE.
- D2. DOWN PIPE LOCATIONS ARE INDICATIVE ONLY. LOCATIONS TO BE CONFIRMED WITH ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
- D3. PROVIDE CLEANING EYES AT ALL DOWNPIPES.
- D4. GUTTER GUARDS MUST BE INSTALLED ON ALL GUTTERS UNLESS NOTED OTHERWISE. D5. ALL EAVES GUTTER AND VALLEY GUTTER SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH AS3500.3 REQUIREMENTS.
- D6. ALL BOX GUTTER SYSTEMS MUST BE INSTALLED STRICTLY IN ACCORDANCE WITH THE DETAILS SHOWN ON THE APPROVED STORMWATER MANAGEMENT PLAN. IF NO DETAILS ARE SHOWN, THE BOX GUTTER SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH AS3500.3. IF ANY CHANGE TO THE BOX GUTTER SYSTEM CONFIGURATION IS PROPOSED THE ENGINEER MUST BE NOTIFIED FOR A RE-DESIGN. IF THE INSTALLED BOX GUTTER DOES NOT STRICTLY COMPLY WITH THE DESIGN DETAILED ON THE STORMWATER MANAGEMENT PLAN, CERTIFICATION OF THE HYDRAULIC SYSTEM MAY BE REFUSED.



Consulting Engineers

STRUCTURAL - CIVIL - STORMWATER - REMEDIAL

D7. ALL GREEN ROOFS, PEBBLED ROOFS AND PLANTERS WITH A CONCRETE BASE MUST BE WATERPROOFED AND HAVE DRAINAGE CELL INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION.

- EI. ALL STORMWATER PITS MUST BE INSTALLED IN ACCORDANCE WITH AS3500.3.
- E2. ALL CONCRETE PITS TO BE CAST INSITU OR, IF PRECAST, APPROVED BY ENGINEER. CAST INSITU PITS TO HAVE 150mm THICK CONCRETE WALLS AND BASE. WALLS TO BE REINFORCED WITH 1 NI2 TOP TIE UNLESS NOTED OTHERWISE. CAST INSITU PITS GREATER THAN 900 DEEP TO BE MINIMUM 900x600 AND TO HAVE 150mm THICK CONCRETE WALLS AND BASE. WALLS TO BE REINFORCED WITH NI2 AT 300 EACH WAY UNLESS NOTED OTHERWISE.
- E3. MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS TO BE IN ACCORDANCE WITH TABLE 8.2. AS3500.3
- E4. ALL PITS GREATER THAN 1200mm DEEP SHALL HAVE STEP IRONS INSTALLED. STEP IRON INSTALLATION MUST BE IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS.
- E5. THE BOUNDARY OR SILT ARRESTOR PIT MUST INCORPORATE A SUMP OF MINIMUM 200mm DEPTH BELOW THE INVERT OF THE OUTLET PIPE AND A MAXI-MESH SCREEN AS PER LOCAL COUNCIL AND THE AUSTRALIAN STANDARD REQUIREMENTS. HOWEVER, UNLESS SPECIFICALLY REQUIRED BY COUNCILS POLICY OR IF THE SITE CONSISTS OF A CLAY OR ROCK SUBGRADE, ALL OTHER DRAINAGE PITS WILL NOT REQUIRE A SUMP.
- E6. ALL STORMWATER PITS TO BE LOCATED AT LOW POINTS TO PREVENT PONDED WATER. E7. FOR STORMWATER PITS LOCATED BELOW THE WATER TABLE, CUT INTO ROCK OR IN
- POORLY DRAINED SOILS, THE PIT SUMP MAY BE FILLED WITH MORTAR AND SCREEDED TOWARDS THE OUTLET AT MINIMUM 1% FALL, SUBJECT TO THE ENGINEERS APPROVAL.

