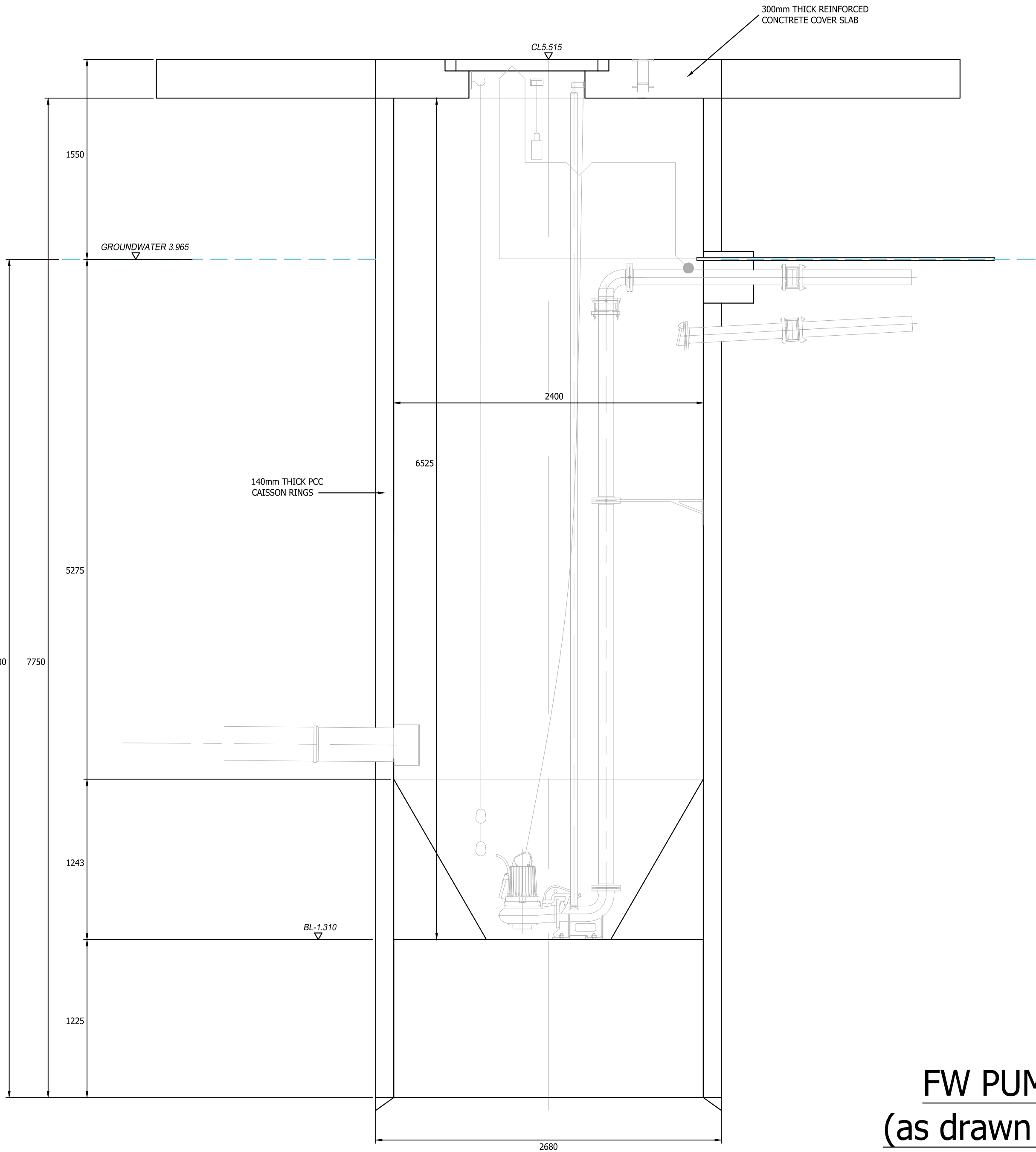


FW PUMP WET WELL
(as drawn - Willow Pumps)



