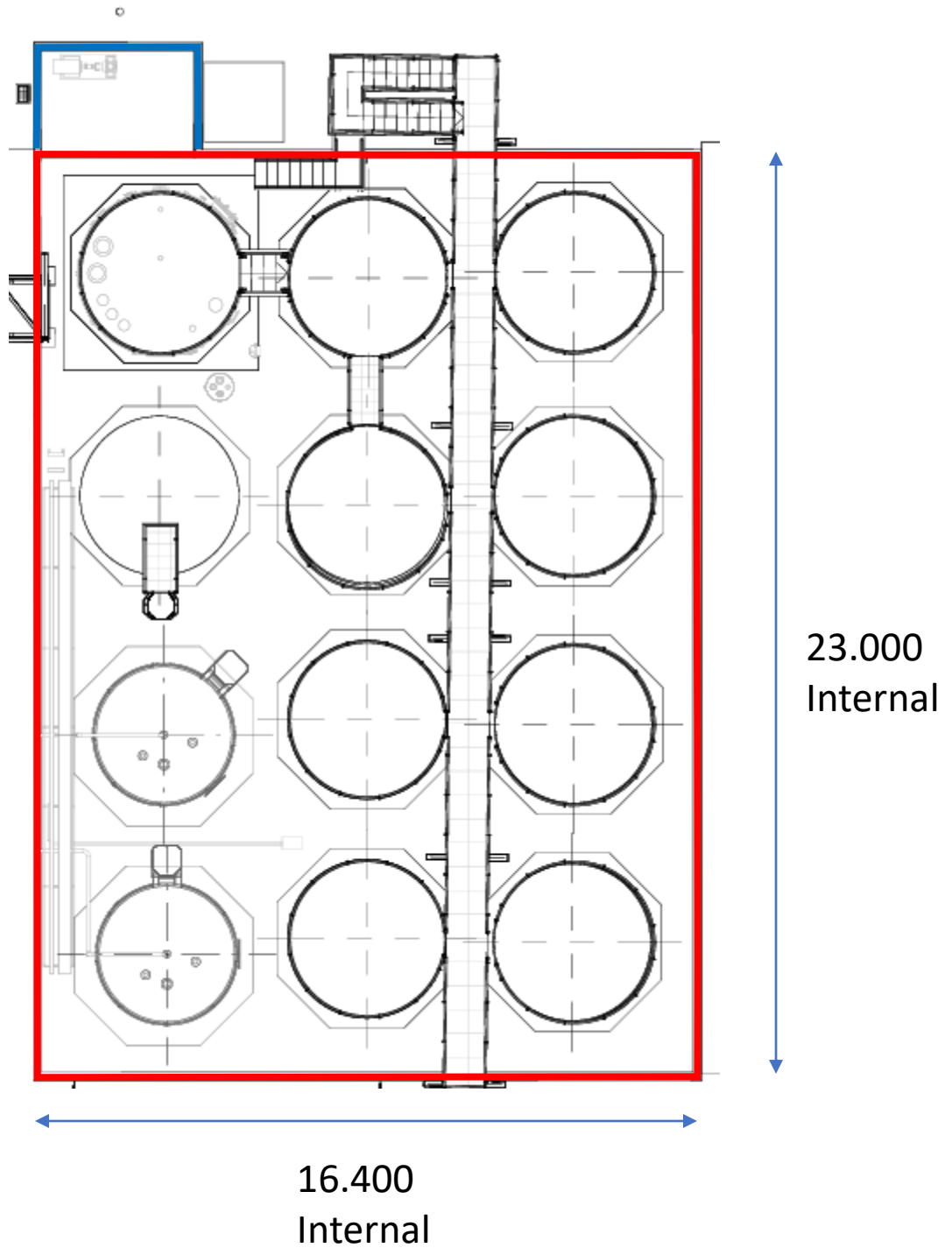# Kemira

Goole Coagulant Plant

**Secondary Containment Strategy
for Existing Tank Farm**

Existing Bund Wall 1.000m high shown in red
Pump Bund Extension shown in Blue

23.000
Internal

16.400
Internal

Secondary Containment Calculation

Existing bund

23.000 x 16.400 x 1.000 high = 377.200m3 Volume

Tank Plinths = 12 no. equal sided (1.850) octagons 0.190 high
= 37.677m3 Volume

Pump Plinths = 8 no. 0.500 x 0.500 x 1.000 high concrete plinths
= 2.000m3 Volume

Drainage Sump = 0.943m3 Volume

Total Volume = 377.200 - 37.677 - 2.000 + 0.943 = **338.466m3**

Storage Vessels

9 x Product Storage Tanks + 1 x Water Tank at 3.940 diameter
Total volume of tanks to top of bund = 98.756m3

2 x Sulphuric Acid Tanks at 3.419 diameter
Total volume of tanks to top of bund = 14.873m3

Total Free Storage = 338.466 - 98.756 - 14.873 = **224.837m3**

Total Tanks Storage Capacity

9 x 90m3 Product Storage
2 x 45m3 Acid Storage
1 x 90m3 Water Storage
= 990m3 total x 25% = 247m3 storage required

Secondary Containment Calculation

Conclusion

Addition of the new water storage tank makes the secondary Containment insufficient to meet the total storage x 25% rule

Proposed remedy is to raise the bund wall by 360mm

Combined area of storage vessels

10 x 3.940 diameter = 121.922m2
2 x 3.419 diameter = 18.362m2
= 149.284m2

Area of bund = 377.200m2

Free area = 377.200-149.284 = 227.916m2

Volume gained = 227.916 x 0.360 = 82.049 m3

Total new volume of bund = 224.837 + 82.049 = **306.866m3**

Note this total capacity excludes the new pump bund extension Shown in blue of the plan on page 2.

This will add a further 13.989m3 capacity

Total Proposed New Capacity = 320.855 m3