F: SUB-SOIL DRAINAGE

- FI. ALL SUB-SOIL DRAINAGE TO BE INSTALLED AS REQUIRED IN ACCORDANCE WITH AS3500.3 REQUIREMENTS, SPECIFICALLY SECTION 6, 7 AND APPENDIX M
- F2. UNLESS NOTED OTHERWISE, SUB-SOIL DRAINS ARE TO BE INSTALLED IN ACCORDANCE WITH AS3500.3 ALONGSIDE WALLS THAT IMPEDE THE NATURAL FLOW OF GROUNDWATER. THIS MAY ALSO INVOLVE TRENCHING INTO THE CLAY OR ROCK SUBGRADE TO DIRECT GROUNDWATER AWAY FROM STRUCTURES. SUB-SOIL DRAINAGE MUST ALSO BE INSTALLED IN SHALLOW LANDSCAPED AREAS OVER ROCK OR POORLY DRAINED SOILS TO PREVENT OVERLY SATURATED LANDSCAPING AREAS.
- F3. 100mm ϕ x 3000 LONG TAIL OUT SUBSOIL LINE TO BE PROVIDED ON THE UPSTREAM SIDE OF ALL LARGE PITS OR IN AREAS WITH HIGH SEEPAGE FLOWS. SUBSOIL LINE TO BE COVERED WITH GEOTEXTILE FILTER SOCK FOR THE FULL LENGTH AND END COVERED. G: <u>CHARGED SYSTEM:</u>
- GI. ALL PIPEWORK IN A CHARGED SYSTEM TO BE 100mm \$\phi\$ UPVC PRESSURE OR SEWER GRADE PIPES WITH ALL JOINTS PRESSURE SEALED TO A MINIMUM OF 500mm (UNLESS NOTED OTHERWISE) ABOVE THE INLET OF THE DISCHARGE POINT. ALL JOINTS TO BE SOLVENT WELDED IN ACCORDANCE WITH THE AUSTRALIAN STANDARDS.
- G2. ALL CHARGED SYSTEMS MUST HAVE A BLEED OUT LINE AT THE LOW POINT IN THE CHARGED SYSTEM WHICH MUST BE CONNECTED TO A FLUSH OUT PIT VIA GRAVITY. THE BLEED LINE MUST BE MAINTAINED AND REGULARLY FLUSHED OUT.

H: ON-SITE DETENTION NOTES:

- HI. ORIFICE PLATE MUST BE INSTALLED PRIOR TO INSTALLATION OF THE ROOF DRAINAGE SYSTEM AND CONNECTION OF THE SITE STORMWATER SYSTEM TO THE ONSITE DETENTION
- H2. THE HEIGHT DIFFERENCE (H*) BETWEEN THE ORIFICE CENTRELINE AND THE TOP WATER LEVEL OF THE ON-SITE DETENTION TANK MUST BE CONSTRUCTED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN. IF H* CHANGES DUE TO SITE CONDITIONS, THE ENGINEER MUST BE NOTIFIED FOR AN ORIFICE PLATE SIZE ADJUSTMENT.
- H3. ANY PIPE FITTINGS FOR BELOW GROUND ON-SITE DETENTION TANK TANKS MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- H4. ACCESS HATCHES MUST BE INSTALLED AT BOTH ENDS OF THE ON-SITE DETENTION TANK. IF THE DEPTH OF THE TANK IS GREATER THAN 1200mm, STEPS IRONS MUST BE INSTALLED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS.
- H5. ABOVE GROUND ON-SITE DETENTION BASINS MUST NOT EXCEED A PONDING DEPTH OF 300mm, UNLESS NOTED OTHERWISE. THE BUILDER MUST ENSURE THAT THE REQUIRED DETENTION VOLUME IS ACHIEVED DURING CONSTRUCTION. A WORK-AS-EXECUTED PLAN DETAILING THE FINISHED LEVELS AND VOLUME OF THE ON-SITE DETENTION BASIN MUST BE CARRIED OUT AT THE COMPLETION OF WORKS BY A REGISTERED SURVEYOR AND APPROVED BY THE ENGINEER PRIOR TO FINAL CERTIFICATION.

RAINWATER RE-USE TANKS:

- RWTI: CONSIDERING THE ROOF CATCHMENT AREA, LOCATION OF PROPERTY, INTENDED USE OF RAINWATER AND GARDEN SIZE WE RECOMMEND PROVIDING A RAINWATER TANK FOR USE AS PER BASIX REQUIREMENTS, SYDNEY WATER AND NSW HEALTH REQUIREMENTS FOR NON DRINKING USE ONLY AS FOLLOWS:
- a) TO WATER GARDEN AREAS b) WASHING CARS c) CONNECT TO W.C.
- d) CONNECT TO WASHING MACHINE. e) USED IN HOT WATER SYSTEMS.
- f) FILLING SWIMMING POOLS, SPAS AND ORNAMENTAL PONDS.
- RWT2: THE TANKS PROVIDED WILL REDUCE PRESSURE ON COUNCIL'S STORMWATER INFRASTRUCTURE.
- RWT3: REFERENCES: COOMBES P.J. \$ KUCZERA G. (2001), "RAINWATER TANK DESIGN FOR WATER SUPPLY & STORMWATER MANAGEMENT." STORMWATER INDUSTRY ASSOCIATION REGIONAL CONFERENCE. PATRICK DUPONT \$ STEVE SHACKLE, "RAINWATER" AUSTRALIAN GOVERNMENT (2004), "GUIDANCE ON USE OF RAINWATER TANKS".
- RWT4: ALL CONNECTIONS TO PLUMBING AND RAINWATER TANKS TO BE IN ACCORDANCE WITH SYDNEY WATERS' GUIDE "INSTALLING A RAINWATER TANK" AVAILABLE AT www.sydneywater.com.au
- RWT5: PROVIDE A DUAL SUPPLY SYSTEM AND BACKFLOW PREVENTION SYSTEM IN ACCORDANCE WITH 'BASIX-DESIGN GUIDE FOR SINGLE DWELLINGS' BY NSW DEPARTMENT OF INFRASTRUCTURE, PLANING AND NATURAL RESOURCES.
- RWT6: IF NOT SPECIFIED ON PLANS, THE FIRST FLUSH SYSTEM IS TO HAVE A MINIMUM SIZE OF 20L PER 100m2 OF ROOF CATCHMENT AREA PRIOR TO ENTERING THE RAINWATER TANK. INDIVIDUAL SITE ANALYSIS IS REQUIRED IN HEAVILY POLLUTED AREAS TO DETERMINE IF LARGER VOLUMES OF FIRST FLUSH RAINWATER ARE TO BE DIVERTED. IF IN DOUBT, CHECK WITH LOCAL HEALTH AUTHORITIES.
- RWT7: SCREENED DOWNPIPE RAINWATER HEAD OR OTHER SUITABLE LEAF AND DEBRIS DEVICE TO BE INSTALLED ON EACH DOWNPIPE. SCREEN MESH TO BE 4-6mm AND DESIGNED TO BE SELF-CLEANING.
- RWT8: FIRST FLUSH DEVICES, OR APPROVED ALTERNATIVE, TO BE INSTALLED WITH AN AUTOMATED DIVERSION AND DRAINAGE SYSTEM, THAT IS, NO MANUAL DIVERSION AND DRAINAGE VALVES. REFER TYPICAL FLUSH OUT PIT FOR DETAILS.
- RWT9: BEFORE PURCHASING MATERIALS OR PAINT TO BE USED ON ROOF CATCHMENT AREAS, THE MANUFACTURER'S RECOMMENDATIONS ON LABELS AND BROCHURES FOR RAINWATER TANK SUITABILITY TO BE READ AND ADHERED TO.
- RWTIO: PRE-STORAGE PITS FOR UNDERGROUND RAINWATER STORAGE TANKS AND FLUSH OUT PITS MAY ASSIST IN LIMITING SILT, AND PREVENT VERMIN, INSECTS (INCLUDING MOSQUITOES) AND DEBRIS FROM ENTERING THE RAINWATER STORAGE AREA.
- RWTII: BUILDER/PLUMBER TO ENSURE THE INSTALLATION OF THE RAINWATER TANK SYSTEM IS IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND THE RAINWATER TANK DESIGN AND INSTALLATION HANDBOOK - HB 230-2008. IF IN DOUBT CONTACT ENGINEER.
- RWT12: RAINWATER TANK TO BE WATER PROOFED IN ACCORDANCE WITH HB 230-200B

STORMWATER RE-USE TANKS:

