KEEPING BRITAIN TRADING

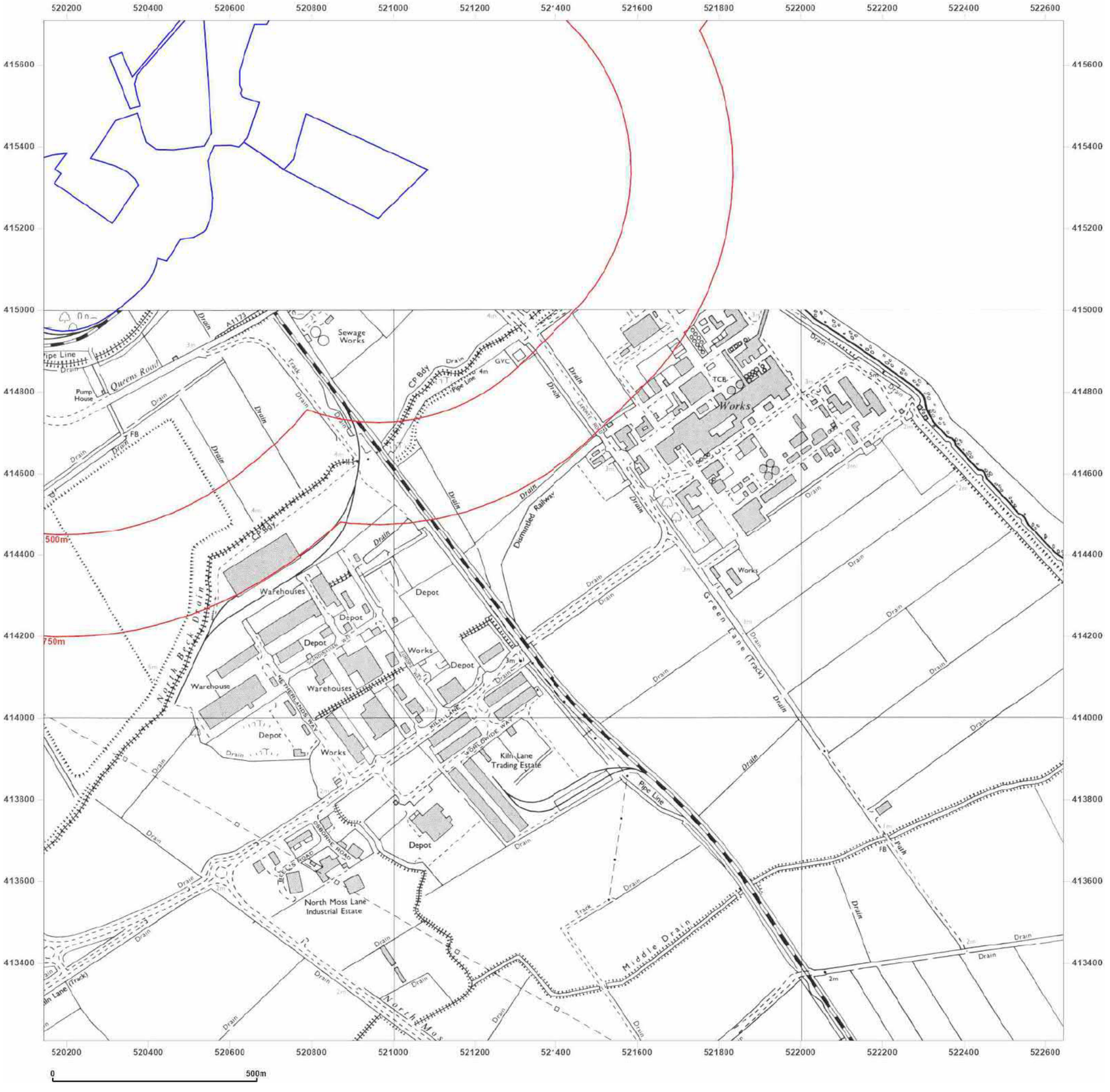
IMMINGHAM EASTERN RO-RO TERMINAL



Environmental Statement: Volume 3
Appendix 12.1: Phase 1 Desk Study - Part 2
Document Reference: 8.4.12 (a)

APFP Regulations 2009 – Regulation 5(2)(a) and 5(2)(e)
PINS Reference – TR030007

February 2023



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_1
Grid Ref: 521393, 414459

Map Name: National Grid
Map date: **1988**
Scale: 1:10,000
Printed at: 1:10,000

N
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Surveyed 1986
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

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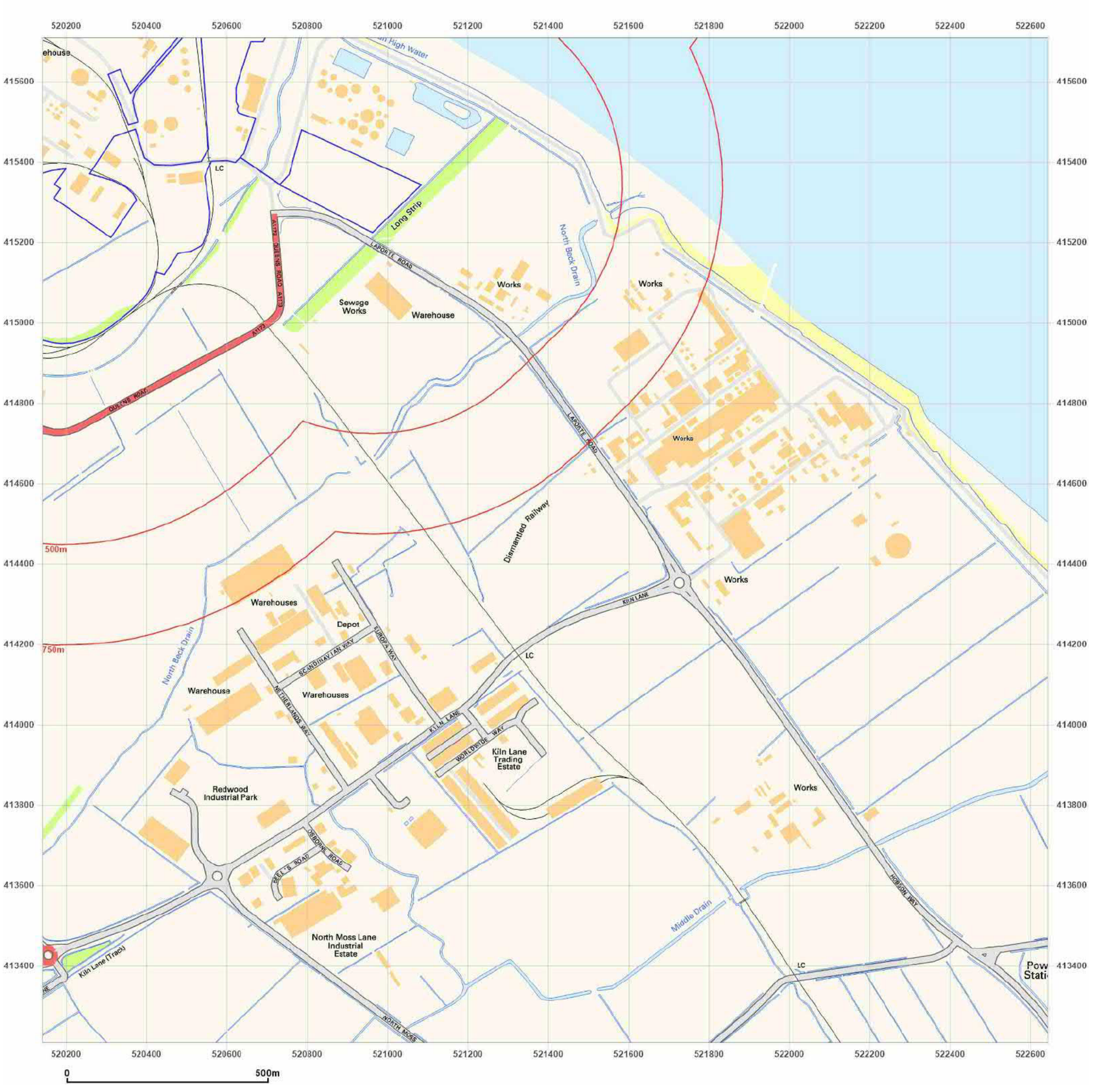
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_1
Grid Ref: 521393, 414459

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

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2001

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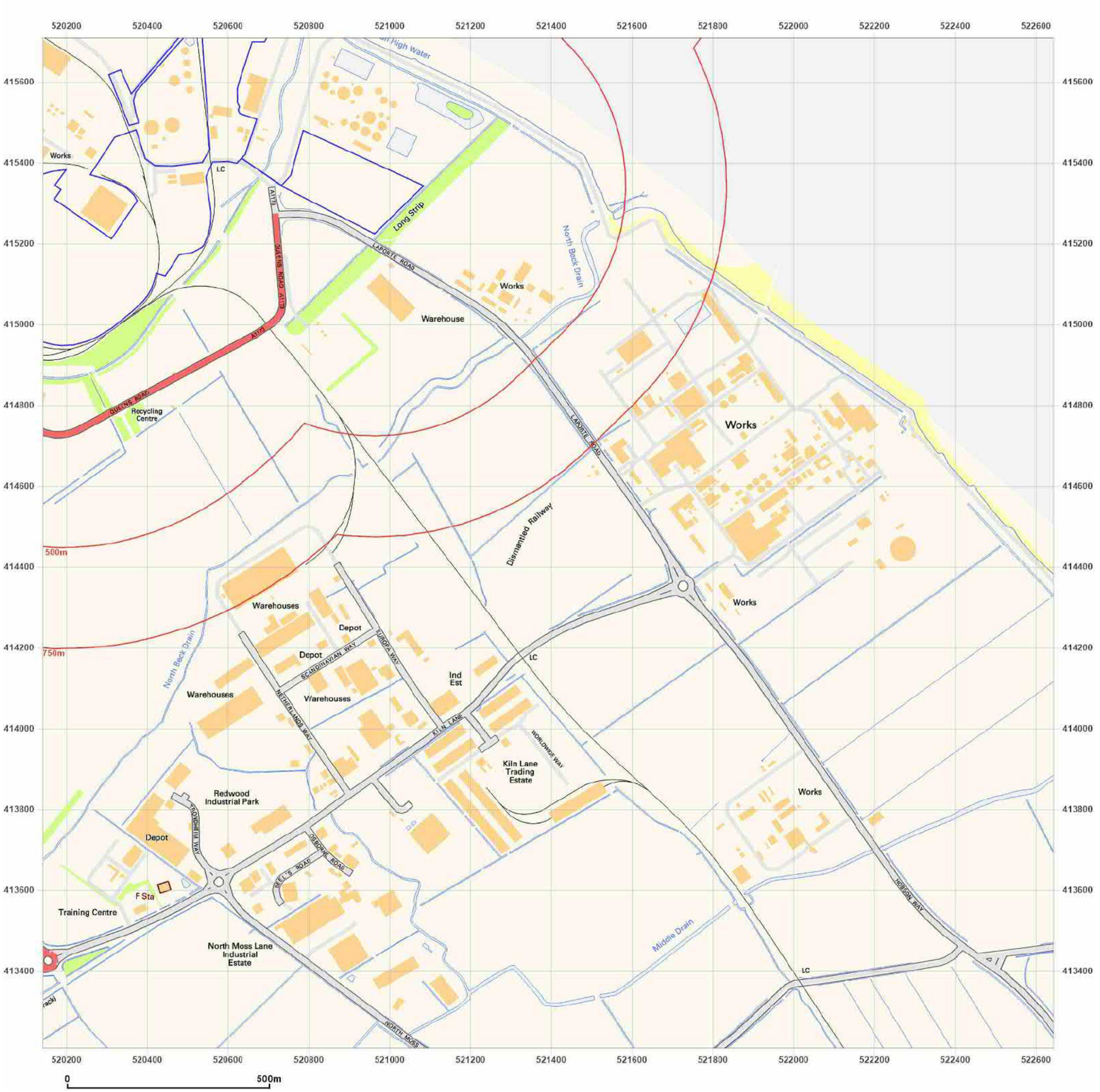
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_1
Grid Ref: 521393, 414459

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

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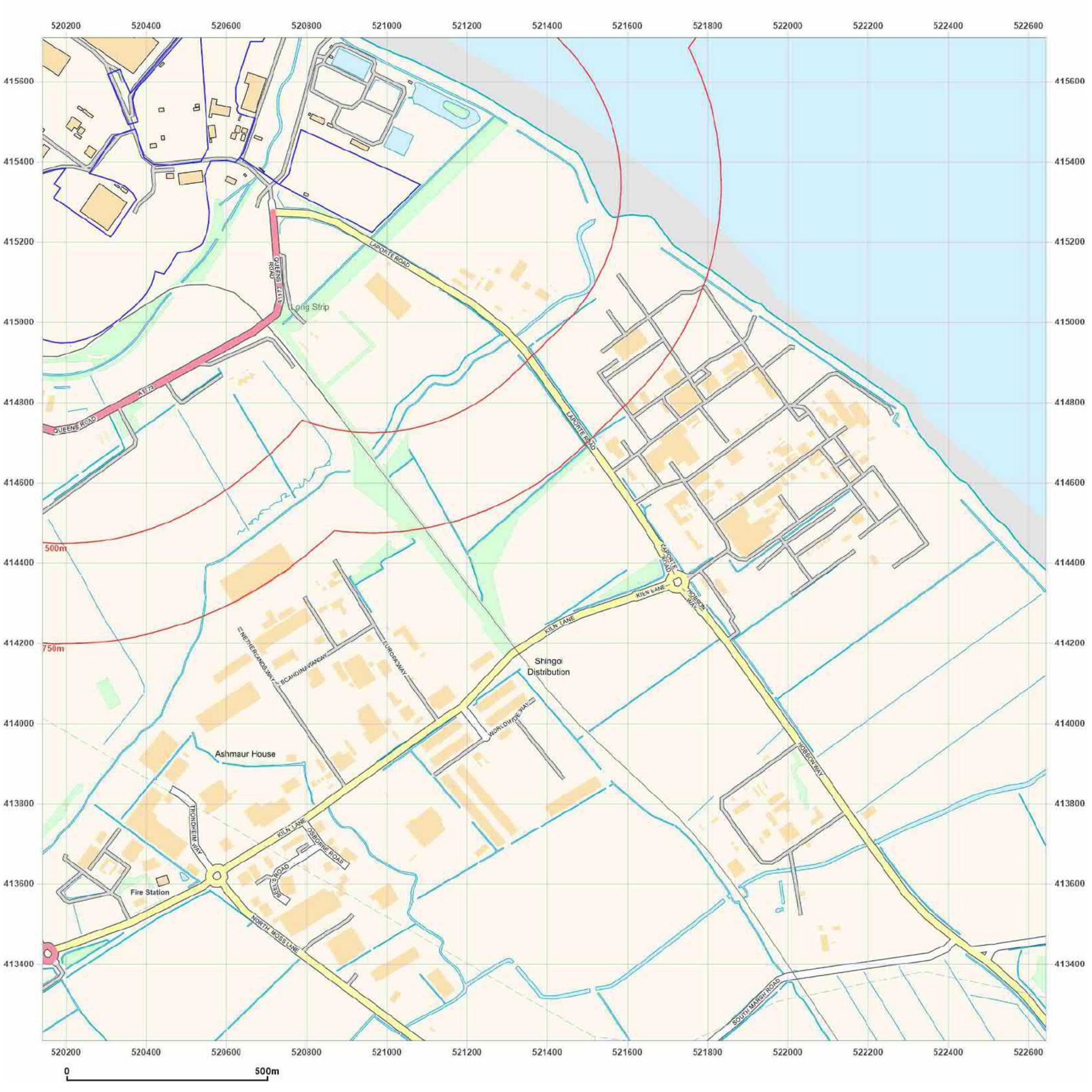
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_1
Grid Ref: 521393, 414459

