

SV.2423-1000 - 3D VIEW

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
SP21-CT25360-C	COVER SHEET AND DRAWING INDEX
SP21-CT25370-C	GENERAL NOTES PAGE
SP21-CT25380-C	GENERAL ARRANGEMENT
SP21-CT25390-C	PERMISSIBLE PENETRATIONS SHEETS 1 & 2
SP21-CT25400-C	TANK LID PENETRATION OPTIONS
SP21-CT48370-C	GENERAL LIFTING ARRANGEMENT

1					INITIAL RELEASE				
2					GENERAL REVISION				
REV	DATE	BY	DESCRIPTION				CHK		

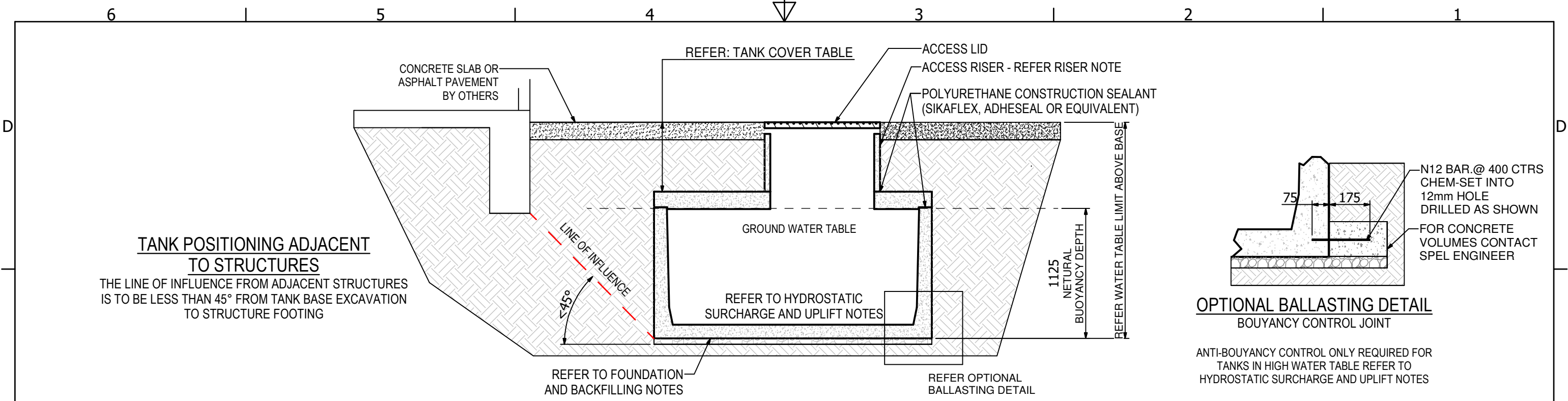
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PROJECT :			
TITLE COVER SHEET AND DRAWING INDEX 4.55 kL SPEL PRECAST CONCRETE TANK SV.2423-1000			
SCALE N.T.S	SIZE A3	SHEET 1	REV 2
CUSTOMER CODE :		DWG No. SP21-CT25360-C	

SV.2423-1000 COVER PAGE.dwg



LONG SECTION

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

- TO COMPLY WITH THE REQUIREMENTS OF AS 3600-2018-CONCRETE STRUCTRES.
- 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.

- TANK WITH WATER LEVEL UP TO 1125 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:

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

FOUNDATION REQUIREMENTS AND BACKFILLING

- 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.
- 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
- 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
- BACKFILL SUPPORTING BUILDINGS OR PAVEMENTS TO HAVE LEVEL 1 SUPERVISION & TESTING (PROJECT ENGINEER TO ADVISE)
- 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:

- 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
- THE ERECTOR SHALL COORDINATE WITH THE SITE PROJECT ENGINEER FOR SITE ACCESS, GROUND CONDITIONS AND PLANNED LIFTING EQUIPMENT PRIOR TO TANK DELIVERY ON SITE.
- RIGGING ARRANGEMENT SHALL ENSURE THE LOAD IS EVENLY DISTURBED BETWEEN ALL LIFTING ANCHORS.
- ONLY USE LIFTING PINS PROVIDED WHEN LIFTING, DAMAGED LIFTING PINS SHALL NOT BE USED UNLESS CAPACITY IS VERIFIED AND APPROVED BY A RPEQ ENGINEER.