- STI: BASIX RECOMMENDS PROVIDING A STORMWATER TANKS FOR USE AS PER BASIX REQUIREMENTS FOR THE FOLLOWING USES:
- a) TO WATER GARDEN AREAS
- ST2: THE TANKS PROVIDED WILL REDUCE PRESSURE ON COUNCIL'S STORMWATER INFRASTRUCTURE.
- ST3: IF NOT SPECIFIED ON PLANS, THE FIRST FLUSH SYSTEM IS TO HAVE A MINIMUM SIZE OF 20L PER 100m2 OF ROOF CATCHMENT AREA PRIOR TO ENTERING THE RAINWATER TANK. INDIVIDUAL SITE ANALYSIS IS REQUIRED IN HEAVILY POLLUTED AREAS TO DETERMINE IF LARGER VOLUMES OF FIRST FLUSH RAINWATER ARE TO BE DIVERTED. IF IN DOUBT, CHECK WITH LOCAL HEALTH AUTHORITIES.
- ST4: SCREENED DOWNPIPE RAINWATER HEAD OR OTHER SUITABLE LEAF AND DEBRIS DEVICE TO BE INSTALLED ON EACH DOWNPIPE. SCREEN MESH TO BE 4-6mm AND DESIGNED TO BE SELF-CLEANING.
- ST5: FIRST FLUSH DEVICES, OR APPROVED ALTERNATIVES, TO BE INSTALLED WITH AN AUTOMATED DIVERSION AND DRAINAGE SYSTEM, THAT IS, NO MANUAL DIVERSION AND DRAINAGE VALVES. REFER TYPICAL FLUSH OUT PIT FOR DETAILS.
- ST6: BEFORE PURCHASING MATERIALS OR PAINT TO BE USED ON ROOF CATCHMENT AREAS, THE MANUFACTURER'S RECOMMENDATIONS ON LABELS AND BROCHURES FOR RAINWATER TANK SUITABILITY TO BE READ AND ADHERED TO.

DIAL BEFORE YOU DIG NOTE:

NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE DEVELOPERS \$ EXCAVATORS MAY BE HELD FINANCIALLY RESPONSIBLE BY THE ASSET OWNER SHOULD THEY DAMAGE UNDERGROUND NETWORKS.

CARELESS DIGGING CAN:

- CAUSE DEATH OR SERIOUS INJURY TO WORKERS AND THE GENERAL PUBLIC
- INCONVENIENCE USERS OF ELECTRICITY, GAS, WATER AND COMMUNICATIONS
- LEAD TO CRIMINAL PROSECUTION AND DAMAGES
- CAUSE EXPENSIVE FINANCIAL LOSSES TO BUSINESS
- CUT OFF EMERGENCY SERVICES
- DELAY PROJECT COMPLETION TIMES WHILE THE DAMAGE IS REPAIRED

MINIMISE YOUR RISK AND DIAL BEFORE YOU DIG. - TEL. 1100

NORTHERN BEACHES COUNCIL (MANLY AREA) ON SITE DETENTION SYSTEM CALCULATION SHEET

ADDRESS: 37 RADIO AVENUE, BALGOWLAH HEIGHTS

SITE DETAILS

TOTAL SITE AREA PRE DEVELOPMENT IMPERVIOUS AREA

(49% IMPERVIOUS) 295 m² (58% IMPERVIOUS)

INCREASE OSD REQUIREMENT

SINCE THE TOTAL POST-DEVELOPMENT IMPERVIOUS AREA FOR THE SITE IS BELOW 60% \$ THE INCREASE IN IMPERVIOUS AREA IS LESS THAN 50 m 2, OSD IS NOT REQUIRED FOR THIS DEVELOPMENT.

PERMITTED SITE DISCHARGE

POST DEVELOPMENT IMPERVIOUS AREA

PRE-DEVELOPMENT SITE DISCHARGE

1% AEP 30 L/s 20% AEP 16 L/s

POST-DEVELOPMENT SITE DISCHARGE

1% AEP 16 L/s (13 L/s FROM OSD) 20% AEP 14 L/s (12 L/s FROM OSD)

NOTE: OSD VOLUME 100% OFFSET WITH RAINWATER RE-USE, BASIX RWT REQUIREMENT TO BE ADJUSTED.

SITE STORAGE REQUIREMENT

OSD VOLUME REQUIRED

 6.0 m^3

 1.071 m^3 (6.0 m³ PROVIDED) RAINWATER 'BASIX' REQUIRED

OUTLET CONTROL

METHOD OF DISCHARGE KERB \$ GUTTER

DRAWING SCHEDULE:

STORMWATER DRAWINGS

DOI - STORMWATER GENERAL NOTES

DO2 - STORMWATER MANAGEMENT DRAINAGE PLAN - SHEET 1

DO3 - STORMWATER MANAGEMENT DRAINAGE PLAN - SHEET 2

DO4 - SECTIONS AND DETAILS.