Map Name: National Grid
Map date: 2021
Scale: 1:10,000
Printed at: 1:10,000

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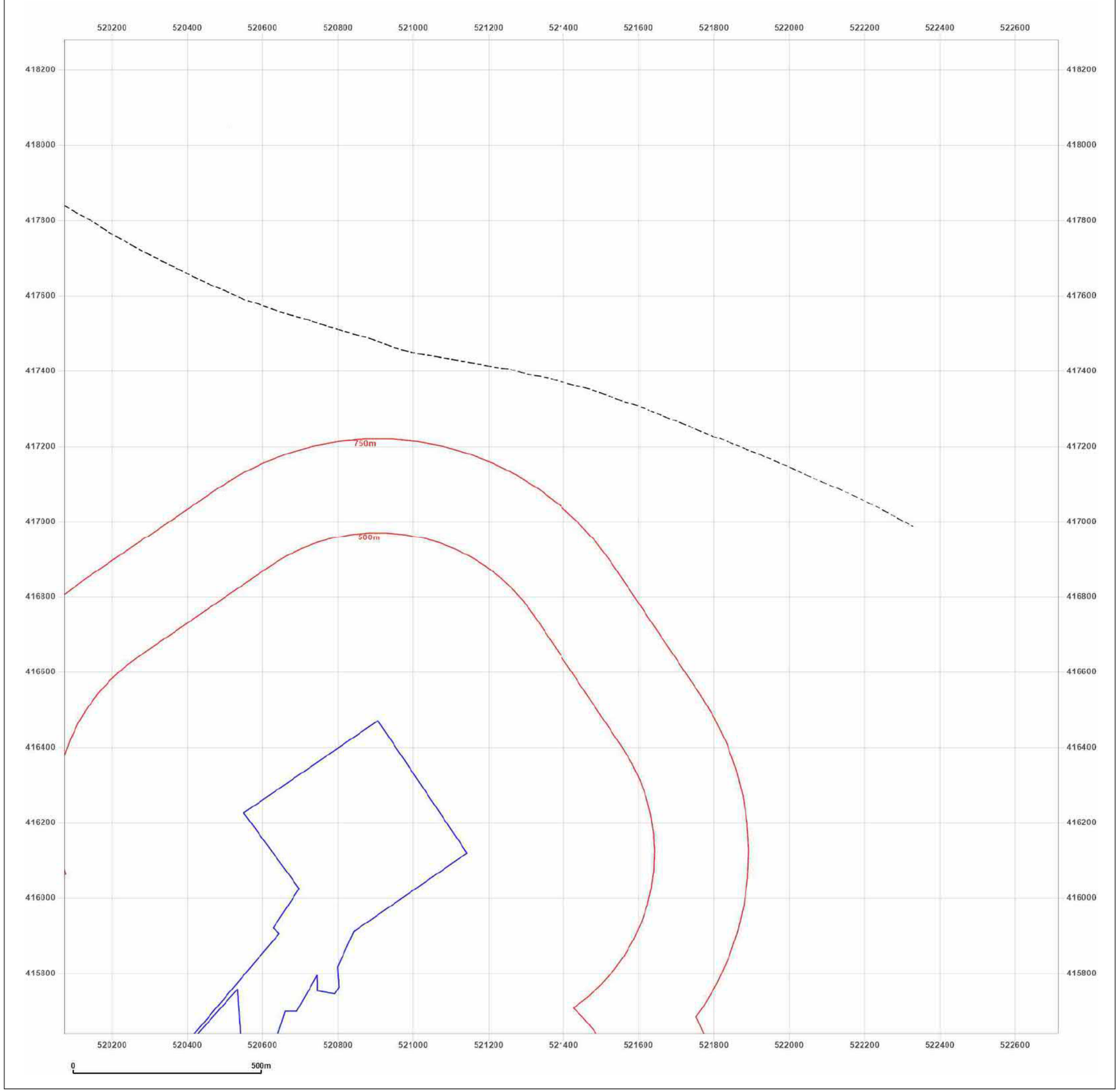
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1854**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
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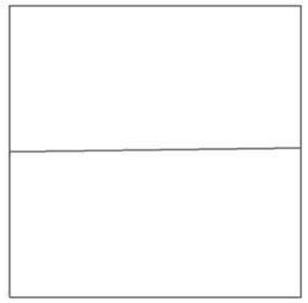
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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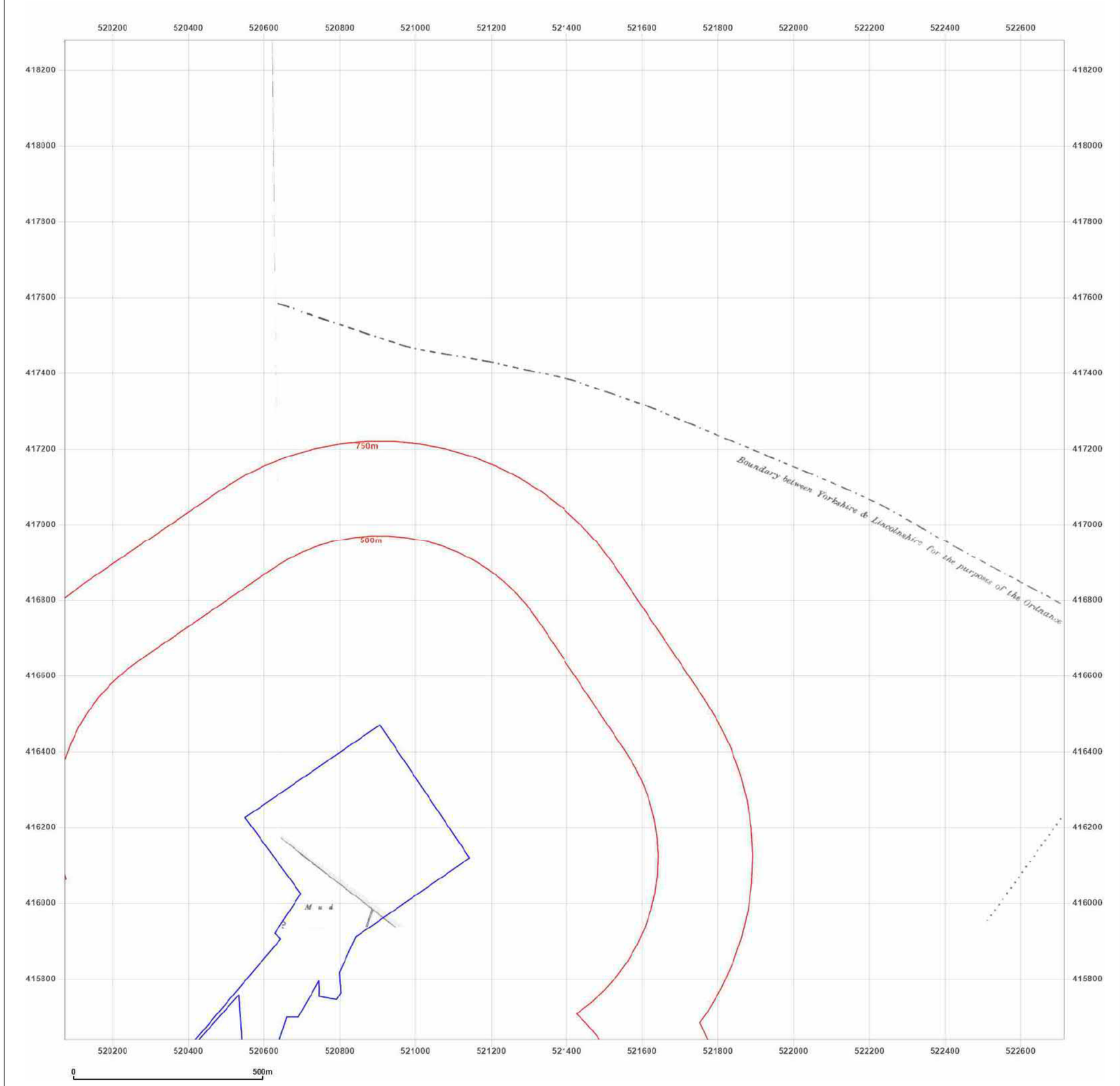
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1886**
Scale: 1:10,560
Printed at: 1:10,560

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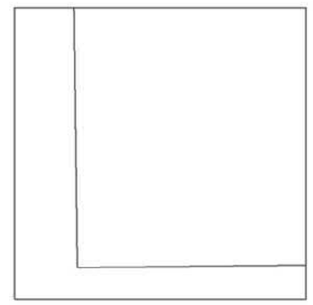

Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A

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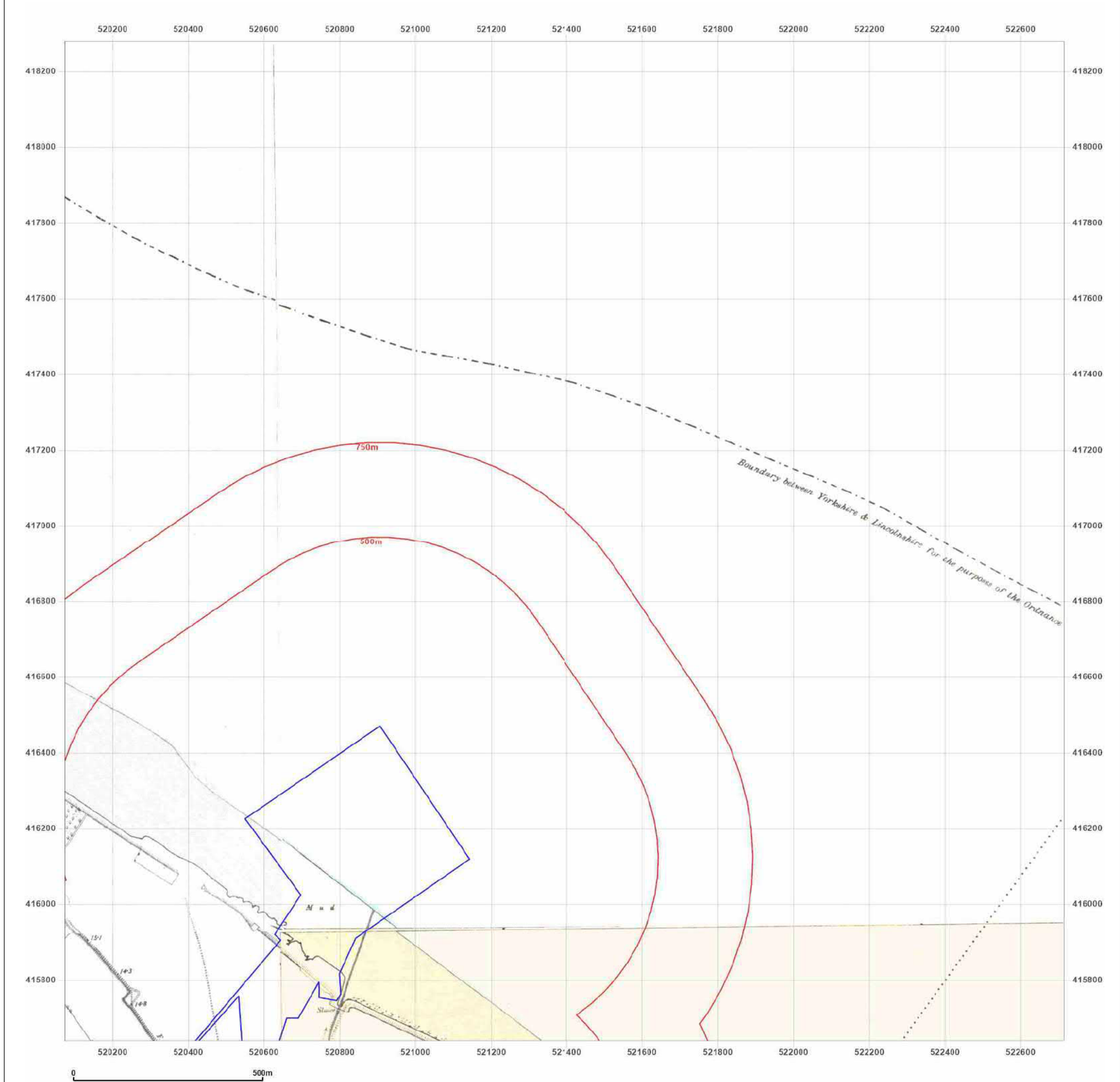
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1886-1887**
Scale: 1:10,560
Printed at: 1:10,560

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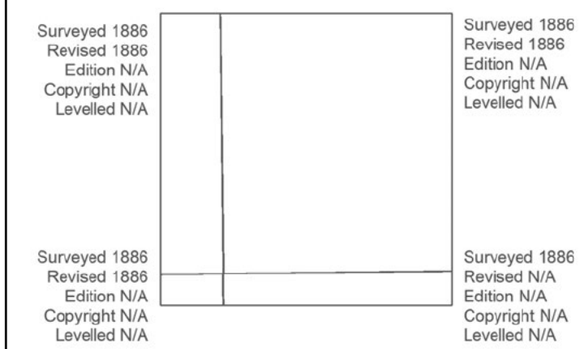

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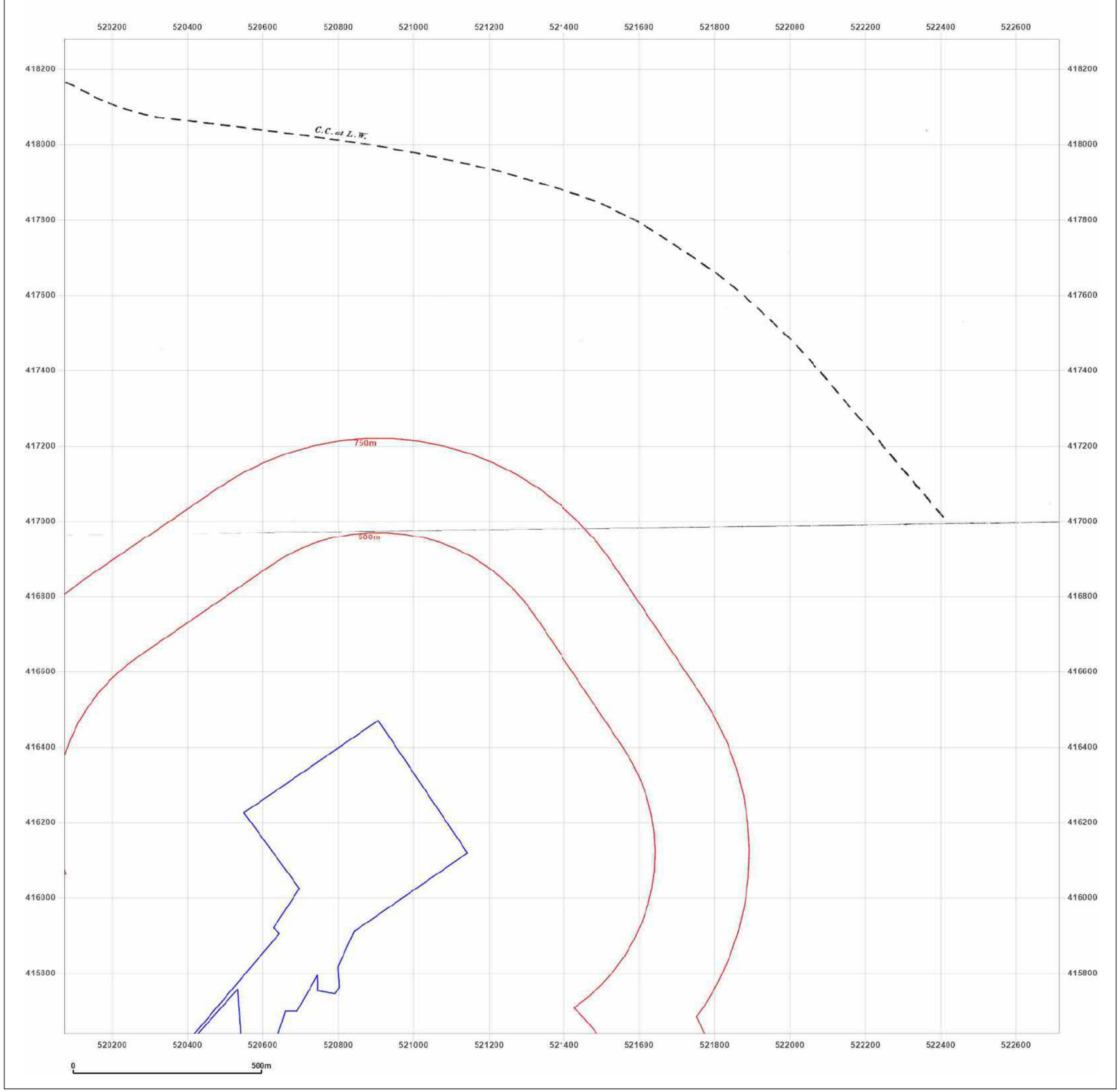
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1888**
Scale: 1:10,560
Printed at: 1:10,560

N
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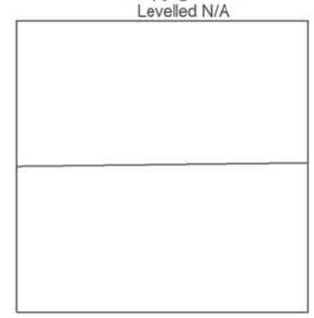
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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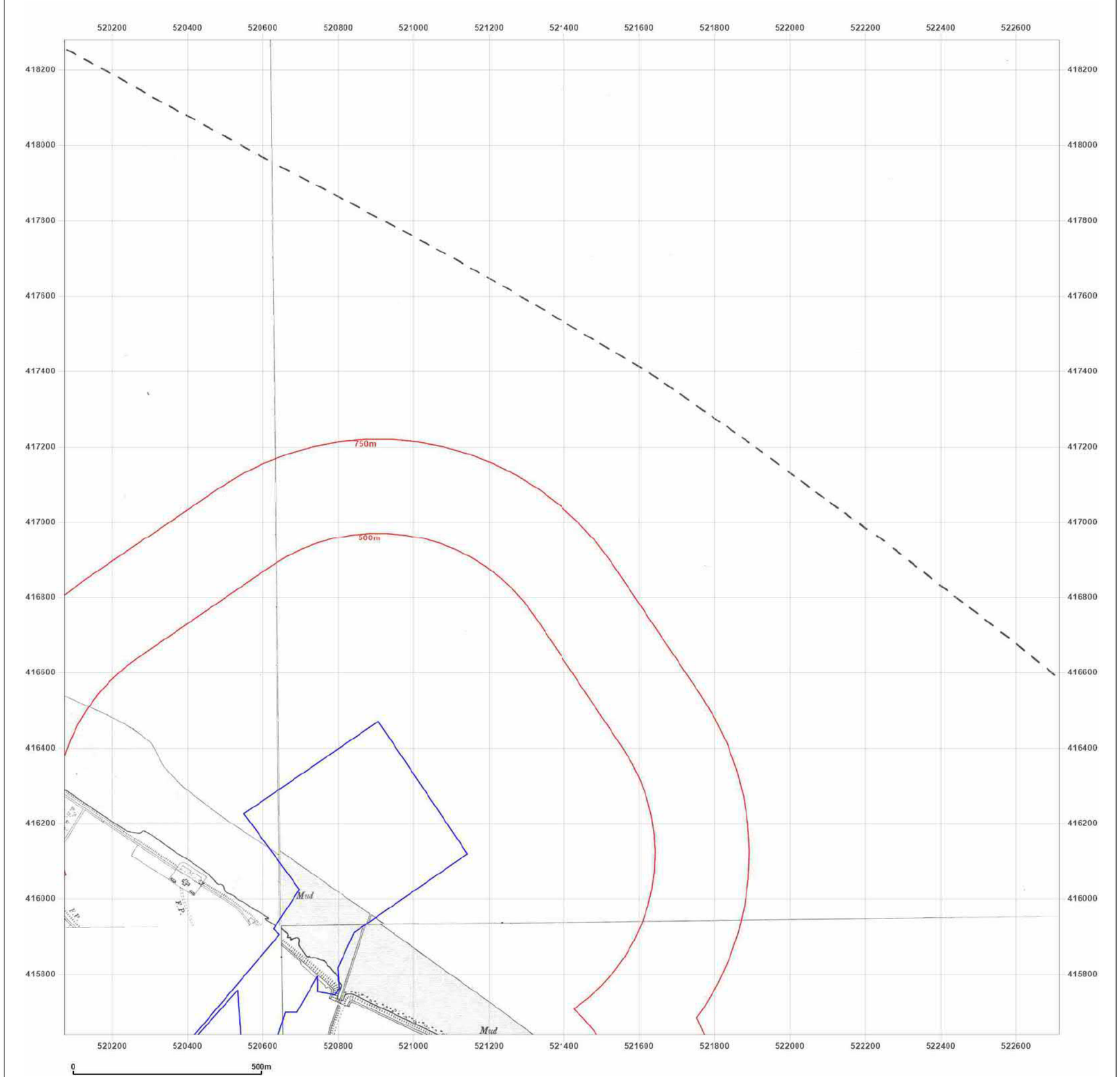
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1906**
Scale: 1:10,560
Printed at: 1:10,560

N
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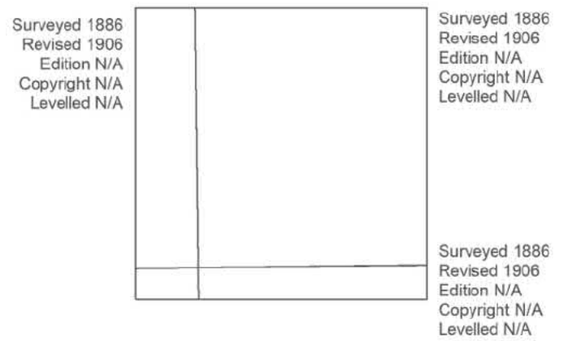

