



SIDEBOTTOM  
RICHARDSON  
CHENG LTD

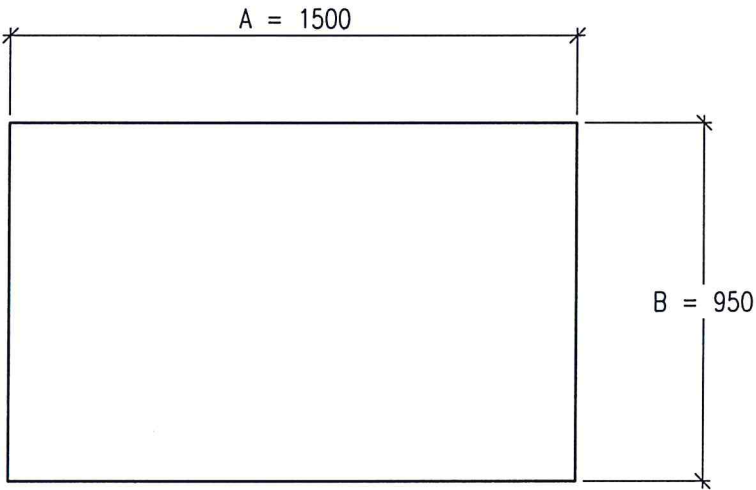
15 High Street,  
Spalding,  
Lincs. PE11 1TW  
Tel: 01775 712660  
Fax: 01775 712635  
Email: src@srcld.com

CONSULTING STRUCTURAL AND CIVIL ENGINEERS

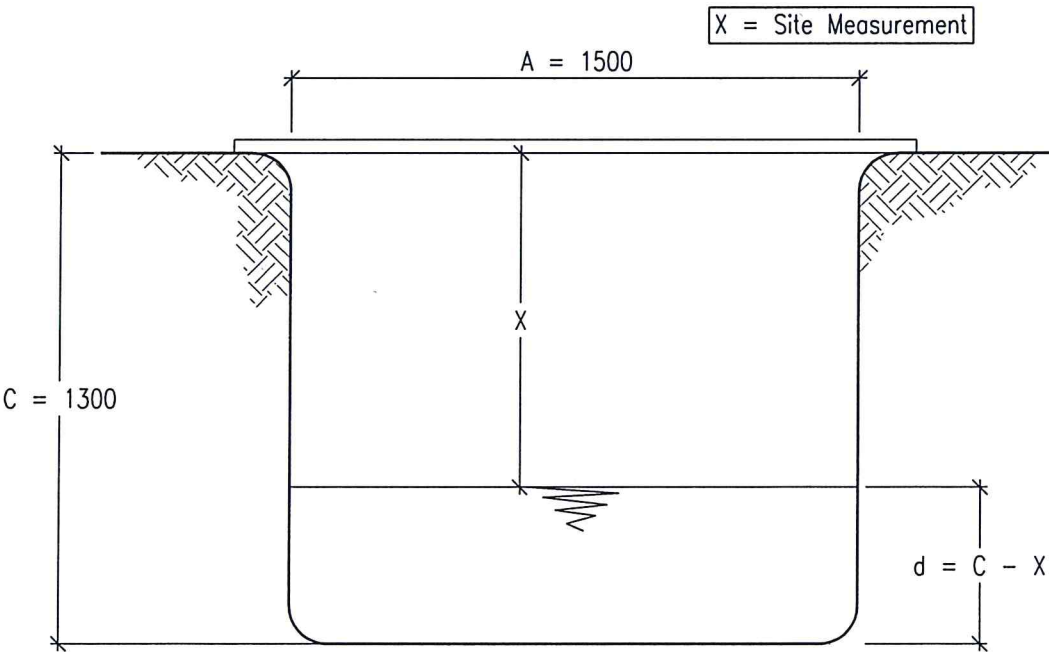
|            |          |                 |    |           |            |
|------------|----------|-----------------|----|-----------|------------|
| Sheet No.  |          |                 |    |           | Rev        |
| 35919/SA01 |          |                 |    |           | -          |
| Status     |          | FOR INFORMATION |    |           |            |
| Date       | Oct, '19 | Drawn           | SA | Checked   |            |
| Scale      | 1:20     | Design          | -  | File Name | 35919-SA01 |

Project Soakaway Test & Drainage Design,  
230 Barrier Bank, Cowbit, PE12 6AL  
For Wilson Builders Ltd.