1

07/04/2021

G.T.

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REV

DATE

BY

DESCRIPTION

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7/04/2021

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spelstormwater

joy in water

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PROJECT :

TITLE

GENERAL NOTES

4.55 KL SPEL PRECAST CONCRETE TANK

SV.2423-1000

SCALE

N.T.S

SIZE

A3

SHEET

1

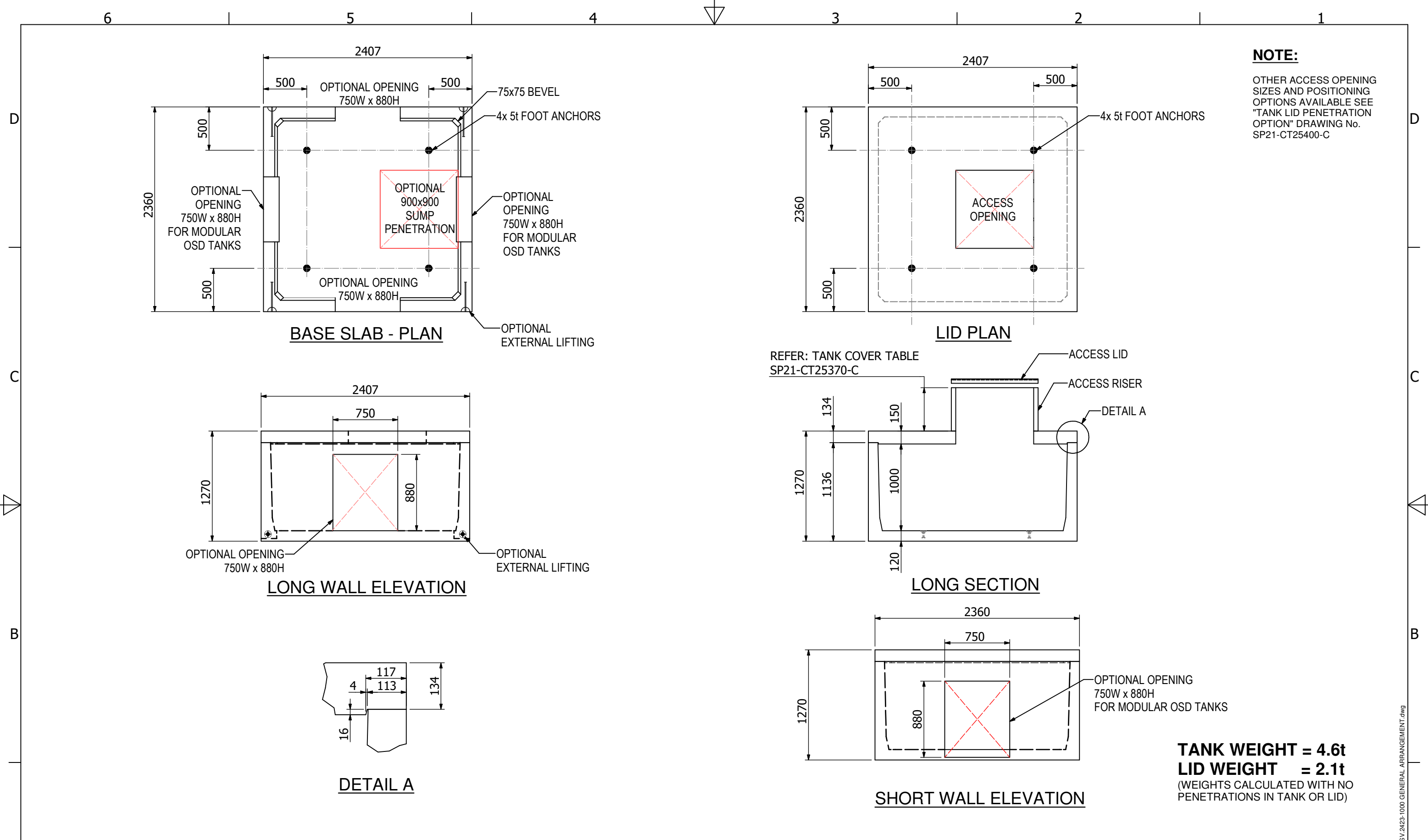
REV

1

CUSTOMER CODE :

DWG No.

SP21-CT25370-C



**NOTE:**

OTHER ACCESS OPENING  
SIZES AND POSITIONING  
OPTIONS AVAILABLE SEE  
"TANK LID PENETRATION  
OPTION" DRAWING No.  
SP21-CT25400-C