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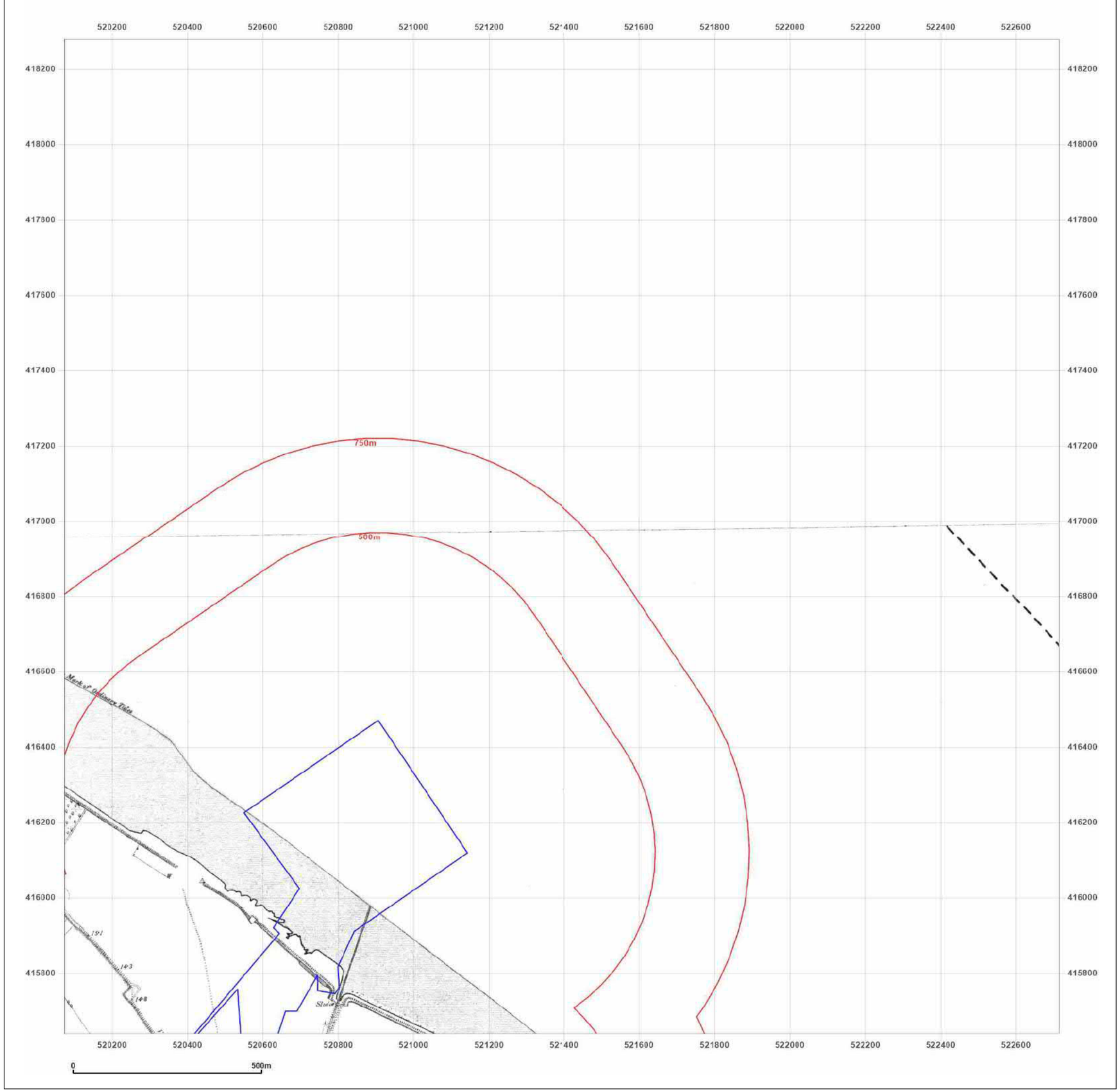
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1907**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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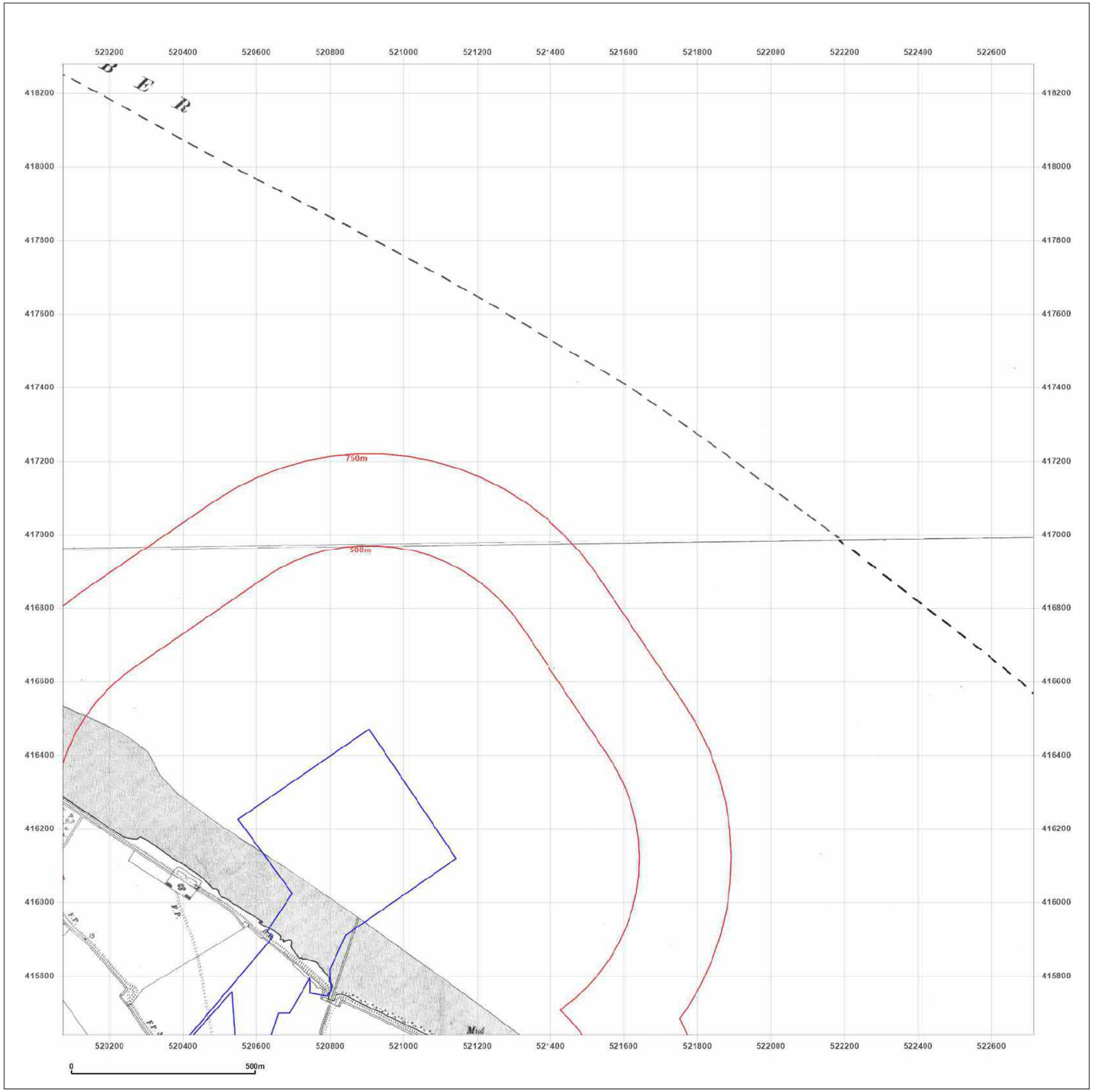
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1905-1910**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed 1853
Revised 1910
Edition 1910
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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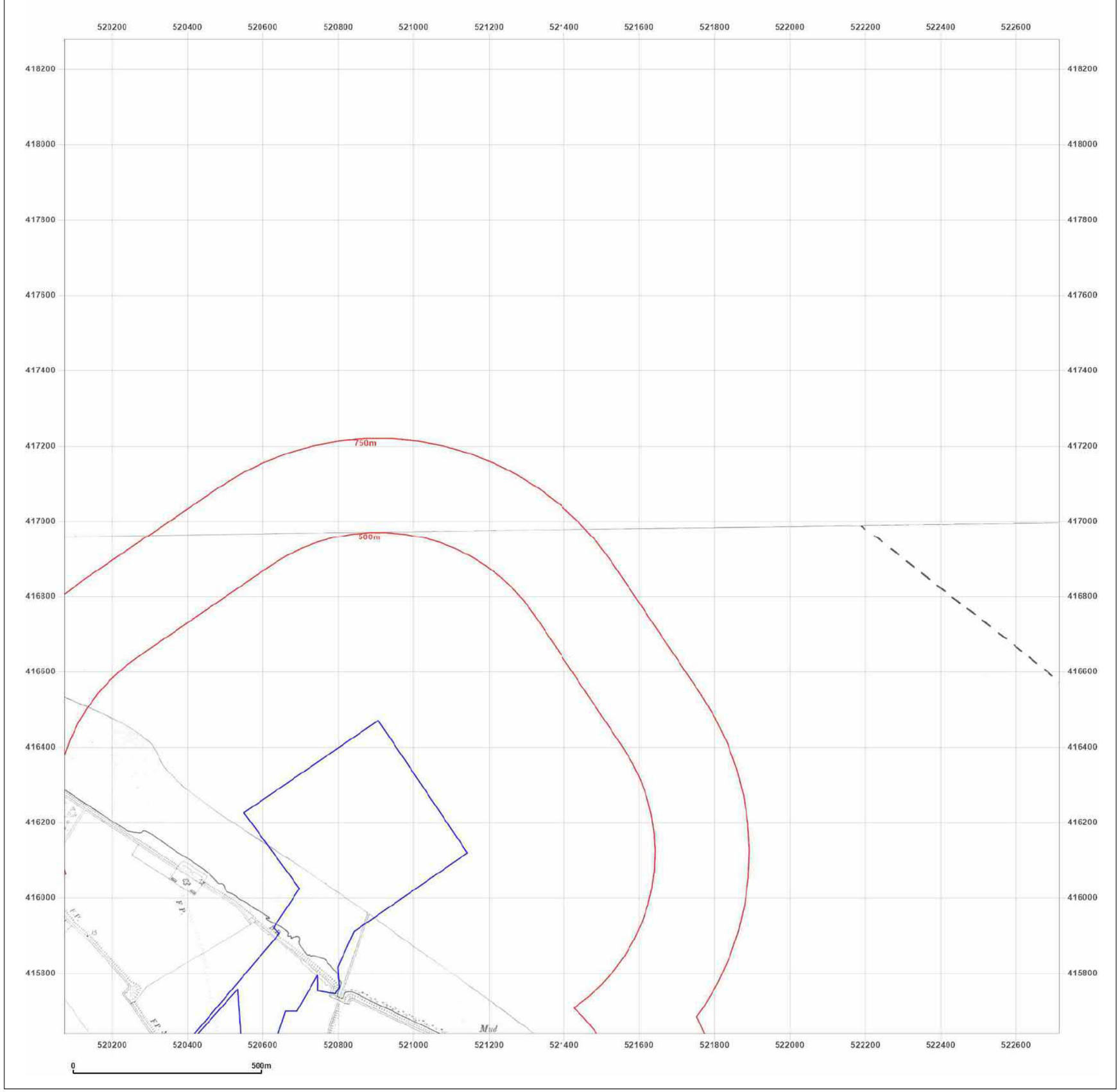
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1910**
Scale: 1:10,560
Printed at: 1:10,560

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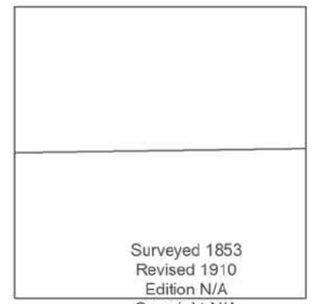

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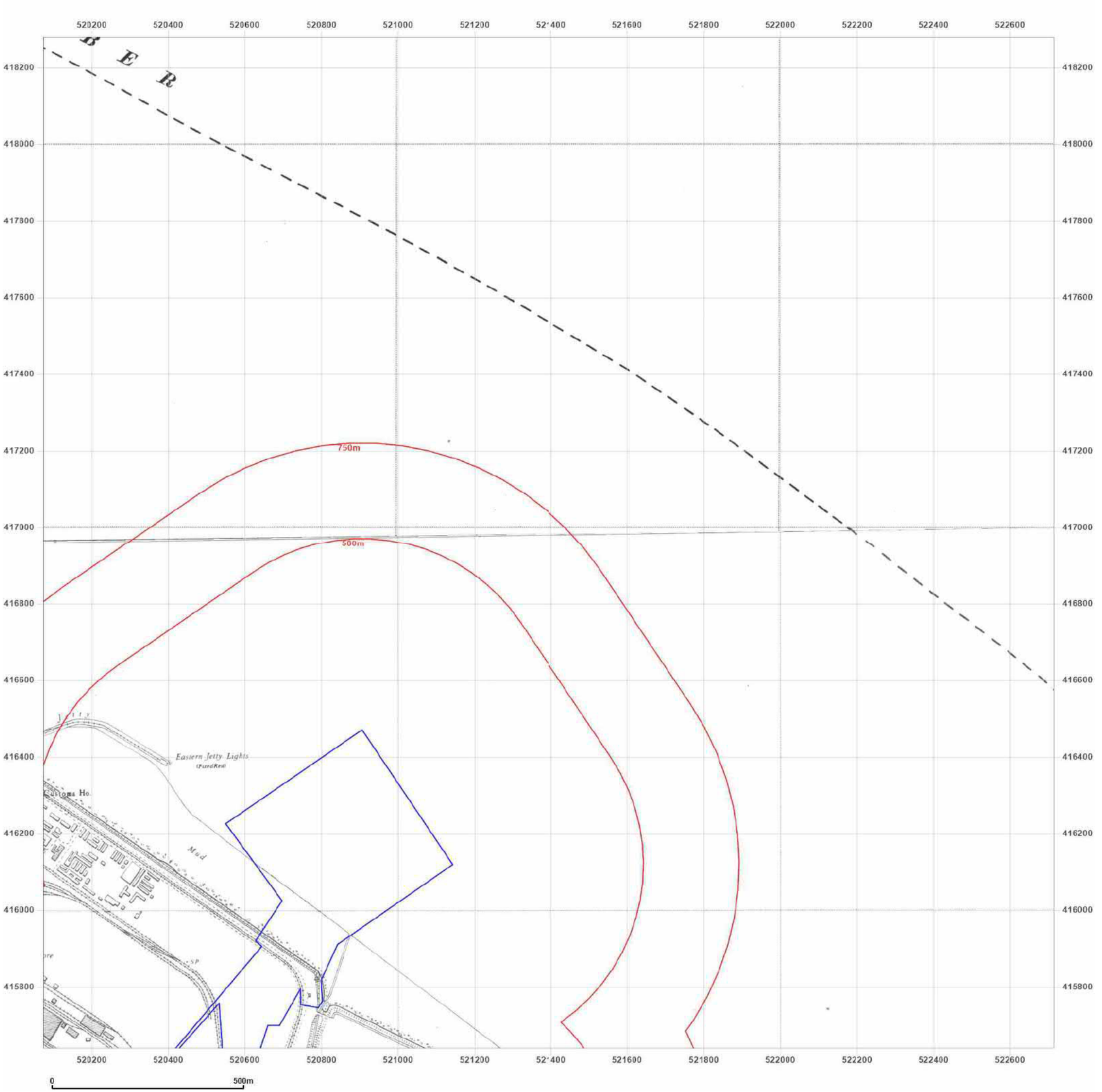
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1947**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1853
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1853
Revised 1947
Edition 1947
Copyright N/A
Levelled N/A

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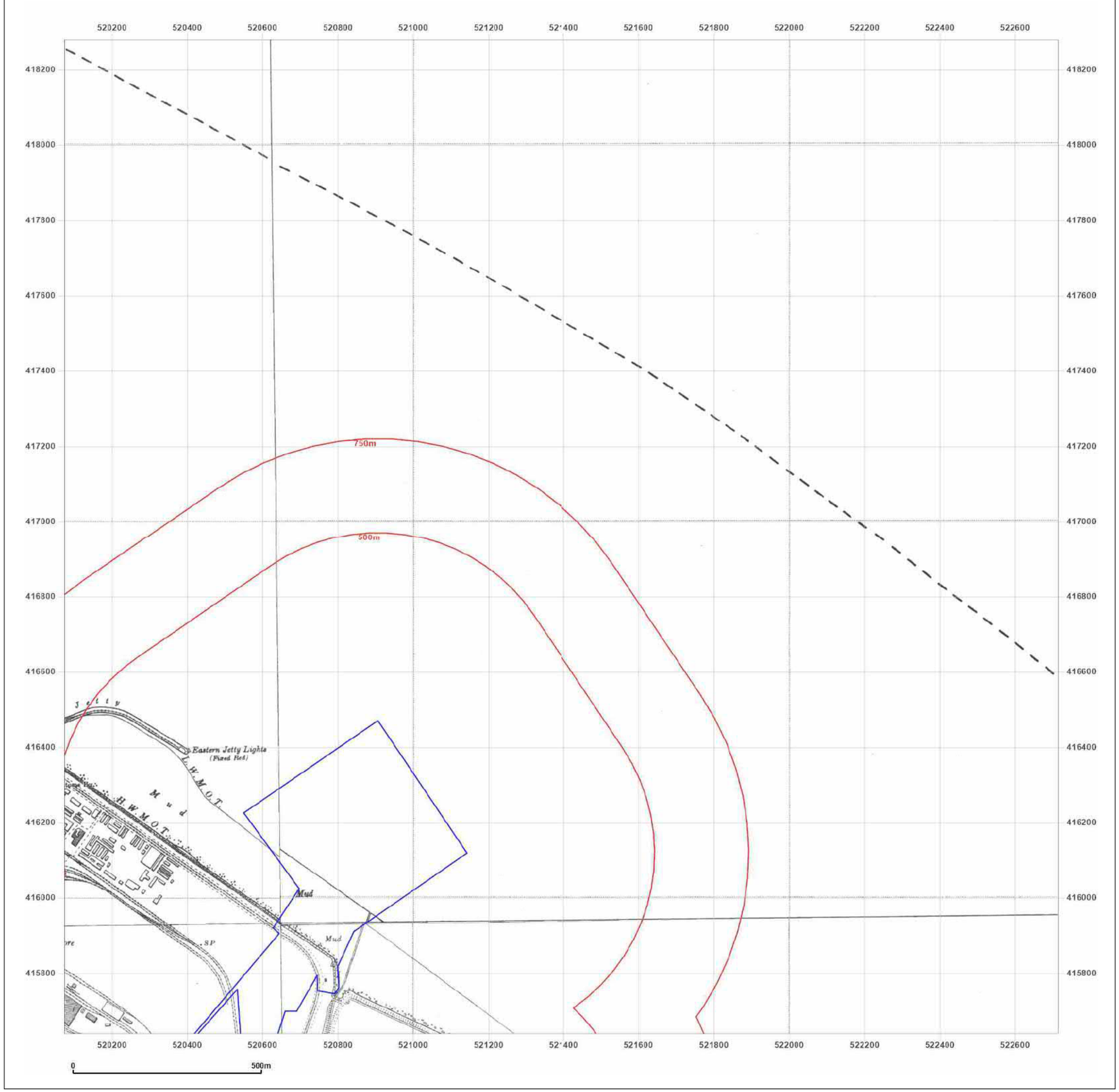
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: County Series
Map date: **1947-1951**
Scale: 1:10,560
Printed at: 1:10,560

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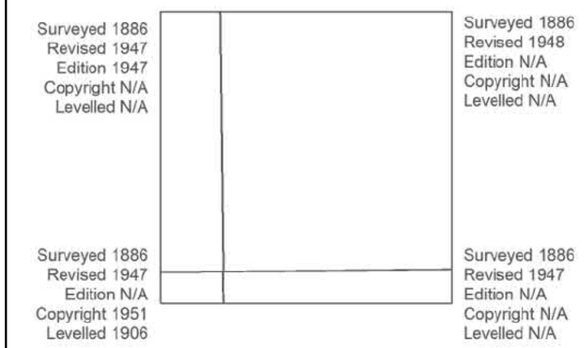

