



NOTES:

- GENERAL**
- REFERENCE SHOULD BE MADE TO THE FOLLOWING:
 - CALOR SPECIFICATION D-043-SP2
 - CALOR SAFETY INFORMATION BULLETIN No.5800S
 - LPGA COP 1 PART 4 - BURIED / MOUNDED LPG STORAGE VESSELS
 - H52185 - HEALTH AND SAFETY IN EXCAVATION
 - H5247 - HEALTH AND SAFETY GUIDANCE NOTE, AVOIDANCE OF SERVICES
- GROUND CONDITIONS AND EXCAVATIONS**
- PRIOR TO ANY EXCAVATION, SITE PLANS MUST BE CHECKED FOR UNDERGROUND SERVICES AND LOCATION DEVICES MUST BE USED. OTHER SERVICES, GAS, WATER, ELECTRICITY, TELECOMMS ETC., SHOULD NOT PASS THROUGH THE VESSEL EXCAVATION.
 - GROUND CONDITIONS CAN VARY SIGNIFICANTLY AND NOT ALL LOCATIONS ARE SUITABLE FOR UNDERGROUND LPG STORAGE, AS A RESULT CALOR CANNOT ACCEPT RESPONSIBILITY FOR ANY GROUNDWORKS (INCLUDING TEMPORARY OR PERMANENT EARTHWORK SUPPORTS) OR FOUNDATIONS. IT IS RECOMMENDED THAT A SUITABLY QUALIFIED AND EXPERIENCED GROUNDWORKS / STRUCTURAL ENGINEER BE EMPLOYED TO UNDERTAKE A SITE SURVEY AND PROVIDE THE APPROPRIATE ADVICE ON ALL GROUNDWORKS AND FOUNDATIONS NECESSARY.
 - ONCE A SITE SURVEY HAS BEEN COMPLETED, AND GROUND CONDITIONS IN THE PROPOSED LOCATION IDENTIFIED, CALOR SHOULD BE PROVIDED WITH A COPY OF ALL THE INFORMATION TO ENSURE THAT THE CONDITIONS ARE SUITABLE FOR UNDERGROUND LPG STORAGE. NO FURTHER WORK SHOULD BE CARRIED OUT BEFORE CALOR HAVE AGREED SUITABILITY.
 - THE DIMENSIONS GIVEN FOR THE BASE EXCAVATION ARE THE MINIMUM REQUIRED TO LOCATE AND INSTALL THE TANKS, WITH ALL ASSOCIATED EQUIPMENT. THEY SHOULD NOT NECESSARILY BE TAKEN AS THE ACTUAL SIZE OF EXCAVATION, WHICH MAY VARY WITH LOCATION AS WELL AS GROUND CONDITIONS ETC. AND WHICH SHOULD BE DETERMINED BY A COMPETENT CIVIL CONTRACTOR.
 - CLOSE LIAISON WITH CALOR SHOULD BE MAINTAINED THROUGHOUT THE GROUNDWORK OPERATIONS. CALOR WILL REQUIRE TO CARRY OUT AN INSPECTION OF THE EXCAVATION PRIOR TO TANK INSTALLATION.
 - WATER SHOULD NOT COLLECT IN THE EXCAVATION, AND SHOULD BE REMOVED BY USING AN APPROPRIATE DE-WATERING TECHNIQUE (FOR EXAMPLE SUMP PUMPS).
- CONCRETE BASE**
- THE CONCRETE BASE MUST BE CONSTRUCTED IN ACCORDANCE WITH THE DRAWING, ENSURING THAT THE VESSEL ANCHORS ARE IN POSITION BEFORE THE CONCRETE IS POURED.
 - CONCRETE GRADE C50 (BS 5328), OR C40/50 (BS EN 206-1/BS 8500) TO BE USED.
- INSTALLATION AND BACKFILLING**
- TANK(S) WILL BE SUPPLIED AND INSTALLED BY CALOR, COMPLETE WITH ALL FITTINGS, ANODES AND CONNECTION OF SERVICE PIPE.
 - CALOR WILL ALSO SUPPLY THE TANK RESTRAINING STRAPS AND ANCHOR PLATES
 - PERFORATED YELLOW PLASTIC SHEET WARNING NOTICE WILL BE SUPPLIED, FOR INSTALLATION BY GROUNDWORK CONTRACTOR AT THE APPROPRIATE DEPTH, DURING THE BACK FILLING OPERATION.
 - UNDER NO CIRCUMSTANCES SHOULD THE BACK FILL MATERIAL BE COMPACTED USING HEAVY MACHINERY / VEHICLES OVER THE VESSELS.

