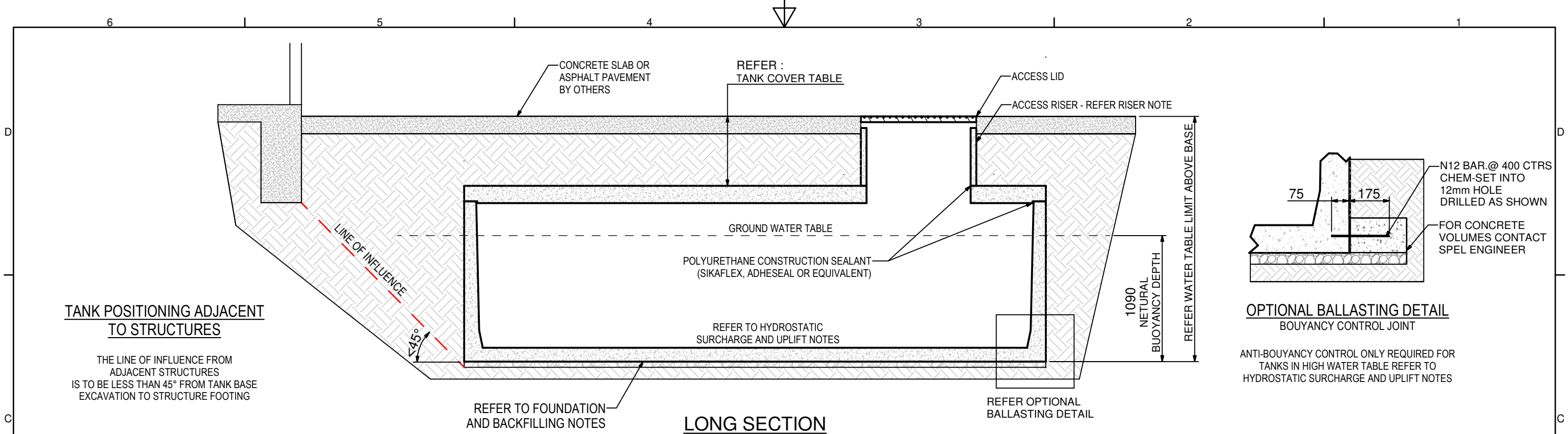


SV.5023-1250 - 3D VIEW

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
SP21-CT24660-C	COVER SHEET AND DRAWING INDEX
SP21-CT24670-C	GENERAL NOTES PAGE
SP21-CT24680-C	GENERAL ARRANGEMENT
SP21-CT24690-C	PERMISSIBLE PENETRATIONS SHEETS 1,2 & 3
SP21-CT24700-C	TANK LID PENETRATION OPTIONS
SP21-CT48180-C	GENERAL LIFTING ARRANGEMENT

<table><tr><td>1</td><td>08/04/21</td><td>G.T</td><td>INITIAL RELEASE</td><td></td></tr><tr><td>REV</td><td>DATE</td><td>BY</td><td>DESCRIPTION</td><td>CHK</td></tr></table>					1	08/04/21	G.T	INITIAL RELEASE		REV	DATE	BY	DESCRIPTION	CHK	<p>CONFIDENTIAL - The drawings must not be disclosed to any third parties without written permission from SPEL STORMWATER . Unauthorised disclosure may result in prosecution. © SPEL STORMWATER - This drawing is the property of SPEL STORMWATER ABN: 83 151 832 629 and is subject to return on demand. It is submitted for the use only in connection with the proposal and contracts of SPEL STORMWATER with the expressed conditions that it is not to be reproduced or copied in any form. This data must only be used in accordance with our standard terms and conditions. © Copyright SPEL STORMWATER accepts no responsibility for any loss or damage resulting from any person acting on this information. The details and dimensions contained in this document may change, please check with SPEL STORMWATER for confirmation of current specifications.</p>	<table><tr><td>Drawn</td><td>Date</td></tr><tr><td>G.T</td><td>9/04/2021</td></tr><tr><td>Check</td><td>Date</td></tr><tr><td>Verified</td><td>Date</td></tr><tr><td>Approved</td><td>Date</td></tr><tr><td colspan="2">Request No.</td></tr><tr><td colspan="2" rowspan="2">RN211661</td></tr></table>	Drawn	Date	G.T	9/04/2021	Check	Date	Verified	Date	Approved	Date	Request No.		RN211661			PROJECT :			
1	08/04/21	G.T	INITIAL RELEASE																																
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		TITLE COVER SHEET AND DRAWING INDEX 12.66 kL SPEL PRECAST CONCRETE TANK SV.5023-1250																																	
SCALE N.T.S		SIZE A3		SHEET 1		REV 1		CUSTOMER CODE : DWG No. SP21-CT24660-C																											



TANK POSITIONING ADJACENT TO STRUCTURES

THE LINE OF INFLUENCE FROM ADJACENT STRUCTURES IS TO BE LESS THAN 45° FROM TANK BASE EXCAVATION TO STRUCTURE FOOTING

DESIGN CRITERIA

DESIGN IN ACCORDANCE WITH:
AS/NZS 1170.0 - DESIGN LOAD GENERAL REQUIREMENTS
AS/NZS 1170.1 - PERMANENT AND SUPERIMPOSED LOADS
EXPOSURE CLASSIFICATION IN ACCORDANCE WITH AS/NZS 3600 - 'B2'
THE TANK DESIGN LIFE EXPECTANCY IS UP TO 50 YRS.

HEAVY VEHICLES ARE ASSUMED TO BE WITHIN THE GROSS VEHICLE MASS (GVM) AND AXLE LIMITS PRESCRIBED BY THE QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS. THE HEAVY VEHICLES THAT THE TANK AND LID ARE DESIGNED FOR INCLUDES:

- SINGLE RIGID TRUCK
- RIGID TRUCK WITH TRAILER
- SEMI TRAILER
- B-DOUBLE
- TWIN STEER TRUCKS

WHICH REPRESENTS AXLE GROUPS OF:

- SINGLE AXLE = 9.0 TONNES
- TANDEM AXLE = 16.0 TONNES
- TRI-AXLE = 20.0 TONNES

WHEEL LOADS ARE BASED ON TANKS INSTALLED IN CONTROLLED TRAFFIC AREA (CARPARK) WITH VEHICLES OPERATING AT REDUCED SPEED.