Title Infiltration Soak Away Sketch



Plan On SA01



Section Through SA01

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**Soak-Away Test SA 01**

**Job Reference** 230 Barrier Bank,  
Cowbit

| SA01        |              |
|-------------|--------------|
| TIME (Mins) | DEPTH mm (d) |
| 0           | .885         |
| 15          | 875          |
| 30          | 865          |
| 45          | 860          |
| 60          | 855          |
| 75          | 850          |
| 105         | 840          |
| 135         | 835          |
| 195         | 825          |
| 255         | 815          |
| 315         | 810          |
| 375         | 800          |
| 435         | 795          |

**Job No.** 35919

**Date** 22/10/2019

**Trial Dimensions**

A = 1.5 m  
B = 0.95 m  
C = 1.3 m

C.S.Area of  
SA01 = 1.425 m^2

Total Volume = 0.128 m^3  
75% Volume = 0.096 m^3  
25%Volume = 0.032 m^3

Time Taken From 75% Volume to 25% Volume

179 Mins

Effective Depth From 75% Volume to 25% Volume

0.045 m

50% Effective Internal Surface Area Including Base area

1.6455 m^2

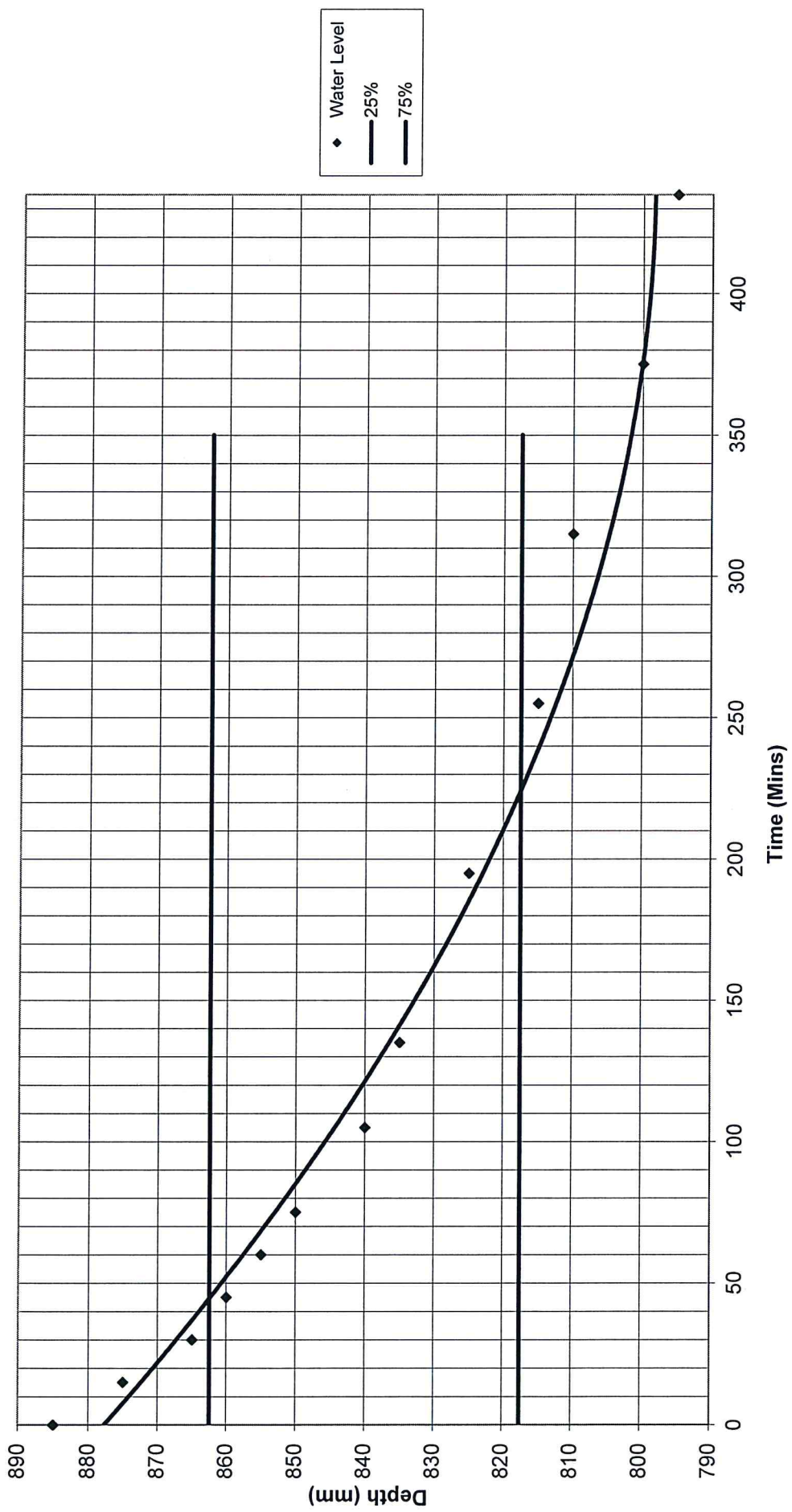
Soil Infiltration rate, f

3.62848E-06 m/s

3.62 X 10^-3 mm/s

230 Barrier Bank, Cowbit, For Wilson Builders Ltd.  
Job No. 35919

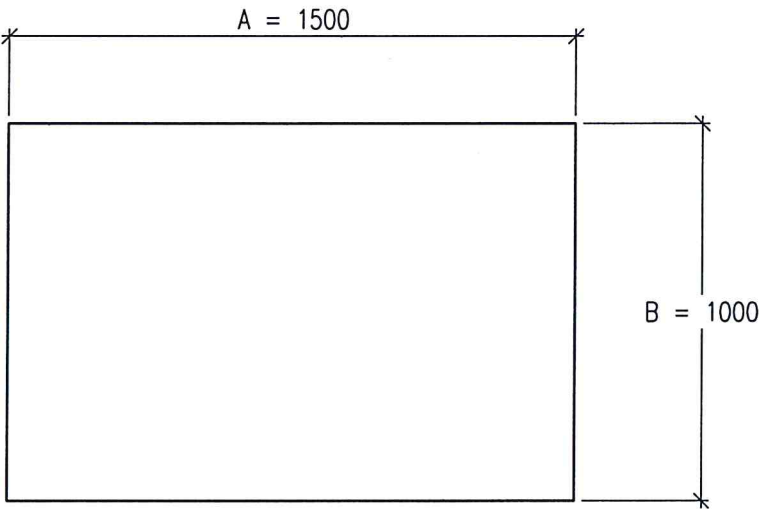
Plot showing water level against time for SA01