**TANK WEIGHT = 4.6t**  
**LID WEIGHT = 2.1t**  
(WEIGHTS CALCULATED WITH NO  
PENETRATIONS IN TANK OR LID)

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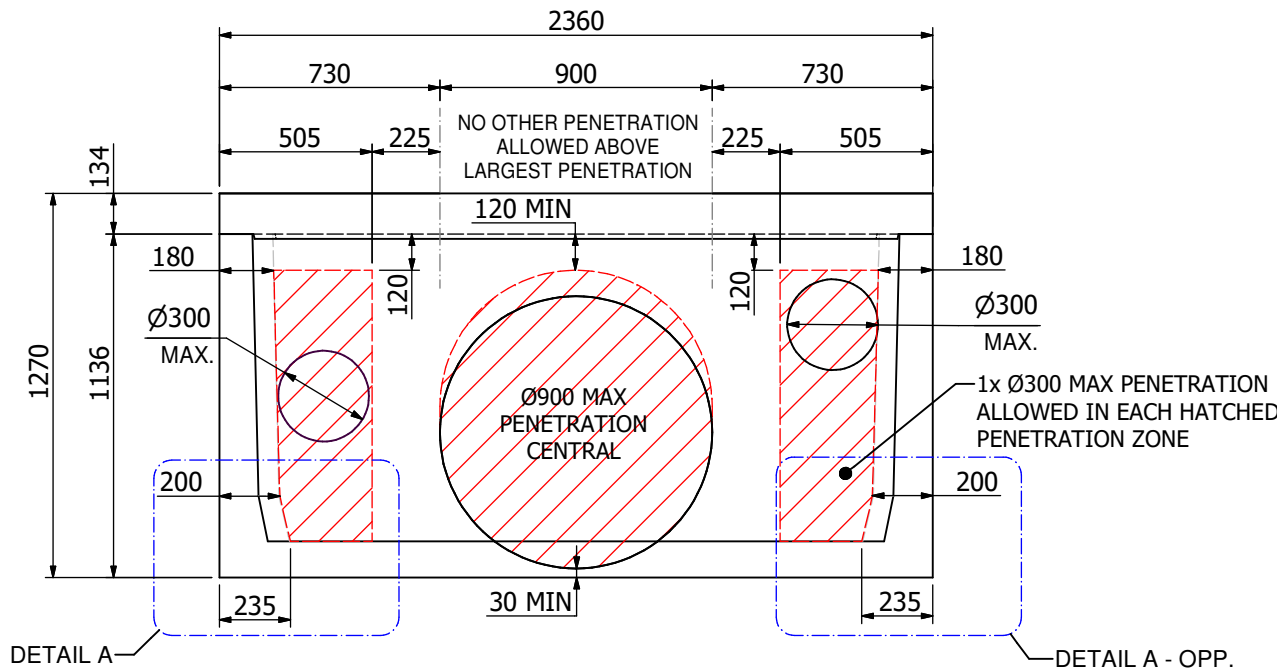
