Underground Tank Installation Specifications

1. Handling
• Do not roll or drop tank.
• Only use appropriate lifting equipment with enough evenly spaced banded strops to unload, lift or move tanks - see handling diagram below
• Do not stand on tank while being lifted. Always place tanks on smooth ground, free of rocks and Harmful objects. Tanks must be secured in high wind areas to prevent damage before being installed.
• Any mishandling makes void all warranties given.

2. Tank Location
Proximity To Nearby Structures:
• The location of the tank excavation is the responsibility of the contractor and the tank owner. The contractor is to follow the limitations of the diagrams shown or notify a chartered professional engineer for a site specific consultation.
• Contractor to ensure nearby foundations of new and/ or existing structures are not undermined by the excavation for the tank.
If tank excavation location does not comply with the requirements below - contractor to notify chartered professional engineer for a site specific consultation:
• Tank position near house: 45 degree line of influence to begin 1000mm min from edge of house foundations. Contractor to determine foundation depths/locations prior to excavation.

3. Excavation Clearance
• Contractor to ensure a minimum of 150mm between edge of tank and edge of excavation wall at the narrowest location.

Soil conditions:
• This design assumes site soils will meet the requirements of nz3604:2011 classification of ‘good ground’. Contractor to confirm site exhibits these properties or notify chartered Professional engineer for consultation.
Underground Tank Installation Specifications

4. Backfill & Base Course
Backfill and base course material to be either:
• Crushed stone or gravel: washed, with angular particle sizes no larger than 13.2mm with no more than 5% passing a 2.36mm sieve. Dry density must not be less than 1500kg/cubic meter.
• Approved backfill should not be mixed with sand or native soils and should always be brought up to at least the tank crown level. The use of non-specified backfill material could result in tank failure. (I.E. Gap 7).
• 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 1500kg/cubic meter.
• Contractor to work in maximum backfill lifts of 300mm. After each lift, contractor to use long handled probe to work the backfill material under the entire length of the tank and within any ribs.
• All voids and spaces should be filled to ensure adequate support of tank.

5. Backfill, Depth & Cover
See attached relevant drawings
• See attached relevant drawings. Stated depths assume no hydraulic loads. Consult Promax if high water table is possible or expected.

6. Anchoring
• For tank burial where the need for anchoring has been evaluated and found advisable use the promax deadman anchor solution.
• The weight of overburden on top of the deadman and tank provides the anchoring force. Lay deadman along each side and parallel to tank. The tank must not ‘overshadow’ the deadman anchor. Deadman anchors are available from promax plastics.

A) backfill
When using anchors, tanks must be backfilled with approved drainage metal to be effective

B) hold down strapping
Use the hold-down straps provided in between ribs using 1m spacing (500mm with 1900mm dia tanks) straps should be snug but cause no tank deflection.

7. Manhole Access Points
• The standard manway is 600 mm in diameter and can be extended using addition manhole extension risers.
• Tank will come with standard polyethylene lid which is suitable for garden application only.
• If being used in a pedestrian or trafficable area a steel manhole lid is advisable.

8. Refer to structural specifications sheet for concrete reinforcing & other notes

See attached relevant drawings
• See attached relevant drawings. Stated depths assume no hydraulic loads. Consult Promax if high water table is possible or expected.

• Using the promax adjustable height riser makes this simple, it has a recess for concrete to eliminate direct traffic loading onto the tank from vehicles.
100mm TOPSOIL BACKFILL OVER TANK WITH CLAY OR NATIVE SOIL
CRUSHED STONE OR GRAVEL BACKFILL TO 150mm ABOVE TANK CROWN LEVEL
MIN. DEPTH OF COVER FOR TANKS MUST NOT EXCEED 2000mm OVER TANK TOP.
MATERIAL TO SPECIFICATION (GAP 7 SUITABLE).

MINIMUM CLEARANCE = D/6 OR 150mm
100mm COMPACTED BASE COURSE MATERIAL TO SPECIFICATION.

MANHOLE EXTENSION BY PROMAX
LID BY PROMAX

EXCAVATION CLEARANCE TO ALLOW FOR RETAINING DEADMAN ANCHOR FROM PROMAX EITHER SIDE (ONLY USE IF REQUIRED)
RETAINING DEADMAN WEIGHT ANCHOR ALONG TANK LENGTH. ENSURE ANCHOR IS LEVEL AND IS NOT "OVERSHADOW" BY THE TANK DIAMETER.
TANK INSTALLATION UNDER RESIDENTIAL DRIVEWAY (2500KG VEHICLE OR LESS)

- Tank installed under residential driveway.
- Dimensions and specifications as per NZS1170.1 Table 3.1: "Light Vehicle Traffic Areas", 2.5 MPA and point load of 13 kN.

