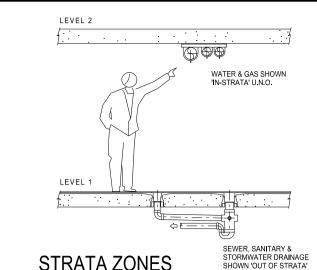
STORWATER DRAINAGE

7 & 9 CASTLEREAGH STREET 8, 10 & 12 COPELAND STREET, LIVERPOOL



GENERAL NOTES

INTRODUCTION

THESE PLANS AND NOTES SHALL BE READ IN CONJUNCTION WITH THE APPROVED ARCHITECTURAL, STRUCTURAL AND OTHER SERVICE DRAWNGS AS WELL AS OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED THROUGHOUT THE TERM OF

ALL WORK SHALL COMPLY TO AND BE IN ACCORDANCE WITH AS 3500, THE BCA AND THE REQUIREMENTS OF THE RELEVANT AUTHORITIES HAVING JURISDICTION OVER THE WORK.

ALL WORK SHALL BE CARRIED OUT UNDER THE SUPERVISION OF A FULLY LICENSED PLUMBER.

ALL TRADESMEN SHALL HAVE THE NECESSARY EXPERIENCE AND SKILLS TO PERFORM THE WORK DESCRIBED HEREIN.

3. STORMWATER DESIGN DRAWINGS

THE DESIGN DRAWINGS ARE DIAGRAMMATIC ONLY AND SHOW DESIGN INTENT: THEY DO NOT PURPORT SHOW ALL NECESSARY FITTINGS AND ITEMS INCLUDING DROPPERS, RISERS, OFFSETS AND BRACKETS, THE CONTRACTOR SHALL ALLOW FOR ALL NECESSARY ITEMS AND FITTINGS REQUIRED FOR THE COMPLETE AND COMPLIANT INSTALLATION OF THE STORMWATER DRAINAGE SYSTEM.

ANY DISCREPANCY OR VARIATIONS OF DESIGN SHALL BE REFERRED TO THE PRINCIPLE FOR DECISIONS PRIOR THE COMMENCEMENT OF ANY SUCH WORK.

4. MATERIALS AND WORKMANSHIP

UNLESS INDICATED OTHERWISE THE WHOLE OF THE MATERAILS USED SHALL BE NEW, OF FIRST QUALITY AND OF AN APPROVED MANUFACTURE AND TYPE.ALL WORK SHALL BE CARRIED OUT IN A TRADESMAN LIKE MANNER TO THE SATISFACTION OF THE PRINCIPLE.

THE LOCATION OF UNDERGROUND SERVICES SHOWN ON THESE PLANS HAVE BEEN PLOTTED FROM DIAGRAMS PROVIDED BY SERVICE AUTHORITIES. THIS INFORMATION HAS BEEN PREPARED FOR THE AUTHORITIES OWN USE AND MAY NOT BE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND IDENTIFYING ALL EXISTING SERVICES PRIOR ANY EXCAVATION OR WORK. THIS SHALL INCLUDE CARRYING OUT A "DAIL - BEFORE -YOU DIG" APPLICATION AND MAY REQUIRE POT HOLING OVER SERVICES TO DETERMINE EXACT LEVELS AND LOCATION.

SETTING OUT

THE CONSTRUCTION MANAGER SHALL PROVIDE DATUM POINTS, GRID LINES ANS BENCH MARKS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SET OUT AND PLACEMENT OF CORE HOLES AND PENETRATIONS. SUPERVISE ALL LAYOUTS, CHECK ALL MEASUREMENTS AND LEVELS' IF IN DOUBT ASK. ALL DIMENSIONS SHALL BE TAKEN AS DOCUMENTED FROM APPROVED ARCHITECTURAL AND STRUCTURAL DRAWINGS.

THE CONTRACTOR SHALL SUBMIT SAMPLES OF THE SELECTED MATERIALS AND ITEMS AND FITTINGS TO THE PRINCIPLE FOR APPROVAL PRIOR TO THE INSTALLATION OF SUCH MATERIAL OR ITEM. THIS MUST BE STRICTLY ADHERED TO WHEN OFFERING ALTERNATIVES TO SPECIFIED ITEMS.

DO NOT SCALE FROM THESE DRAWINGS.

ALL PIPEWORK SHALL BE INSTALLED SO THAT THERE WILL BE NO UNDUE STRESS ON ANY FITTING OR PIPE ALL PIPE CLAMPS, HANGERS AND BRACKETS SHALL BE PROPRIETY MADE ITEMS, GALVANISED MILD STEEL OR OTHER SUITABLE MATERIAL, THEY SHALL BE EQUAL TO ABBEY MANUFACTURE OR UNI-STRUT DEPENDING ON THE PARTICULAR TYPE OF SUPPORT REQUIRED ALL FASTENERS AND ANCHORS SHALL BE EQUAL TO HILTI MANUFACTURE SPECIAL CARE SHALL BE TAKED TO AVOID CONTACT OF DISSIMILAR MATERAILS

ALL SERVICES INSTALLED WITHIN NOISE SENSITIVE AREAS SHALL BE ACOUSTICLY INSULATED USING A LOADED POLY VINYL CHLORIDE, WITH THE MINIMUM STANDARD BEING 'SOUNDLAG 4525C' INSTALLED TO THE MANUFACTURES RECOMMENDATIONS

ALL EXCAVATION SHALL BE CARRIED OUT IN A SAFE WORKING MANNER WITH ALL NECESSARY SAFETY PRECAUTIONS TAKEN AND IN ACCORDANCE WITH WORKCOVER REQUIREMENTS.

THE CONTRACTOR SHALL PAY ALL ASSOCIATED ROAD AND FOOTPATH OPENING FEES RELEVANT TO THE AUTHORITIES

CONDUCT ALL NECESSARY SERVICE SEARCHES INLUDING CONTACTING THE DIAL BEFORE YOU DIG SERVICE AND OTHER REQUIREMENTS AS NOTED ABOVE.

ALL SERVICES SHALL BE LAID ON APPROVED BEDDING MATERIALS AND TO THE REQUIRED DEPTHS AND GRADES WHERE

BACKFILL USING SAND TO THE REQUIRED DEPTH SUFFICIENTLY COVERING THE SERVICE TO THE REQUIREMENTS OF AS3500. SUBJECT TO THE APPROVAL OF THE PRINCIPLE FILL THE REMAINDER OF THE EXCAVATION USING THE EXCAVATED SOIL ENSURING COMPACTION TO 95% MODIFIED AASHO

10. FINISHED SITE LEVELS

ENSURE FINAL SITE LEVELS AND CONTOURS OF NEW WORKS GRADE AWAY FROM ANY HABITABLE AREAS AND TOWARDS ANY GRATED PITS, DRAINS, SWALES OR LANDSCAPED AREAS.

DRAINAGE PITS

STORMWATER PIT INTERNAL DIMENSIONS AS FOLLOWS:

TOTAL DEPTH LESS THAN 600MM = 450MM SQUARE OR 600MM DIAMETER TOTAL DEPTH 601MM TO 900MM = 600MM SQUARE OR 900MM DIAMETER.

TOTAL DEPTH 901MM TO 1200MM = 600X900MM OR 1050MM DIAMETER.

TOTAL DEPTH GREATER THAN 1200M = 900MM SQUARE OR 1050 DIAMETER. PITS DEEPER THAN 1200MM SHALL BE FITTED WITH STEP IRONS AT 300MM CENTRES. APPROVED PRE-CAST PITS MAY BE USED. PIT GRATES, FRAMES AND SOLID COVERS SHALL BE TYPE B IN NON-TRAFFICABLE AREAS AND TYPE D IN TRAFFICABLE AREAS OR IN ACCORDANCE WITH AS 3996 AND AS 1428.1

ALL CONNECTIONS TO DRAINAGE PITS SHALL BE MADE IN A TRADESMAN LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.