IF IN DOUBT ASK

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	Date : AF	APRIL '21	Consulting Engineers STRUCTURAL - CIVIL - STORMWATER - REMEDIAL A.C.N. 076 121 616 A.B.N. 24 076 121 616	Architect:	ACTION PLANS	Project: 37	NEW DWELLING RADIO AVE, BALGOWLAH HEIGHTS	Date: JAN. ¹ 21	Design:	Drawn:	
2021-04-28 B CALCULATION SHEET UPDATED NP	LG Michael	el Wachjo	Sydney: Ph: (02) 9984 7000	Client:		Drawing Title		Joh No		Drawing No:	Issue:
2021-01-22 A ISSUED FOR DA SUBMISSION ONLY NP	CF B.E.(Civil),	117, 1 11EAUSL.	Suite 207, 30 Fisher Road Dee Why N.S.W. 2099 Gold Coast: Ph: (07) 5631 4744	Oliona.	BRIDGET AND PHIL					ĭ	3000.
Date: Issue: Description: By:	Review: The copyright of	ght of this drawing remains with Northern Beaches agineers Pty Ltd. Trading as NB Consulting Engineers	Unit 8, 1726 Gold Coast Highway Burleigh Heads QLD 4220 E : nb@nbconsulting.com.au W : www.nbconsulting.com.au		HOLMEWOOD	5	ORMWATER GENERAL NOTES	210	102	D01	B

IN GROUND FIRST FLUSH

DEVICE AT LOW POINT

MANUFACTURERS

SPECIFICATIONS

LOW POINT IN-

IN CHARGED SYSTEM TO

NOTE:

BUILDER TO DIRECT SURFACE RUNOFF FROM RETAINING WALL VIA SPOON

DRAIN AND PIT AT LOW POINT AND

100mm uPVC SEWER

GRADE OUTLET TO

450 x 450 GRATED -

BOUNDARY PIT.

CONNECT DIRECTLY TO

COUNCIL KIP @ 1% FALL.

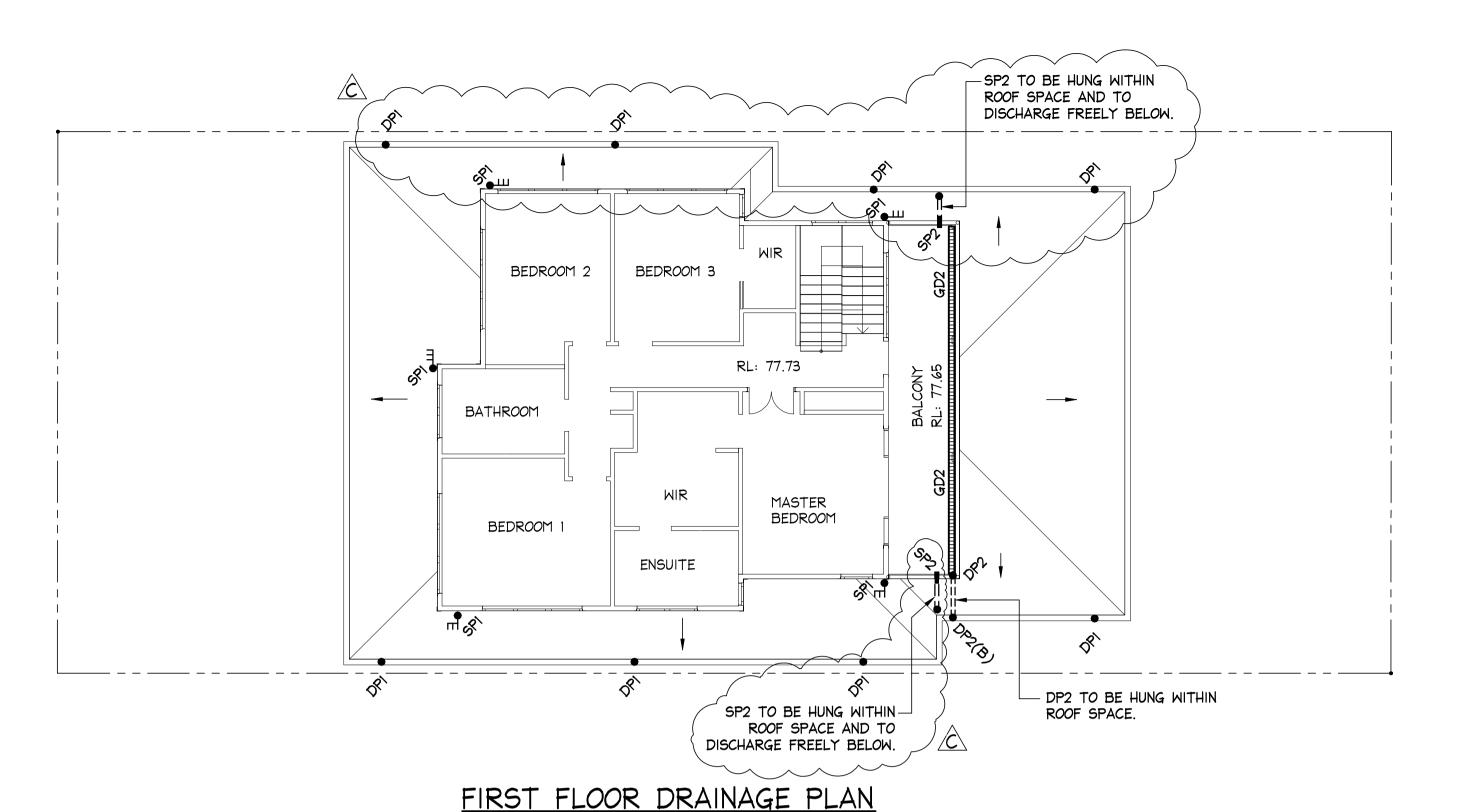
NOTES:

300mm¢ COUNCIL

RCP.

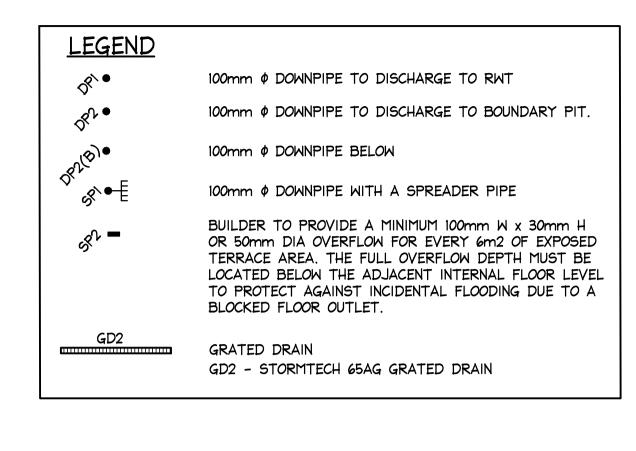
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- 2. DO NOT SCALE FROM THIS DRAWING.

EMEDIAL 16	Architect: ACTION PLANS	NEW DWELLING 37 RADIO AVE, BALGOWLAH HEIGHTS	Date: JAN. ¹ 21	Design:	Drawn:	
	BRIDGET AND PHIL	Drawing Title: GARAGE FLOOR AND GROUND	Job No:		Drawing No:	Issue:
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SCALE = 1:100