NOTE: TANKS ARE NOT DESIGNED TO BE INSTALLED UNDER OPEN ROADS. IF W80 AND SM1600 RATING IS REQUIRED, CONSULT SPEL ENGINEERS

CONCRETE

1. TO COMPLY WITH THE REQUIREMENTS OF AS 3600-2018-CONCRETE STRUCTRES.
2. 50 MPa

TANK COVER						
TANK TYPE	COVER	BASE THICKNESS	LID THICKNESS	EXTRA REINFORCEMENT	EXCAVATION kPa	WATER TABLE LIMIT ABOVE BASE
STOCK	0-2000	120	150	-	100 kPa	5000
CUSTOM	2001-2500	150	200	Y	125 kPa	7000
CUSTOM	2501-3000	150	200	Y	150 kPa	7000
CUSTOM	3001-3500	150	200	Y	175 kPa	7000

HYDROSTATIC SURCHARGE AND UPLIFT

IMPORTANT NOTE:

NEUTRAL BUOYANCY DEPTH PROVIDED IS A GUIDE ONLY. IT IS CONSERVATIVELY CALCULATED WITH ZERO SOIL COVER AND ZERO SLAB COVER. SEEK SPEL ADVISE FOR SITE SPECIFIC BALLASTING CALCULATIONS, THAT CAN TAKE INTO CONSIDERATION SOIL / SLAB COVER OVER TANK, ANY ADDITIONAL CLEAR OPENINGS IN THE TANK LID,AND ANY PENETRATIONS IN THE TANK WALLS OR BASE.

1. TANK WITH WATER LEVEL UP TO 1090 FROM THE TANK BASE HAS NIL HYDROSTATIC UPLIFT (NEUTRAL BUOYANCY MARK). FOR WATER LEVELS GREATER THAN THIS CONTACT SPEL ENGINEERS FOR SITE SEPTIC BALLASTING ADVICE..

RISER NOTES:

IF PROCURING NON-"SPEL" MANUFACTURED RISERS. THE SUPPLIER IS TO CONFIRM THE RISER IS SUITABLE FOR:


1. THE DEPTHS REQUIRED FOR THE PROJECT.
2. THE TRAFFIC RATING REQUIRED.
3. 35mm MINIMUM RISER WALL THICKNESS BEARING ON TANK LID.