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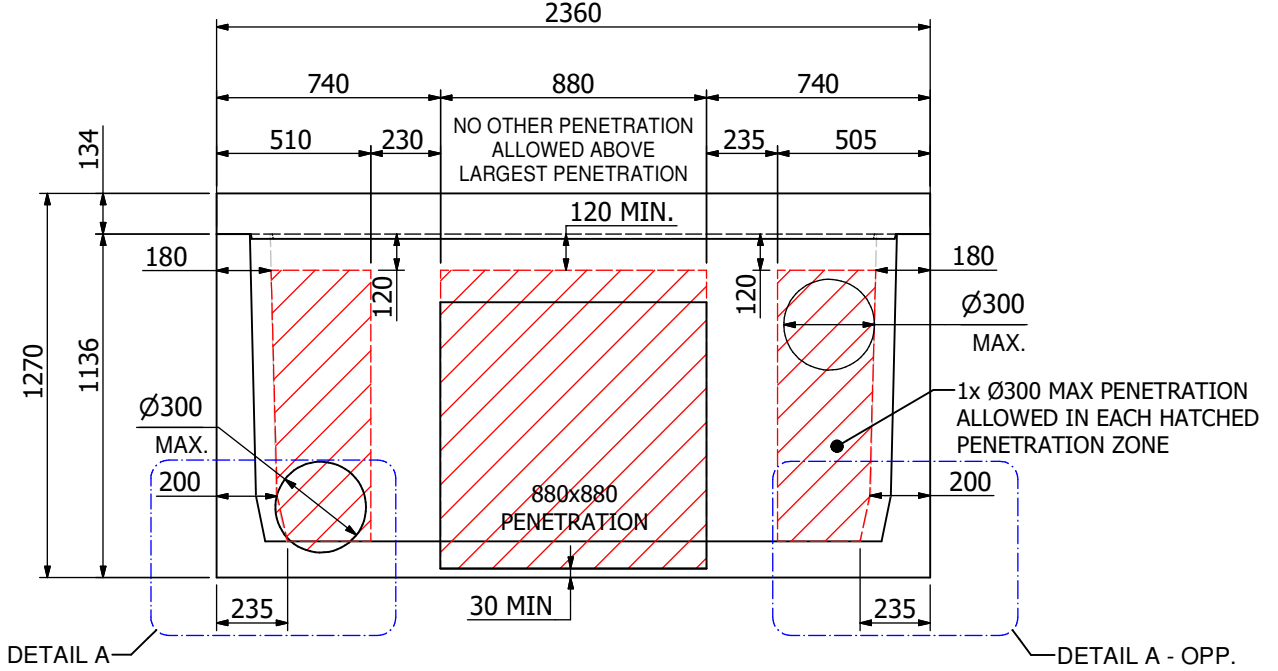
PROJECT :			
TITLE GENERAL ARRANGEMENT 4.55 kL SPEL PRECAST CONCRETE TANK SV.2423-1000			
SCALE N.T.S	SIZE A3	SHEET 1	REV 2
CUSTOMER CODE :		DWG No. SP21-CT25380-C	