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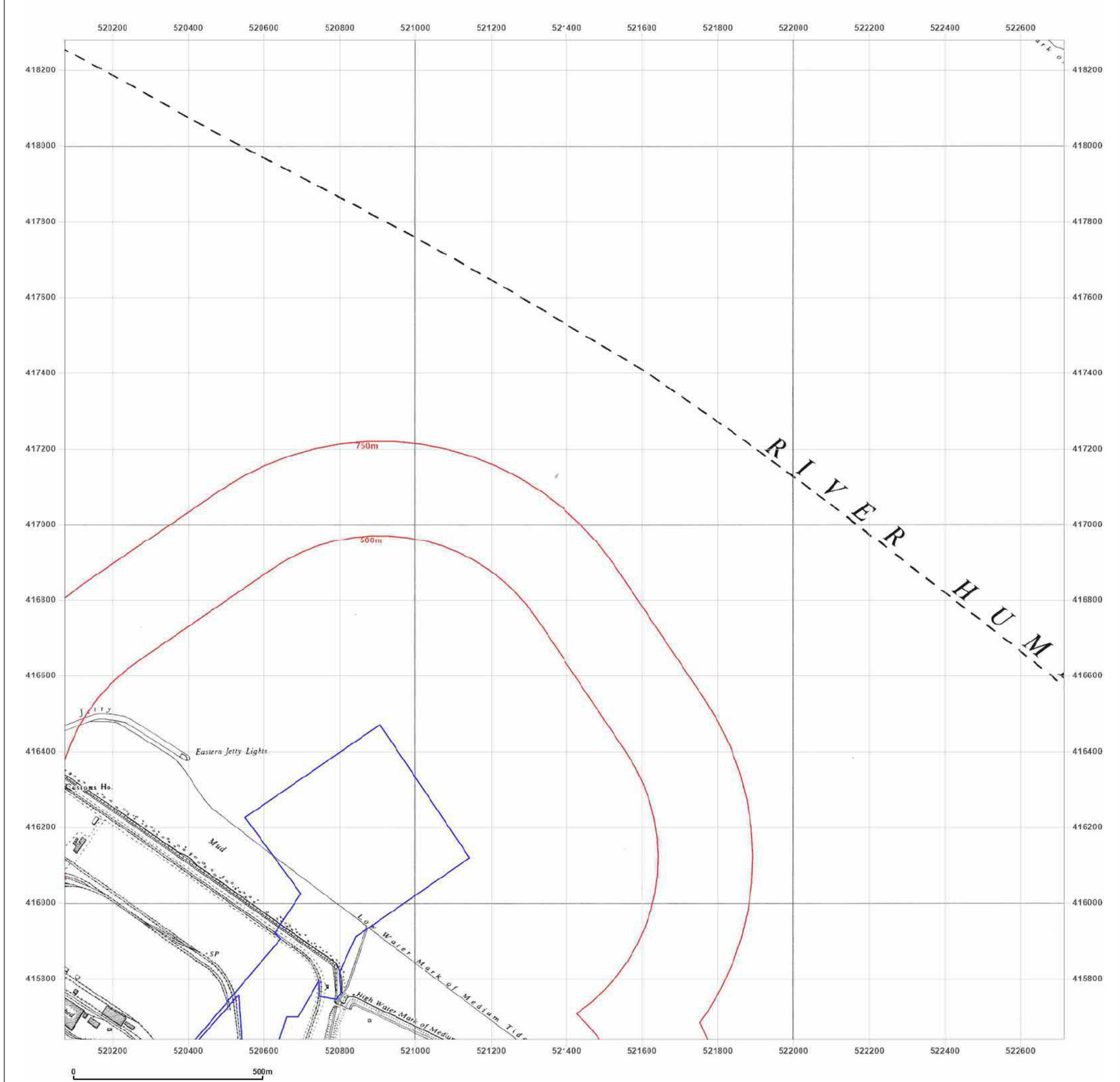
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

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Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: Provisional
Map date: **1952**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed 1952
Revised 1952
Edition N/A
Copyright N/A
Levelled N/A

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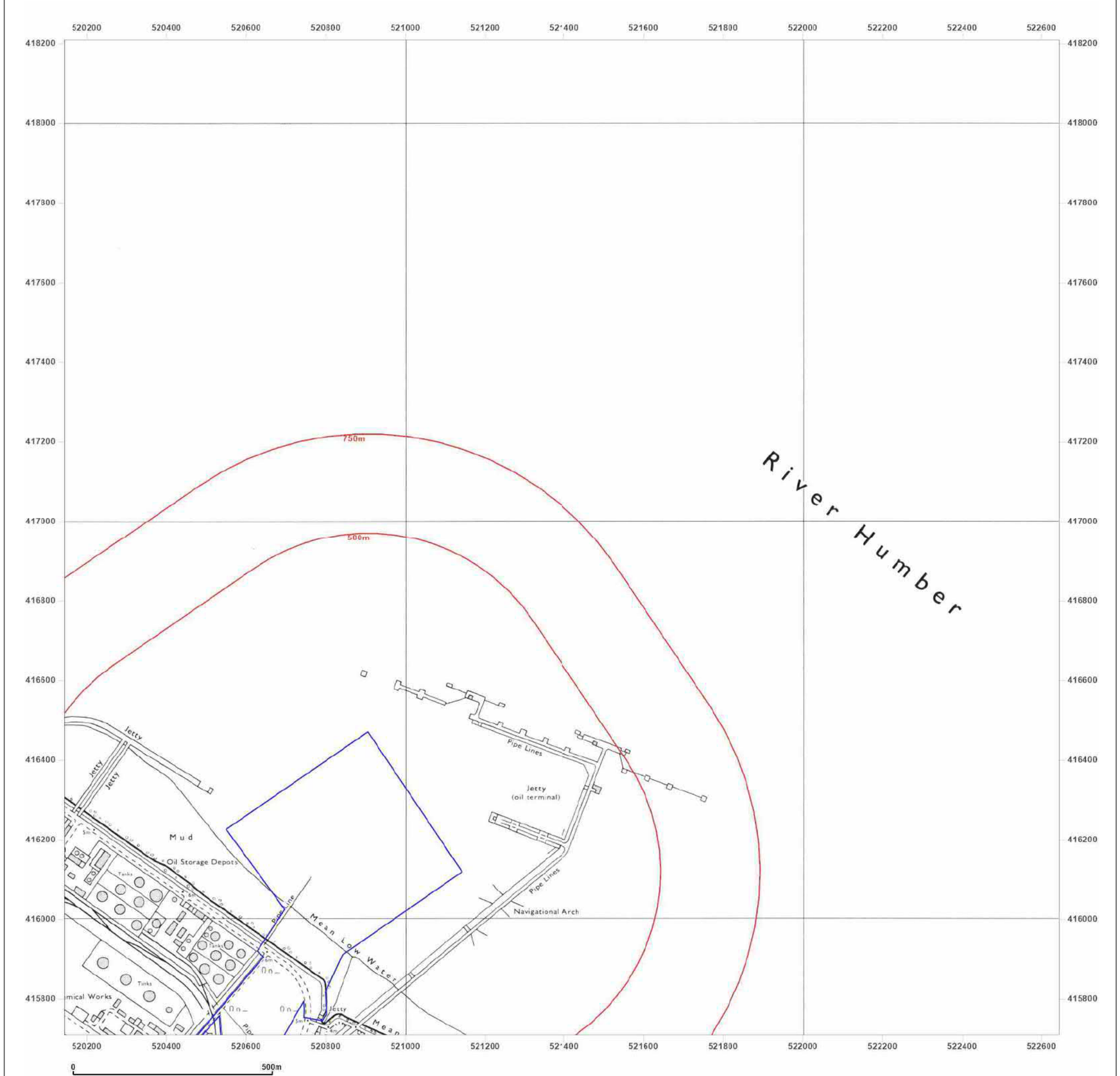
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: National Grid
Map date: 1972
Scale: 1:10,000
Printed at: 1:10,000

N
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Surveyed 1972
Revised 1972
Edition N/A
Copyright N/A
Levelled N/A

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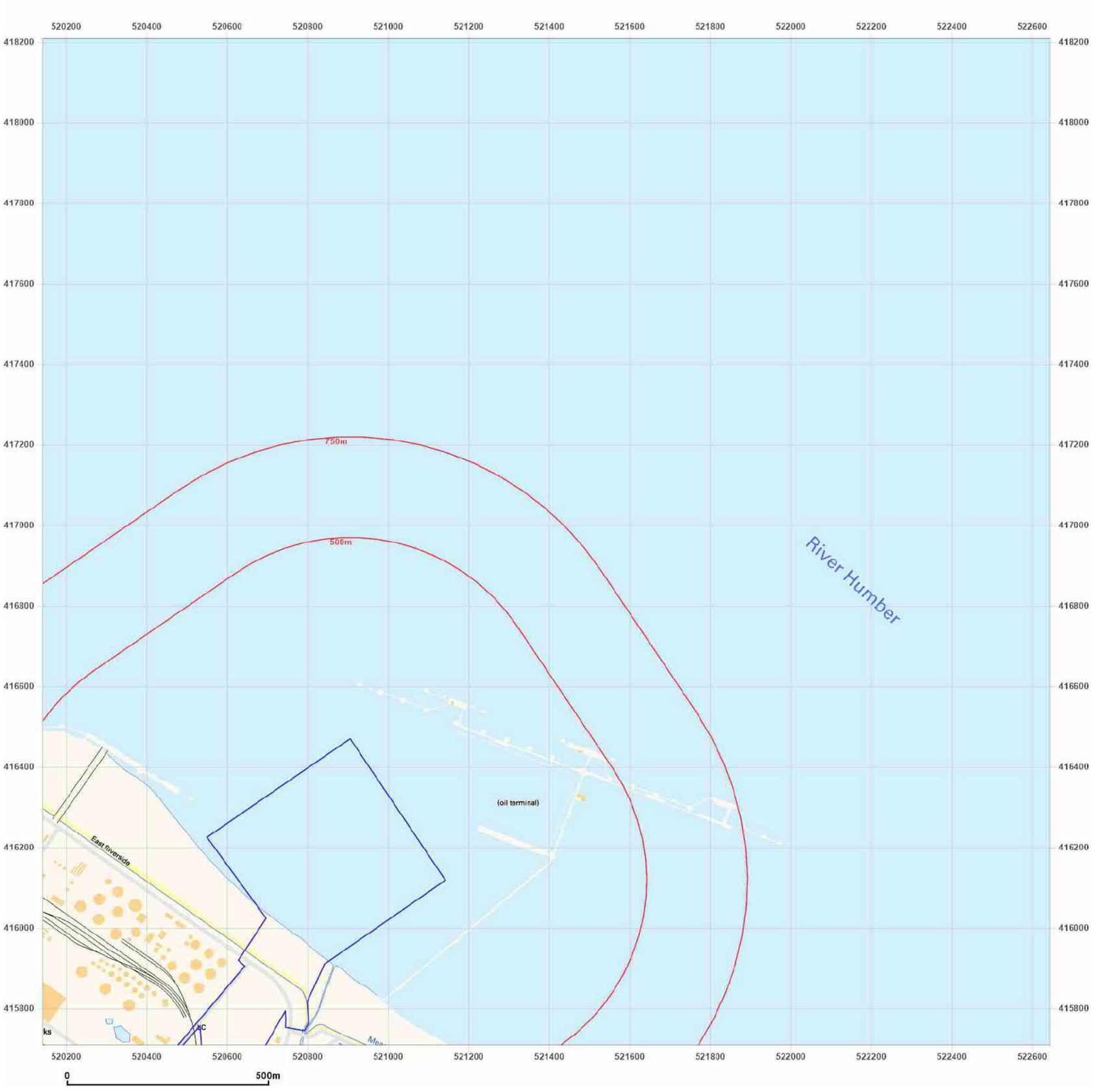
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

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2001

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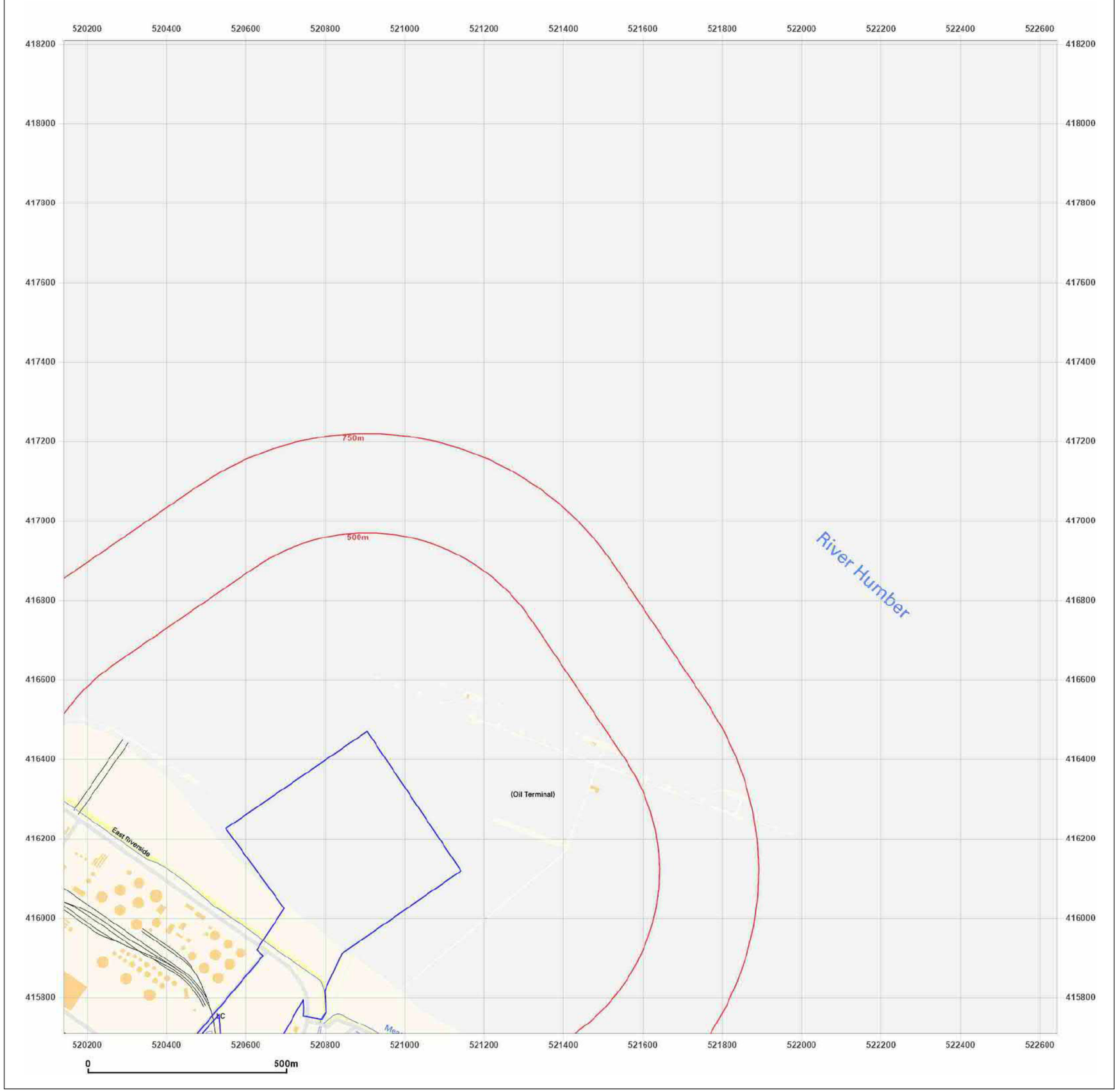
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000

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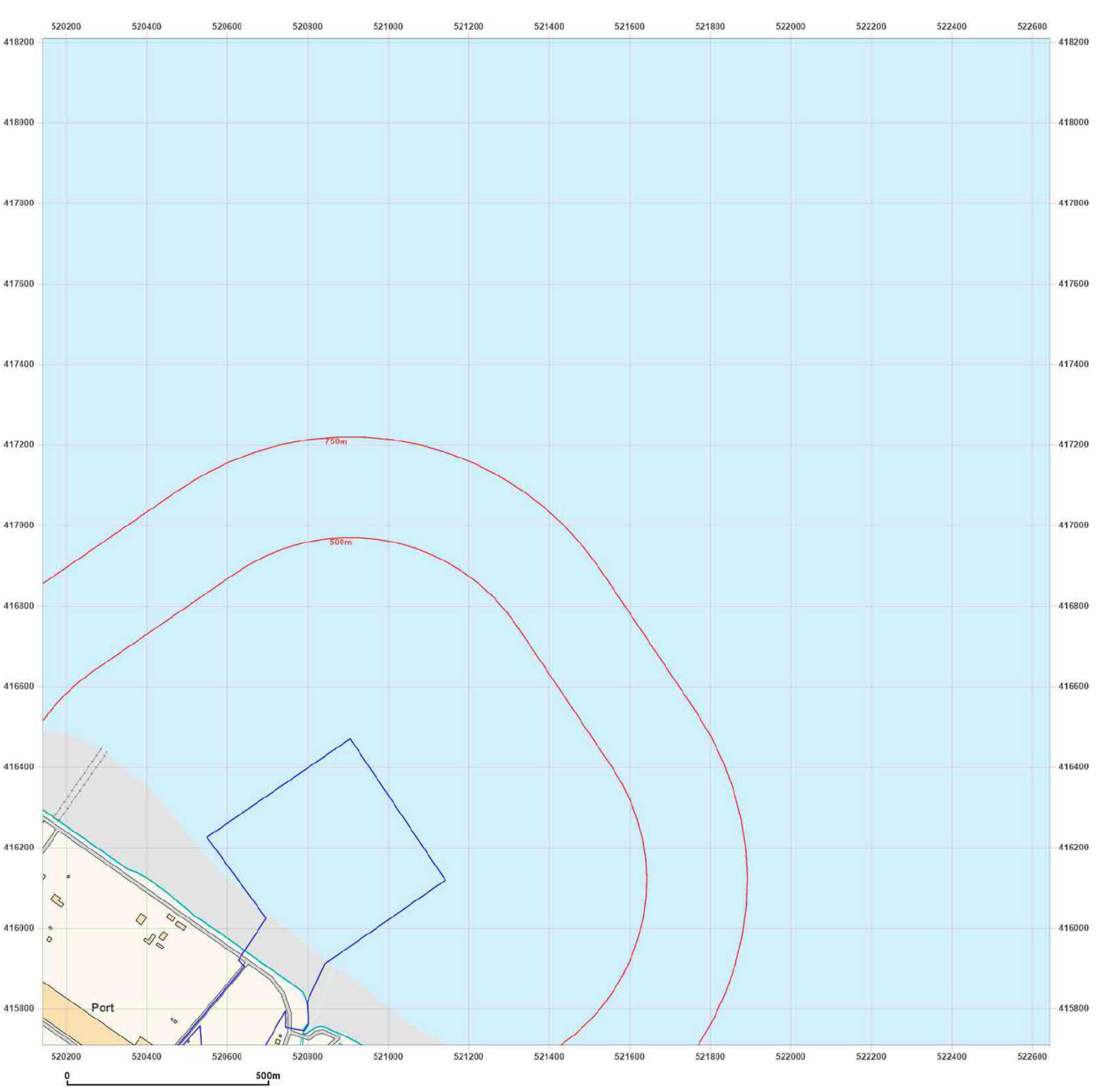
Production date: 08 October 2021