SUBSOIL DRAINAGE AS NOTED BELOW SHALL EXTEND 3M UPSTREAM OF ANY DRAINAGE PIT AND BE SEALED WITH A SUITABLE CAP. THE OUTLET SHALL TERMINATE A MINIMUM OF 100MM ABOVE THE INVERT OF THE SUBJECT PIT.

ALL BUILDING SURROUNDS SHALL BE GRADED TO ENSURE OVERLAND FLOW FROM UPSTREAM AREAS CAN DRAIN AROUND THE FOUNDATIONS, WALLS AND BUILDING.

SUBSOIL DRAINAGE SHALL BE CONSISTENT WITH THE STRUCTURAL ENGINEERS DETAILS AND SUBJECT TO THE FINDINGS OF

SUBSOIL DRAINS SHALL BE SLOTTED UPVC 100MM DIAMETER FITTED WITH GEO-FABRIC FILTER SOCK.

SUBSOIL DRAINAGE SHALL BE LAID AT A MINIMUM GRADE OF 0.5% U.N.O.

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REPRODUCED OR COPIED IN ANY FORM OR BY ANY OTHER MEANS (GRAPHIC, ELECTONIC OR

SUBSOIL DRAINAGE SHOULD BE INSTALLED ON THE UPSTREAM END OF ANY PROPOSED PAVED AREAS AND CONNECTED TO

THE PIPED DRAINAGE SYSTEM OR WATERCOURSE. ADDITIONAL SUBSOIL DRAINAGE SHALL BE LAID TO SUIT SITE CONDITIONS AND GROUNDWATER PRESENCE AS DIRECTED.

MINIMUM GRADE OF ANY DRAINAGE PIPES TO BE 1% (U.N.O.)

ALL DRAINAGE PIPES LESS THAN 300MM IN DIAMETER SHALL BE SEWER GRADE UPVC WITH SOLVENT WELDED JOINTS (U.N.O.) ALL PIPE JUNCTIONS AND TAPERS SHALL BE VIA PROPRIETARY MADE FITTINGS.

ALL DRAINAGE PIPES 300MM AND GREATER IN DIAMETER SHALL BE REINFORCED CONCRETE RUBBER RING JOINTED CLASS '2' (U.N.O.) MANUFACTURED TO AS 4058.

EQUIVALENT STRENGTH FRC PIPES MAY BE USED.

MINIMUM PIPE DIAMETER 100MM U.N.O. PROVIDE FAIL SAFE OVERFLOW SPITTERS NO LESS THAN 50MM DIAMETER FOR ALL BALCONIES AND TERRACES.

THE FINAL NUMBER, SIZES AND LOCATION OF RAINWATER DOWNPIPES AND GUTTERS SHALL BE CO-ODRINATED ON-SITE BETWEEN THE PLUMBING CONTRACTOR. THE BUILDER AND THE ROOFING CONTRACTOR. TO THE APPROVAL OF THE ARCHITECT AND ENGINEER AND IN ACCORDANCE WITH AS3500:3

MINIMUM DOWNPIPE DIAMETER 100MM U.N.O. EQIVILENT SIZE RECTANGULAR DOWNPIPES MAY BE USED IN PLACE OF EXTERNAL, NON CHARGED CIRCULAR DOWNPIPES

ALL DOWNPIPES LOCATED IN NOISE SENSITIVE AREAS AS DEEMED BY THE ARCHITECTS, ACOUSTIC ENGINEER OR EQUIVALENT PERSONS, SHALL BE ACOUSTICALLY INSULATED USING AS SYSTEM NO LESS IN STANDARDS THAN 'SOUNDLAGG 4525C' INSTALLED TO THE MANUFACTURES RECOMMENDATIONS.

ALL EAVES GUTTERS SHALL BE SIZED FOR THE 20YR (Tc 5min) ARI STORM EVENT IN ACCORDANCE WITH AS3500:3 ALL BOX GUTTERS, RAINWATER HEADS AND FAILSAFE OVERFLOWS SHALL BE SIZED FOR A 100YR (Tc 5min) ARI STORM EVENT IN ACCORDANCE WITH AS3500:3

STORMWATER RE-USE PIPEWORK

ALL WORK CARRIED OUT SHALL COMPLY TOO AND BE IN ACCORDANCE WITH COUNCIL REQUIREMENTS AND SYDNEY WATER'S PUBLICATION 'GUIDELINES FOR RAINWATER TANKS ON RESIDENTIAL PROPERTIES'

THE CONTRACTOR IS TO MAKE APPLICATIONS AND PAY ALL FEES AND CHARGES AS REQUIRED BY THE REGULATORY

SYDNEY WATER'S APPROVAL IS REQUIRED FOR ANY TOP UP FROM DRINKING WATER SUPPLY REGARDLESS OF TANK SIZE. THE CONTRACTOR SHALL PROVIDE A FLOW RESTRICTOR RATED AT 2 LITRES PER MINUTE TO THE DOMESTIC WATER INLET FILLING VALVE IN ACCORDANCE WITH THE CODE REQUIREMENTS.

ALL PIPEWORK AND OUTLETS ARE TO BE LABELLED "RAINWATER" IN ACCORDANCE WITH CODE REQUIREMENTS. RE-CYCLED RAINWATER PIPEWORK IS TO BE INSTALLED WITH A 300MM CLEARANCE FROM DOMESTIC WATER SUPPLIES RE-CYCLED RAINWATER PIPEWORK IS TO BE STAINLESS STEEL PRESS FIT OR APPROVED COMPOSITE PLASTIC SUCH AS PEX

ONLY. COPPER PIPEWORK SHALL NOT BE USED A TESTABLE DOUBLE CHECK VALVE SHALL BE INSTALLED AT THE PROPERTIES WATER METER IN ACCORDANCE WITH CODE

ON COMPLETION PROVIDE A COPY OF "AS INSTALLED DRAWINGS" WITH CERTIFICATION FOR THE COMPLETED WORKS AND BACKELOW PROTECTION.

ALL WORK SHALL BE PROGRESSIVELY TESTED AND INSPECTED TO THE APPROVAL OF THE CONSTRUCTION MANAGER AND AUTHORITY HAVING JURISDICTION. COPIES OF ALL TEST AND COMPLIANCE CERTIFICATES SHALL BE FORWARDED TO THE CONSTRUCTION MANAGER AND PRINCIPLE. THE CONTRACTOR SHALL PROVIDE ALL LABOUR AND MATERAILS REQUIRED FOR THE CARRYING OUT OF SUCH TESTS AND SHALL ALSO BE RESPONSIBLE FOR THE RECTIFICATION OF ANY WORK FAILING ANY

THE ENTIRE SYSTEM SHALL BE COMMISSIONED PRIOR PRACTICAL COMPLETION, WHICH SHALL INCLUDE BUT NOT LIMITED TO

~ THE CLEARING OF ALL DEBRIS FROM ANY INLINE FILTER OR STRAINER.

