spelstormwater

Installation Manual

Spel Vault®

Precast Concrete Tank

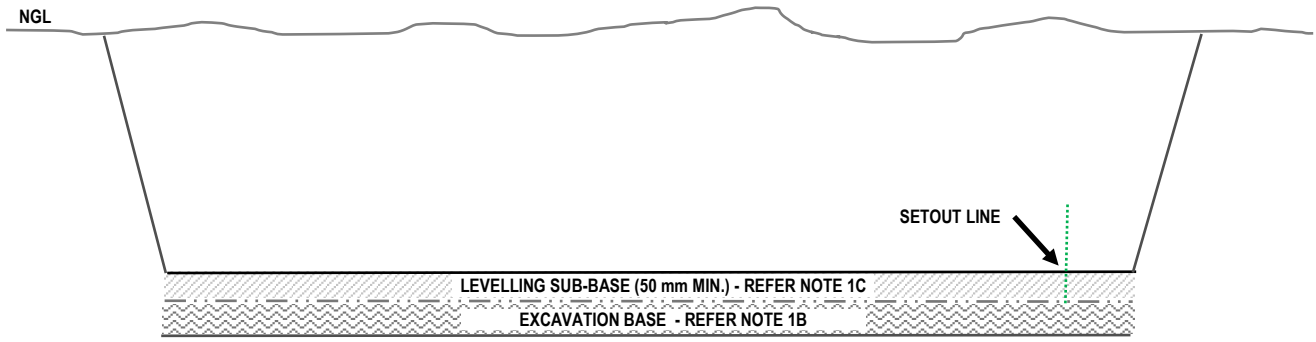
spel.com.au

PROCEDURE FOR INSTALLATION

Note before:

Consult “General Notes” page of the tank plan for full installation information and notes on countering hydrostatic uplift (buoyancy) if required.

1. EXCAVATION PREPARATION.



1A. The line of influence from adjacent structures is to be less than 45° from the tank base excavation to structure footing.

1B. Excavated base to be uniform, not to be founded on a cut/fill platform, the base slab is to be wholly founded in either cut or fill, and achieve a bearing capacity of 100KPa minimum.

1C. Sub-base levelling layer to be 50mm minimum, compacted sand or road base, that achieves CBR40 when tank is subject to vehicle loading. 5-10mm drainage gravel is an acceptable sub-base material, 10mm Maximum to be strictly adhered to. CBR15 acceptable when tank is not subject to vehicle loading.

1D. Take time to screed sub-base to a laser level, this will save the time of lifting tanks and re-leveling if gaps between tanks are present.

1E. Mark up base with setout lines. This is particularly important when there are large number of tanks in a modular system to ensure as they are placed they are running straight, so you do not end up hitting the excavation wall.

ALIGN TANK WITH SETOUT LINE

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2. LIFTING NOTES.

2a. Tank lifting pin arrangement has been approved to 15.0t (SWL) limit as specified on the tank drawing. If additional fixtures are required to increase the total weight above this limit a suitably qualified and experienced Engineer to be consulted for a specific lifting design prior to the tanks fabrication.

2b. The erector shall coordinate with the site Project Engineer for site access, ground conditions and planned lifting equipment prior to the tank delivery.

2c. Rigging arrangement shall ensure the load is evenly distributed between all lifting anchors. If additional fixtures have been install such as concrete weir walls a spreader bar may be required.

2d. Only use lifting pins provided when lifting, damaged lifting pins shall not be used unless capacity is verified and approved by a suitably qualified and experienced Engineer

3. TANK PLACEMENT.

3a. Trucks to be pre-arranged for a time to meet your crane.
Tanks to be placed in excavation as per safe lifting protocols of crane company.
Ensure even rigging is being used to prevent tanks bedding into levelling layer unevenly which will cause gaps between tanks.

3b. **IMPORTANT NOTE TO PREVENT POINT LOADING OF THE CONCRETE TANK AND CRACKING.**

If the tanks are not going to be placed in the hole straight away, (Excavation cave in, hit rock, contaminated soils...) it is imperative that the tanks are only stored on ground that is prepared flat, preferably with a levelling layer of a granular material with a size no greater than 10mm.

Alternatively the tanks can be placed on timbers. Timbers to be aligned approximately under the lifting pins.

Tanks cannot be stored, or installed on a concrete base without a levelling separation layer or timbers.

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4. MODULAR TANK INSTALLATION—SEALING TANKS TOGETHER.
Once first tank is placed, run a thick bead of polyurethane sealant (Sika, adheseal or similar supplied by Spel), around the rectangular cut-out in the tank wall (Primary Seal).
Lower the second tank to the excavation base and skim the second tank to butt up against the first tank. Enter the tank and inside the void between both tanks seal with sealant (Secondary Seal).

PREPARING TO SKIM A TANK INTO PLACE

SEALANT PRE APPLIED

PRIMARY SEAL

SECONDARY SEAL

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SEALING OF TANK LIDS.

Place a thick bead of sealant to the outer edge on the top of the tank wall, and then lower the tank lid onto the tank.

The tank lid has a rebated section that will locate into the tank.
Final seal to outer edge of lid join if required.

5. BACKFILLING.

5a. Backfill around the tank with a well draining granular material in layers no thicker than 500mm.