Map legend available at: [redacted]df



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_SS_2_2
Grid Ref: 521393, 416959

Map Name: National Grid
Map date: 2021
Scale: 1:10,000
Printed at: 1:10,000

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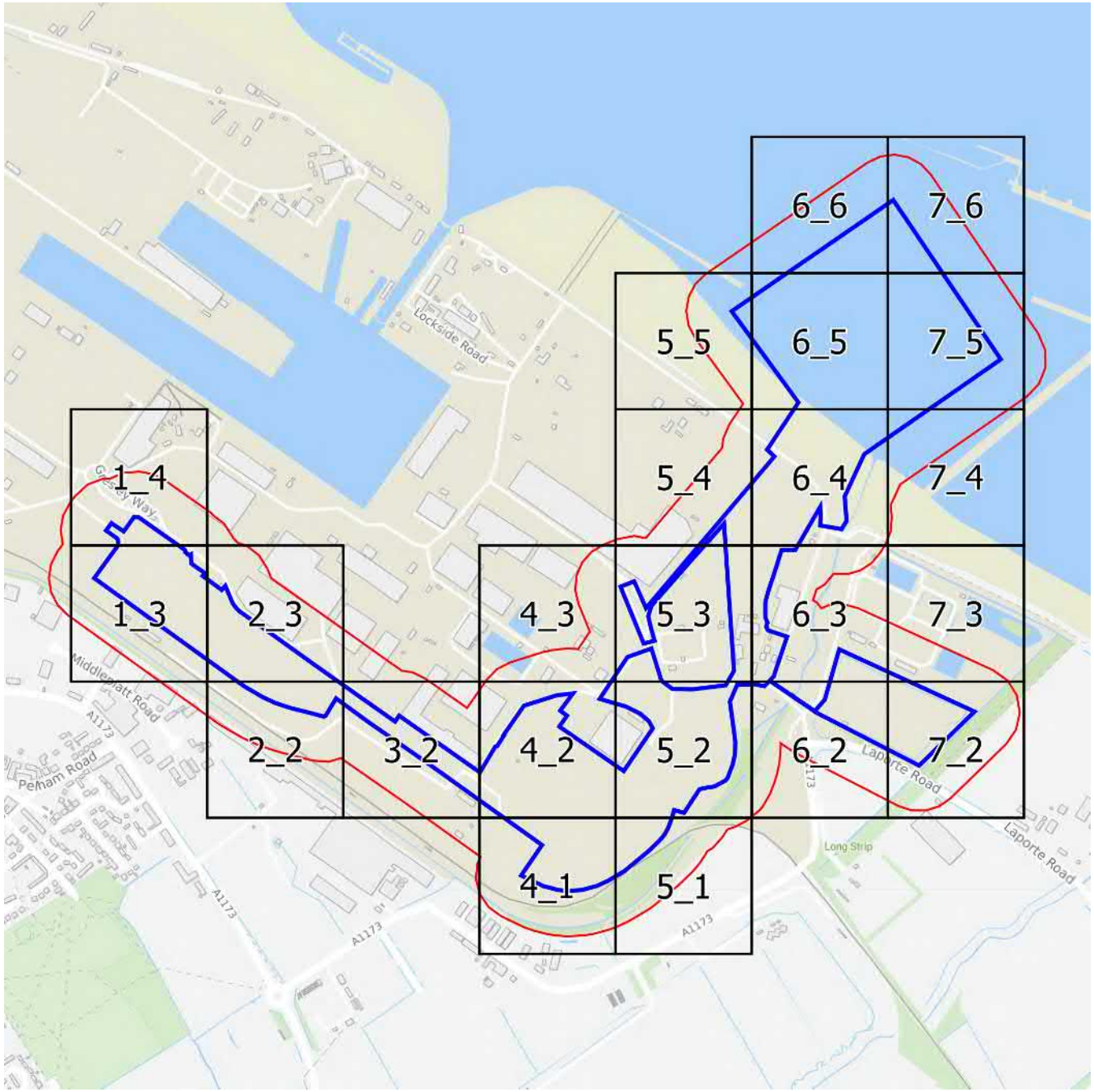
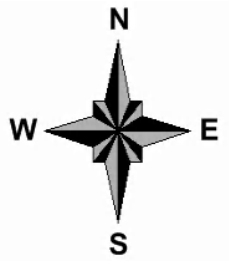
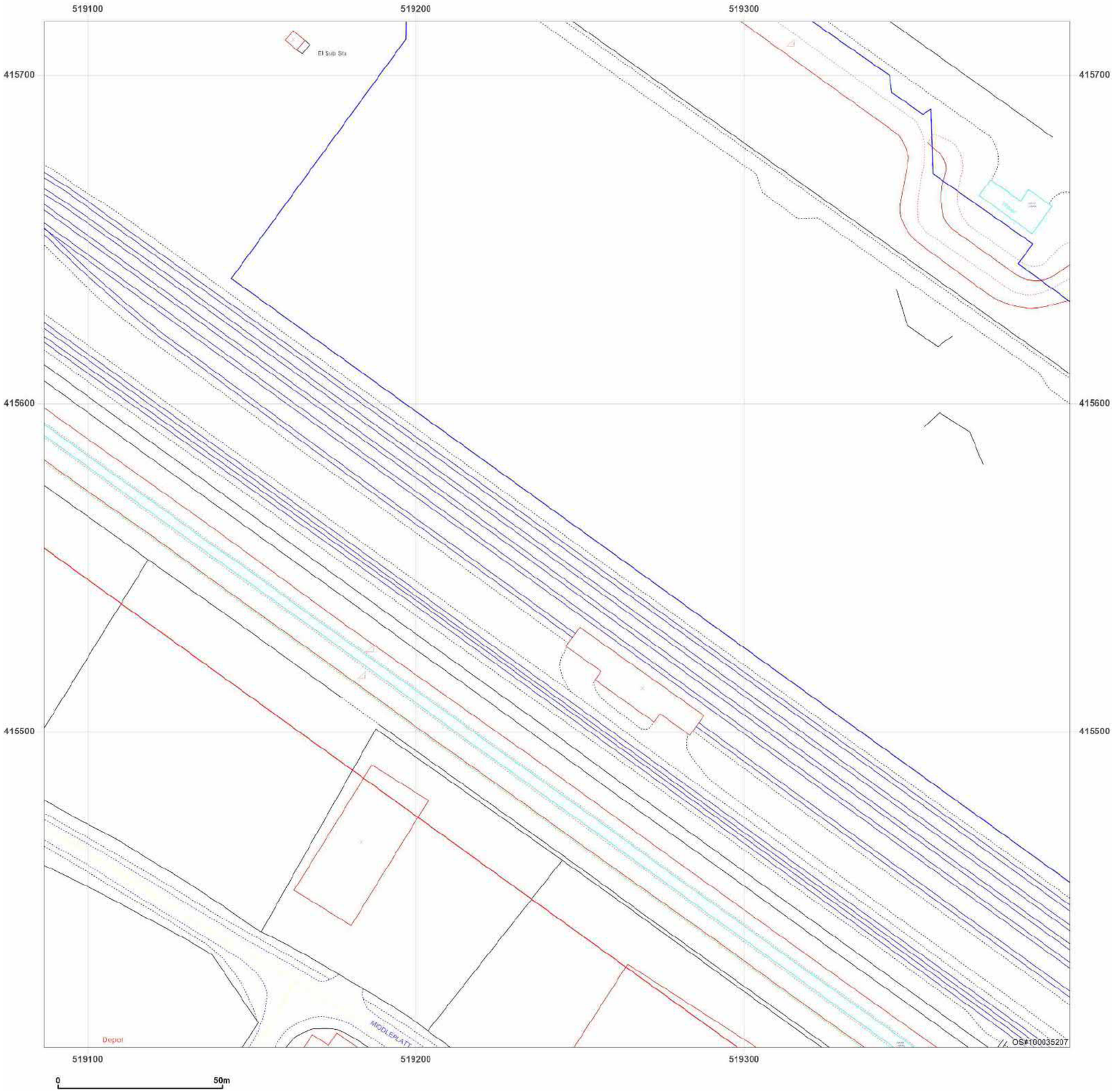
Map legend available at: [redacted]



Landline Scale Grid Index





Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_1_3
Grid Ref: 519243, 415560

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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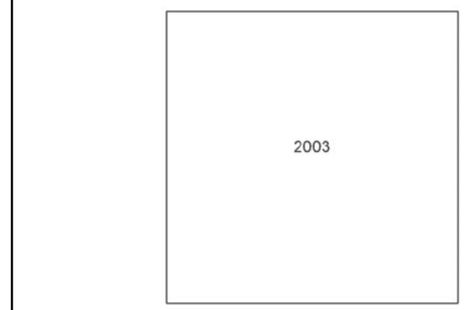

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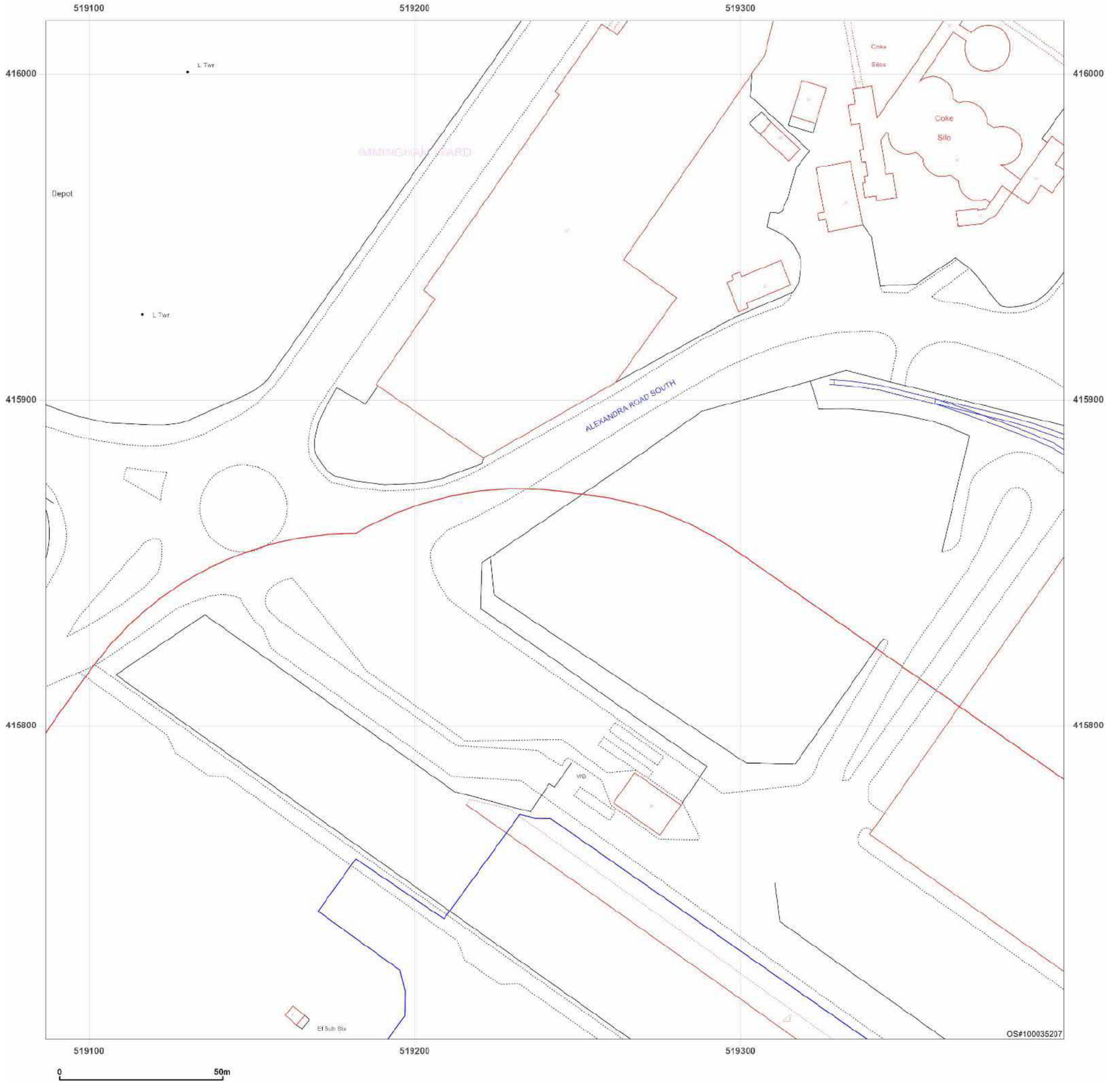
Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_1_4
Grid Ref: 519243, 415860

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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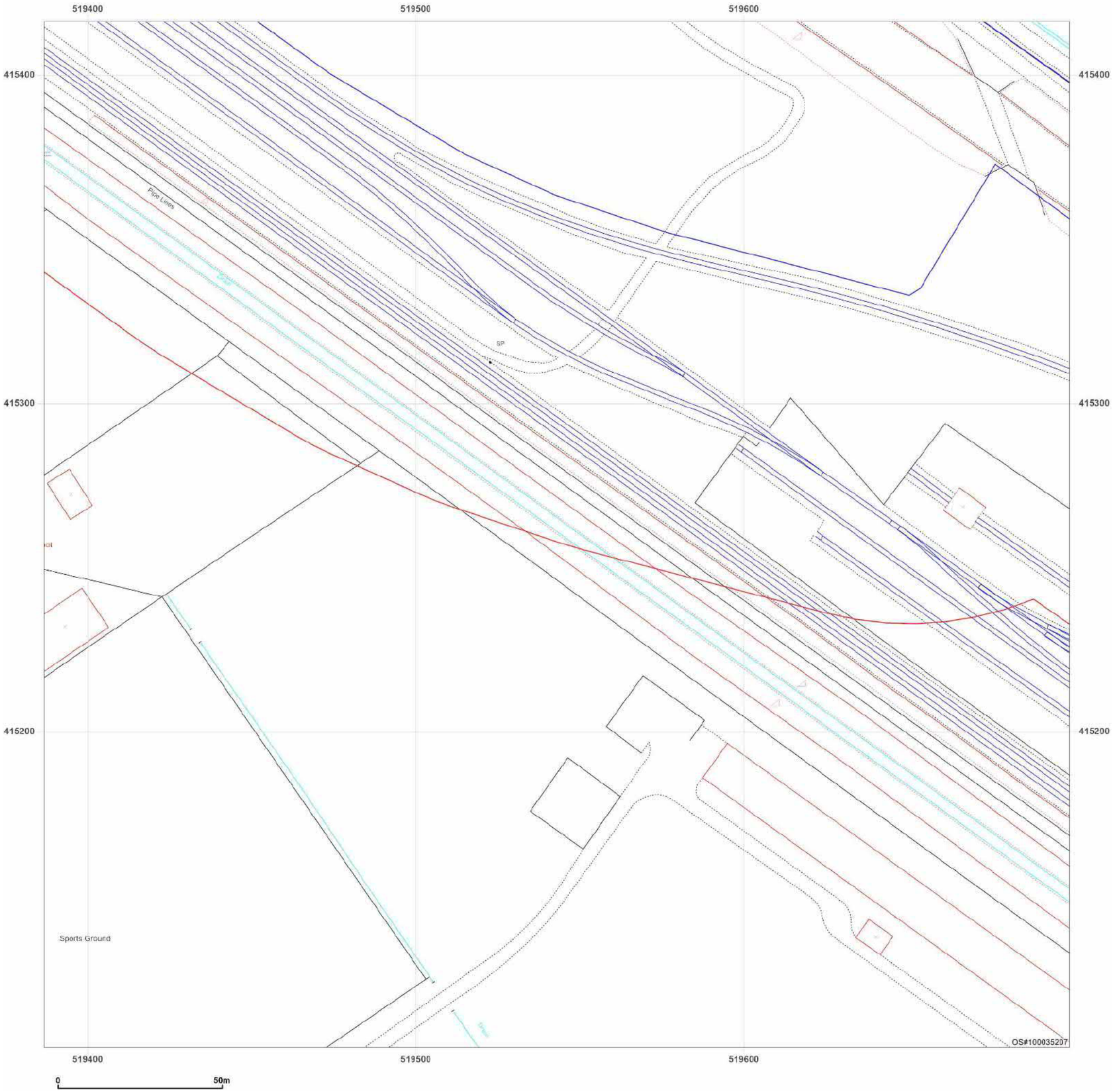
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_2_2
Grid Ref: 519543, 415260

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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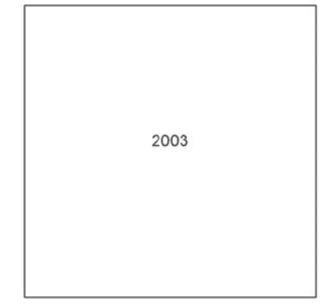

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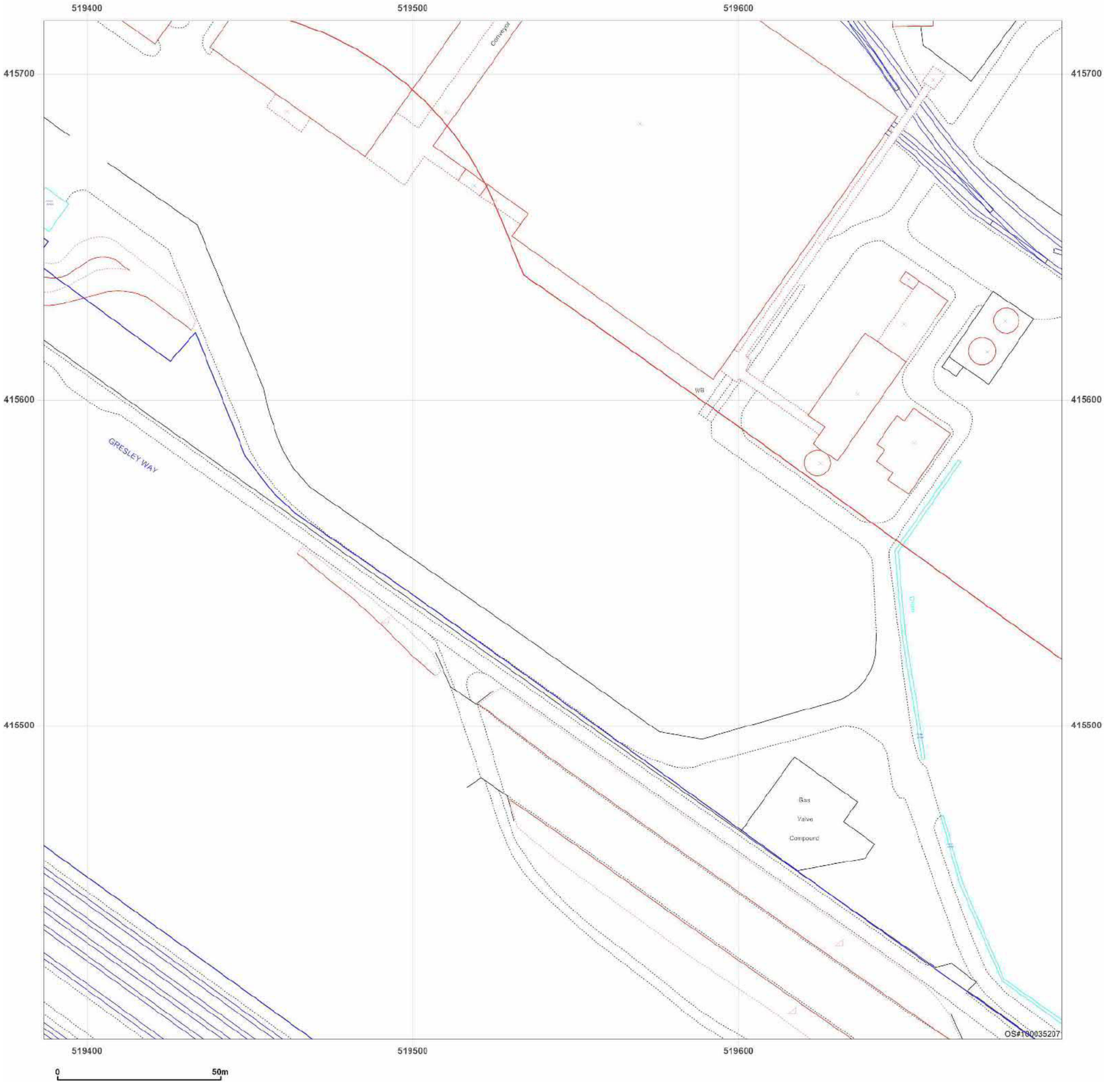
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_2_3
Grid Ref: 519543, 415560