**NOTE ABOUT DESIGN CRITERIA UNDER RESIDENTIAL DRIVEWAY:**
- Slab designed for live load as per NZS1170.1 Table 3.1: "Light Vehicle Traffic Areas", 2.5 MPA and point load of 13 kN.

**SLAB STRENGTHENING AROUND MANHOLE OPENING**
- Slab should be reinforced with 16 mm bars at 200 mm C/S across the tank and 20 mm reinforcement at 200 mm C/S along the tank.
- Manhole reinforced with 16 mm bars to be placed at 50 mm bottom cover, plus 50 mm bars to be placed above hole bars.

**DETAIL - A**
- Manhole reinforced with 16 mm bars.
- Lap 1000 mm lap each way.

**IF DRIVEWAY IS NEW:**
- Scabbling edge and tie with 12 mm drill & epoxy starters at 400 mm C/I, embed min of 100 mm into existing and lap 600 mm into new topping slab.

**SLAB SLABINTHS (RC):**
- 1 sawcut should be placed at 5% max centres.
- 2 sawcuts placed 25 mm deep Sawcuts within 24-48 hours after pouring concrete.

**DRAWING SCALE:**
- A2

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**DESIGNER**
- A2

**PROJECT:**
- 750 x 750 mm diameter tank installation guide
TANK INSTALLATION UNDER RESIDENTIAL DRIVEWAY (2500KG VEHICLE OR LESS)

NOTE ABOUT DESIGN CRITERIA UNDER RESIDENTIAL DRIVEWAY SLAB DESIGNED FOR LIVE LOAD AS PER NZS/1171 TABLE 3.1. "LIGHT VEHICLE TRAFFIC AREA": 2.5 MPa AND POINT LOAD OF 13 KN.

LONG STEEL PLACED ABOVE MANHOLE: PLACE FRAME WORK TO EACH END OF BAR, COVER 105mS BARS AT 500m CRS AROUND THE TANK, IMPORTANT: 105mS BARS TO BE PLACED AT 50MM BOTTOM COVER, VARIOUS BARS TO BE PLACED ABOVE 105mS BARS.

CLEARANCES TO ALLOW FOR RETAINING:
- DECKING ANCHOR FROM PROMAX
- CLEARANCES TO BE BURNT OUT
- SUPPORT OF MANHOLE OR SURROUNDING WALLS

REINFORCING GRADE AND WEIGHT OF MANHOLE:
- MANHOLE DRAINAGE TO BE PROVIDED TO SUMP AT MANHOLE OUTLET
- GLASS FIBER CONCRETE MANHOLE AS 380 CLASS B
- COVER MANHOLE AS 380 CLASS B

6M16 BARS ADDITIONAL TO SLAB REINFORCING. ARRANGE AS SHOWN.

SLAB STRENGTHENING AROUND MANHOLE OPENING

IF DRIVEWAY IS EXISTING: SCABLE EDGE AND TIE WITH D12 DRILL & EPOXY STARTERS AT 400mM CRS. EMBED MIN OF 100mM INTO EXISTING AND LAP 600mM INTO NEW TOPPING SLAB.

IF DRIVEWAY IS EXISTING: SCABLE EDGE AND TIE WITH D12 DRILL & EPOXY STARTERS AT 400mM CRS. EMBED MIN OF 100mM INTO EXISTING AND LAP 600mM INTO NEW TOPPING SLAB.

SLAB SAWCUTS (SC):
1. SAWCUTS SHOULD BE PLACED AT 5m MAX CENTRES
2. PLACE 25mm DEEP SAWCUTS WITHIN 24-48 HOURS AFTER POURING CONCRETE
TANK INSTALLATION UNDER COMMERCIAL DRIVEWAY (VEHICLE NOT EXCEEDING 10000 KG)

NOTE ABOUT DESIGN CRITERIA UNDER COMMERCIAL DRIVEWAY: SLAB DESIGNED FOR LIVE LOAD AS PER NZS1170.5 TABLE 3.1: "MEDIUM VEHICLE TRAFFIC AREAS" 9 kPA AND POINT LOAD OF 31 kN.

SLAB STRENGTHENING AROUND MANHOLE OPENING

IF DRIVEWAY IS EXISTING: SCABBLING EDGE AND TIE WITH D12 DRILL & EPOXY STARTERS AT 400MM CRS, EMBED MIN OF 100MM INTO EXISTING AND LAP 800MM INTO NEW TOPPING SLAB.

SLAB SAWCUTS (SO):
1. SAWCUTS SHOULD BE PLACED AT 6m MAX CENTRES.
2. PLACE 25mm DEEP SAWCUTS WITHIN 24-48 HOURS AFTER POURING CONCRETE.

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PROJECT: 1000mm DIAMETER TANK INSTALLATION GUIDE

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