SV.2423-1000 GENERAL ARRANGEMENT.dwg

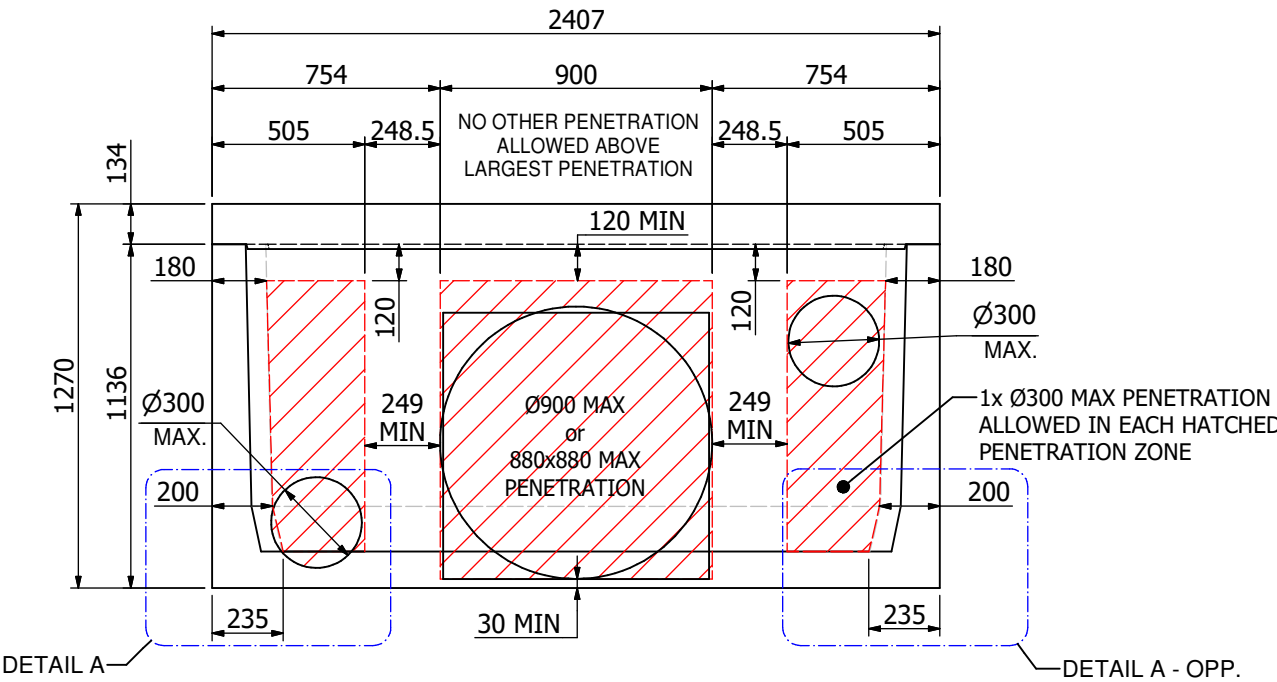
STOCK TANKS



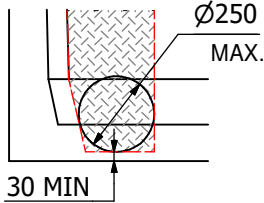
SHORT WALL - Ø 900 MAX PENETRATION



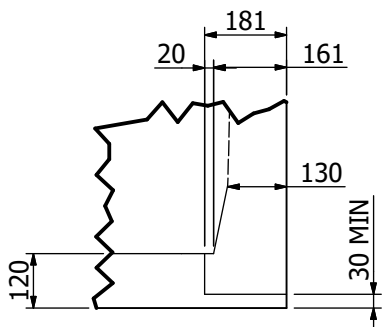
SHORT WALL - 880x880 MAX. PENETRATION



LONG WALL - TYPICAL LARGE PERMISSIBLE PENETRATION



DETAIL A  
MAX. RECESSED  
PENETRATION  
(SHORT WALL ONLY)



