

ALL NEW ZEALAND LOCATIONS

STRUCTURAL WORKS - GENERIC DESIGN

JOB No.	DWG No.	TITLE	REV	DATE	DESCRIPTION
DT-02	SS-UD-01	DRAWING SCHEDULE	1	31/10/2025	FOR CONSENT
DT-02	SS-UD-02	STANDARD NOTES AND DETAILS	1	31/10/2025	FOR CONSENT
DT-02	SS-UD-03	1100x300 STORMSLAB TANK UNDER DECK / HOUSE	1	31/10/2025	FOR CONSENT
DT-02	SS-UD-04	2300x300 STORMSLAB TANK UNDER DECK / HOUSE	1	31/10/2025	FOR CONSENT
DT-02	SS-UD-05	3500x300 STORMSLAB TANK UNDER DECK / HOUSE	1	31/10/2025	FOR CONSENT

NOTE: DRAWINGS SHOWN FOR 300 HIGH STORMSLAB. THE SAME DETAILS APPLY FOR THE 220 HIGH STORMSLAB.

SEISMIC RESTRAINT DESIGN LOADS						
	TANK WEIGH (KG)	WATER WEIGHT (KG)	TOTAL WEIGHT (KG)	ZONE 1 (Z≤0.2, CD(T)≤0.6) BASE SHEAR (kN)	ZONE 2 (Z≤0.3, CD(T)≤0.9) BASE SHEAR (kN)	ZONE 3 (Z≤0.42, CD(T)≤1.26) BASE SHEAR (kN)
1100x1100x220	27	235	262	1.54	2.31	3.24
2300x1100x220	53	500	553	3.25	4.88	6.84
3500x1100x220	78	765	843	4.96	7.44	10.42
1100x1100x300	31	325	356	2.10	3.14	4.40
2300x1100x300	59	695	754	4.44	6.66	9.32
3500x1100x300	88	1065	1153	6.79	10.18	14.25
BUBBLE-UP	60	150	210	1.24	1.84	2.6

IL2, 50 YEARS DESIGN LIFE (R=1), UP TO SOIL CLASS D

NOTES:

CONTRACTOR TO CONFIRM ALL LEVELS AND DIMENSIONS AND LOCATE AND MARK ALL SERVICES & DRAINS ON SITE BEFORE COMMENCING WORK

CONTRACTOR TO FOLLOW MATERIAL SPECIFICATION AND LIMITS OF LOCATION WITH RELATION TO STRUCTURES AND RETAINING WALLS

CONTRACTOR TO NOTIFY A CHARTERED PROFESSIONAL ENGINEER IF ANY OF THE DESIGN REQUIREMENTS OUTLINED IN THIS DRAWING PACKAGE ARE NOT ACHIEVEABLE

DEFINITIONS:
UNO - UNLESS NOTED OTHERWISE

FOR CONSENT 31-10-25 1

REVISION: DATE: No.:

JOB TITLE:
UNDER DECK / HOUSE INSTALLATION OF APD STORMSLAB TANKS WITH SEISMIC RESTRAINTS

ADDRESS:
ALL NEW ZEALAND LOCATIONS

DRAWING TITLE:
DRAWING SCHEDULE

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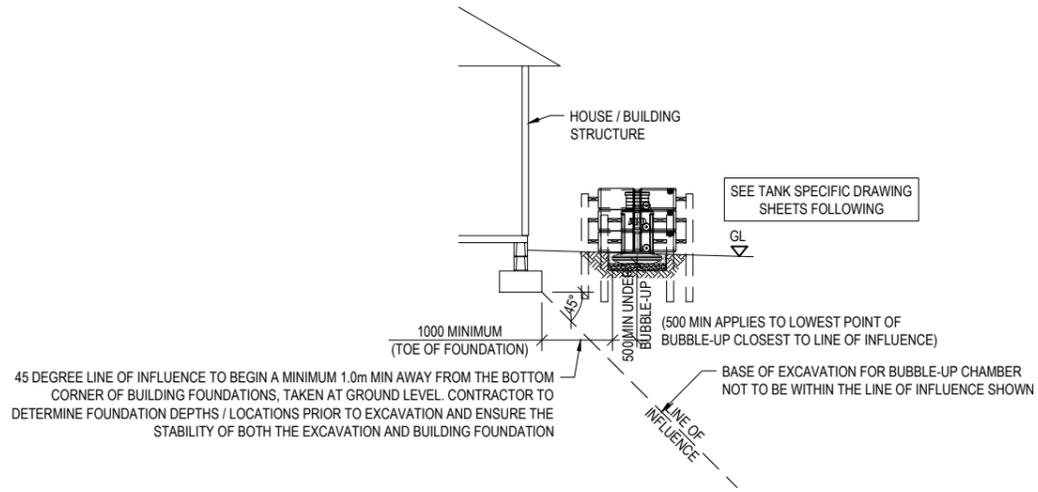
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DATE: JUN 2025	REVISION No: 1
DESIGN: AG	
CHECKED:	SCALE: NTS NTS



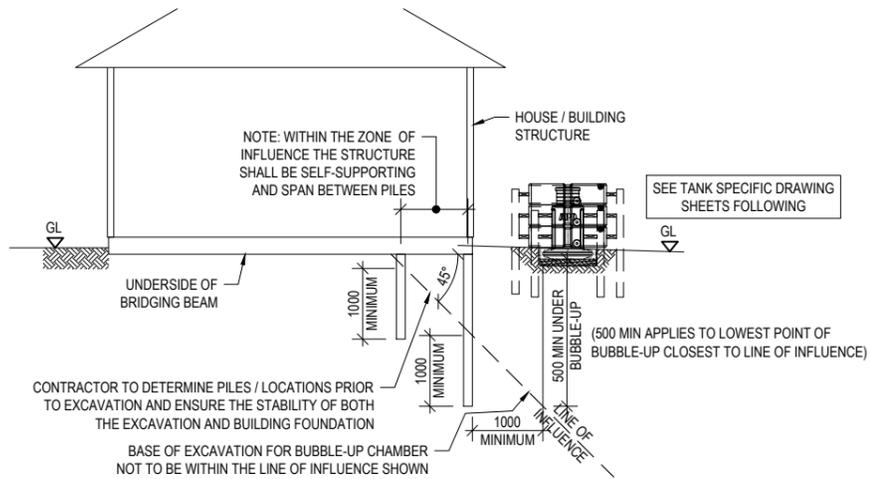
APD LTD
49 McLaughlins Road, Wiri, Auckland,
New Zealand
TEL: 00 64 9 263 7741
www.apd.co.nz

UNDER DECK / HOUSE INSTALLATION OF APD TANKS. ALL NEW ZEALAND SEISMIC LOCATIONS

NOTE: IF THE TANK EXCAVATION DOES NOT COMPLY WITH THE REQUIREMENTS BELOW - CONTRACTOR TO NOTIFY CHARTERED PROFESSIONAL ENGINEER FOR A SITE SPECIFIC CONSULTATION

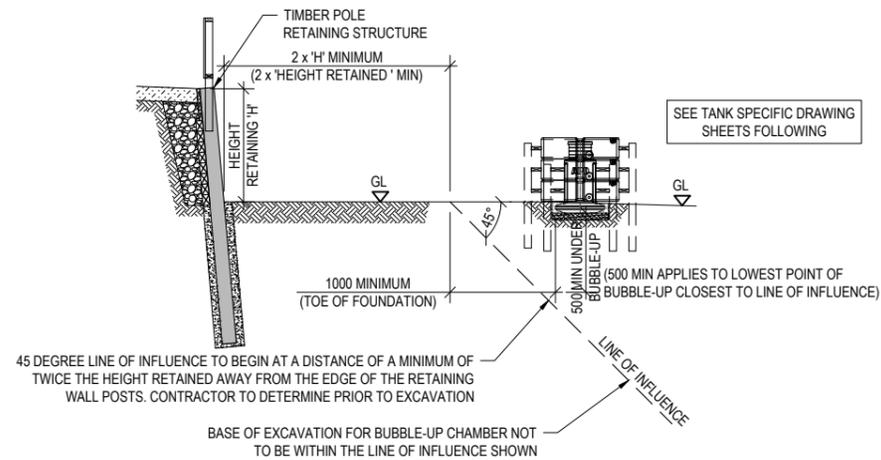


A TANK POSITION NEAR BUILDING FOUNDATIONS
SCALE NTS



B TANK POSITION NEAR PILED FOUNDATIONS
SCALE NTS

NOTE: REFER TO STORMWATER CODE OF PRACTICE DRAWING SW22.