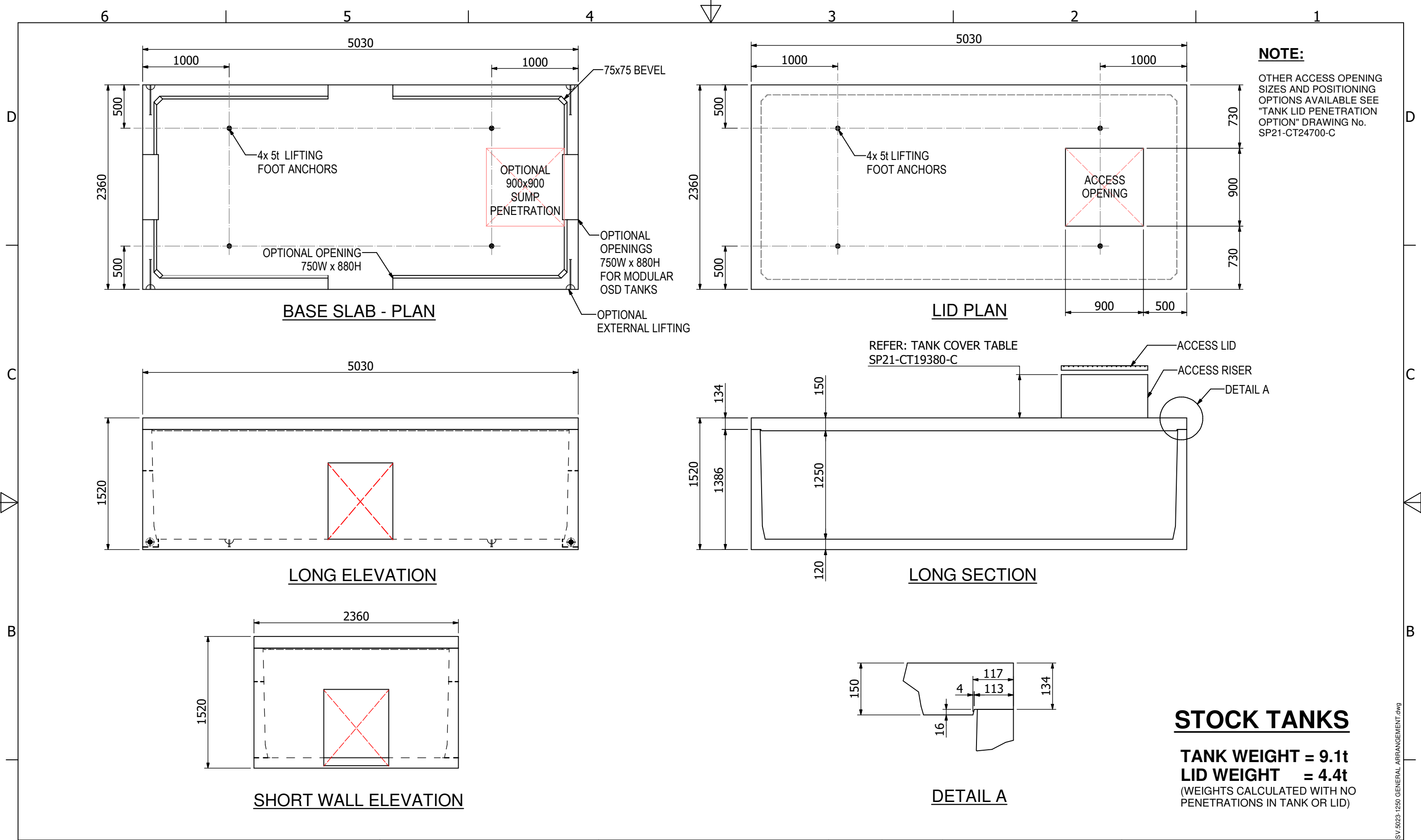
FOUNDATION REQUIREMENTS AND BACKFILLING

1. THE TANK MUST BE FOUNDED ON COMPACTED 50mm MINIMUM LEVELLING SUB-BASE COMPRISED OF SAND OR ROAD BASE THAT ACHIEVES CBR40 WHEN THE TANK IS SUBJECTED TO VEHICLE LOADING. CBR15 OR OTHERWISE. 5-10mm DRAINAGE GRAVEL IS AN ACCEPTABLE SUB-BASE MATERIAL WHEN TANK IS SUBJECTED TO VEHICLE LOADING, 10mm MAXIMUM TO BE STRICTLY ADHERED TO.
2. BACKFILL AROUND THE TANK WITH A WELL DRAINING GRANULAR MATERIAL IN LAYERS NO THICKER THAN 500mm. MAXIMUM VARIATION OF 500mm IN BACKFILL PLACEMENT HEIGHT FROM ONE SIDE OF TANK TO THE OTHER
3. COMPACT PAVEMENT SUBGRADES ABOVE THE TANK LID WITH LIGHT DUTY HAND OPERATED COMPACTION EQUIPMENT. DO NOT USE HEAVY MECHANICAL COMPACTION TECHNIQUES (SUCH AS VIBRATORY OR STATIC ROLLERS) ABOVE OR ADJACENT TO THE TANK WALLS WITHIN 1500mm OF TANKS WITHOUT ENGINEER'S APPROVAL
4. BACKFILL SUPPORTING BUILDINGS OR PAVEMENTS TO HAVE LEVEL 1 SUPERVISION & TESTING (PROJECT ENGINEER TO ADVISE)
5. BACKFILL SUPPORTING TRAFFICABLE PAVEMENT MUST BE LEVEL 1 SUPERVISION & TESTING. A PAVEMENT THAT IS DESIGNED TO BE SUSPENDED OVER BACKFILL SHOULD EXTEND A NOMINAL DISTANCE BEYOND THE EDGE OF THE EXCAVATION ONTO NATURAL GROUND. THE SPECIFIC DESIGN IS THE RESPONSIBILITY OF THE PROJECT ENGINEER.

LIFTING NOTES:

1. TOTAL APPROVED 15.0 t (WLL) LIMIT AS SPECIFIED ON DRAWING. CONSULT AN RPEQ ENGINEER FOR LIFTING DESIGN OF SPECIFICALLY DESIGNED TANKS WITH ADDITIONAL FIXTURES INSTALLED AND TOTAL WEIGHT EXCEEDING APPROVED 15.0 t
2. THE ERECTOR SHALL COORDINATE WITH THE SITE PROJECT ENGINEER FOR SITE ACCESS, GROUND CONDITIONS AND PLANNED LIFTING EQUIPMENT PRIOR TO TANK DELIVERY ON SITE.
3. RIGGING ARRANGEMENT SHALL ENSURE THE LOAD IS EVENLY DISTURBED BETWEEN ALL LIFTING ANCHORS.
4. ONLY USE LIFTING PINS PROVIDED WHEN LIFTING, DAMAGED LIFTING PINS SHALL NOT BE USED UNLESS CAPACITY IS VERIFIED AND APPROVED BY A RPEQ ENGINEER.

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											TITLE			
											GENERAL NOTES			
											12.66 kL SPEL PRECAST CONCRETE TANK			
SV.5023-1250 NOTES PAGE.dwg											SCALE	SIZE	SHEET	REV
											N.T.S	A3	1	2
											CUSTOMER CODE : DWG No. SP21-CT24670-C			



STOCK TANKS

TANK WEIGHT = 9.1t
LID WEIGHT = 4.4t
(WEIGHTS CALCULATED WITH NO PENETRATIONS IN TANK OR LID)

A

1	05/21	G.T	INITIAL RELEASE	
2	10/21	GT	GENERAL AMENDMENTS	
REV	DATE	BY	DESCRIPTION	CHK

6

5

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Request No.

Date


15/11/2021

Date

Date

Date

3



spelstormwater

joy in water

spel.com.au

2

PROJECT :

TITLE

SCALE

SIZE

SHEET

REV

CUSTOMER CODE :

DWG No.

GENERAL ARRANGEMENT

12.66 kL SPEL PRECAST CONCRETE TANK

SV.5023-1250

A3

1

2

SP21-CT24680-C

1

1

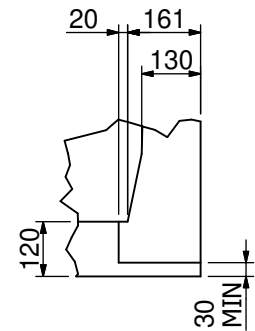
STOCK TANKS

PLEASE NOTE:

THESE GUIDELINES ARE FOR A STOCK TANK WITH STANDARD REINFORCEMENT.