ROOF DRAINAGE PLAN
SCALE = 1:100



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3 Consulting Engineers

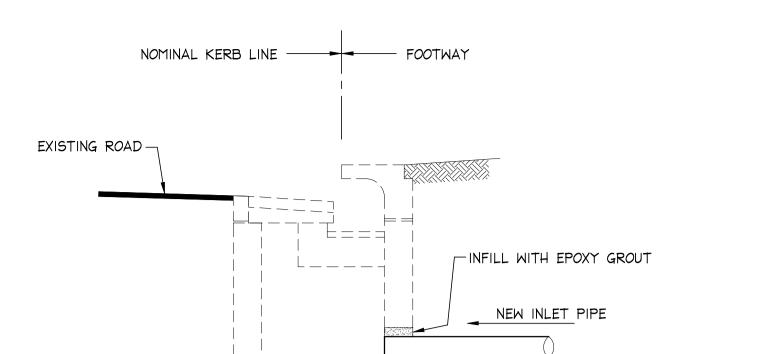
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A1											
			DOCUMENT CERTIFICATION	Consulting Engineers	Architect:		Project: NEW DWELLING	Date:	Design:	Drawn:	
			Date : APRIL '21	STRUCTURAL - CIVIL - STORMWATER - REMEDIAL A.C.N. 076 121 616 A.B.N. 24 076 121 616		ACTION PLANS	37 RADIO AVE, BALGOWLAH HEIGHTS	JAN. ¹ 21	CF	NP	
2021-04-28 B DOWNPIPES AMENDED 2021-01-22 A ISSUED FOR DA SUBMISSION ONLY	NP NP	LG	B.E.(Civil), MIEAust.	Sydney: Ph: (02) 9984 7000 Suite 207, 30 Fisher Road Dee Why N.S.W. 2099 Gold Coast: Ph: (07) 5631 4744	Client:	BRIDGET AND PHIL	Drawing Title: FIRST FLOOR AND ROOF	Job No:		Drawing No:	Issue:
Date: Issue: Description:	By: R	Review:	(Director NB Consulting Engineers) The copyright of this drawing remains with Northern Beaches Consulting Engineers Pty Ltd. Trading as NB Consulting Engineers	Unit 8, 1726 Gold Coast Highway Burleigh Heads QLD 4220		HOLMEWOOD	DRAINAGE PLANS	2101	02	D03	B



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- CUT HOLE IN PIT

TO SUIT NEW PIPE

PRECAST OR CAST INSITU PIT
REFER STORMWATER NOTES
ALTERNATE POLYPROPYLENE PIT BY MANUFACTURER

FSL

MAXI MESH SCREEN

INLET PIPE

RH3030 \$ HANDLE

20mm & WEEP

GRATED - PIT COVER

BLUE METAL

OUTLET PIPE

BIDIM A24 OR SIMILAR

GEOTEXTILE FILTER FABRIC

450x450 BOUNDARY PIT DETAIL

SCALE = 1 : 20

PLAN

TYPICAL CONNECTION TO EXISTING R.C. PIPE DETAILS

SCALE = N.T.S.

FINISHED LEVEL

-EDGE OF TRENCH

—EXISTING R.C.

EDGE OF TRENCH-

EXISTING MAIN PIPE-

BE CONSTRUCTED

FOR PIPES ABOVE 225mm—

MASS CONCRETE BLOCK TO

CONNECTION TO R.C. PIPE

THE INNER SURFACE OF THE R.C. STORMWATER PIPE

UNTIL APPROVED BY COUNCIL

CONCRETE, MORTAR, ETC...

THE R.C. STORMWATER PIPE SHALL BE PIERCED BY A NEAT

OPENING AS SHOWN TO ALLOW THE CONNECTION OF A SQUARE,

SLOPED JUNCTION OR BEND WHICH SHALL NOT PROTRUDE BEYOND

THE INTERNAL JUNCTION SHALL BE SMOOTHLY FINISHED WITH 2:1

CEMENT MORTAR OR EPOXY CEMENT SO AS TO PRESENT NO

OBSTRUCTION WITHIN THE INTERNAL SURFACE OF THE R.C. STORMWATER PIPE. THE LINE IS NOT TO EXTEND BEYOND POINT 1

THE HOLE IN COUNCIL'S PIPE IS TO BE FORMED BY CAREFUL

DRILLING TO NEATLY ACCEPT THE OUTSIDE DIAMETER OF THE

ANY DAMAGE TO THE STRUCTURE OF COUNCIL'S PIPE IS TO BE

MADE GOOD TO THE SATISFACTION OF COUNCIL'S ENGINEER, IF

PIPE FITTINGS ARE TO BE VETRIFIED CLAY OR SEWER QUALITY

COUNCIL PIPELINE IS TO BE LEFT FREE OF DROPPED CLAY,

NECESSARY BY THE REPLACEMENT OF THE PIPE

CLEANING EYE —

(REFER DETAIL)