~ PUMPS HAVE BEEN COMMISIONED WITH FLOAT SWITCHES SET AT CORRECT LEVELS

~ CLEANING OF DEBRIS FROM ALL PITS

ISURING ALL TRASH SCREENS ARE CLEAR AND CLEAN OF DEBRIS ~ ALL ACCESS GRATES AND FRAMES ARE SECURE AND WHERE REQUIRED FITTED WITH CHILD LOCKING DEVICES ~ ENSUREING ALL FAILSAFE OVERFLOWS ARE INSTALLED AND CLEAR OF ANY OBSTRUCTION

17. STORMWATER MAINTENANCE

AFTER COMPLETION AND OCCUPATION OF THE BUILDING IT IS THE RESPONSIBILITY OF THE OWNERS OR BODY CORPORATE TO MAINTAIN THE INTEGRITY AND FUNCTIONALITY OF ALL STORM WATER SYSTEMS THIS INCLUDES ALL OVERFLOWS, GRATES, BALCONY OUTLETS, SURFACE PITS, ON-SITE DETENTION STORAGE, TRASH SCREENS, FAILSAFE FLOW PATHS, SUBMERSIBLE PUMPS AND ASSOCIATED INFRASTRUCTURE

18. DISCLAIMER

ALL CALCULATIONS PRESENTED IN THIS DOCUMENT HAVE BEEN CALCULATED IN ACCORDANCE WITH AUSTRALIAN RAINFALL AND RUNOFF AND COUNCILS POLICIES AND CODES. GAH HAS PERFORMED THESE CALCULATIONS TO THE BEST OF THEIR ABILITY TO ENSURE COMPLIANCE WITH THE ABOVE MANUALS AND COUNCIL POLICIES, BEST PRACTICE AND THE INSTITUTION OF ENGINEERS, AUSTRALIA CODE OF ETHICS. GAH TAKES NO RESPONSIBILITY OR LIABILITY FOR ANY DAMAGES OR LOSSES INCURRED TO ANY PERSONS OR PROPERTY (INCLUDING THE DEVELOPMENT SITE) AS A RESULT OF MISINTERPRETATION OF THE RESULTS AND UNFORESEEN CIRCUMSTANCES SUCH AS POOR CONSTRUCTION, LACK OF MAINTENANCE AFTER CONSTRUCTION, ALTERATIONS TO GROUND FLOOR LEVELS UPSTREAM, DOWNSTREAM OR ADJACENT TO THE DEVELOPMENT

Architect:

DRAWING SCHEDULE:

COVER SHEET &

EXISTING SITE PLAN

 BASEMENT 1 - BASEMENT 2

H-04 - GROUND FLOOR

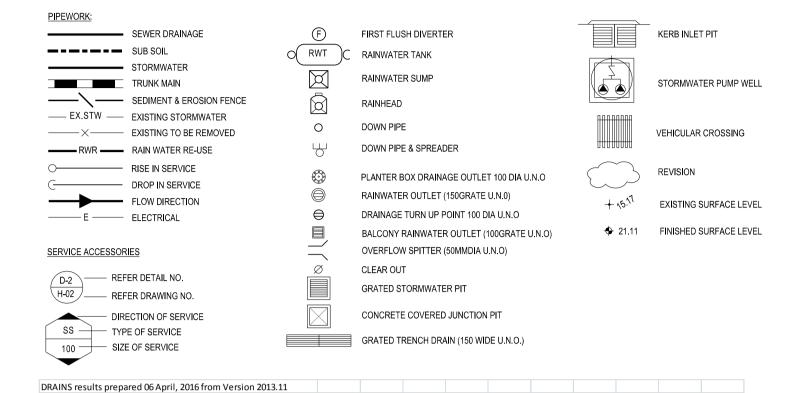
LEVEL 1

LEVEL 2 - 7

- LEVEL 8

LEGEND

5 Year Storm Event



SUB-CATCHMEN	NT DETAILS														
Name	Pit or	Total	Paved	Grass	Paved	Grass	Max	Paved	Grassed	Due to Sto	rm				
ranic	Node	Area	Area	Area	Time	Time	Flow Q	Max Q	Max Q	Duc to ste	,,,,,				
	Noue						_								
		(ha)	%	%	(min)	(min)	(cu.m/s)	(cu.m/s)	(cu.m/s)						
Existing	N1	0.38	45	55	5	5	0.131	0.065	0.066			utes storm			
Proposed	OSD Tank	0.38	96	4	5	5	0.144	0.139	0.005	AR&R 5 ye	ar, 25 min	utes storm	, average 7	'0.53 mm/h	, Zone 1
Natural State	N2	0.38	0	100	5	5	0.12	0	0.12	AR&R 5 ye	ar, 25 min	utes storm	, average 7	0.53 mm/h	, Zone 1
DETENTION BAS	SIN DETAILS	5													
Name	Max WL	MaxVol	Max Q	Max Q	Max Q										
rtaine	THUX TTE	maxvoi	Total	Low Level											
OCD Tarel	11.25	16.1													
OSD Tank	11.25	16.1	0.11	0.11	0										
<u>5 Year Summan</u>	<u>v</u> _														
Existing Dischar	rge	131	L/sec												
Proposed Disch	arge	110	L/sec												
Required Stora	_	16.1													
ricquired Stora	БС	10.1	1113												
10 Year Storm E	vent														
SUB-CATCHMEN	NT DETAILS														
Name	Pit or	Total	Paved	Grass	Paved	Grass	Max	Paved	Graccad	Due to Sto	rm				
										Due 10 310					
	Node	Area	Area	Area	Time	Time	Flow Q	Max Q	Max Q						
		(ha)	%	%	(min)	(min)	(cu.m/s)	(cu.m/s)	(cu.m/s)						
Existing	N1	0.38	45	55	5	5	0.149	0.073	0.075	AR&R 10 y	ear, 25 mi	nutes storn	n, average	79.06 mm/	h, Zone 1
Proposed	OSD Tank	0.38	96	4	5	5	0.162	0.156	0.005	AR&R 10 v	ear, 25 mi	nutes storn	n, average	79.06 mm/	h, Zone 1
Natural State	N2	0.38	0	100	5	5	0.137	0	0.137			nutes storn			
atarar state	142	0.50	-	100	3	,	0.137		0.13/	,an 10 y	-ur, 20 IIII		., average	. 5.00 11111/	, 20116 1
		_													
DETENTION BAS															
Name	Max WL	MaxVol	Max Q	Max Q	Max Q										
			Total	Low Level	High Level										
OSD Tank	11.34	20	0.122	0.122	0										
			0.111	0.1111											
40.4															
<u>10 Year Summa</u>															
Existing Dischar	rge		L/sec												
Proposed Disch	arge	122	L/sec												
Required Stora	ge	20	m3												
<u>20 Year Storm E</u>	vent														
SUB-CATCHMEN	NT DETAILS														
Name	Pit or	Total	Paved	Grass	Paved	Grass	Max	Paved	Grassed	Due to Sto	rm				
	Node	Area	Area	Area	Time	Time	Flow Q	Max Q	Max Q						
	Noue														
		(ha)	%	%	(min)	(min)	(cu.m/s)	(cu.m/s)	(cu.m/s)						
Existing	N1	0.38	45	55	5	5	0.172	0.084	0.088	AR&R 20 y	ear, 25 mi	nutes storn	n, average	90.45 mm/	h, Zone 1
Proposed	OSD Tank	0.38	96	4	5	5	0.185	0.179	0.006	AR&R 20 y	ear, 25 mi	nutes storn	n, average	90.45 mm/	h, Zone 1
Natural State	N2	0.38	0	100	5	5	0.161	0	0.161	AR&R 20 y	ear, 25 mi	nutes storn	n, average	90.45 mm/	h, Zone 1
										·			, ,		
DETENTION BAS	SINI DETAILS	:													
Name	Max WL	MaxVol	Max Q	Max Q	Max Q										
			Total		High Level										
OSD Tank	11.46	25.5	0.136	0.136	0										
20 Year Summa	rv														
Existing Dischar	_	172	L/sec												
	-														
Proposed Disch	-		L/sec												
Required Stora	ge	25.5	m3												
100 Year Storm	Event														
22. 2301111															
CLID CATCUMAT	UT DETAILS														
SUB-CATCHMEN				-		_		_	-	_					
Name	Pit or	Total	Paved	Grass	Paved	Grass	Max	Paved		Due to Sto	rm				
	Node	Area	Area	Area	Time	Time	Flow Q	Max Q	Max Q						
		(ha)	%	%	(min)	(min)	(cu.m/s)	(cu.m/s)	(cu.m/s)						
Existing	N1	0.38	45	55	5	5	0.22	0.107	0.113	AR&R 100	year, 5 mi	nutes storn	n, average	229.53 mm	/h, Zone 1
Proposed	OSD Tank	0.38	96	4	5	5	0.237	0.229	0.008			nutes storn			
Natural State	N2	0.38	0	100	5	5	0.205	0	0.205	ак&К 100	year, 5 mi	nutes storn	ı, average	229.53 mm	yn, zone 1
DETENTION BAS	SIN DETAILS	5													
Name			Max Q	Max Q	Max Q										
			Total		High Level										
OCD T!	44 -	24.													
OSD Tank	11.7	34.4	0.162	0.162	0										
100 Year Summ	ary														
Existing Dischar		220	L/sec												
Proposed Disch	-		L/sec												
Required Stora	-	34.4													
Storage Provide	eu .	35	m3												