C TANK POSITION BELOW TIMBER RETAINING WALL
SCALE NTS

NOTES:

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FOR CONSENT	31-10-25	1
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UNDER DECK / HOUSE INSTALLATION OF APD STORMSLAB TANKS WITH SEISMIC RESTRAINTS

ADDRESS:
ALL NEW ZEALAND LOCATIONS

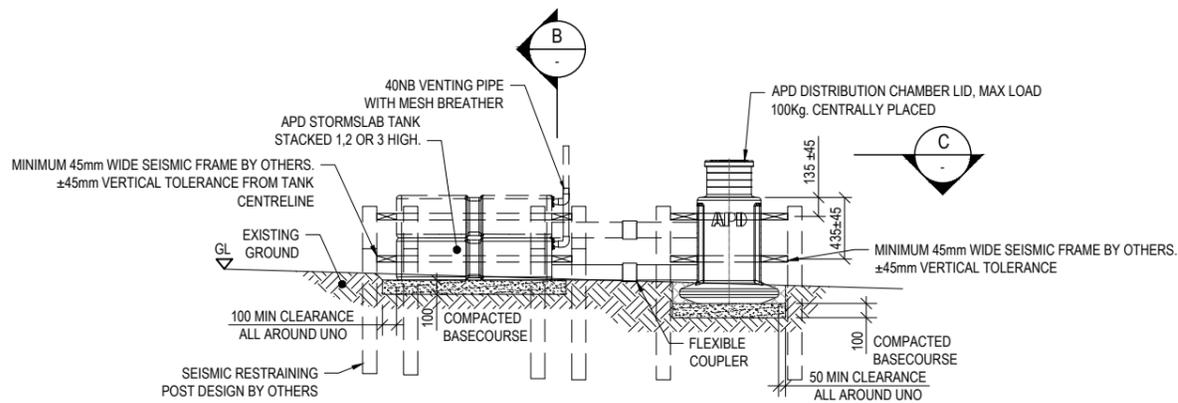
DRAWING TITLE:
STANDARD NOTES AND DETAILS

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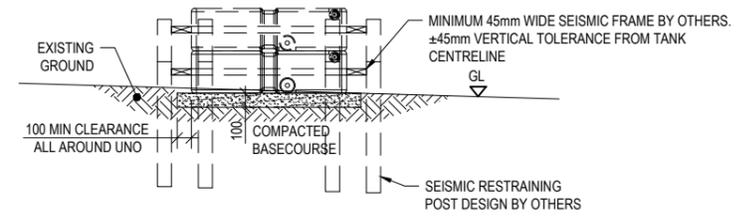
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APD

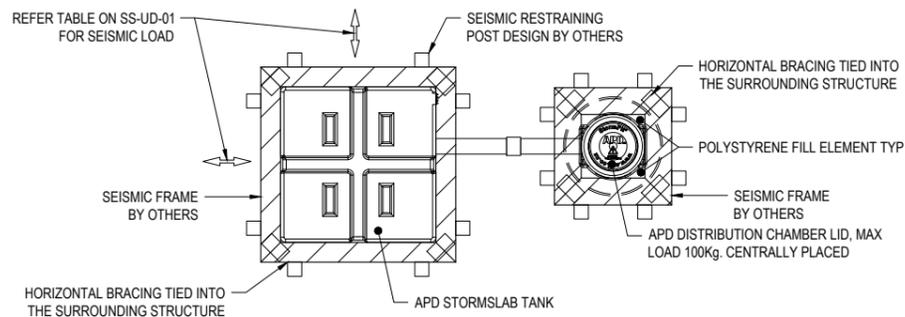
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TEL: 00 64 9 263 7741
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A LONG SECTION
SCALE: NTS