TYPICAL BASE RECESS  
DETAIL

**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-CT25390-C SHEET 2 FOR A GUIDE PRIOR TO TANK PRODUCTION.

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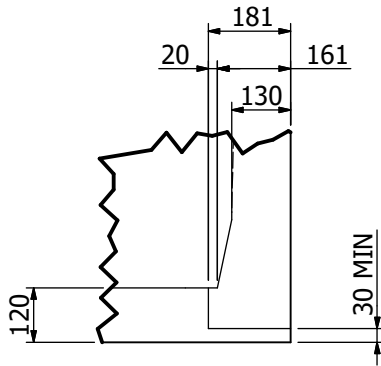
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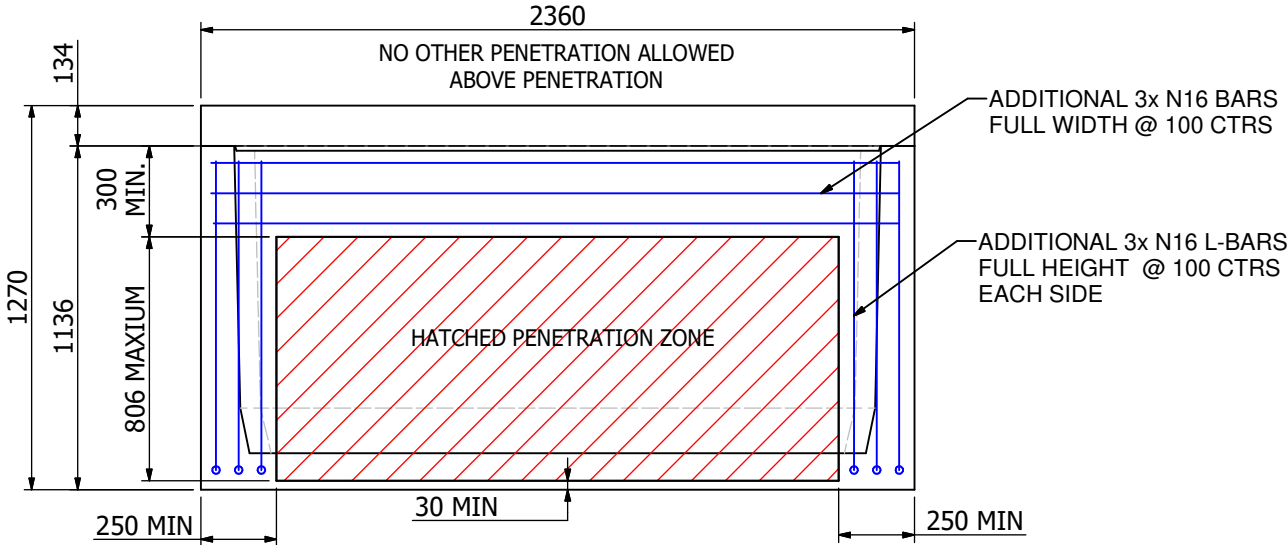
PROJECT :			
TITLE PERMISSIBLE PENETRATIONS 4.55 KL SPEL PRECAST CONCRETE TANK SV.2423-1000 STOCK TANK			
SCALE N.T.S	SIZE A3	SHEET 1	REV 2
CUSTOMER CODE : DWG No.		SP21-CT25390-C	



CUSTOM TANKS



TYPICAL BASE RECESS  
DETAIL



SHORT WALL - LARGEST PERMISSIBLE PENETRATION

**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-CT25390-C SHEET 1 FOR ADDITIONAL PENETRATION COMBINATIONS CONTACT SPEL FOR DESIGN / ENGINEERING ASSISTANCE.