AFFL ABOVE FINSIHED FLOOR LEVEL NPHT NON POTABLE HOSE TAP BRWO BALCONY RAINWATER OUTLET CI CAST IRON PBO PLANTER BOX OUTLET CIC CAST IN COLUMN CIS CAST IN SLAB PVC POLYVINYL CHLORIDE CO CLEAROUT CP CHROME PLATED REDUCED LEVEL RISING MAIN DIA DIAMETER RAINWATER OUTLE

EJ EXPANSION JOIN SPOON DRAIN OUTLET FFL FINISHED FLOOR LEVEL FRC FIBRE REINFORCED CONCRET

GTD GRATED TRENCH DRAIN HDPE HIGH DENSITY POLYETHYLENE HL HIGH LEVEL

INVERT LEVEL IO INSPECTION OPENING KPA PRESSURE IN KILOPASCALS LL LOW LEVEL

METER

DP DOWNPIPE

DTU DRAINAGE TURN UP POINT

L/S LITRES PER SECOND US UNDERSIDE M/H PRESSURE IN METERS/HEAD

NPCW NON POTABLE COLD WATER

PSD PERMISSIBLE SITE DISCHARGE

RHS RECTANGULAR HOLLOW SECTION

RAINWATER RE-USE RAIN WATER TANK SURFACE LEVEL

SQUARE SITE STORAGE REQUIREMENTS STW STORMWATER

SYDP SYPHONIC DOWNPIPES

TOW TOP OF WALL TTD TRAPPED TUNDISH UNO UNLESS NOTED OTHERWISE UPVC UNPLASTISIZED POLYVINYL

CHLORIDE

4 3 3 7 9 1

ON-SITE DETENTION CALCULATIONS

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mosca pserras architects

GLORY PROPERTY GROUP

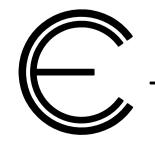
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7 & 9 CASTLEREAGH STREET 8, 10 & 12 COPELAND STREET, **LIVERPOOL**

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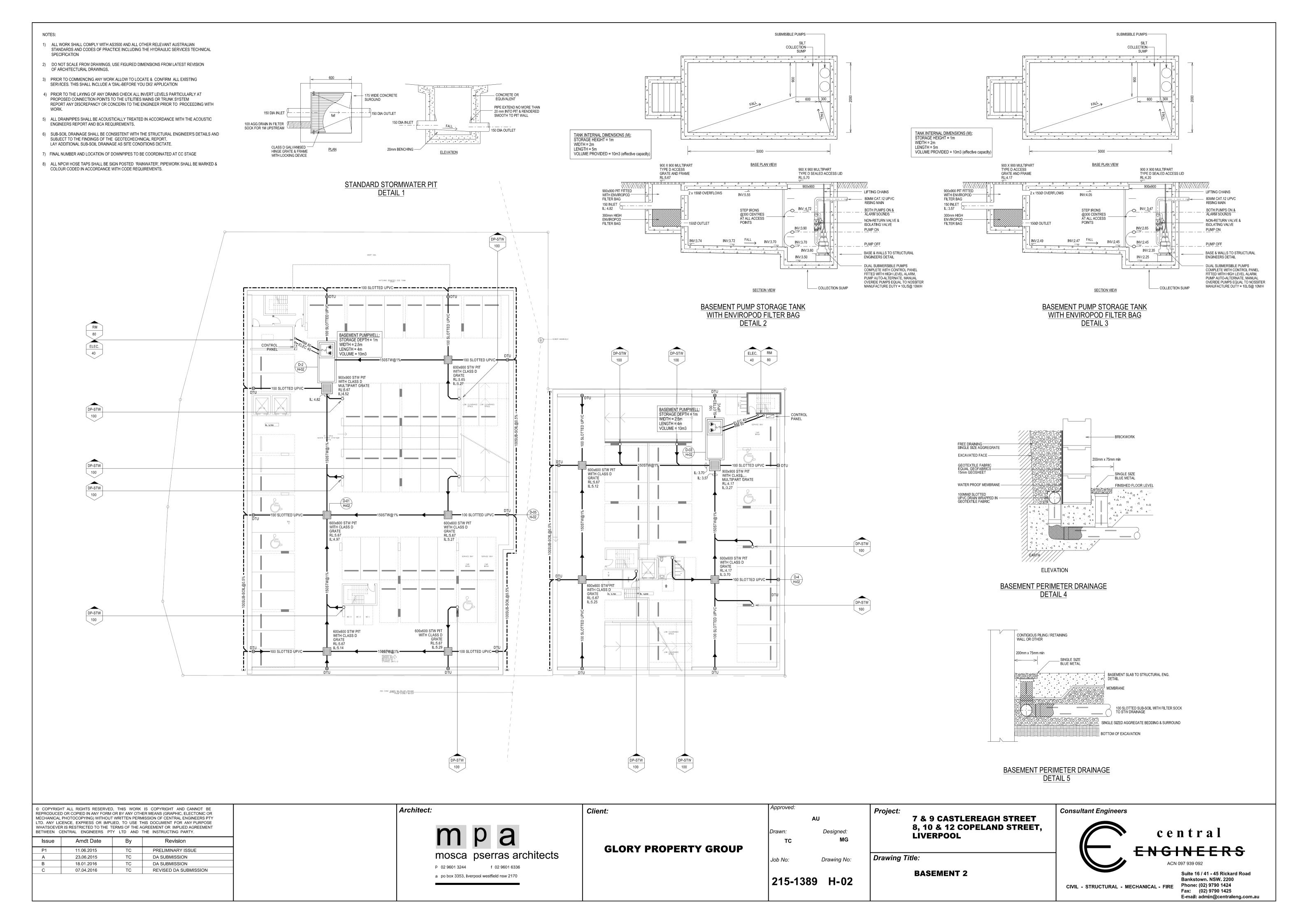
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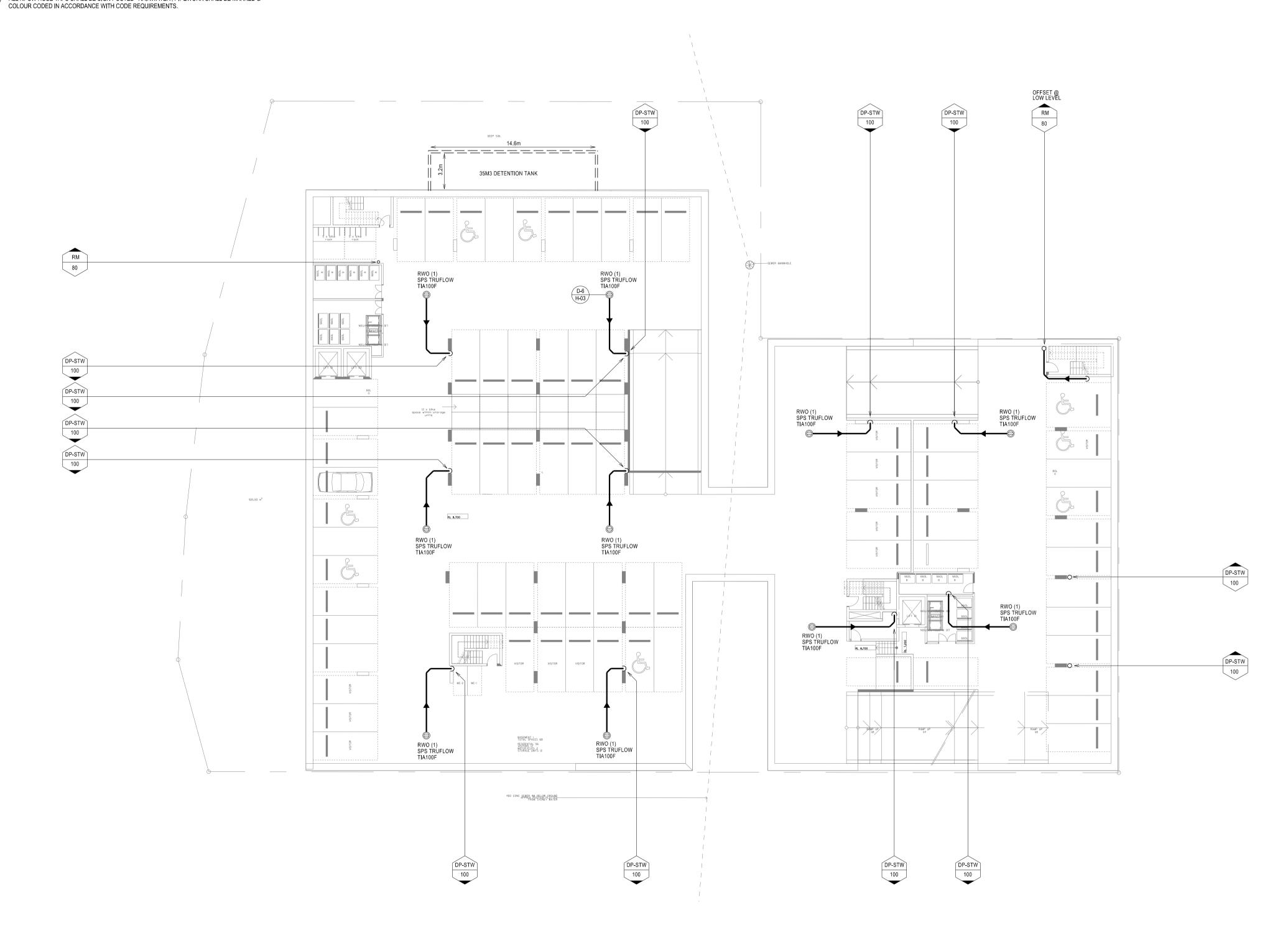
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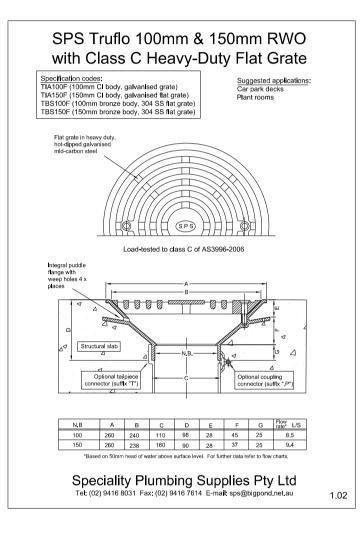
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- 1) ALL WORK SHALL COMPLY WITH AS3500 AND ALL OTHER RELEVANT AUSTRALIAN STANDARDS AND CODES OF PRACTICE INCLUDING THE HYDRAULIC SERVICES TECHNICAL
- 2) DO NOT SCALE FROM DRAWINGS, USE FIGURED DIMENSIONS FROM LATEST REVISION OF ARCHITECTURAL DRAWINGS.
- 3) PRIOR TO COMMENCING ANY WORK ALLOW TO LOCATE & CONFIRM ALL EXISTING SERVICES. THIS SHALL INCLUDE A 'DIAL-BEFORE YOU DIG' APPLICATION
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- 6) SUB-SOIL DRAINAGE SHALL BE CONSISTENT WITH THE STRUCTURAL ENGINEER'S DETAILS AND SUBJECT TO THE FINDINGS OF THE GEOTECHECHNICAL REPORT. LAY ADDITIONAL SUB-SOIL DRAINAGE AS SITE CONDITIONS DICTATE.
- 7) FINAL NUMBER AND LOCATION OF DOWNPIPES TO BE COORDINATED AT CC STAGE
- 8) ALL NPCW HOSE TAPS SHALL BE SIGN POSTED 'RAINWATER', PIPEWORK SHALL BE MARKED &