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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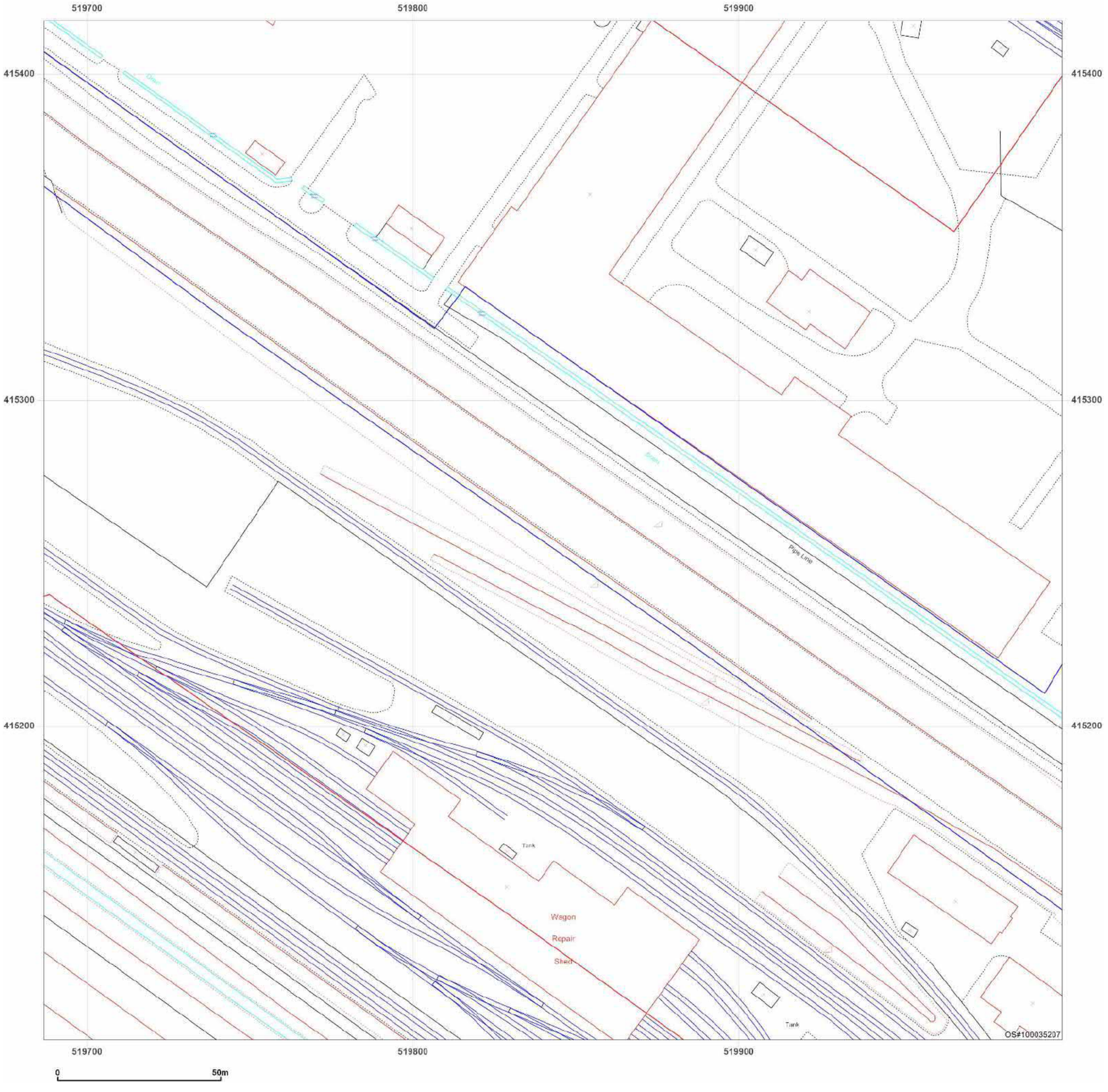
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_3_2
Grid Ref: 519843, 415260

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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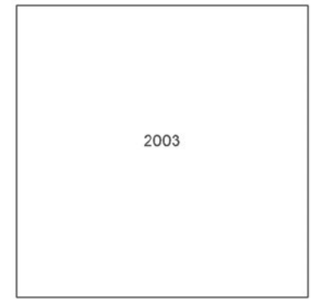

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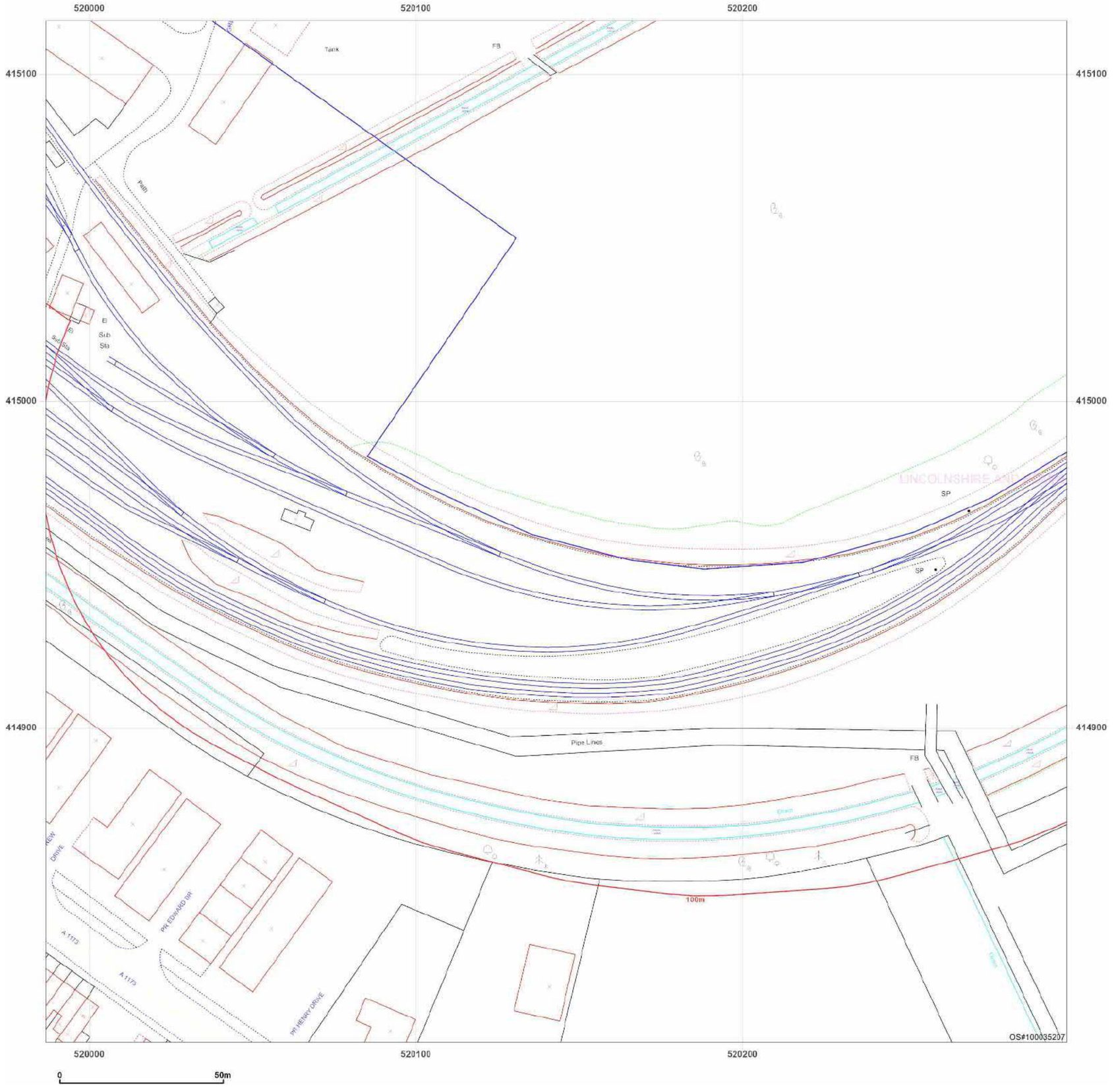
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_4_1
Grid Ref: 520143, 414960

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_4_2
Grid Ref: 520143, 415260

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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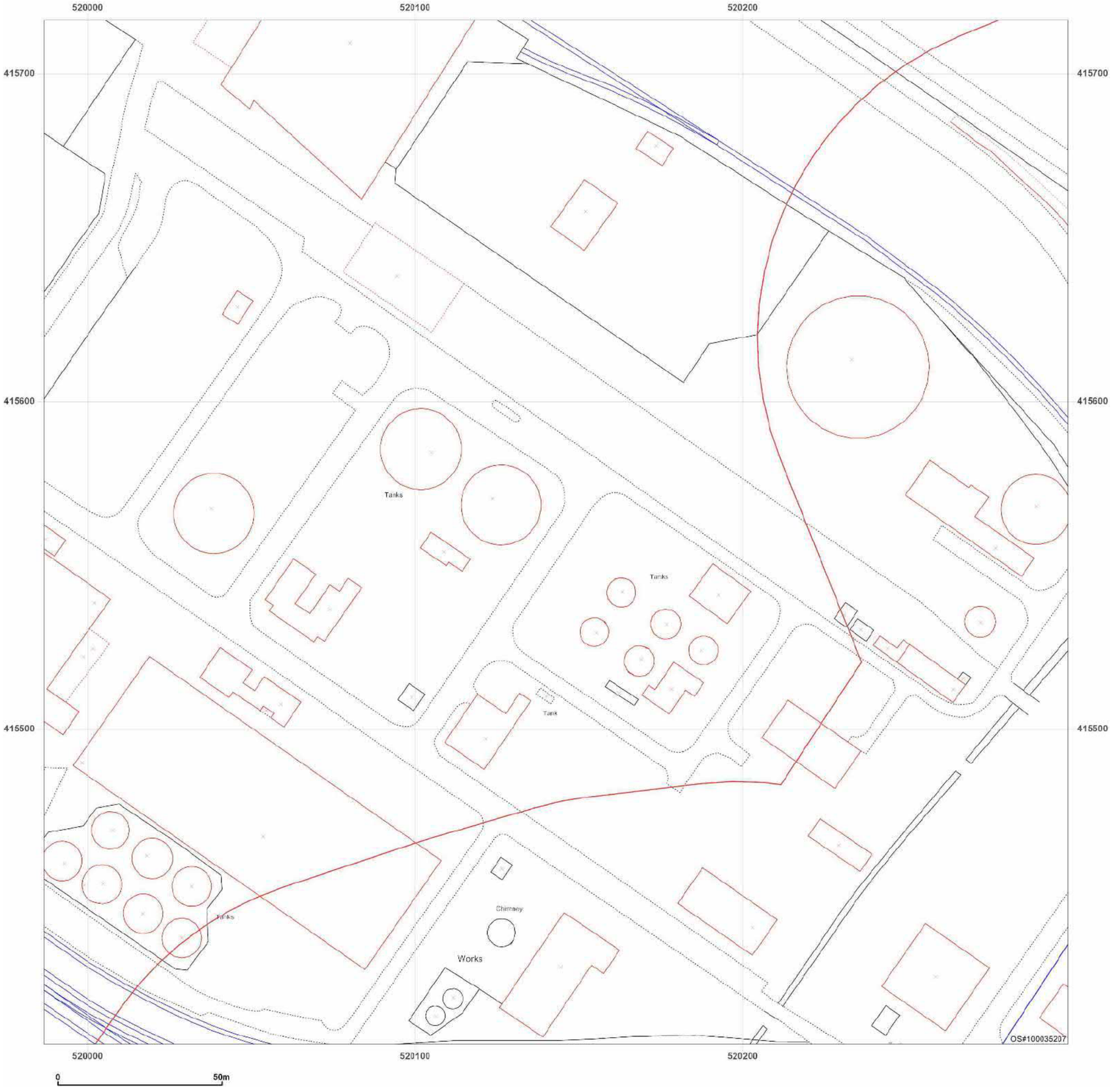
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_4_3
Grid Ref: 520143, 415560

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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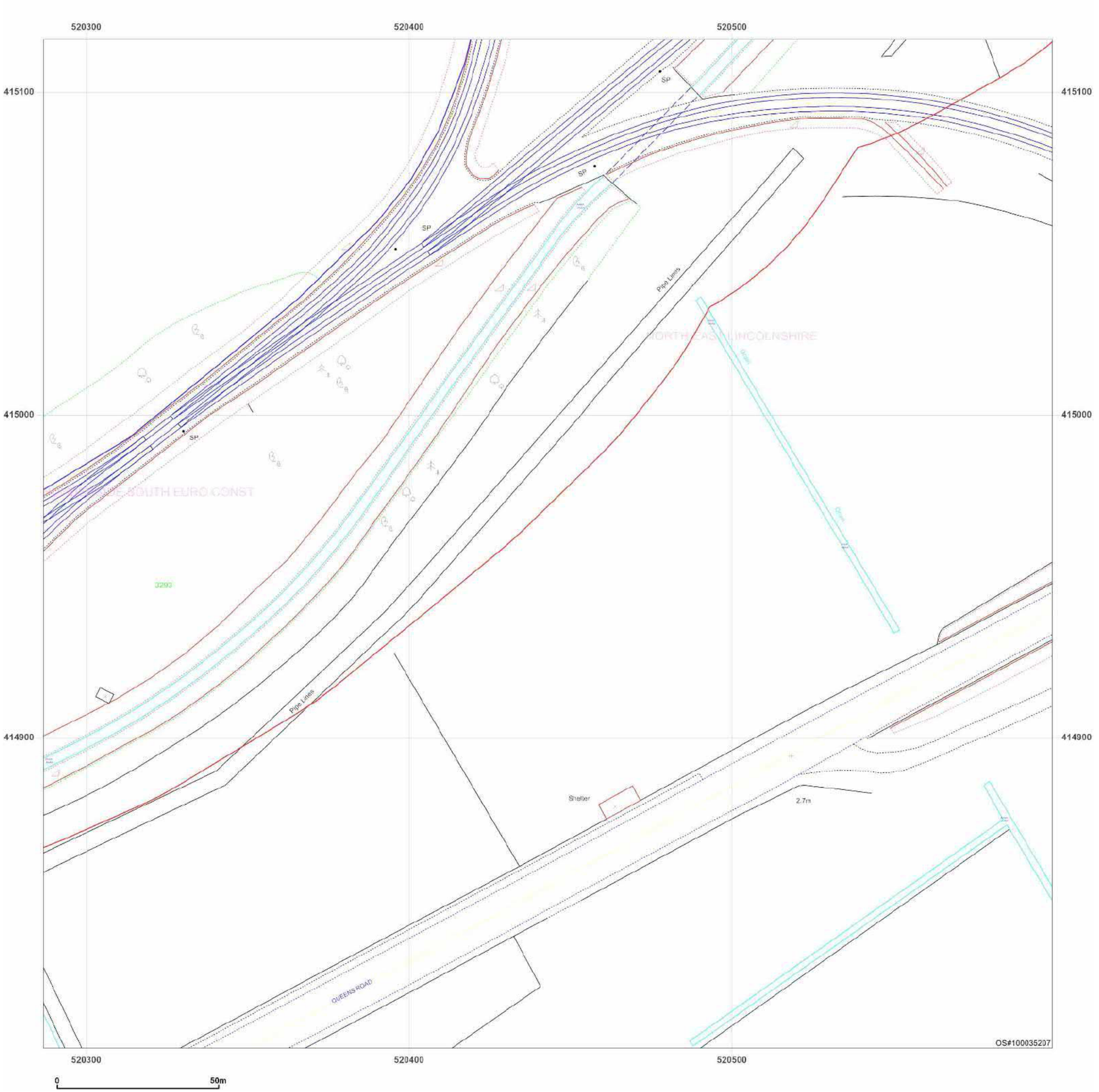
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_5_1
Grid Ref: 520443, 414960

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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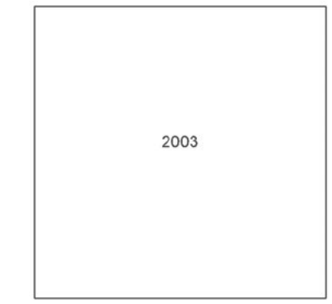

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_5_2
Grid Ref: 520443, 415260

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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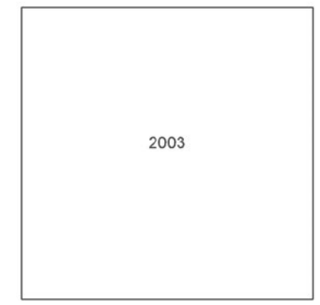

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Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_5_3
Grid Ref: 520443, 415560

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_5_4
Grid Ref: 520443, 415860