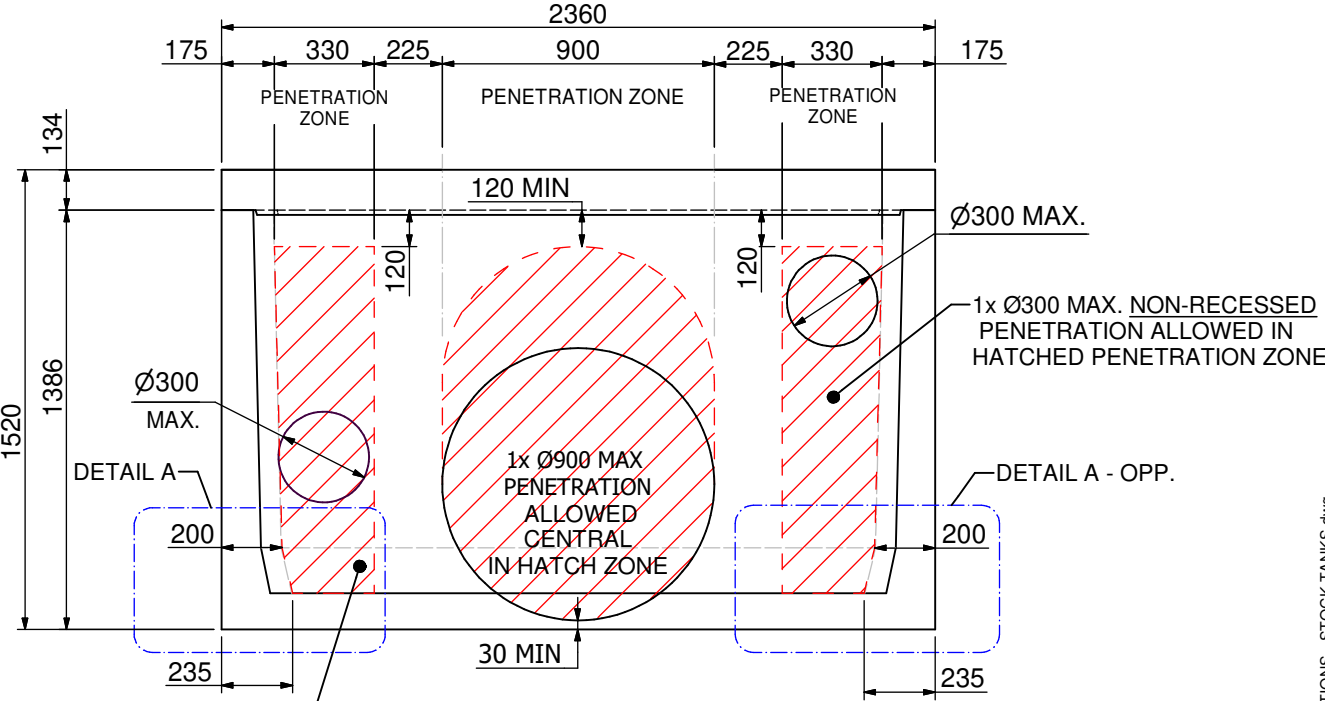
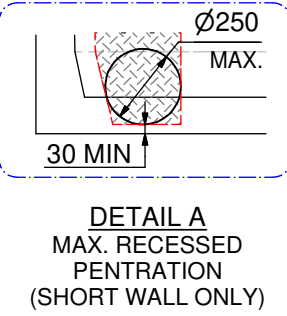
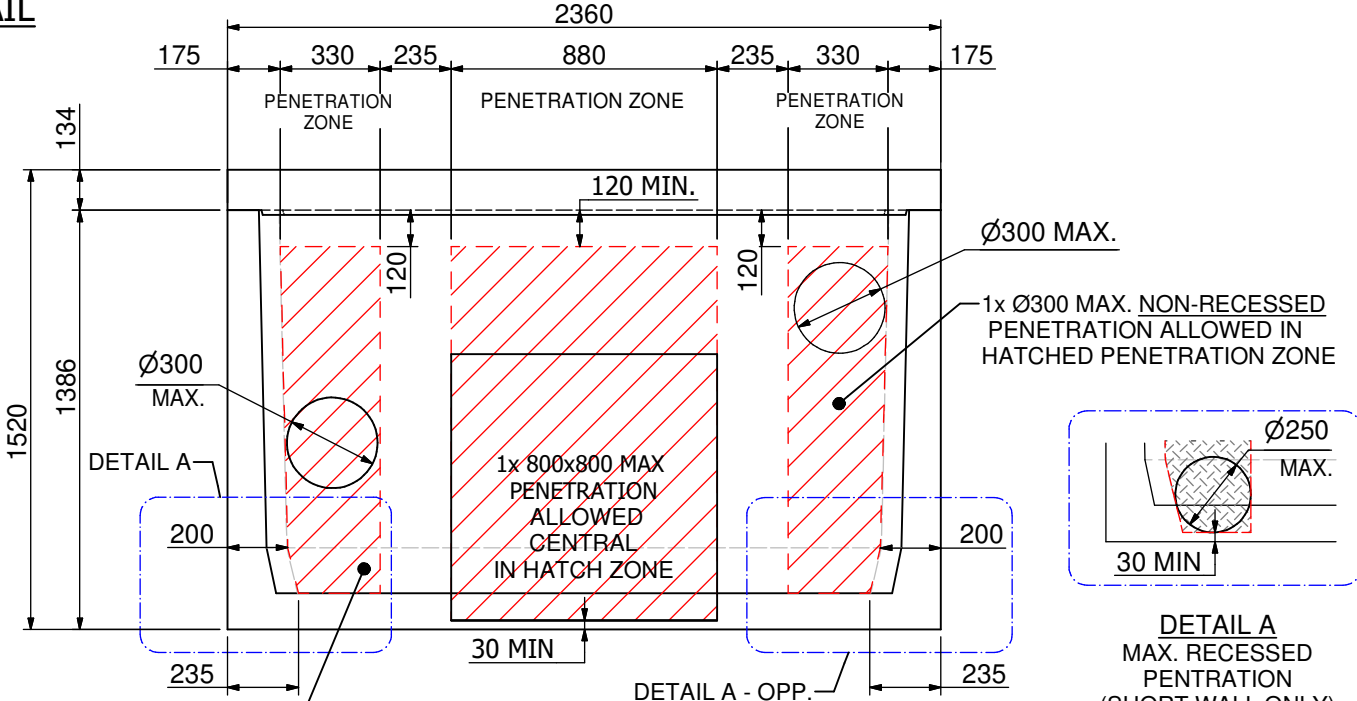
IF REQUIRED PENETRATIONS ARE OUTSIDE OF THE GUIDELINES SHOWN, CONTACT SPEL WHO WILL SEEK FURTHER ENGINEERING ADVICE.

CUSTOM TANKS CAN PROVIDE PENETRATIONS OUTSIDE THESE GUIDELINES REFER.
"PERMISSIBLE PENETRATIONS - CUSTOM TANKS"
ON DRAWINGS SP21-CT24690 - C SHEET 2 & 3
FOR A GUIDE PRIOR TO TANK PRODUCTION.



TYPICAL BASE RECESS DETAIL

LONG WALL - SINGLE LARGEST PERMISSIBLE PENETRATION



SHORT WALL - 880x880 MAX. PENETRATION

SHORT WALL - Ø 900 MAX. PENETRATION

REV	DATE	BY	DESCRIPTION	CHK
1	07/21	G.T	INITIAL RELEASE	
2	10/21	GT	DRAWING SET EXPANDED	

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GT	7/04/2021
Check	Date
Verified	Date
Approved	Date
Request No.	