B CROSS SECTION
SCALE: NTS



C PLAN AT LID LEVEL
SCALE: NTS

BUBBLE-UP & TANK LOCATION - PROXIMITY TO NEARBY STRUCTURES:

THE LOCATION OF THE EXCAVATION IS THE RESPONSIBILITY OF THE CONTRACTOR AND THE BUBBLE-UP / TANK OWNER. THE CONTRACTOR IS TO FOLLOW THE LIMITATIONS OF THE DIAGRAMS SHOWN OR NOTIFY A CHARTERED PROFESSIONAL ENGINEER FOR A SITE SPECIFIC CONSULTATION.
THE CONTRACTOR IS TO ENSURE NEARBY FOUNDATIONS OF NEW AND / OR EXISTING STRUCTURES ARE NOT UNDERMINED BY THE EXCAVATION FOR THE BUBBLE-UP OR TANK.

EXCAVATION CLEARANCE:

THE CONTRACTOR IS TO ENSURE A MINIMUM OF 100mm BETWEEN EDGE OF BUBBLE-UP AND EDGE OF EXCAVATION WALL AT THE NARROWEST LOCATION.

SOIL CONDITIONS:

THIS DESIGN ASSUMES SITE SOILS WILL MEET THE REQUIREMENTS OF NZS3604:2011 CLASSIFICATION OF 'GOOD GROUND' AND AS2870:2011 SOIL EXPANSIVITY CLASS UP TO 'H2'. THE CONTRACTOR IS TO CONFIRM THE SITE EXHIBITS THESE PROPERTIES OR NOTIFY A CHARTERED PROFESSIONAL ENGINEER FOR CONSULTATION. FOR IL2, 50 YEARS DESIGN LIFE, $Z \leq 0.4$

TEMPORARY SUPPORT & SHORING:

TEMPORARY SUPPORT AND SHORING DURING EXCAVATION AND PREPARATION IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE IN ACCORDANCE WITH HEALTH AND SAFETY AT WORK ACT 2015 (HSWA), THE HEALTH AND SAFETY AT WORK (GENERAL RISK AND WORKPLACE MANAGEMENT) REGULATIONS 2016 (GRWM REGULATIONS) AND THE HEALTH AND SAFETY IN EMPLOYMENT REGULATIONS 1995 (HSE REGULATIONS), REGULATION 24 FOR EXCAVATIONS WITH FACE MORE THAN 1.5m HIGH (AS BELOW):

- 1) SUBJECT TO SUBCLAUSE (2) OF THIS REGULATION, EVERY EMPLOYER SHALL TAKE ALL PRACTICABLE STEPS TO ENSURE THAT, WHERE ANY FACE OF ANY EXCAVATION IS MORE THAN 1.5m HIGH, THAT FACE IS SHORED.
- 2) SUBCLAUSE (1) OF THIS REGULATION DOES NOT APPLY WHERE:
 - a) THE FACE IS CUT BACK TO A SAFE SLOPE; OR
 - b) THE MATERIAL IN THE FACE IS OF PROVEN GOOD STANDING QUALITY UNDER ALL REASONABLY FORESEEABLE CONDITIONS OF WORK AND WEATHER; OR