ITEM	DESCRIPTION	SUPPLIER	INSTALLER
1	GREEN TANK POSITION MARKERS (4 No. PER VESSEL)	CALOR	CALOR
2	YELLOW PLASTIC SECURITY MESH USED AS SEPARATOR MEMBRANE AND WARNING	CALOR	GROUNDWORKS CONTRACTOR
3	BACKFILL CLEAN MOST AND FREE FROM SHARP STONES. TO BE WELL COMPACTED	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR
4	TANK RESTRAINING STRAPS (2 No. PER VESSEL)	CALOR	CALOR
5	ANCHOR POINTS TO ACCOMMODATE TANK RESTRAINING STRAPS	CALOR	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR
6	VESSEL FEET OR CONCRETE SADDLES (SUPPLIED WITH TANK)	CALOR	CALOR
7	COMPACTED TYPE-1 HARDWARE FILL	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR
8	CONCRETE BASE	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR
9	200mm BACKFILL TO CLIENT'S REQUIREMENTS	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR
10	EXCAVATION AREA FOR TYPE-1 HARDWARE	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR	CLIENT'S CIVIL / GROUNDWORKS CONTRACTOR
11	CATHODIC PROTECTION ANODES (2 No. PER VESSEL)	CALOR	CALOR

BASE OF EXCAVATION:
11800 x 5700
DEPTH 2150

HARDWARE (TYPE-1):
TO COVER BASE OF EXCAVATION WITH A COMPACTED DEPTH OF 150

CONCRETE PAD:
10600 x 4500
DEPTH 300
2 LAYERS OF A303 MESH WITH 40MM COVER.
CONCRETE GRADE C40/50 (C50)

STRAP DETAIL:
THE STRAPS ARE SUPPLIED WITH THE VESSEL, BUT AN ALTERNATIVE CAN BE SOURCED AS SPECIFIED BELOW.

SUPPLIER:
WEBSIDE: 50mm WIDTH, 5m LENGTH
RATCHET TYPE: STAINLESS STEEL
WEB END FITTING: ENDLESS SYSTEM

ASSEMBLY STRENGTH: 5000kg MBS

ANODE INSTALLATION:
ANODES MUST BE POSITIONED CORRECTLY AND CONNECTED TO THE VESSEL VIA A ANODE WAREFILL. REFER TO DRAWING No 19224

UNLESS OTHERWISE STATED:-
ALL DIMENSIONS IN MILLIMETRES.
ALL STANDARDS ARE TO LATEST ISSUE.

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INSTALLATION OF 5x4000 LTR UNDERGROUND VESSELS

CALOR GAS
Athena Drive Warwick CV34 6RL

ISSUE	C
DATE	02/12/07
DRAWN	NJK
CHECKED	
SCALE	NTS
DRG. SIZE	A2
SHEET	1 OF 1
DRG. No.	18616

THE VALE OF
GLAMORGAN COUNCIL
TOWN AND COUNTRY PLANNING ACT 1990
APPROVED
SUBJECT TO COMPLIANCE WITH CONDITIONS (IF ANY)

ADDITIONAL DRAWINGS

received 24/7/14