PROJECT :			
TITLE PERMISSIBLE PENETRATIONS 12.66 kL SPEL PRECAST CONCRETE TANK SV.5023-1250- STOCK TANKS			
SCALE N.T.S	SIZE A3	SHEET 1	REV 2
CUSTOMER CODE : DWG No.		SP21-CT24690-C	

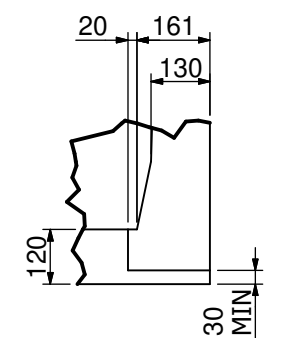
CUSTOM TANKS

IMPORTANT NOTE:

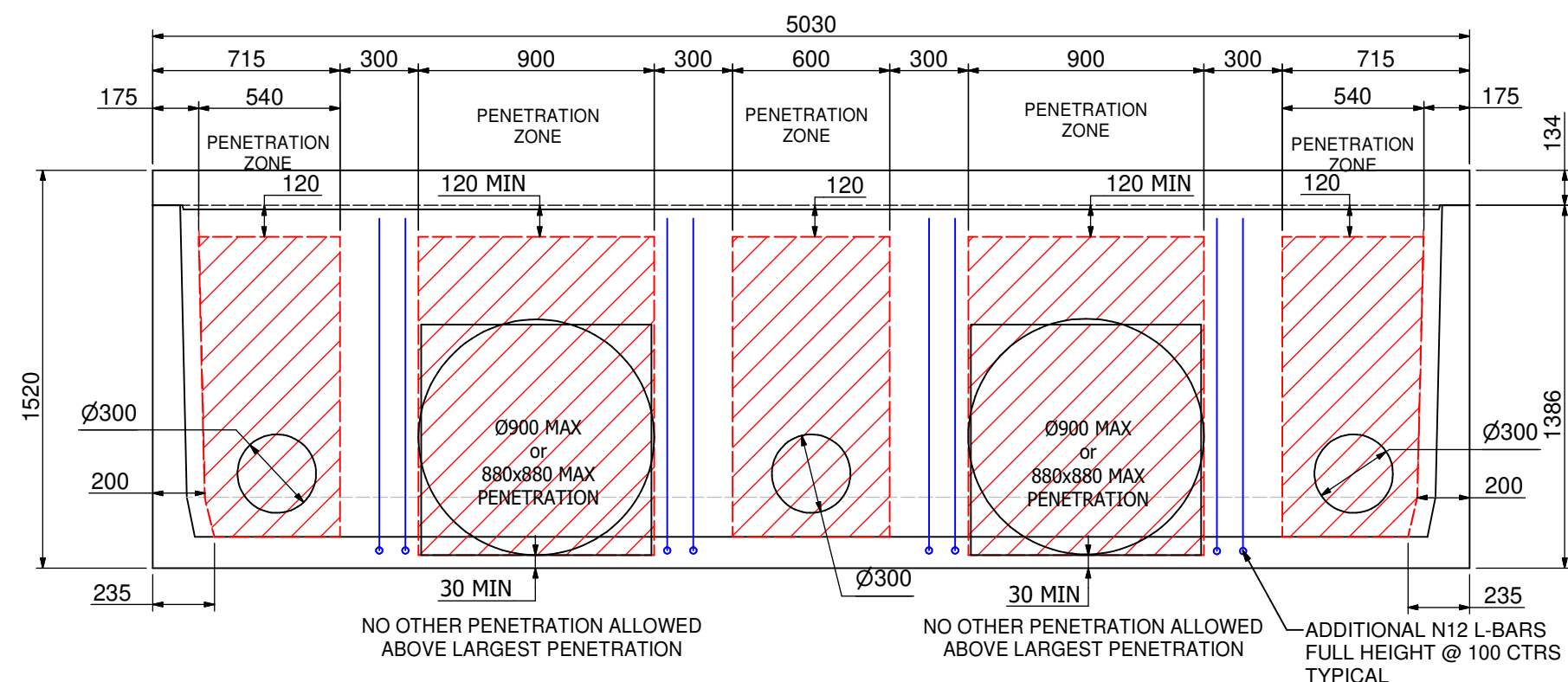
THESE PENETRATIONS CANNOT BE PERFORMED TO A STANDARD TANK.

THEY ARE REQUIRED TO BE ARRANGED WITH SPEL, PRIOR TO POURING THE TANK SO ADDITIONAL REINFORCEMENT CAN BE INCLUDED.

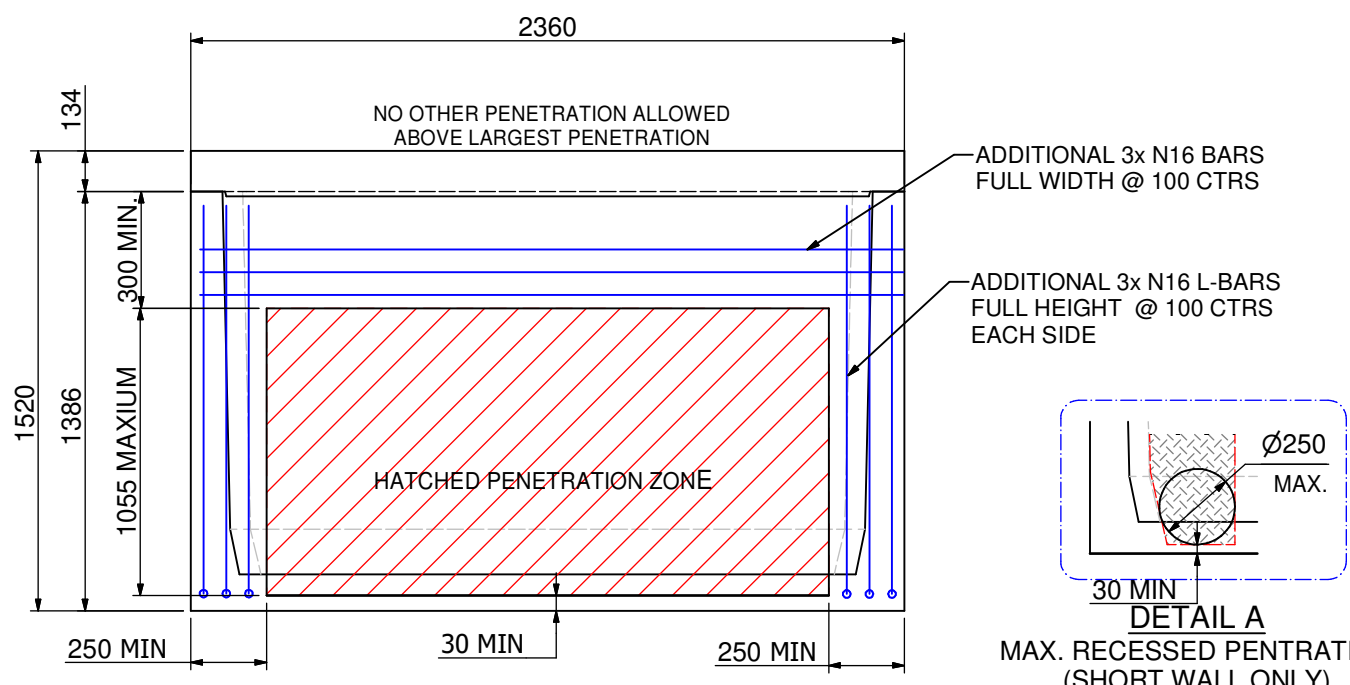
FOR STANDARD PERMISSIBLE PENETRATION REFER DRAWING SP21-CT24690-C SHEET 1 FOR ADDITIONAL PENETRATION COMBINATIONS CONTACT SPEL FOR DESIGN / ENGINEERING ASSISTANCE.