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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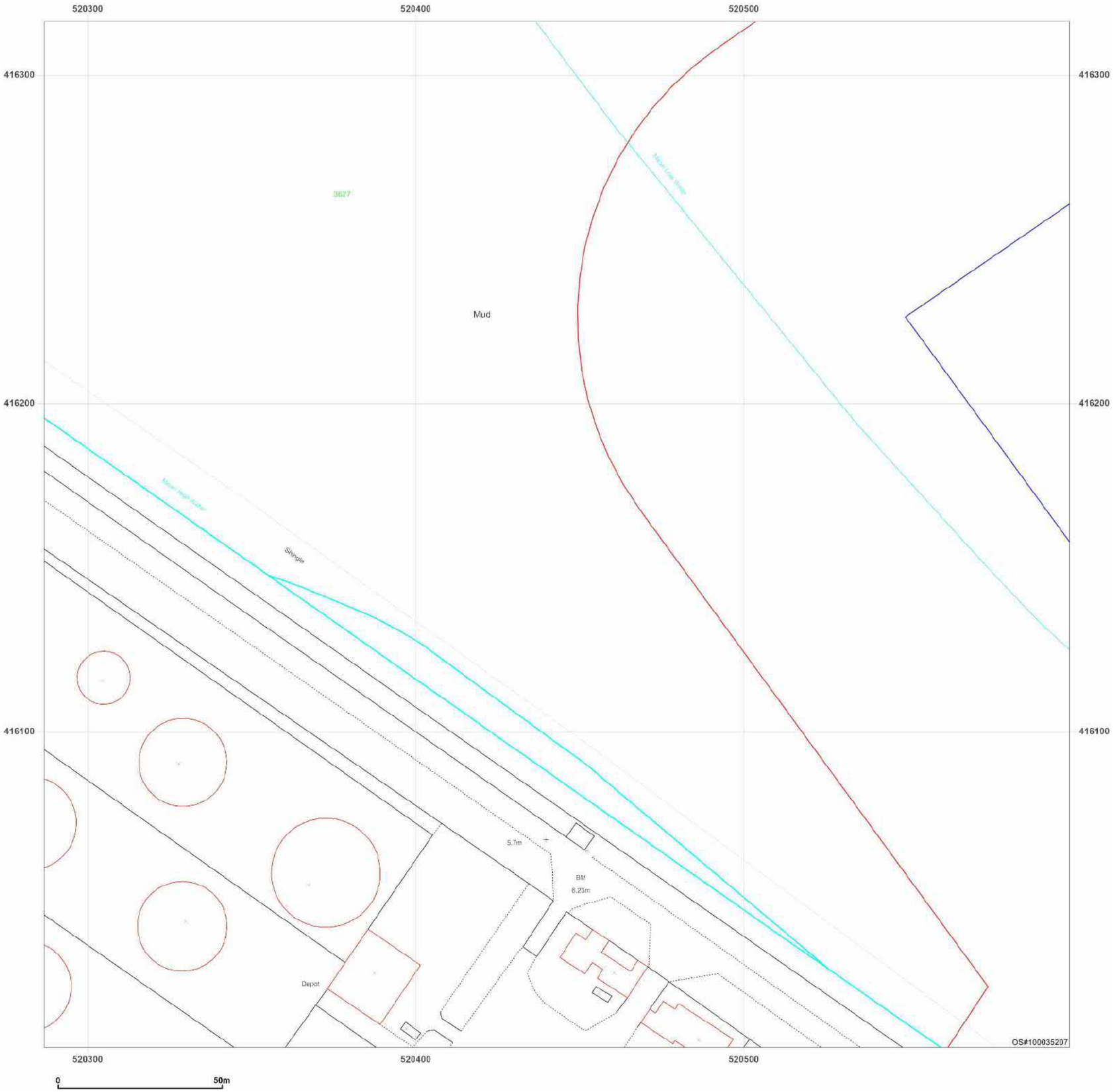
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_5_5
Grid Ref: 520443, 416160

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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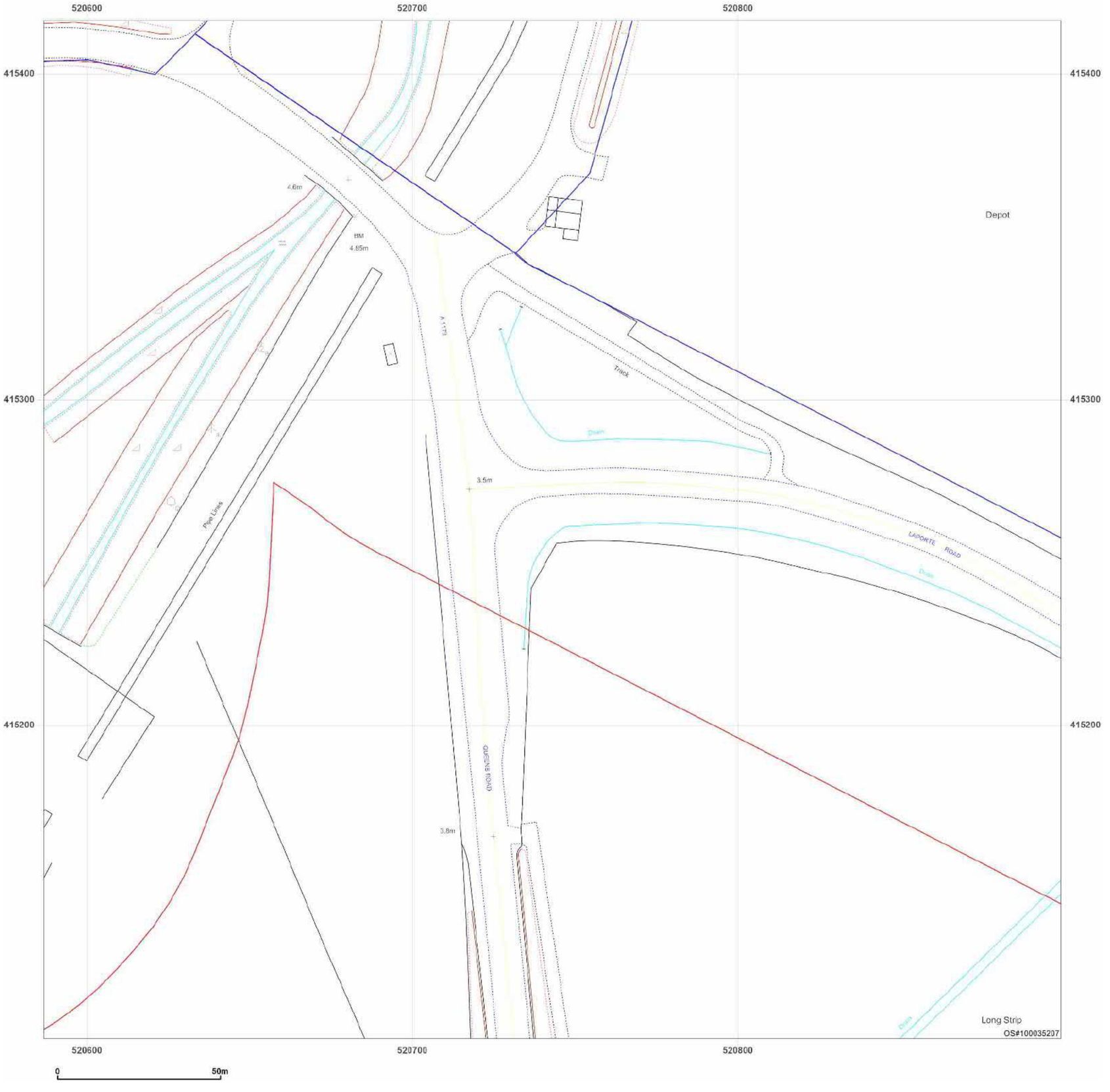
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_6_2
Grid Ref: 520743, 415260

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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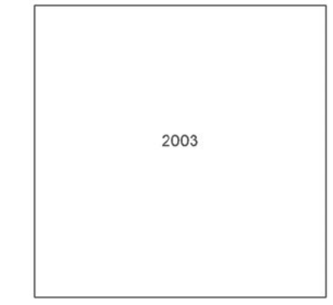

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_6_3
Grid Ref: 520743, 415560

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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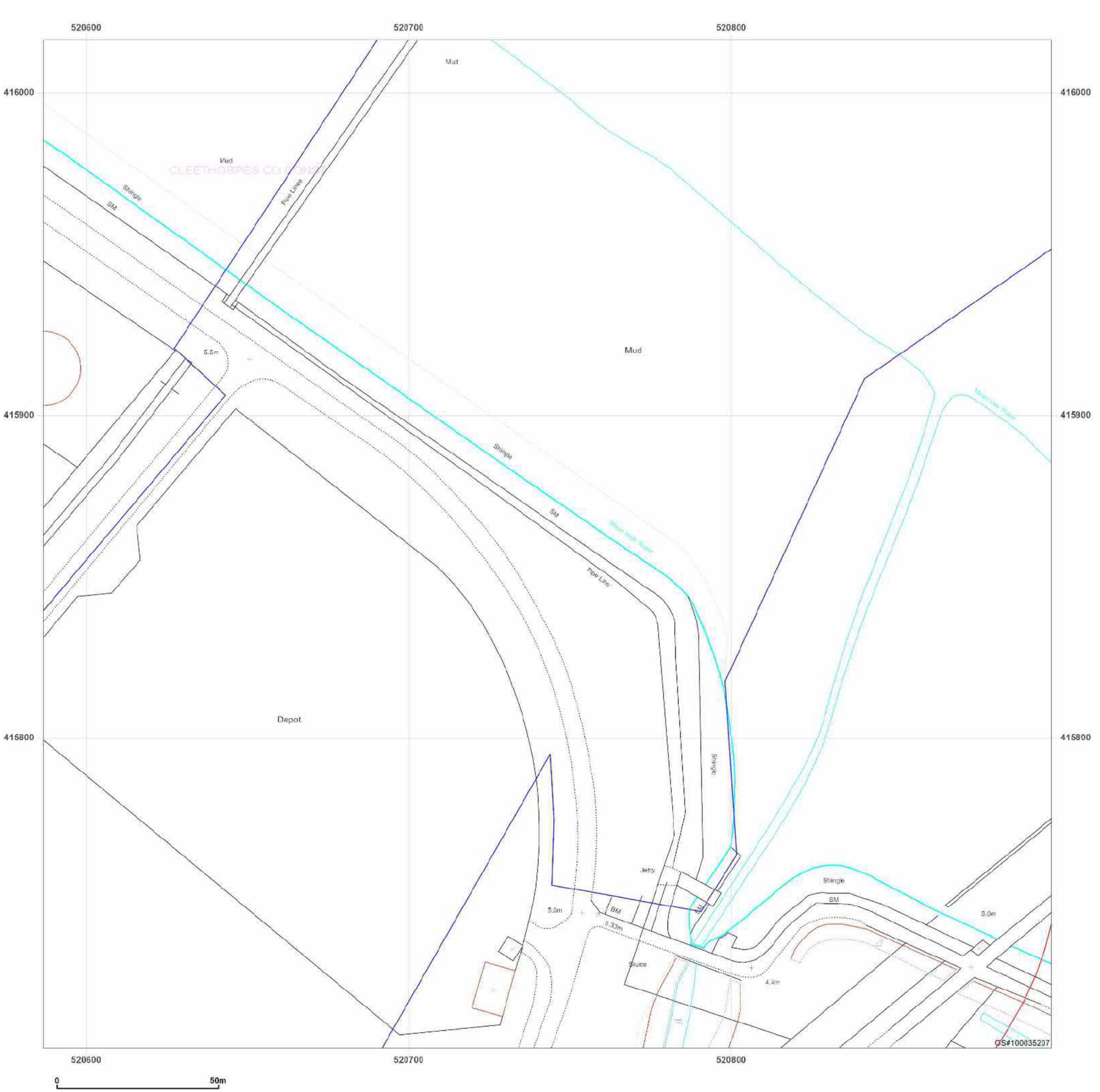
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_6_4
Grid Ref: 520743, 415860

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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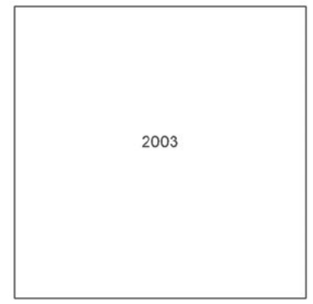

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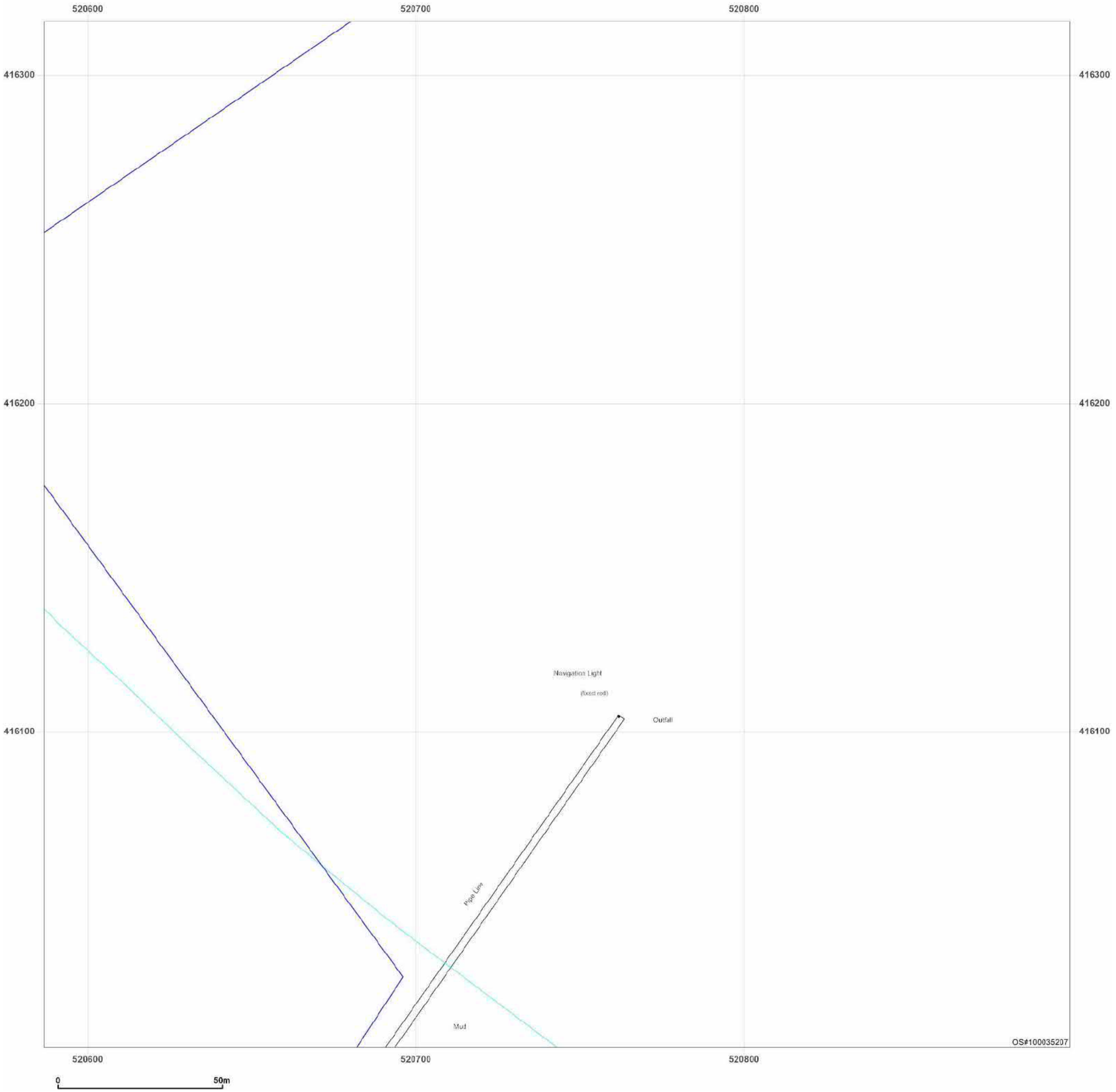
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_6_5
Grid Ref: 520743, 416160

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
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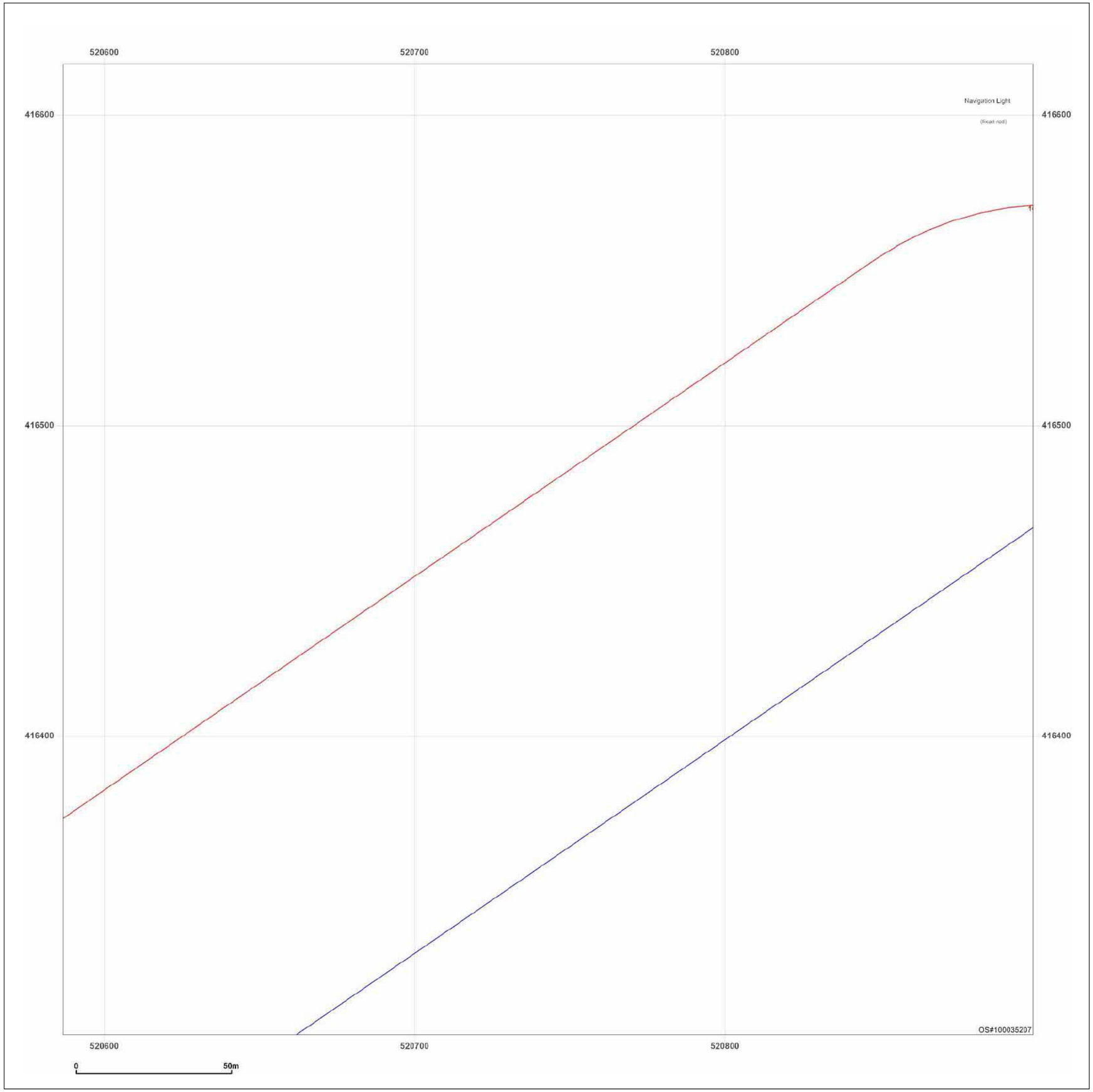
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_6_6
Grid Ref: 520743, 416460