- c) BY REASON OF THE NATURE OF THE WORK AND THE POSITION OF ANY EMPLOYEE IN THE VICINITY, THERE IS NO DANGER TO ANY EMPLOYEE; OR
 - d) THE PROVISION OF SHORING IS IMPRACTICABLE OR UNREASONABLE BY REASON OF THE NATURE OF THE WORK AND THE EMPLOYER TAKES ALL PRACTICABLE STEPS TO ENSURE THAT OTHER PRECAUTIONS ARE TAKEN TO MAKE THE FACE AS SAFE AS POSSIBLE IN THE CIRCUMSTANCES.
- 3) EVERY EMPLOYER SHALL TAKE ALL PRACTICABLE STEPS TO ENSURE THAT ANY SHORING USED IN ANY EXCAVATION AT THE PLACE OF WORK:
 - a) CONSISTS OF MATERIALS THAT ARE SUITABLE FOR THE PURPOSE FOR WHICH THEY ARE TO BE USED, OF SOUND QUALITY, AND ADEQUATE STRENGTH FOR THE PARTICULAR USE; AND
 - b) HAS BRACINGS, JACKS, AND STRUTS THAT ARE SECURELY HELD TO PREVENT ACCIDENTAL DISPLACEMENT, AND PACKING'S AND WEDGES THAT ARE HELD BY NAILS OR SPIKES; AND
 - c) IS PLACED IN A PROPER MANNER BY A BY AN EXPERIENCED PERSON UNDER COMPETENT SUPERVISION; AND
 - d) IS NOT ALTERED, DISMANTLED, OR INTERFERED WITH EXCEPT ON THE INSTRUCTIONS OF THE EMPLOYER OR A REPRESENTATIVE OF THE EMPLOYER.

BASECOURSE:

BASECOURSE MATERIAL TO BE EITHER:

CRUSHED STONE OR GRAVEL: WASHED, WITH ANGULAR PARTICLE SIZES NO LARGER THAN 20mm WITH NO MORE THAN 5% PASSING A 2.36mm SIEVE. DRY DENSITY MUST NOT BE LESS THAN 1500 Kg / CUBIC METRE. APPROVED BACKFILL SHOULD NOT BE MIXED WITH SAND OR NATIVE SOILS. THE USE OF NON-SPECIFIED BACKFILL MATERIAL COULD RESULT IN TANK FAILURE. GAP20 IS ACCEPTABLE.

OR IF CRUSHED STONE OR GRAVEL IS NOT AVAILABLE, THEN SPECIFIC QUARRY AGGREGATE MIX OF **NATURALLY ROUNDED GRAVEL:** CLEAN NATURALLY ROUNDED AGGREGATE WITH PARTICLE SIZES NO LARGER THAN 19mm WITH NO MORE THAN 5% PASSING A 2.36mm SIEVE. DRY DENSITY MUST NOT BE LESS THAN 1500 Kg / CUBIC METRE.

THE CONTRACTOR IS TO ENSURE ALL VOIDS AND SPACES SHOULD BE FILLED TO ENSURE ADEQUATE SUPPORT OF BUBBLE-UP & TANK.

NOTES:

CONTRACTOR TO CONFIRM ALL LEVELS AND DIMENSIONS AND LOCATE AND MARK ALL SERVICES & DRAINS ON SITE BEFORE COMMENCING WORK

CONTRACTOR TO FOLLOW MATERIAL SPECIFICATION AND LIMITS OF LOCATION WITH RELATION TO STRUCTURES AND RETAINING WALLS

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UNDER DECK / HOUSE INSTALLATION OF APD STORMSLAB TANKS WITH SEISMIC RESTRAINTS