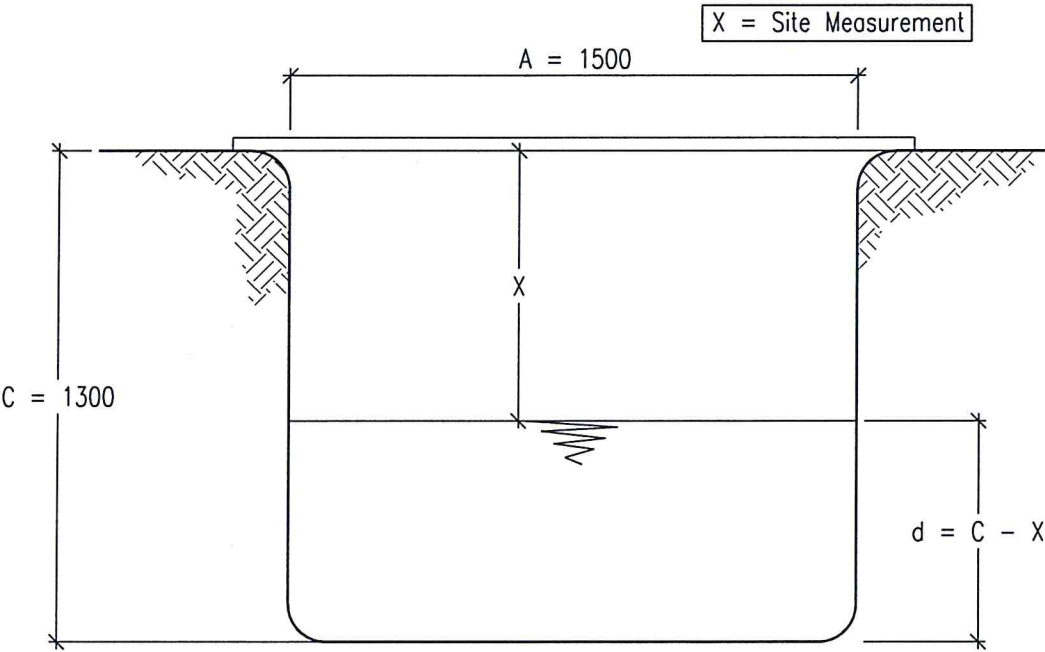
|           |          |                 |    |           |            |
|-----------|----------|-----------------|----|-----------|------------|
| Sheet No. |          | 35919/SA02      |    |           | Rev        |
| Status    |          | FOR INFORMATION |    |           |            |
| Date      | Oct, '19 | Drawn           | SA | Checked   |            |
| Scale     | 1:20     | Design          | -  | File Name | 35919-SA02 |

Project Soakaway Test & Drainage Design,  
230 Barrier Bank, Cowbit, PE12 6AL  
For Wilson Builders Ltd.

Title Infiltration Soak Away Sketch



Plan On SA02



Section Through SA02

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**Soak-Away Test SA 02**

**Job Reference** 230 Barrier Bank,  
Cowbit

|             |              |
|-------------|--------------|
| SA01        |              |
| TIME (Mins) | DEPTH mm (d) |
| 0           | 715          |
| 15          | 655          |
| 30          | 605          |
| 45          | 570          |
| 60          | 555          |
| 75          | 540          |
| 105         | 505          |
| 135         | 480          |
| 165         | 455          |
| 225         | 425          |
| 285         | 400          |
| 345         | 385          |
| 405         | 360          |