FLOTATION CALCULATIONS

WATER DISPLACED BY CHAMBER:

2.68m O/DIA., VOLUME = $\pi r^2 \times d$
= $\pi \times 1.34^2 \times 6.500$
= 36.666m³

MASS = $p_w \times V$ = 1000 kg/m³ x 36.666
= 36666.78 kg
x g (9.8 m/s²) = 359334.48 N
= 359.334 kN

FACTOR OF SAFETY = 1.2

i.e 359.334 x 1.2 = **431.2 kN** (BUOYANCY FORCE)

CHAMBER SELF-WEIGHT:

COVER SLAB (volume) = $\pi r^2 \times d$
= $\pi \times 1.34^2 \times 0.3$
= 1.692m³
less cover opening = $1.5 \times 0.9 \times 0.3$
= 0.405m³
= 1.692 - 0.405m³
= 1.287m³

MASS = $p_w \times V$ = 2500 kg/m³ x 1.287
= 3217.5 kg
x g (9.8 m/s²) = 31531.5 N
= **31.53 kN**

RINGS = 7.75m DEEP
RINGS (area) = $\pi r_{(o)}^2 - \pi r_{(i)}^2$
= $(\pi \times 1.34^2) - (\pi \times 1.20^2)$
= 5.641 - 4.524
= 1.117m²
RINGS (volume) = 1.117 x 7.75 = 8.657m³

MASS = 2900 kg/m depth
= 7.75 x 2900 kg
= 22475 kg
x g (9.8 m/s²) = 220255 N
= **220.255 kN**

CONCRETE BENCHING = 1.243m DEEP x 1681.4 mean ID
BENCHING (volume) = $\pi r^2 \times d$ (max) - $\pi r^2 \times d$ (mean)
= $(\pi \times 1.20^2) - (\pi \times 0.84^2) \times 1.243$
= (4.523 - 2.216) x 1.243m³
= 2.867m³

MASS = 2.867m³ x 2500 kg/m³
= 7169.0 kg
x g (9.8 m/s²) = 70256.2 N
= **70.25 kN**

CONCRETE BASE = 1.225m DEEP
BASE (volume) = $\pi r^2 \times d$
= $(\pi \times 1.20^2) \times 1.225$
= 5.541m³

MASS = 5.541m³ x 2500 kg/m³
= 13854.4 kg
x g (9.8 m/s²) = 135773.35 N
= **135.77 kN**

i.e. CHAMBER SELF-WEIGHT TOTAL
= 31.53 + 220.255 + 70.25 + 135.77
= **397.485 kN**

457.805 > 431.2 kN ∴ OK (NO FLOTATION)

- Notes
1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations , record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. Any discrepancies shall be notified to gta prior to works commencing.
 2. Prior to commencement of works the contractor shall provide co-ordinated and dimensioned installation drawings and calculations and allow 10 working days for gta`s checking procedure prior to proceeding with those works or the ordering of materials.
 3. Tender or billing drawings shall not be used for construction or the ordering of materials.
 4. Do not scale, All dimensions and levels to be site confirmed.
 5. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements
 6. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.

T2	CALCULATION UPDATED TO SUIT CONFIRMED CAISSON SYSTEM CONSTRUCTION		20.07.21	DMS ds
T1	INITIAL ISSUE		12.02.20	DMS ds
Rev	Amendments	Date	Dsn	Chk
Status				
INFORMATION				
Client				
 BARRATT HOMES				
Project				
PEBBLE WALK, SINAH LANE HAYLING ISLAND, HANTS				
Title				
FLOTATION CALCULATIONS FW PUMP WET WELL				
Date FEBRUARY 2020		Scale @ A2 1:25		
Base Layout Ref.		CAD File ref.		
Clients Ref.		Project Ref. 10162		
 Gloucester House, 66a Church Walk, Burgess Hill, West Sussex, RH15 9AS Tel.01444 871444 Web: www.gtacivils.co.uk				
Drawing Number 10162/1101				Rev. T2