RWO EQUAL TO 'SPS TRUFLO TIA100F' DETAIL 6

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В	18.01.2016	TC	DA SUBMISSION			
С	07.04.2016	TC	REVISED DA SUBMISSION			

Architect:



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P 02 9601 3244

mosca pserras architects

GLORY PROPERTY GROUP

Client:

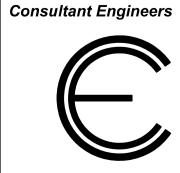
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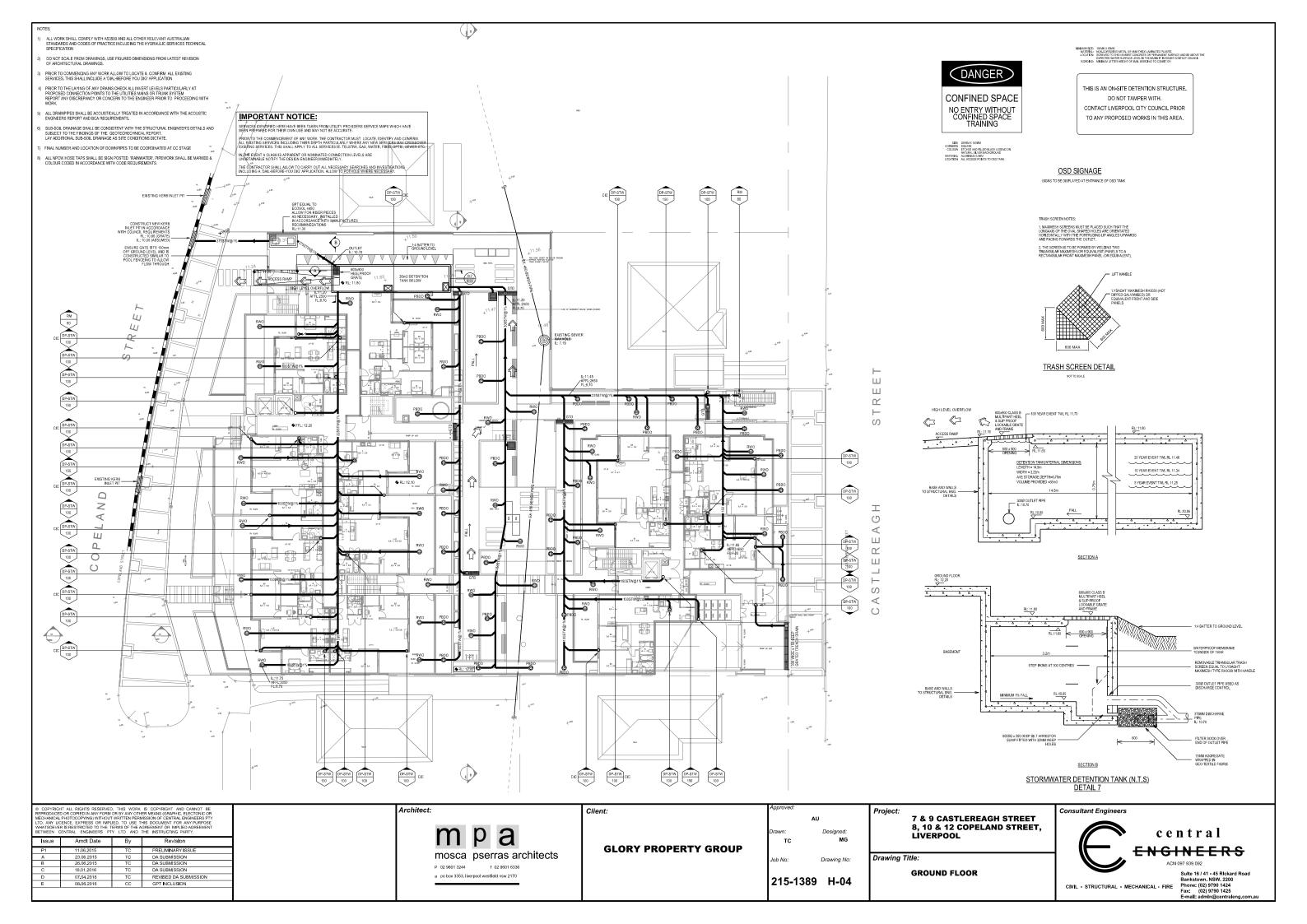
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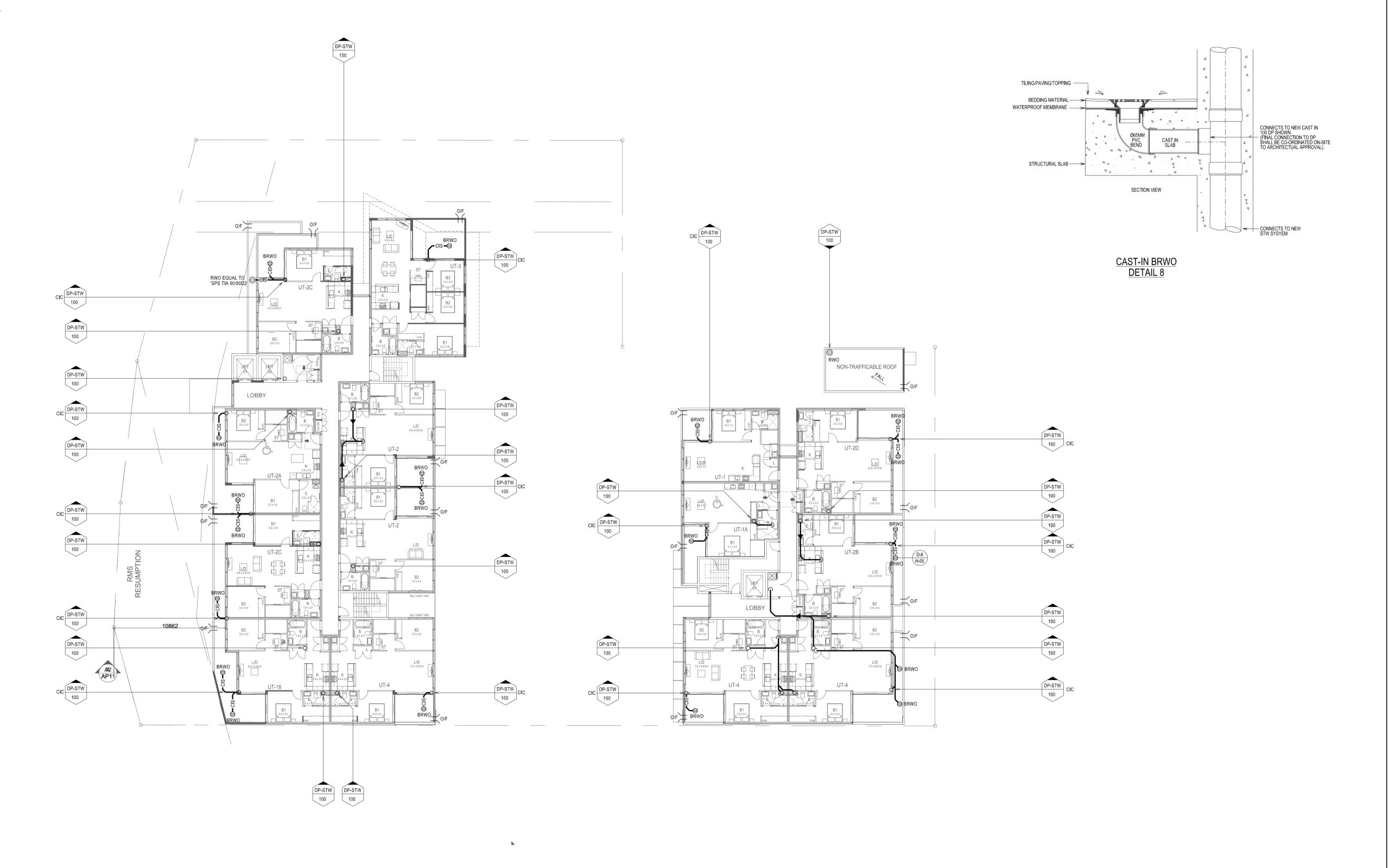
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В	26.06.2015	TC	DA SUBMISSION				
С	18 01 2016	TC	DA SUBMISSION				

REVISED DA SUBMISSION

07.04.2016

Architect: mosca pserras architects

a po box 3353, liverpool westfield nsw 2170

P 02 9601 3244

Client:

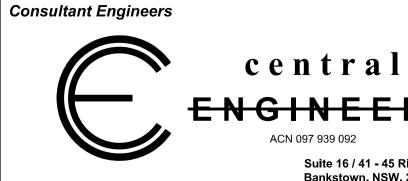
GLORY PROPERTY GROUP Job No: 215-1389 H-05

Designed: Drawing No:

7 & 9 CASTLEREAGH STREET 8, 10 & 12 COPELAND STREET, LIVERPOOL

Drawing Title:

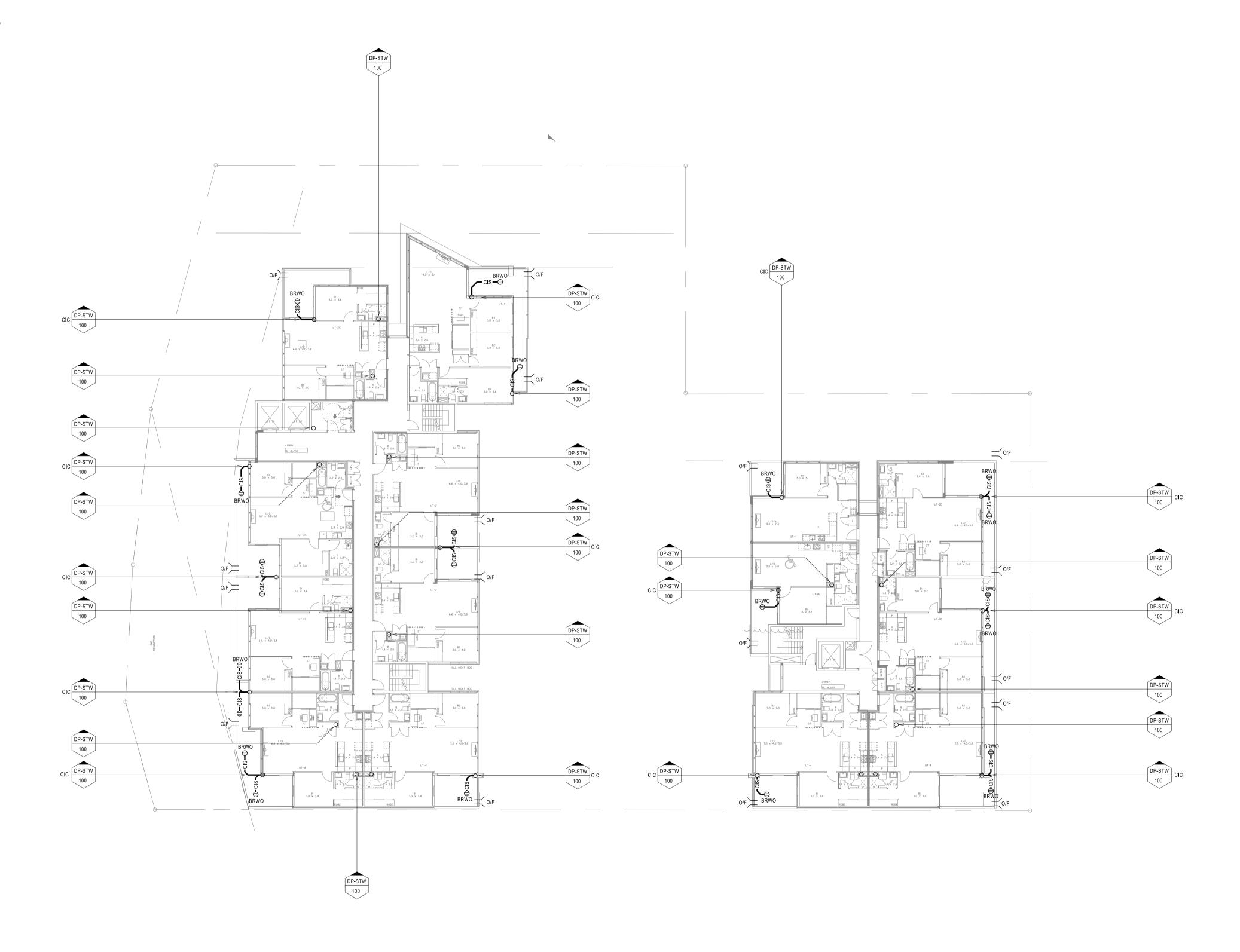
LEVEL 1



Suite 16 / 41 - 45 Rickard Road Bankstown. NSW. 2200 Phone: (02) 9790 1424 Fax: (02) 9790 1425 E-mail: admin@centraleng.com.au CIVIL - STRUCTURAL - MECHANICAL - FIRE

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Client:

Approved:
AU

Drawn: Designed:
TC MG

Job No: Drawing No:

215-1389 H-06

7 & 9 CASTLEREAGH STREET 8, 10 & 12 COPELAND STREET, LIVERPOOL

Drawing Title:

LEVEL 2 - 7

Consultant Engineers

central

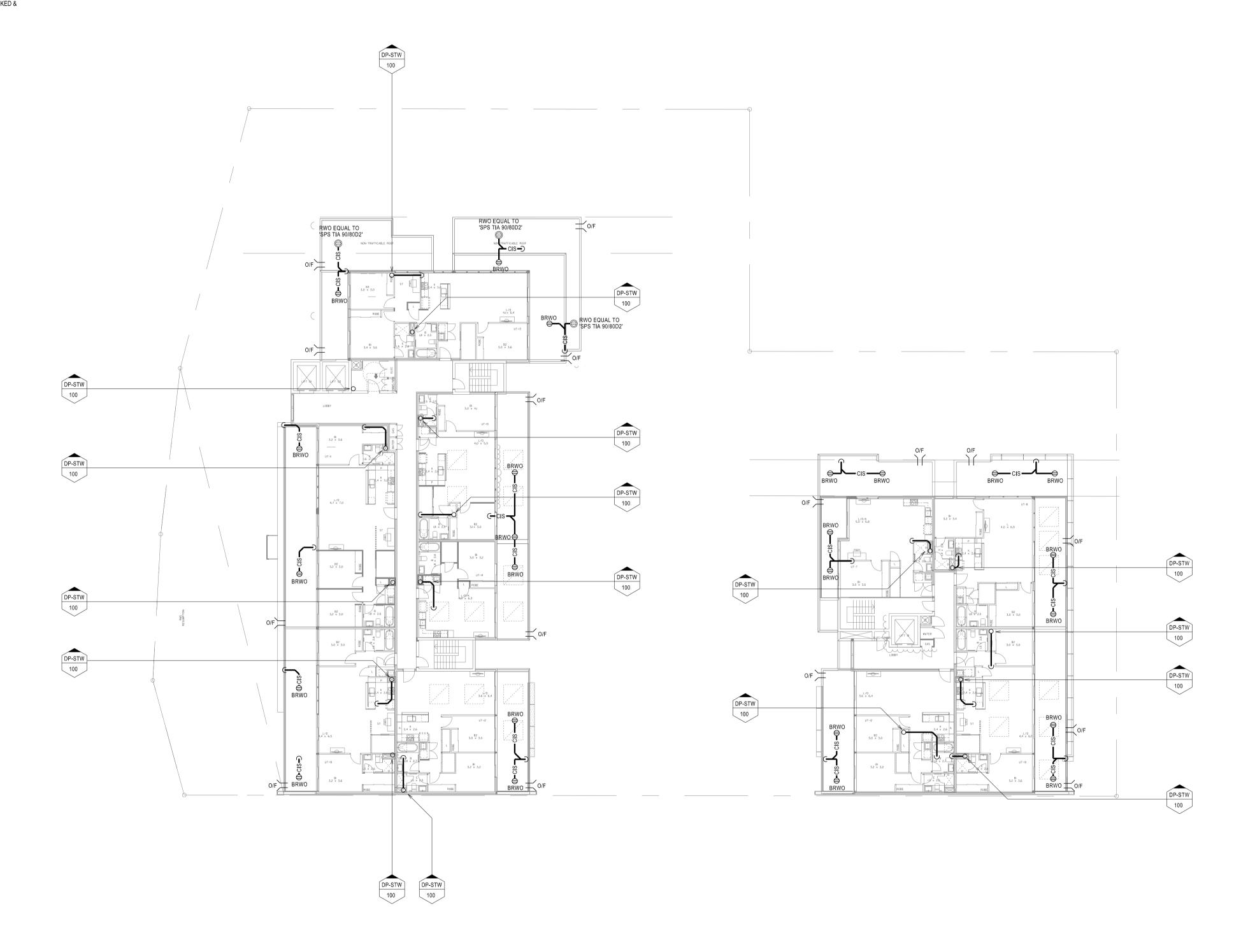
ENGINEERS

ACN 097 939 092

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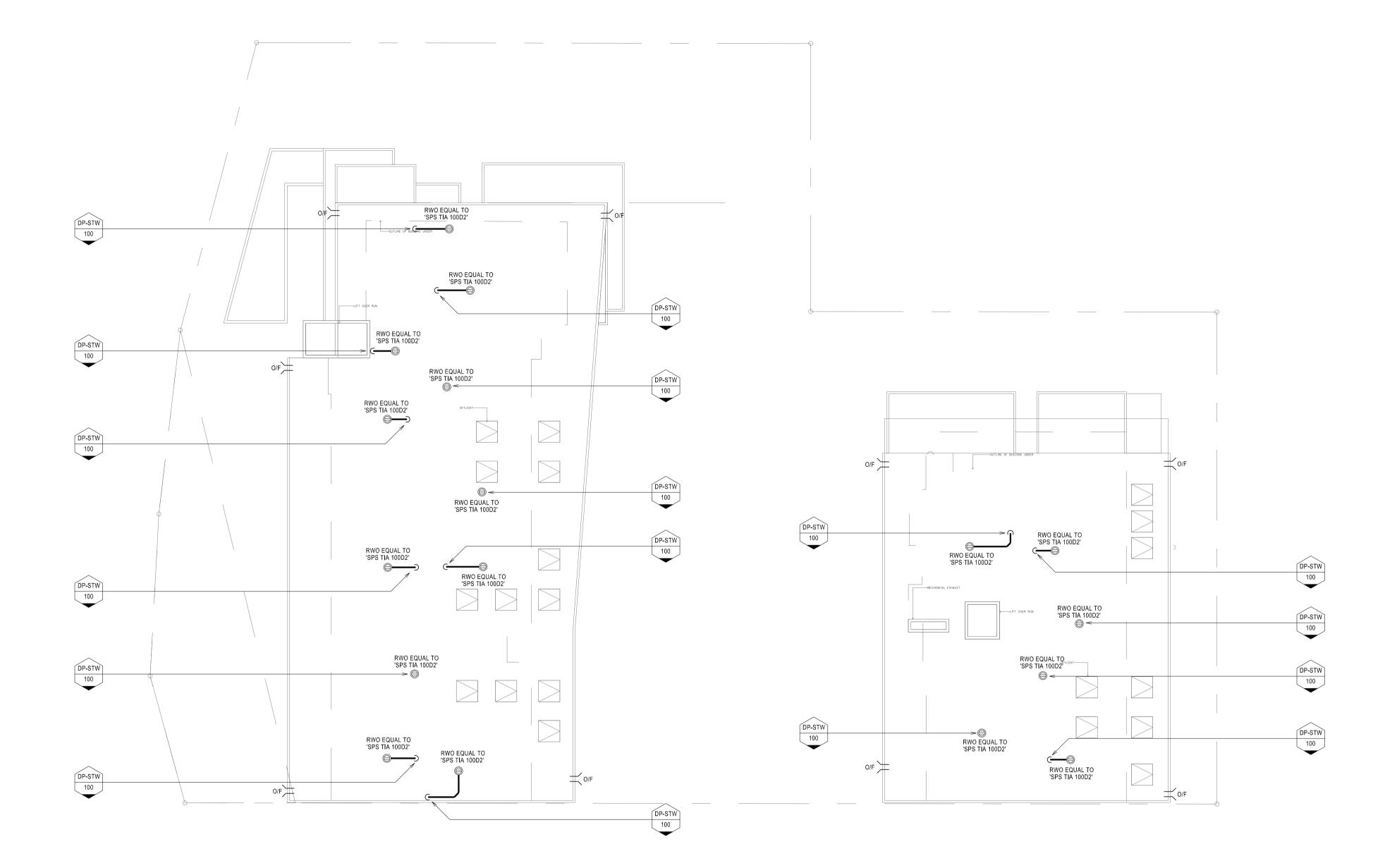


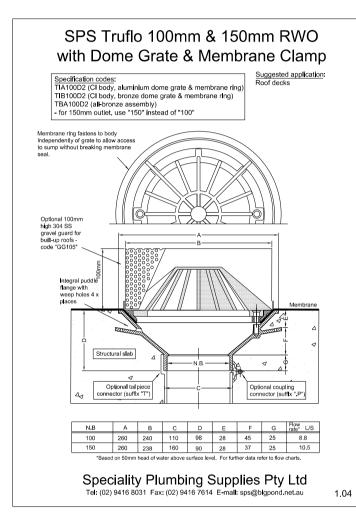
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				a po box 3353, liverpool westfield nsw 2170		215-138	9 H-07	LEVEL 8	Suite 16 / 41 - 45 Rickard Road Bankstown. NSW. 2200 CIVIL - STRUCTURAL - MECHANICAL - FIRE Phone: (02) 9790 1424	
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GLORY PROPERTY GROUP

Approved:
AU

Drawn: Designed:
TC MG

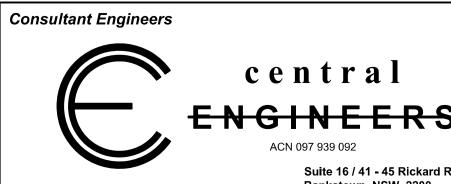
Job No: Drawing No:

215-1389 H-08

ct:
7 & 9 CASTLEREAGH STREET
8, 10 & 12 COPELAND STREET,
LIVERPOOL

Drawing Title:

ROOF PLAN



Suite 16 / 41 - 45 Rickard Road
Bankstown. NSW. 2200

CIVIL - STRUCTURAL - MECHANICAL - FIRE
Phone: (02) 9790 1424
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8th June 2016

The General Manager

Liverpool City Council Locked Bag 7064 Liverpool BC NSW 1871

RE: STORMWATER QUALITY ASSESSMENT

SUBJECT PREMISES: 7 & 9 Castlereagh Street & 8, 10 & 12 Copeland Street,

Liverpool NSW

DEVELOPMENT APPLICATION: DA-631/2015

Introduction

Central Engineers Pty Ltd have been commissioned at the request of Liverpool City Council to prepare this Stormwater Quality Assessment (SQA) for the proposed development at 7 & 9 Castlereagh Street and 8, 10 & 12 Copeland Street, Liverpool.

This SQA has been prepared on request of Liverpool City Council. The proposed development is for multi-unit residential use. The site area is 3,602.9m².

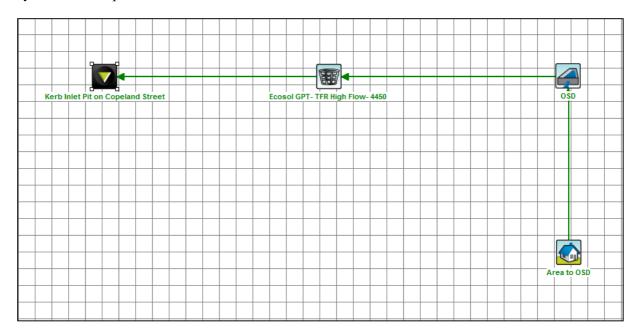