**Job No.** 35919

**Date** 22/10/2019

**Trial Dimensions**

A = 1.5 m  
B = 1 m  
C = 1.3 m

C.S.Area of  
SA01 = 1.5 m^2

Total Volume = 0.533 m^3  
75% Volume = 0.399 m^3  
25%Volume = 0.133 m^3

Time Taken From 75% Volume to 25% Volume

144 Mins

Effective Depth From 75% Volume to 25% Volume

0.1775 m

50% Effective Internal Surface Area Including Base area

2.3875 m^2

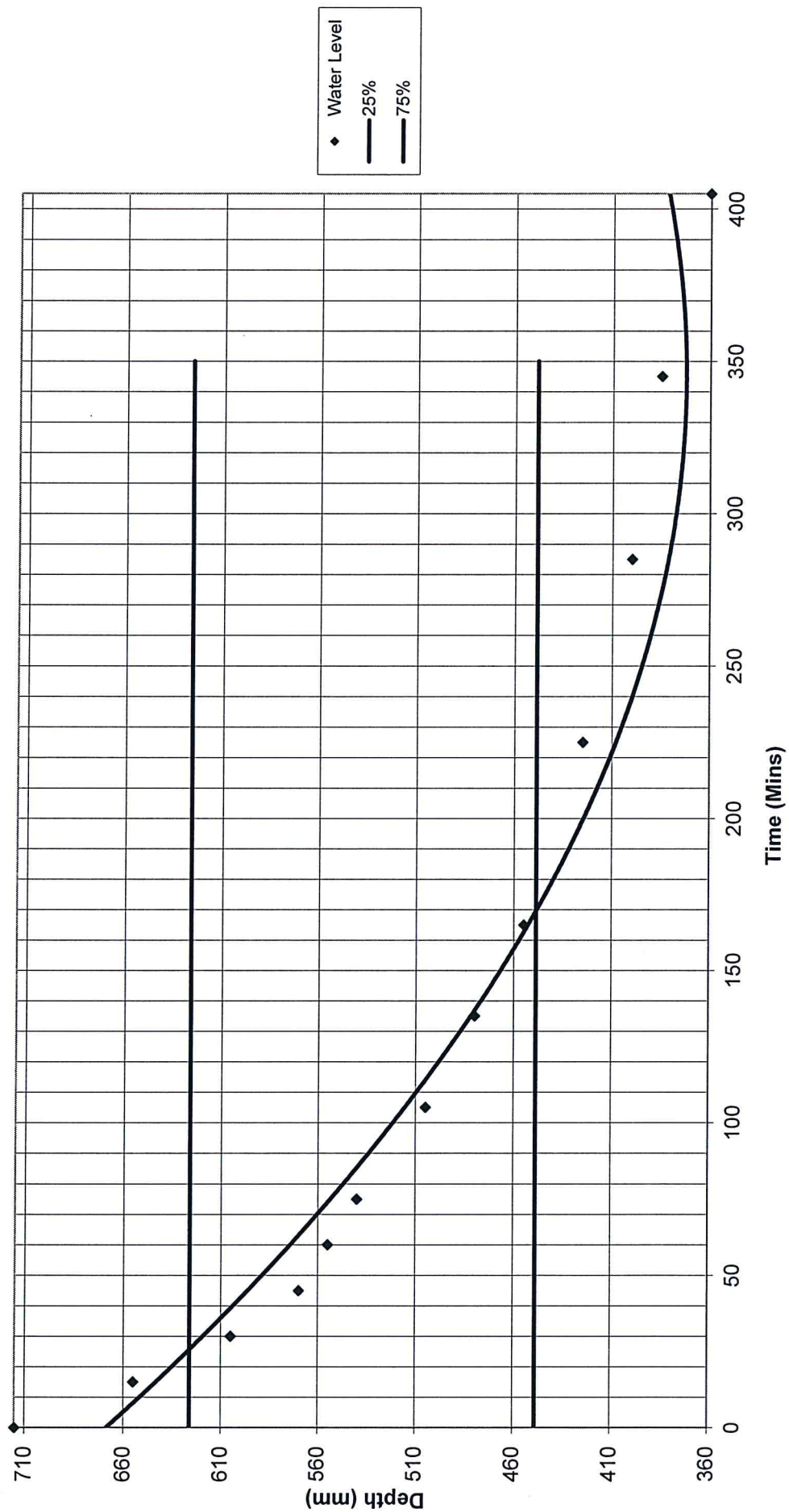
Soil Infiltration rate, f

1.29072E-05 m/s

1.29 x 10^ -2 mm/s

230 Barrier Bank, Cowbit, For Wilson Builders Ltd.  
Job No. 35919

Plot showing water level against time for SA02



**Job Details** 35919 - Proposed Residential Development at  
230 Barrier Bank, Cowbit, Spalding  
**Title** Soakaway Size Calculations - Plot 1

**Calculated Infiltration Rate (m/s)**  
3.62848E-06

| Design Rainfall - R |      |
|---------------------|------|
| M5-60               | Z1   |
| 0.02                | 1    |
| M10-D               | Z2   |
| 0.02                | 1.24 |

R = 0.0248 m

**Inflow To Soakaway**

| Area (m <sup>2</sup> ) | x | R      |
|------------------------|---|--------|
| 170                    |   | 0.0248 |

Inflow = 5.416 m<sup>3</sup>

**Outflow From Soakaway**

| Internal SA (50%) | Infiltration Rate | Storm Duration (s) |    |      |
|-------------------|-------------------|--------------------|----|------|
| 10.8              | 3.62848E-06       | 60                 | 60 | 3600 |