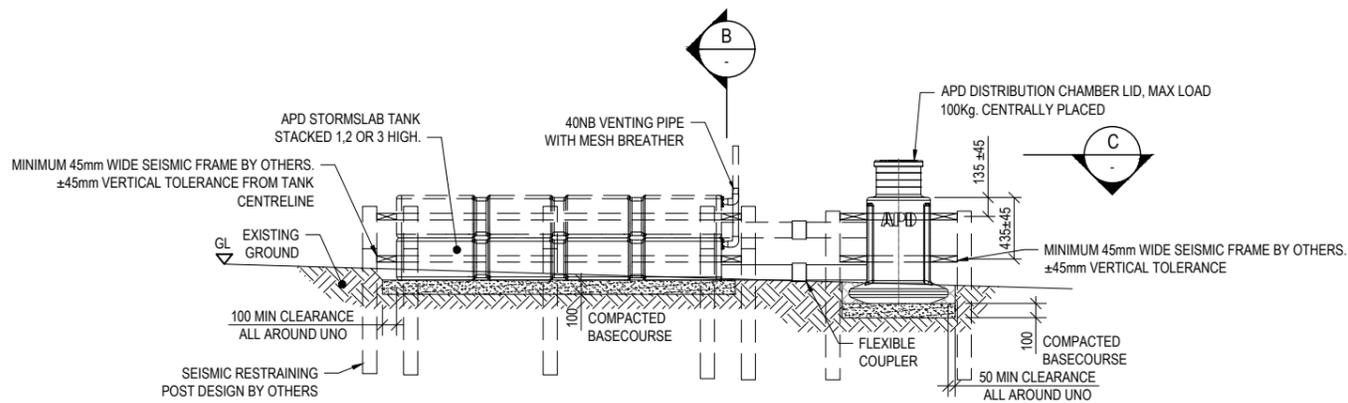
ADDRESS:
ALL NEW ZEALAND LOCATIONS

DRAWING TITLE:
1100x300 STORMSLAB TANK UNDER DECK / HOUSE. ALL NEW ZEALAND SEISMIC CONDITIONS

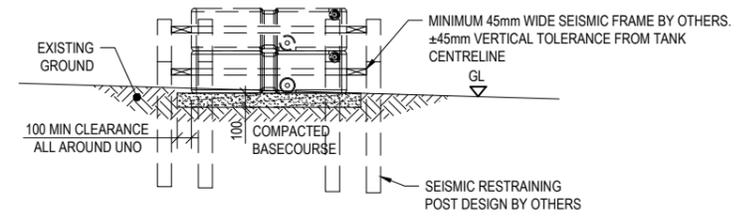
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DRAWN: RCE	DRAWING No: SS-UD-03
DATE: JUN 2025	REVISION No: 1
DESIGN: AG	SCALE: NTS
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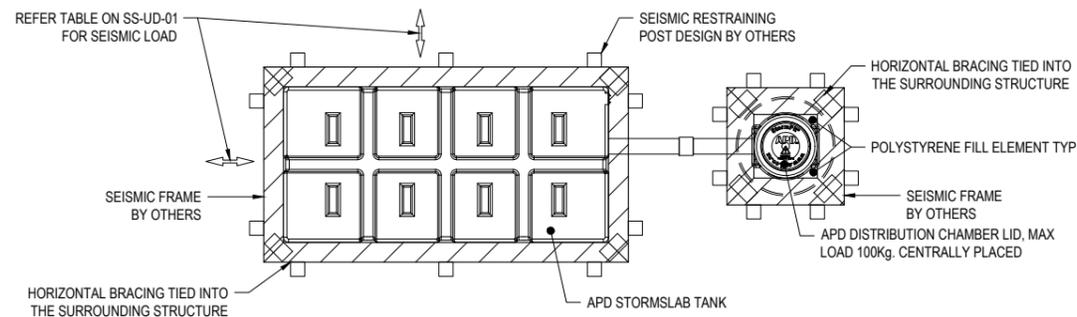
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A LONG SECTION
SCALE NTS



B CROSS SECTION
SCALE NTS



C PLAN AT LID LEVEL
SCALE NTS

BUBBLE-UP & TANK LOCATION - PROXIMITY TO NEARBY STRUCTURES:

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EXCAVATION CLEARANCE:

THE CONTRACTOR IS TO ENSURE A MINIMUM OF 100mm BETWEEN EDGE OF BUBBLE-UP AND EDGE OF EXCAVATION WALL AT THE NARROWEST LOCATION.

SOIL CONDITIONS:

THIS DESIGN ASSUMES SITE SOILS WILL MEET THE REQUIREMENTS OF NZS3604:2011 CLASSIFICATION OF 'GOOD GROUND' AND AS2870:2011 SOIL EXPANSIVITY CLASS UP TO 'H2'. THE CONTRACTOR IS TO CONFIRM THE SITE EXHIBITS THESE PROPERTIES OR NOTIFY A CHARTERED PROFESSIONAL ENGINEER FOR CONSULTATION. FOR IL2, 50 YEARS DESIGN LIFE, $Z \leq 0.4$

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 - b) THE MATERIAL IN THE FACE IS OF PROVEN GOOD STANDING QUALITY UNDER ALL REASONABLY FORESEEABLE CONDITIONS OF WORK AND WEATHER; OR