Ø100/150mm UPVC

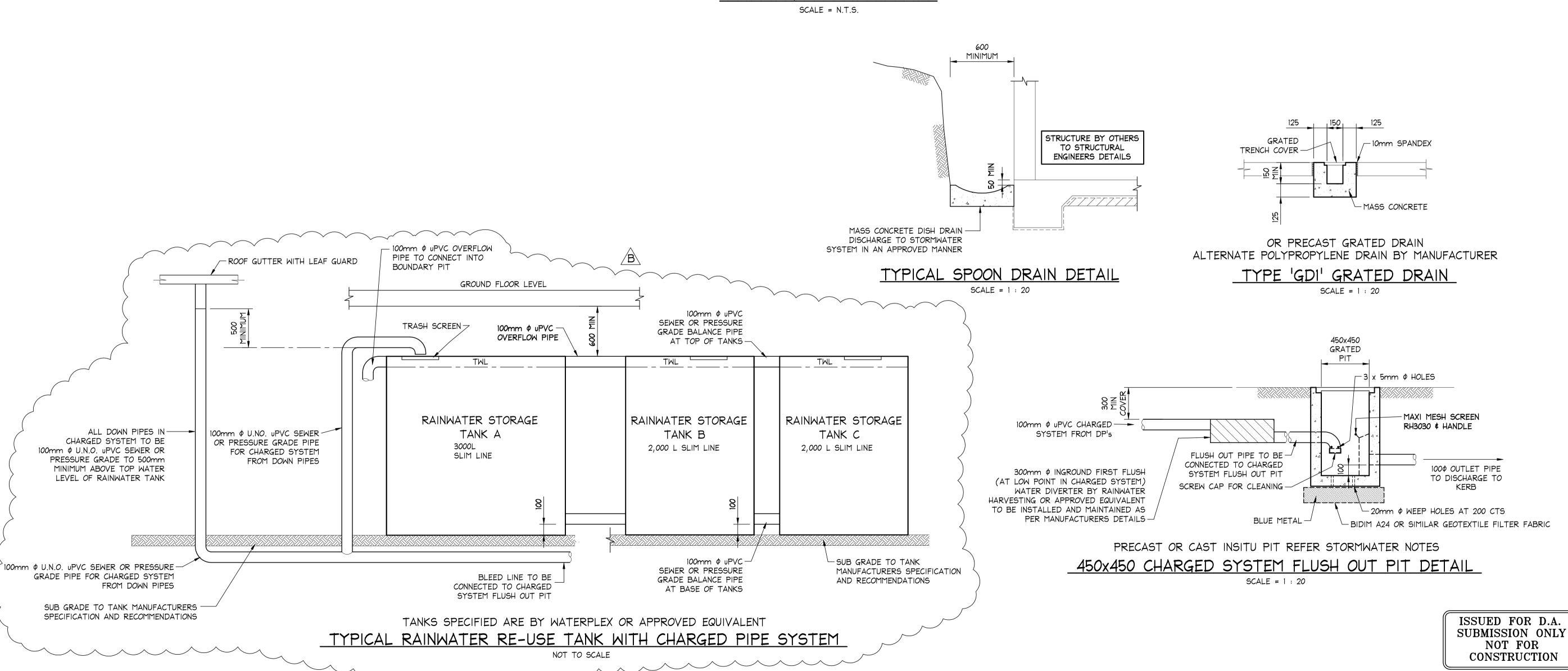
CEMENT MORTAR-

FOR PIPES ABOVE 225mm

MASS CONCRETE BLOCK

TO BE CONSTRUCTED

DETAIL OF NEW PIPE INTO EXISTING KERB INLET PIT



IF IN DOUBT ASK

		Date : APRIL '21	Consulting Engineers STRUCTURAL - CIVIL - STORMWATER - REMEDIAL A.C.N. 076 121 616 A.B.N. 24 076 121 616	Architect:	CTION PLANS	NEW DWELLING 37 RADIO AVE, BALGOWLAH HEIGHTS	Date: JAN. ¹ 21	Design: CF	Drawn:
2021-04-28 B RAINWATER TANK DETAIL UPDATED NP	LG	_ Michael Wachjo	Sydney: Ph: (02) 9984 7000	Client:		Drawing Title:	Joh No		Drawing No: Issue:
2021-01-22 A ISSUED FOR DA SUBMISSION ONLY NP	CF	B.E.(Civil), MIEAust. (Director NB Consulting Engineers)	Suite 207, 30 Fisher Road Dee Why N.S.W. 2099 Gold Coast: Ph: (07) 5631 4744 Unit 8, 1726 Gold Coast Highway Burleigh Heads QLD 4220		RIDGET AND PHIL	SECTIONS AND DETAILS	2101		D04 B
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