Outflow = 0.141075302 m<sup>3</sup>

**Storage Required**

| Inflow - | Outflow  |             |
|----------|----------|-------------|
| 5.416    | 0.141075 | 5.274924698 |

Soakaway Has Been Designed For A  
10 Year Storm Of 60 Minute Duration

**Storage Volume With 30% Free (Required)**  
6.857402107

**Actual Storage Volume**  
6.84

NB. Actual Storage Volume Needs To Be  
Greater Than Storage Volume + 30%

**Soakaway Dimensions**

| Polystorm Crate | Number | Total Lengths | Half Effective |
|-----------------|--------|---------------|----------------|
| Width           | 0.5    | 6             | 3              |
| Length          | 1      | 6             |                |
| Depth           | 0.4    | 1             | 0.4            |

**Internal Surface Area Not Including Base (50% depth)**  
21.6 m<sup>2</sup>

**Storage Volume**  
6.84 m<sup>3</sup>

**Job Details** 35919 - Proposed Residential Development at  
230 Barrier Bank, Cowbit, Spalding  
**Title** Soakaway Size Calculations - Plot 2

**Calculated Infiltration Rate (m/s)**  
3.62848E-06

| Design Rainfall - R |      |
|---------------------|------|
| M5-60               | Z1   |
| 0.02                | 1    |
| M10-D               | Z2   |
| 0.02                | 1.24 |

R = 0.0248 m

**Inflow To Soakaway**

| Area (m <sup>2</sup> ) | x | R      |
|------------------------|---|--------|
| 153                    |   | 0.0248 |

Inflow = 4.9944 m<sup>3</sup>

**Outflow From Soakaway**

| Internal SA (50%) | Infiltration Rate | Storm Duration (s) |    |      |
|-------------------|-------------------|--------------------|----|------|
| 10.65             | 3.62848E-06       | 60                 | 60 | 3600 |

Outflow = 0.139115923 m<sup>3</sup>

**Storage Required**

| Inflow - | Outflow  |             |
|----------|----------|-------------|
| 4.9944   | 0.139116 | 4.855284077 |