- c) BY REASON OF THE NATURE OF THE WORK AND THE POSITION OF ANY EMPLOYEE IN THE VICINITY, THERE IS NO DANGER TO ANY EMPLOYEE; OR
 - d) THE PROVISION OF SHORING IS IMPRACTICABLE OR UNREASONABLE BY REASON OF THE NATURE OF THE WORK AND THE EMPLOYER TAKES ALL PRACTICABLE STEPS TO ENSURE THAT OTHER PRECAUTIONS ARE TAKEN TO MAKE THE FACE AS SAFE AS POSSIBLE IN THE CIRCUMSTANCES.
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 - b) HAS BRACING'S, JACKS, AND STRUTS THAT ARE SECURELY HELD TO PREVENT ACCIDENTAL DISPLACEMENT, AND PACKING'S AND WEDGES THAT ARE HELD BY NAILS OR SPIKES; AND
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BASECOURSE:

BASECOURSE MATERIAL TO BE EITHER:

CRUSHED STONE OR GRAVEL: WASHED, WITH ANGULAR PARTICLE SIZES NO LARGER THAN 20mm WITH NO MORE THAN 5% PASSING A 2.36mm SIEVE. DRY DENSITY MUST NOT BE LESS THAN 1500 Kg / CUBIC METRE. APPROVED BACKFILL SHOULD NOT BE MIXED WITH SAND OR NATIVE SOILS. THE USE OF NON-SPECIFIED BACKFILL MATERIAL COULD RESULT IN TANK FAILURE. GAP20 IS ACCEPTABLE.

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NOTES:

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DEFINITIONS:
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FOR CONSENT	31-10-25	1
REVISION:	DATE:	No.:

JOB TITLE:
UNDER DECK / HOUSE INSTALLATION OF APD STORMSLAB TANKS WITH SEISMIC RESTRAINTS

ADDRESS:
ALL NEW ZEALAND LOCATIONS

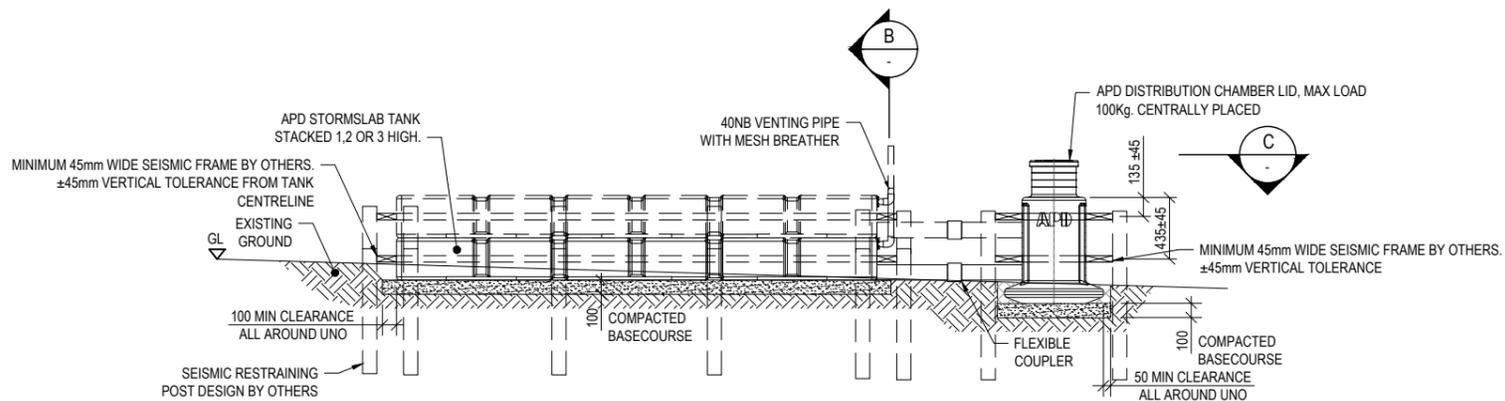
DRAWING TITLE:
2300x300 STORMSLAB TANK UNDER DECK / HOUSE. ALL NEW ZEALAND SEISMIC CONDITIONS