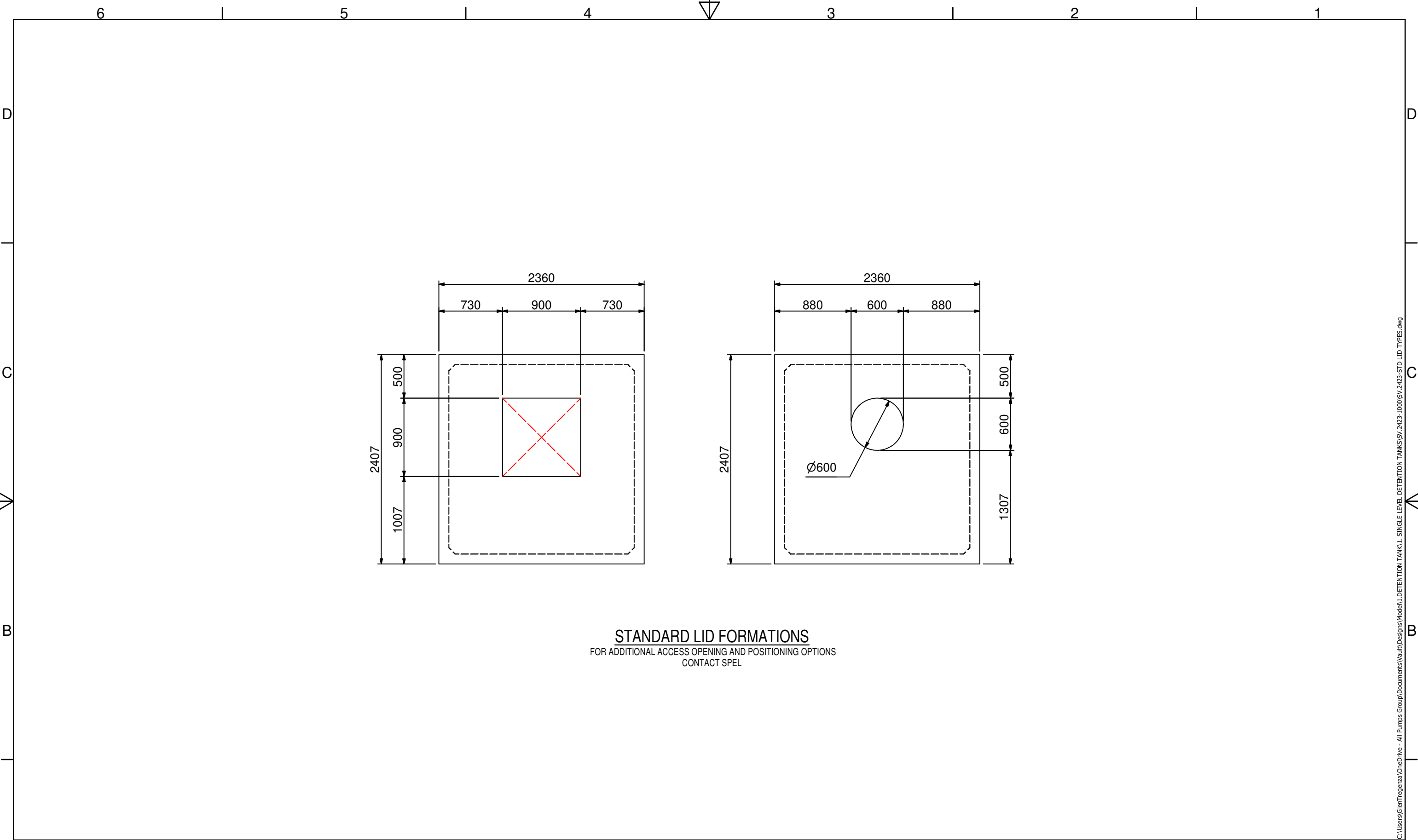
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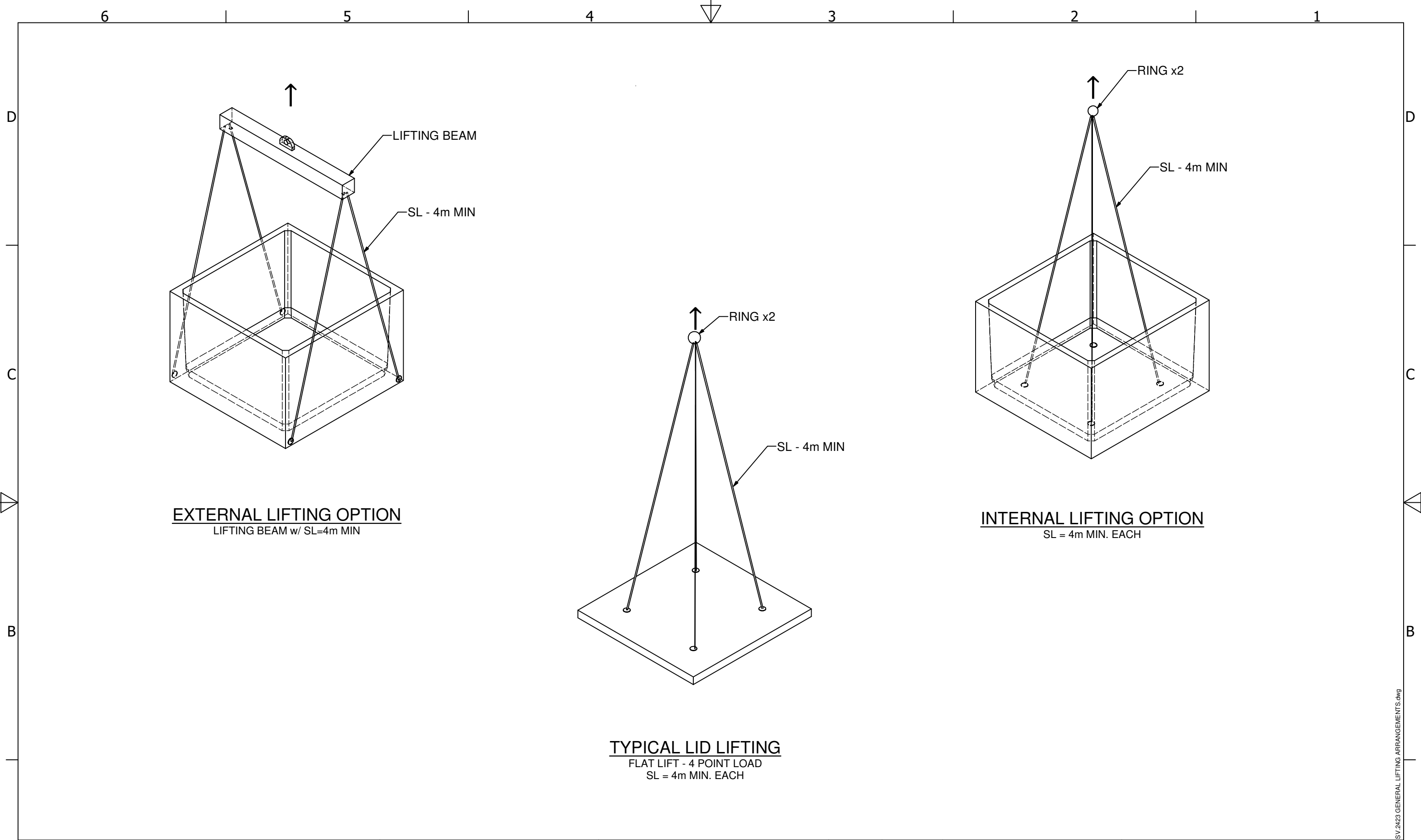


PROJECT :			
TITLE PERMISSIBLE PENETRATIONS 4.55 kL SPEL PRECAST CONCRETE TANK SV.2423-1100 CUSTOM TANK			
SCALE N.T.S	SIZE A3	SHEET 2	REV 1
CUSTOMER CODE :		DWG No. SP21-CT25390-C	



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

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						Check		Date						TITLE TANK LID PENETRATION OPTIONS SPEL PRECAST CONCRETE TANK SV.2423			
						Verified		Date									
						Approved		Date									
						Request No.											
<div>1</div> <div>08/04/21</div> <div>G.T</div> <div>INITIAL RELEASE</div> <div></div>										SCALE N.T.S		SIZE A3		SHEET 1		REV 1	
<div>REV</div> <div>DATE</div> <div>BY</div> <div>DESCRIPTION</div> <div>CHK</div>										CUSTOMER CODE :		DWG No. SP21-CT25400-C					



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									Check		Date						TITLE			
									Verified		Date						GENERAL LIFTING ARRANGEMENT SPEL PRECAST CONCRETE TANK SV.2423			
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													CUSTOMER CODE :				DWG No.			
																	SP21-CT48370-C			

SV.2423 GENERAL LIFTING ARRANGEMENTS.dwg