Soakaway Has Been Designed For A  
10 Year Storm Of 60 Minute Duration

**Storage Volume With 30% Free (Required)**  
6.3118693

**Actual Storage Volume**  
6.65

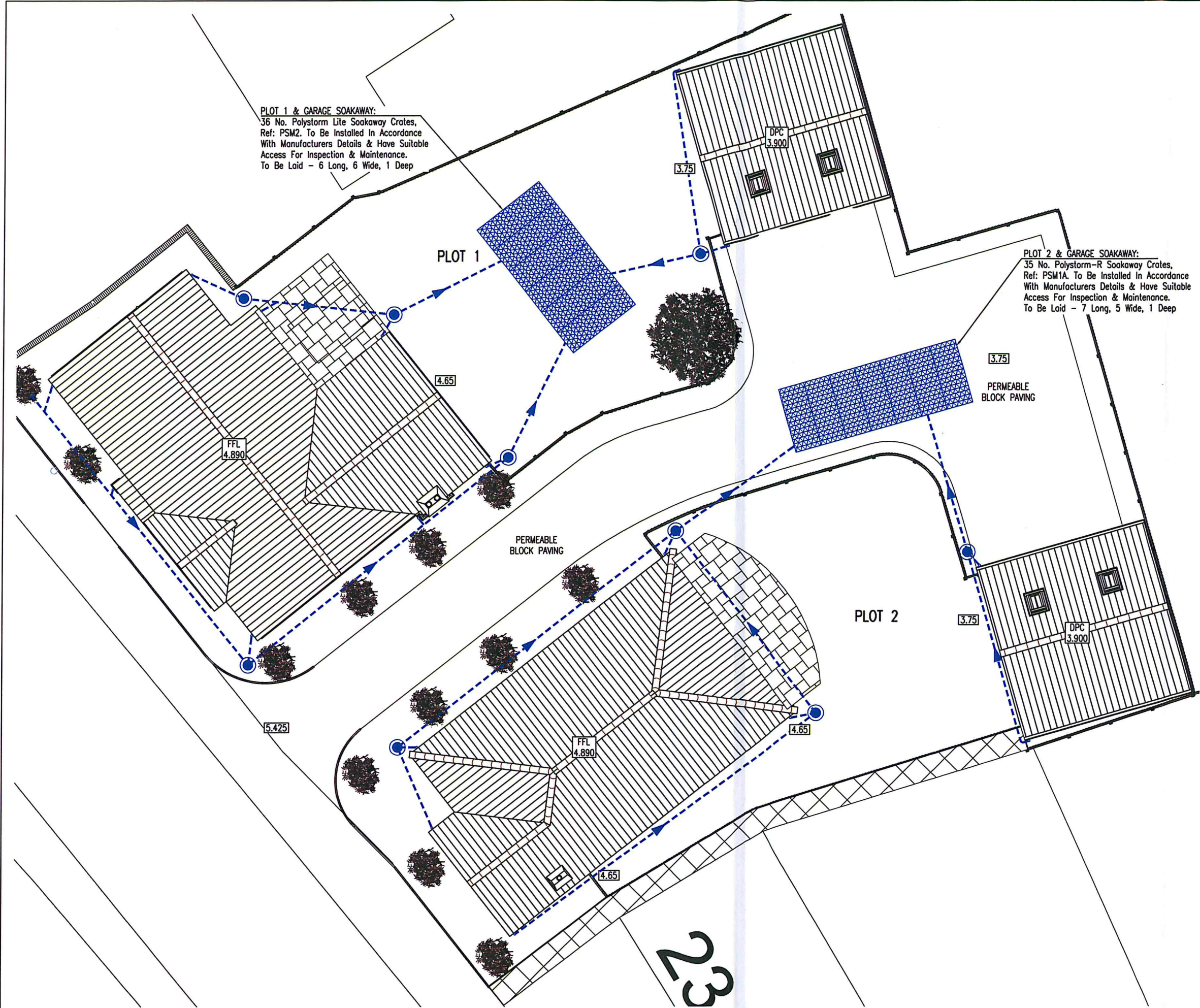
NB. Actual Storage Volume Needs To Be  
Greater Than Storage Volume + 30%

**Soakaway Dimensions**

| Polystorm Crate | Number | Total Lengths | Half Effective |
|-----------------|--------|---------------|----------------|
| Width           | 0.5    | 5             | 2.5            |
| Length          | 1      | 7             |                |
| Depth           | 0.4    | 1             | 0.4            |

**Internal Surface Area Not Including Base (50% depth)**  
21.3 m<sup>2</sup>

**Storage Volume**  
6.65 m<sup>3</sup>



| Key:                                           |                                |
|------------------------------------------------|--------------------------------|
|                                                | Proposed Surface Water Pipe    |
|                                                | Proposed Surface Water Chamber |
|                                                | Proposed Site Level            |
| All Proposed Surface Water Drainage To Be 100% |                                |

| Rev                                                                                                                                                                                            | Date     | Remarks            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| FOR INFORMATION                                                                                                                                                                                |          |                    |
| <b>SIDEBOTTOM RICHARDSON CHENG LTD</b><br>CONSULTING STRUCTURAL AND CIVIL ENGINEERS<br>15 High Street, Spalding, Lincs. PE11 1TW<br>Tel: 01775 712660 Fax: 01775 712635 Email: src@srccltd.com |          |                    |
| Project <b>Residential Development at 230 Barrier Bank, Cowbit, Spalding, PE12 6AL For Wilson Builders Ltd.</b>                                                                                |          |                    |
| Title <b>Proposed Surface Water Drainage Layout</b>                                                                                                                                            |          |                    |
| Date                                                                                                                                                                                           | Dec. '19 | Scale 1:100 @A2    |
| Drawn                                                                                                                                                                                          | MP       | Checked SRC        |
| Design                                                                                                                                                                                         | SRC      | File Name 35919-01 |
| DRG No. 35919/01                                                                                                                                                                               |          | Rev -              |