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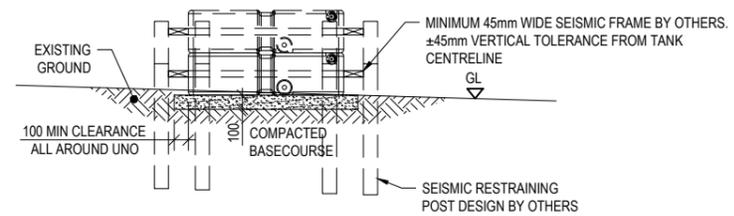
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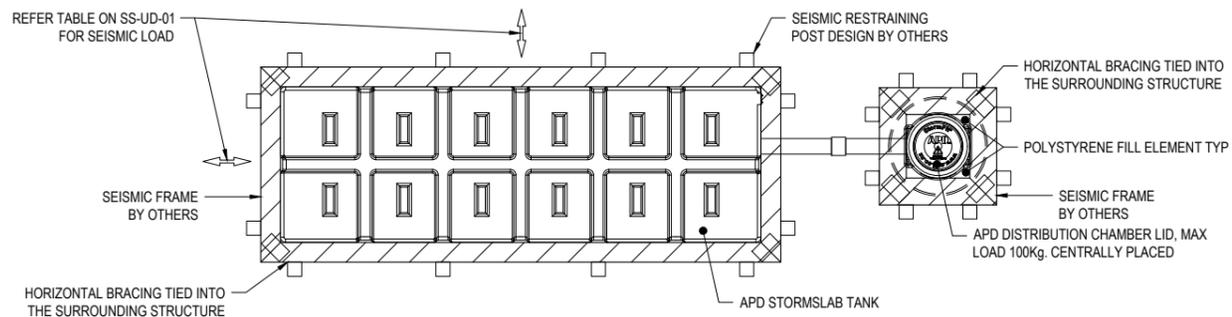
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A LONG SECTION
SCALE: NTS



B CROSS SECTION
SCALE: NTS



C PLAN AT LID LEVEL
SCALE: NTS

BUBBLE-UP & TANK LOCATION - PROXIMITY TO NEARBY STRUCTURES:

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EXCAVATION CLEARANCE:

THE CONTRACTOR IS TO ENSURE A MINIMUM OF 100mm BETWEEN EDGE OF BUBBLE-UP AND EDGE OF EXCAVATION WALL AT THE NARROWEST LOCATION.

SOIL CONDITIONS:

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 - a) THE FACE IS CUT BACK TO A SAFE SLOPE; OR
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BASECOURSE:

BASECOURSE MATERIAL TO BE EITHER:

CRUSHED STONE OR GRAVEL: WASHED, WITH ANGULAR PARTICLE SIZES NO LARGER THAN 20mm WITH NO MORE THAN 5% PASSING A 2.36mm SIEVE. DRY DENSITY MUST NOT BE LESS THAN 1500 Kg / CUBIC METRE. APPROVED BACKFILL SHOULD NOT BE MIXED WITH SAND OR NATIVE SOILS. THE USE OF NON-SPECIFIED BACKFILL MATERIAL COULD RESULT IN TANK FAILURE. GAP20 IS ACCEPTABLE.

OR IF CRUSHED STONE OR GRAVEL IS NOT AVAILABLE, THEN SPECIFIC QUARRY AGGREGATE MIX OF **NATURALLY ROUNDED GRAVEL:** CLEAN NATURALLY ROUNDED AGGREGATE WITH PARTICLE SIZES NO LARGER THAN 19mm WITH NO MORE THAN 5% PASSING A 2.36mm SIEVE. DRY DENSITY MUST NOT BE LESS THAN 1500 Kg / CUBIC METRE.

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UNDER DECK / HOUSE INSTALLATION OF APD STORMSLAB TANKS WITH SEISMIC RESTRAINTS

ADDRESS:
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DRAWING TITLE:
3500x300 STORMSLAB TANK UNDER DECK / HOUSE. ALL NEW ZEALAND SEISMIC CONDITIONS

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