5b. 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.
Pavement Subgrades above tank to be as directed by the Project Civil Engineer.

5c. Refer to table below for maximum machine size to be used to shift backfill over tank lids.*

*Machine to be driven in straight forward or straight back in reverse, no turning, or pivoting with the bucket.

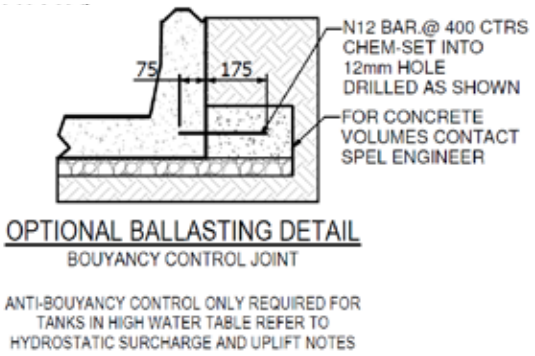
*As per 5b light duty hand operated compaction equipment only to be used to achieve compaction of pavement sub-grades.

MAXIMUM EXCAVATOR LOADS FOR BACKFILLING OVER 150mm TANK LID*			
UNIFORM LOADS	Nil Cover	200mm Cover	400mm Cover
13.0T Excavator	Ok*	Ok*	Ok*
15.0T Excavator	Not Permissible	Ok*	Ok*
20.0T Excavator	Not Permissible	Ok*	Ok*
25.0T Excavator	Not Permissible	Not Permissible	Ok*
30.0T Excavator	Not Permissible	Not Permissible	Ok*
*Machine to be driven in straight forward or straight back in reverse, no turning, or pivoting with the bucket. *Light duty hand operated compaction equipment only to be used to achieve compaction of pavement sub-grades			

6. HYDROSTATIC SURCHARGE AND UPLIFT.

6a. If the tank installation is likely to experience a high water table consult Spel for a site specific ballasting plan. If this install manual is being read prior to procurement, advise Spel at quote stage so that the most economical and easy to install ballasting solution can be provided.

Single tanks & Single row tank farms



Large Tank Farms

Ballasting rings poured onsite will not be suitable for centre tanks in large tank farm modular solutions.

Contact Spel prior to procurement so that the most economical and easy to install ballasting solution can be provided.

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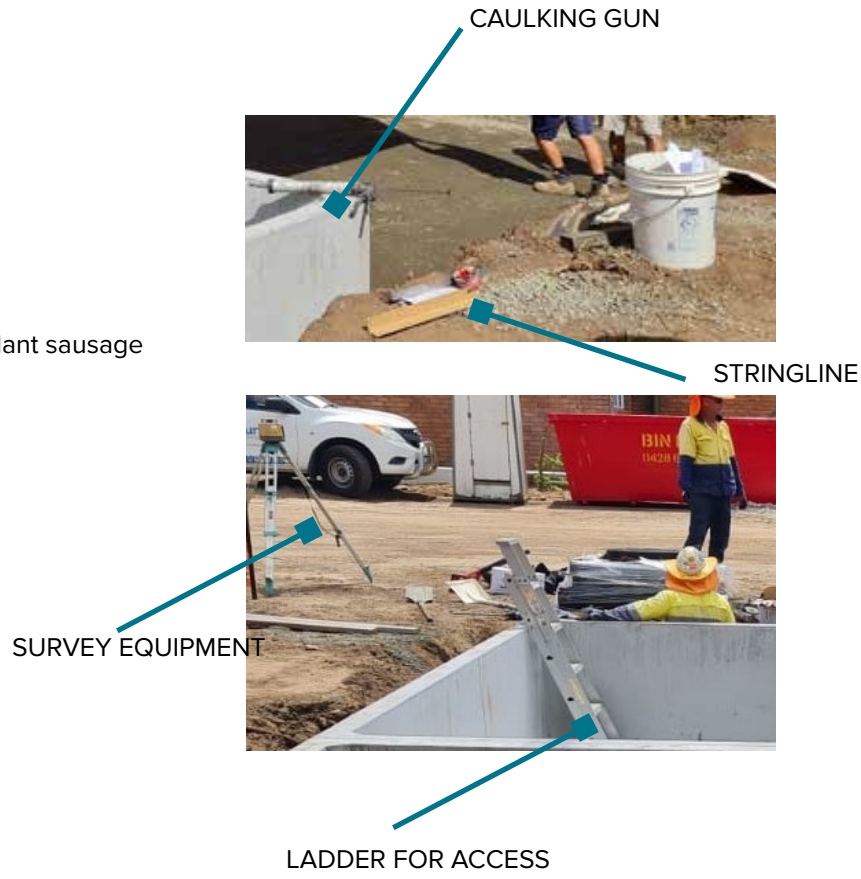
7. SUGGESTED EQUIPMENT.

- Crane & Dogman
- String line
- Survey Equipment for level base
- Shovel for levelling
- Screed for levelling
- Excavation Marking Paint
- Caulking Gun suitable for a 600ml sealant sausage
- Ladders
- Tape measure
- Steel Bar
- Tank plan, and tank playout plan.



spelstormwater
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100 Silverwater Rd, Silverwater NSW 2128 Australia
Phone: (02) 8705 0255
Fax: (02) 8014 8699
Email: sales@spel.com.au

spel.com.au