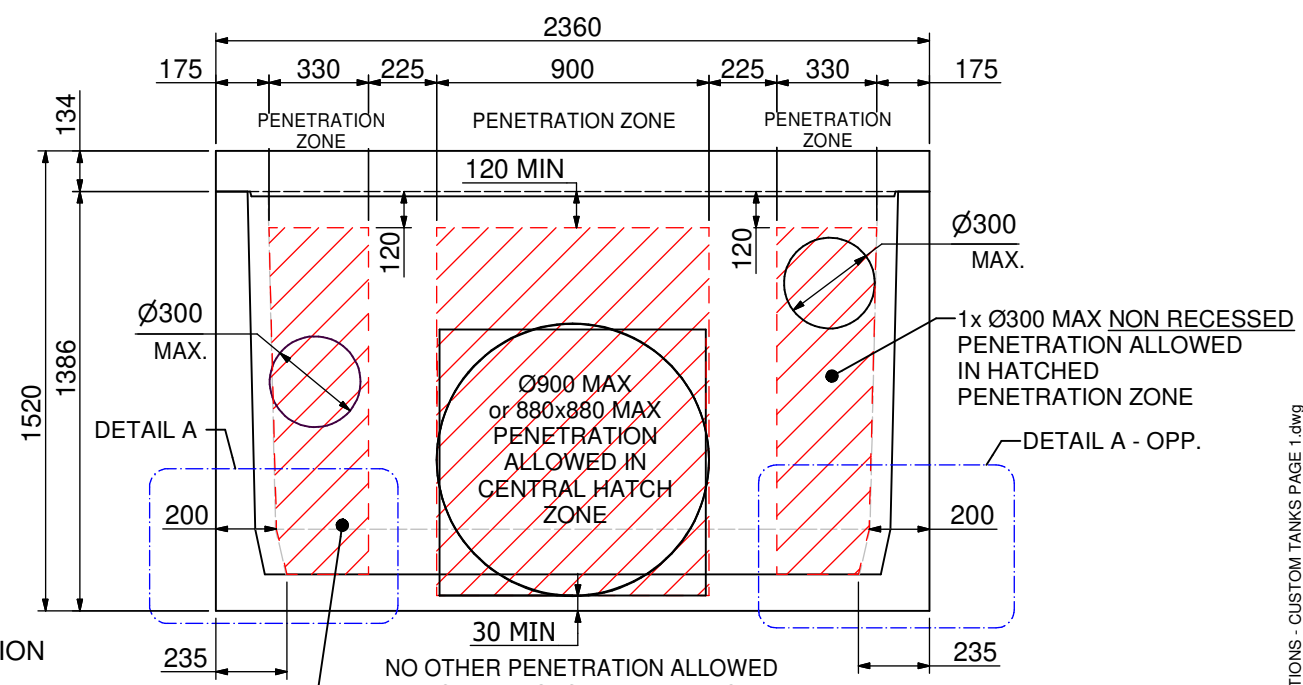
TYPICAL BASE RECESS DETAIL



LONG WALL - 2x LARGEST PERMISSIBLE PENETRATIONS



SHORT WALL - MAX. CUSTOM PENETRATION



SHORT WALL - Ø 900 MAX PENETRATION

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Check	Date
Verified	Date
Approved	Date
Request No.	



PROJECT :			
TITLE PERMISSIBLE PENETRATIONS 12.66 kL SPEL PRECAST CONCRETE TANK SV.5023-1250- CUSTOM TANKS			
SCALE N.T.S	SIZE A3	SHEET 2	REV 1
CUSTOMER CODE : DWG No.		SP21-CT24690-C	

1	11/21	G.T	INITIAL RELEASE	
REV	DATE	BY	DESCRIPTION	CHK

SV.5023-1250 PENETRATIONS - CUSTOM TANKS PAGE 1.dwg

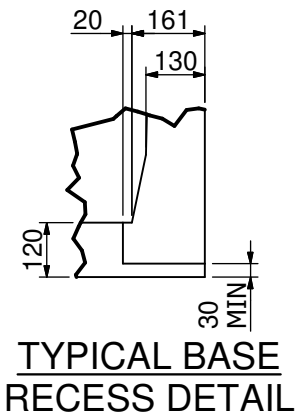
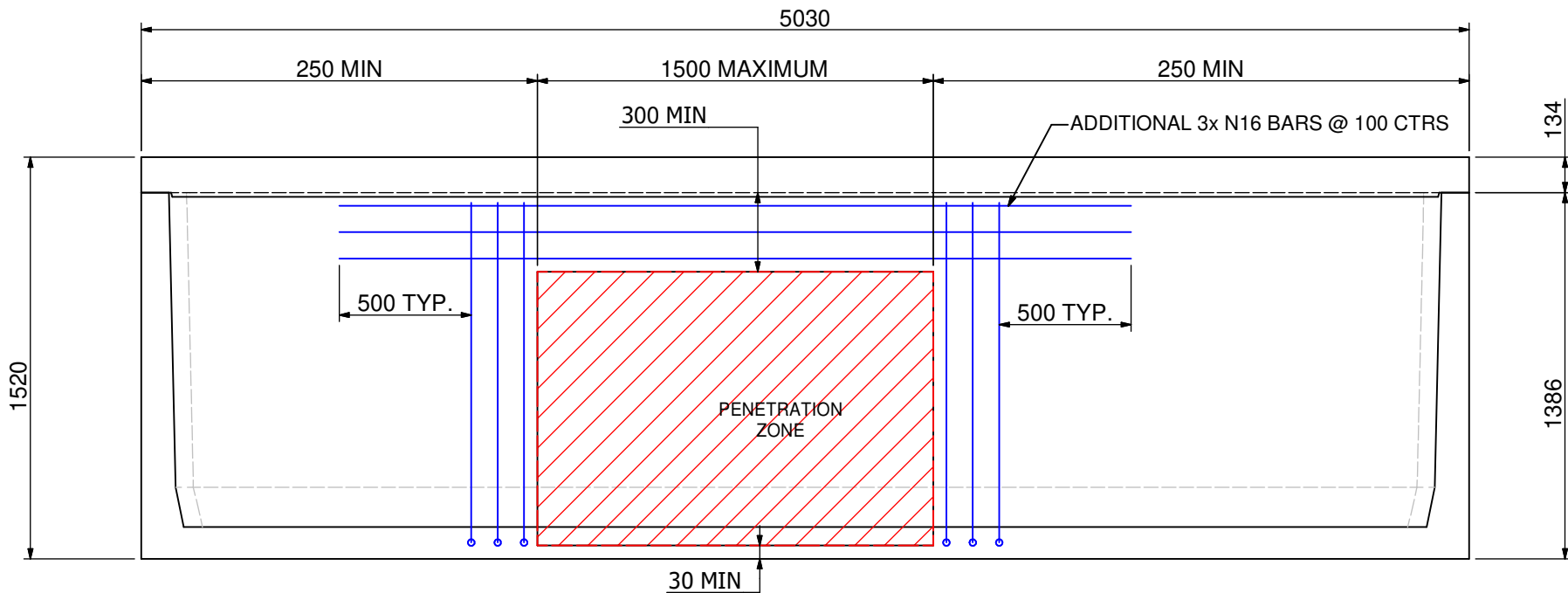
CUSTOM TANKS