The Purpose of this SQA is to evaluate the quality of stormwater associated with the proposed development plan so as to demonstrate to Liverpool City Council that the following criteria has been adhered to:

- 80% reduction in the mean annual load of total suspended solids;
- 45% reduction in the mean annual load of total nitrogen;
- 45% reduction in the mean annual load of total phosphorus.

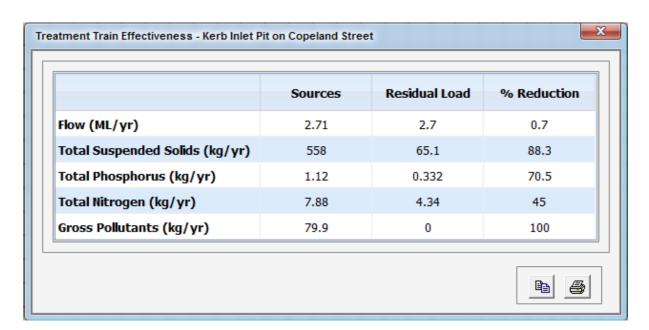
Stormwater Quality

An assessment of water quality has been carried out using a MUSIC model, based on the completion of the final stage of development. This model allows for the inclusion of an on-site detention tank of 36m³ as sized by using the Drains Model software, as well as an Ecosol 4450 Gross Pollutant Trap.

Output from the MUSIC model is included below, demonstrating that the proposal complies with Council's requirements. An electronic copy of the model is also available for detailed assessment by Council if required.



Indicative Site Model (Source: MUSIC model)



Water Quality Treatment Analysis (Source: MUSIC model)

Conclusion

The proposed stormwater management plans submitted with this assessment has provided 36,000L of on-site detention and an Ecosol 4450 Gross Pollutant Trap in order to ensure that councils required pollutant load reductions have been met.

As made evident by the results taken from the MUSIC model, these measures satisfy the requirements of Liverpool City Council

As such from a Stormwater management perspective, the SQA demonstrates that the design has been done in accordance with Liverpool City Council's guidelines and requirements and should be endorsed for approval.

Yours faithfully,

Anthony Uzelac

REF: CE2304 CASTLEREAGH & COPELAND STS LIVERPOOL 080616