IMPORTANT NOTE:

THESE PENETRATIONS CANNOT BE PERFORMED TO A STANDARD TANK.

THEY ARE REQUIRED TO BE ARRANGED WITH SPEL, PRIOR TO POURING THE TANK SO ADDITIONAL REINFORCEMENT CAN BE INCLUDED.

FOR STANDARD PERMISSIBLE PENETRATION REFER DRAWING SP21-CT24690-C SHEET 1 FOR ADDITIONAL PENETRATION COMBINATIONS CONTACT SPEL FOR DESIGN / ENGINEERING ASSISTANCE.



NO OTHER PENETRATION ALLOWED ABOVE PENETRATION

LONG WALL - MAXIMUM SINGLE PENETRATION

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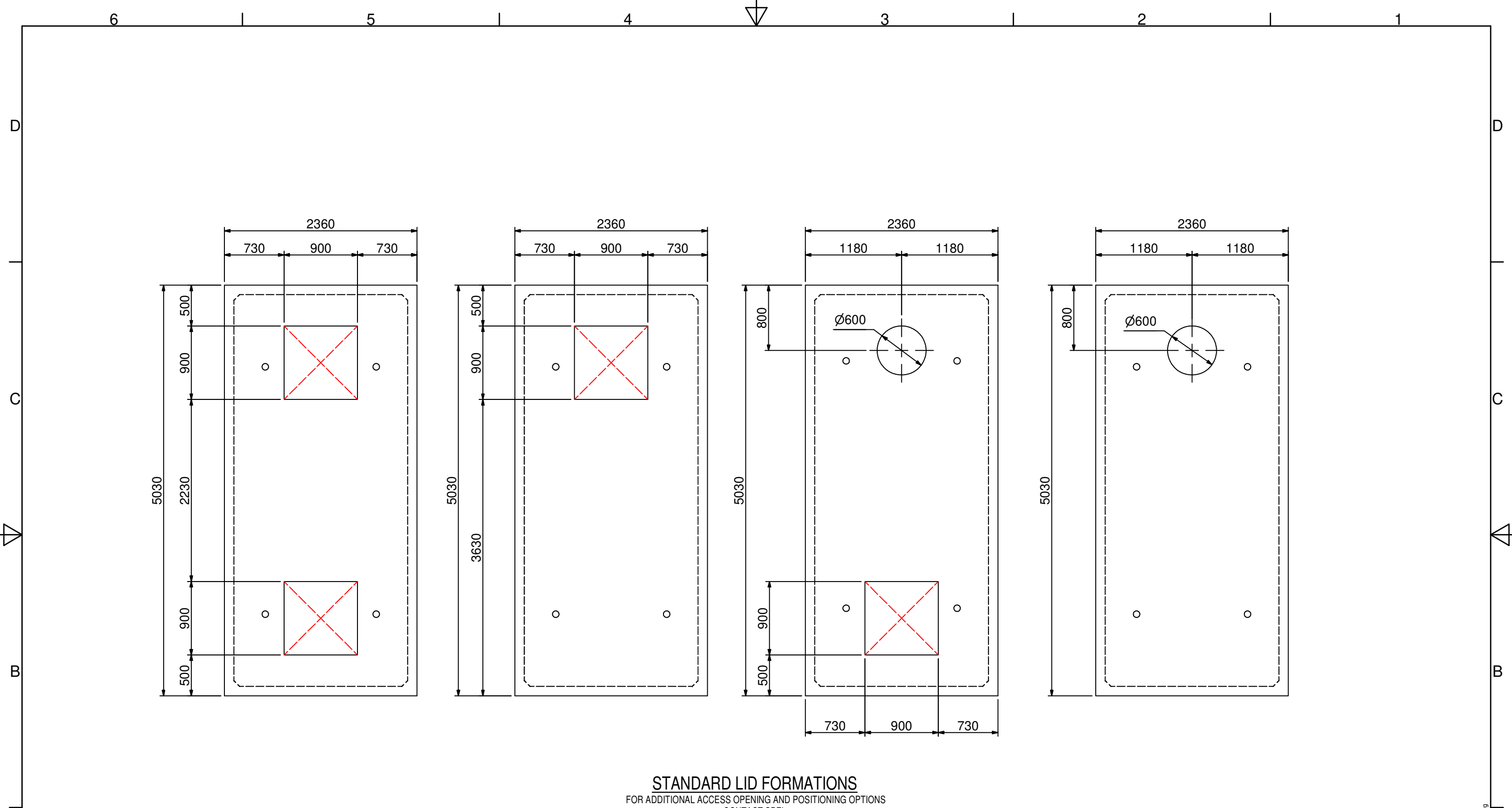
Drawn GT Date 15/11/2021
Check Date
Verified Date
Approved Date
Request No.




PROJECT :
TITLE PERMISSIBLE PENETRATIONS
12.66 kL SPEL PRECAST CONCRETE TANK
SV.5023-1250- CUSTOM TANK

SCALE N.T.S SIZE A3 SHEET 3 REV 1
CUSTOMER CODE : DWG No. SP21-CT24690-C

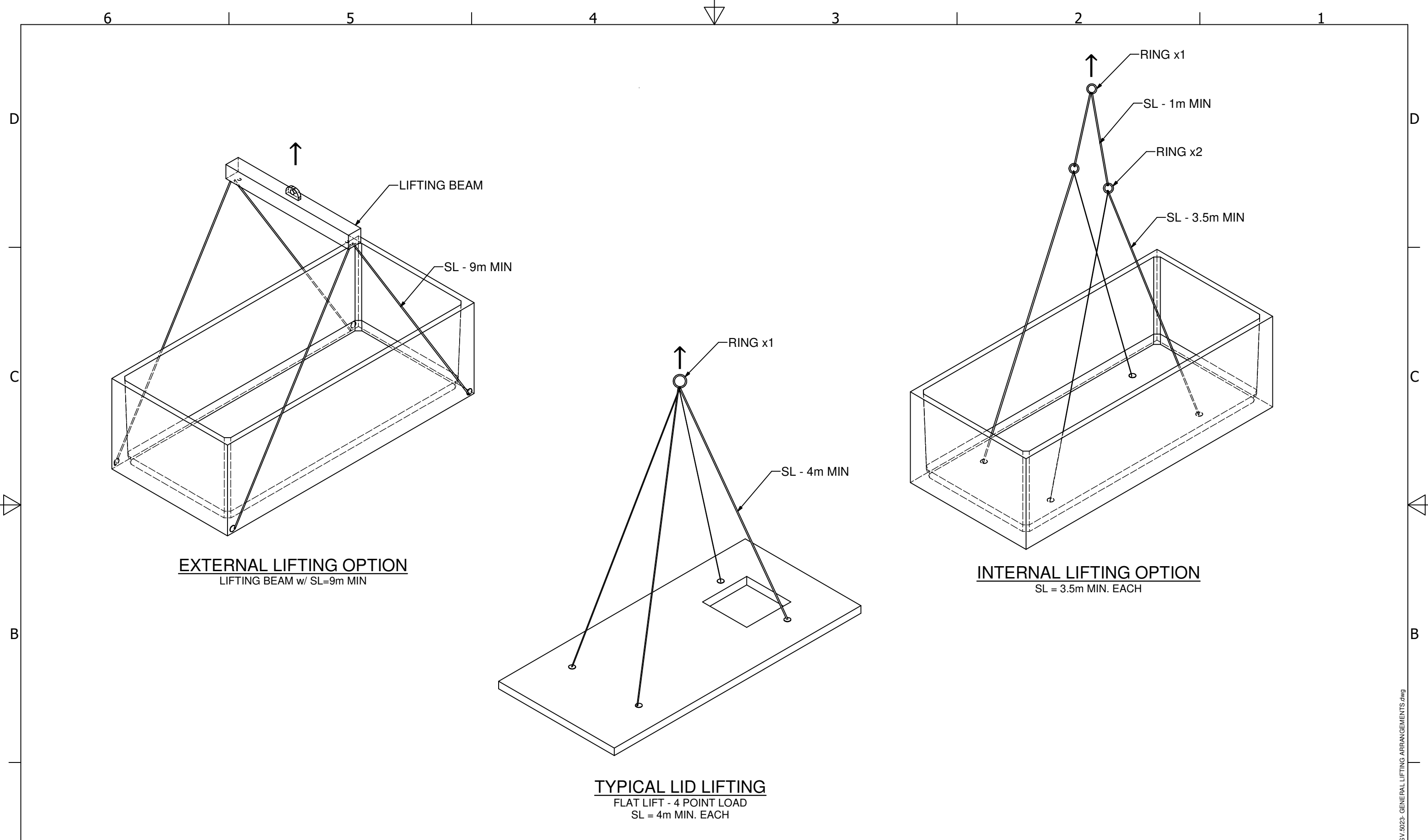
1	10/11/2020	G.T	INITIAL RELEASE	
REV	DATE	BY	DESCRIPTION	CHK




STANDARD LID FORMATIONS
FOR ADDITIONAL ACCESS OPENING AND POSITIONING OPTIONS
CONTACT SPEL

<div>1</div> <div>08/04/21</div> <div>G.T</div> <div>INITIAL RELEASE</div> <div>REV</div> <div>DATE</div> <div>BY</div> <div>DESCRIPTION</div> <div>CHK</div>					<p>CONFIDENTIAL - The drawings must not be disclosed to any third parties without written permission from SPEL STORMWATER . Unauthorised disclosure may result in prosecution. © SPEL STORMWATER - This drawing is the property of SPEL STORMWATER ABN: 83 151 832 629 and is subject to return on demand. It is submitted for the use only in connection with the proposal and contracts of SPEL STORMWATER with the expressed conditions that it is not to be reproduced or copied in any form. This data must only be used in accordance with our standard terms and conditions. © Copyright SPEL STORMWATER accepts no responsibility for any loss or damage resulting from any person acting on this information. The details and dimensions contained in this document may change, please check with SPEL STORMWATER for confirmation of current specifications.</p>	Drawn G.T	Date 9/04/2021	<div> spelstormwater joy in water spel.com.au</div>				PROJECT :			
						Check Date	Date					TITLE TANK LID PENETRATION OPTIONS SPEL PRECAST CONCRETE TANK SV.5023			
		Verified Date	Date	SCALE N.T.S		SIZE A3	SHEET 1	REV 1	CUSTOMER CODE : DWG No. SP21-CT24700-C						
		Approved Date	Date												
		Request No.													

SV.5023- STD LID TYPES.dwg



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							GT	9/11/2021		TITLE GENERAL LIFTING ARRANGEMENT SPEL PRECAST CONCRETE TANK SV.5023			
Check	Date	SCALE N.T.S											
Verified	Date	SIZE A3		SHEET 1									
Approved	Date	REV 1		CUSTOMER CODE : DWG No.									
Request No.				SP21-CT48180-C									

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DATE

BY

DESCRIPTION

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SV.5023 - GENERAL LIFTING ARRANGEMENTS.dwg