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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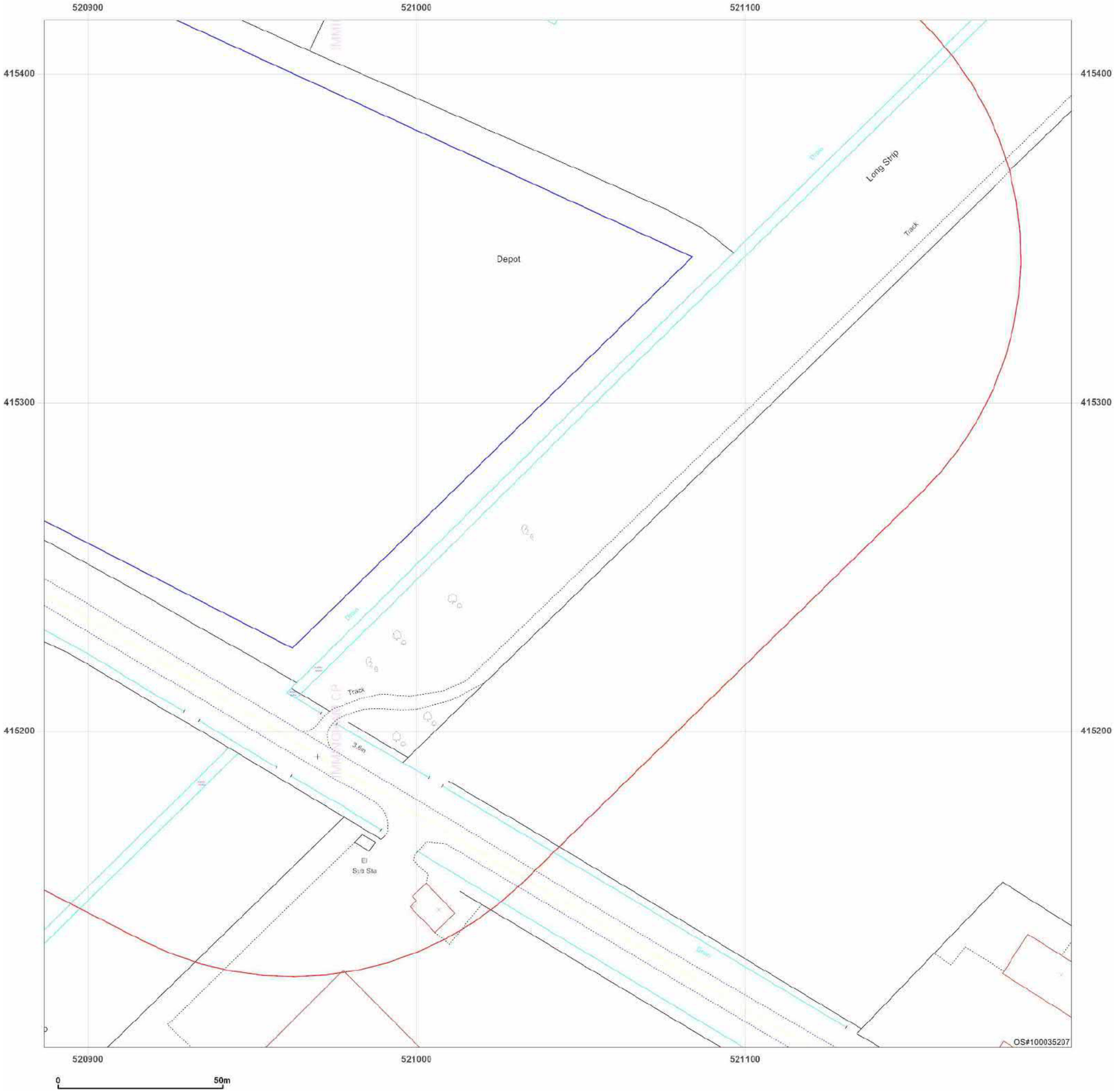
Production date: 08 October 2021

Map legend available at: [redacted]



Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_7_2
Grid Ref: 521043, 415260

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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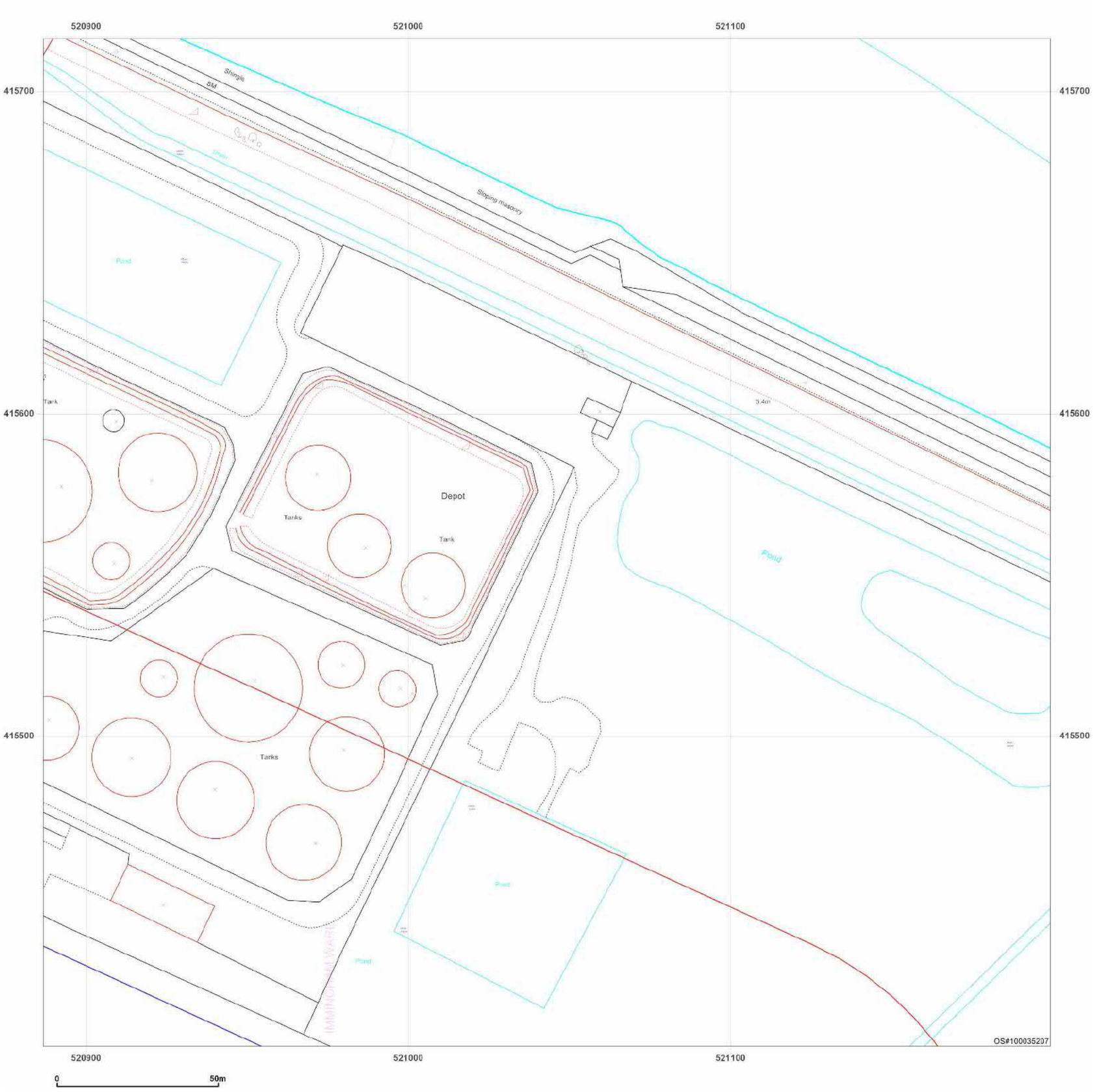
Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_7_3
Grid Ref: 521043, 415560

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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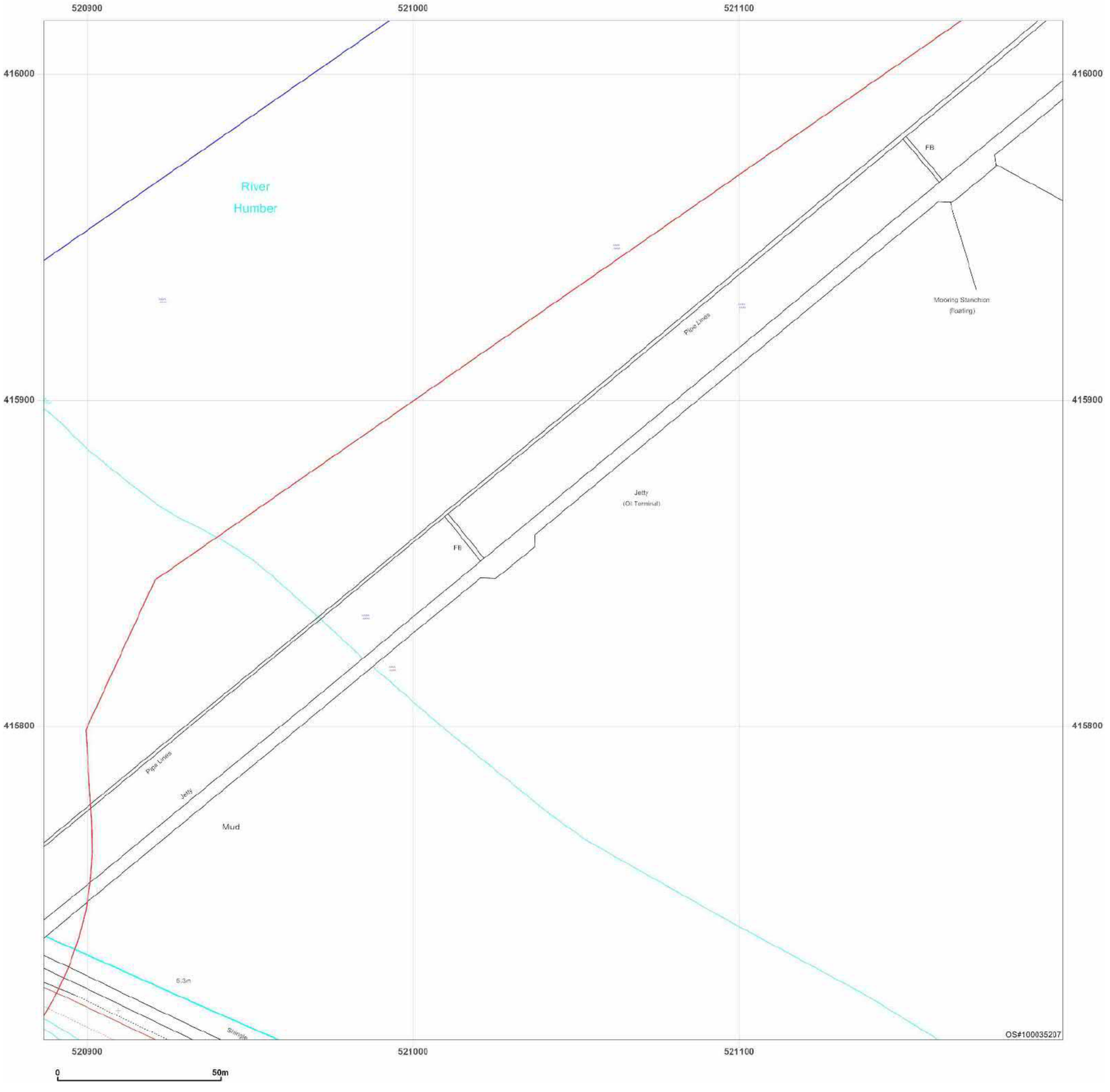
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_7_4
Grid Ref: 521043, 415860

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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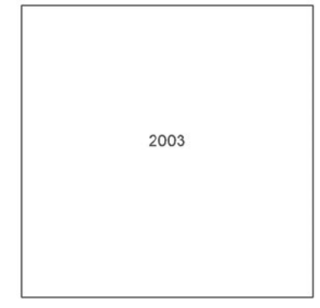

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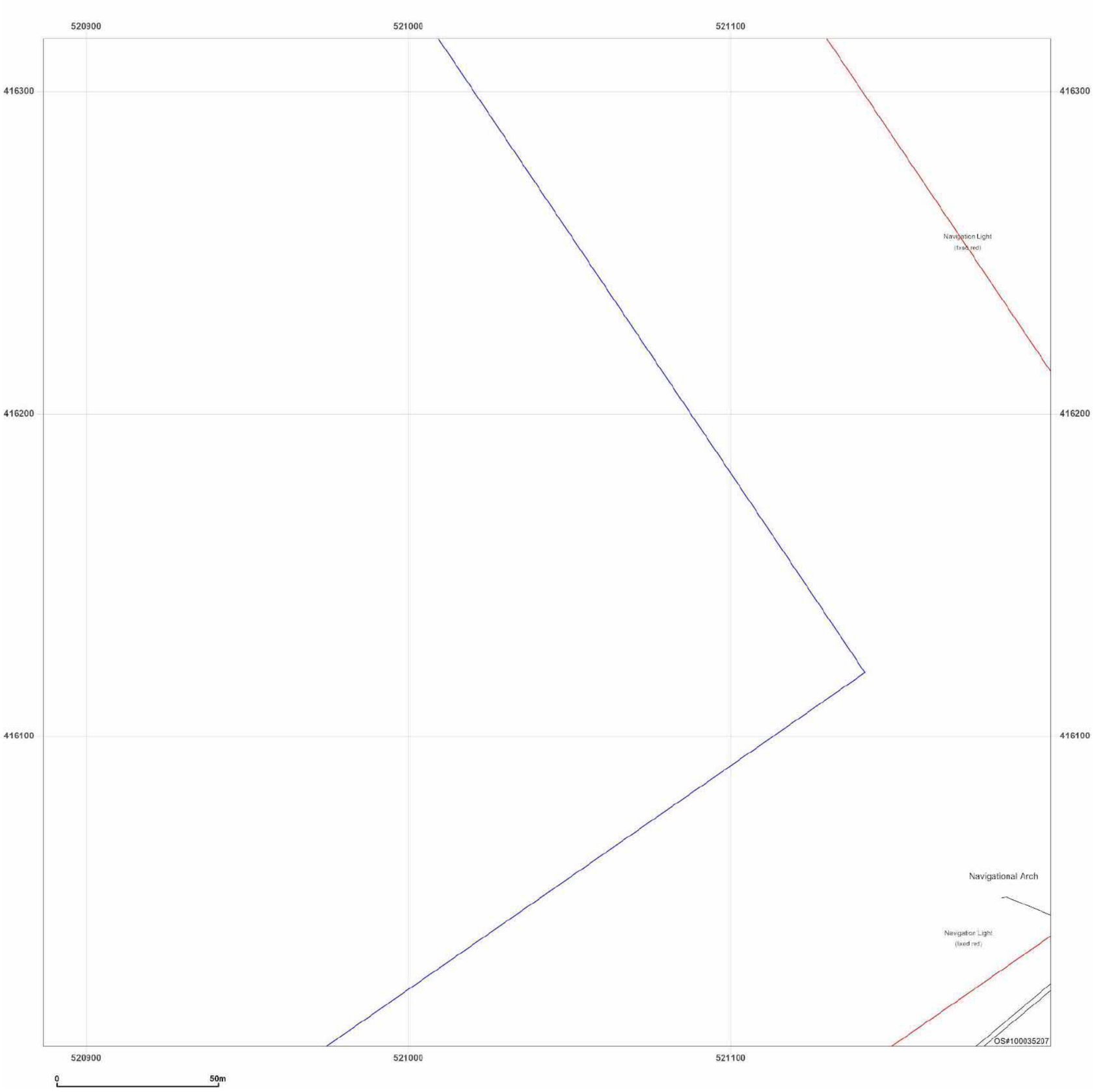
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_7_5
Grid Ref: 521043, 416160

Map Name: LandLine
Map date: 2003
Scale: 1:1,250
Printed at: 1:1,250

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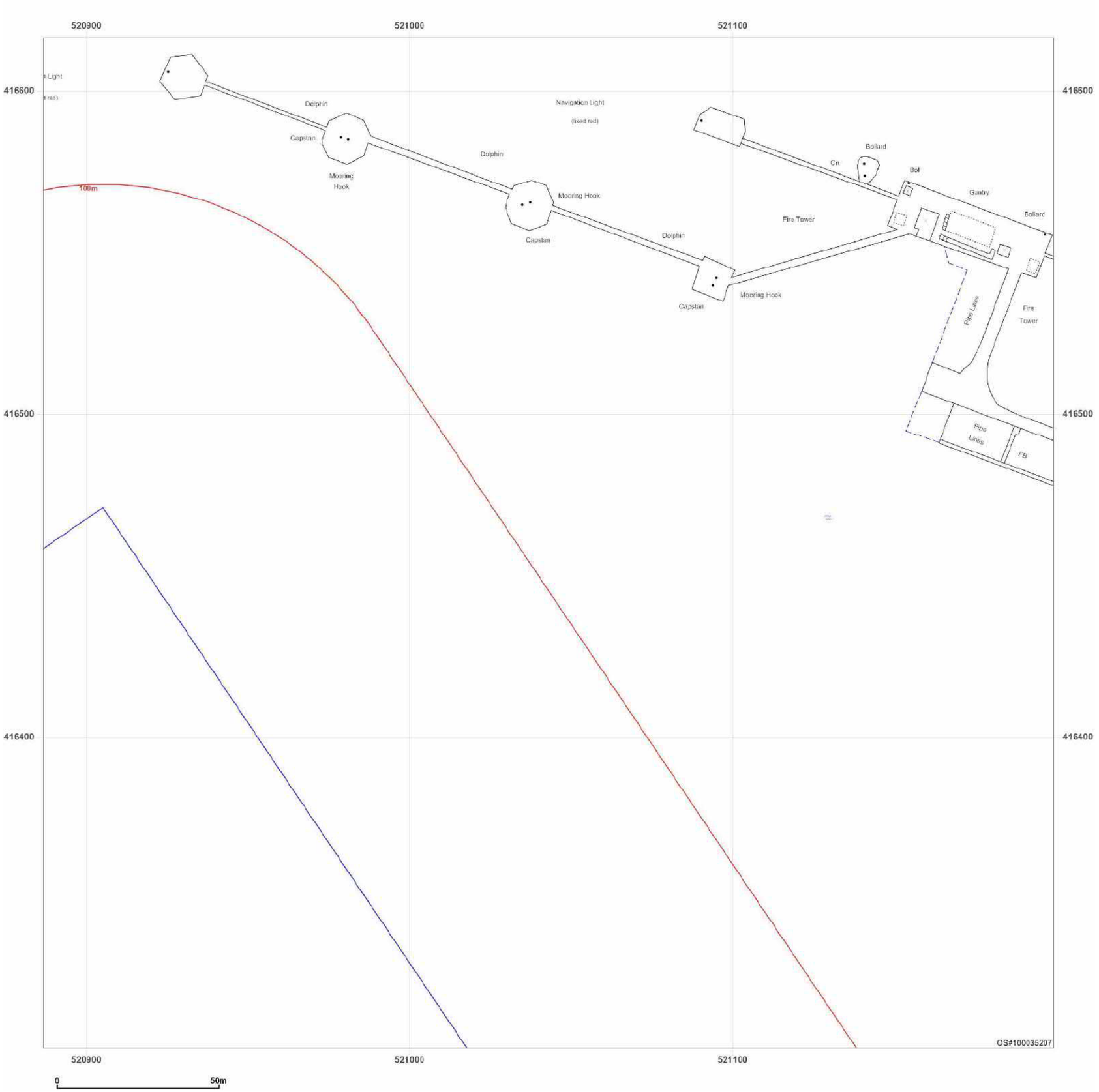
Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_Landline_7_6
Grid Ref: 521043, 416460

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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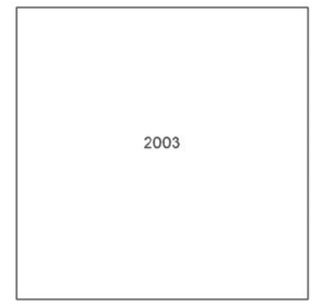

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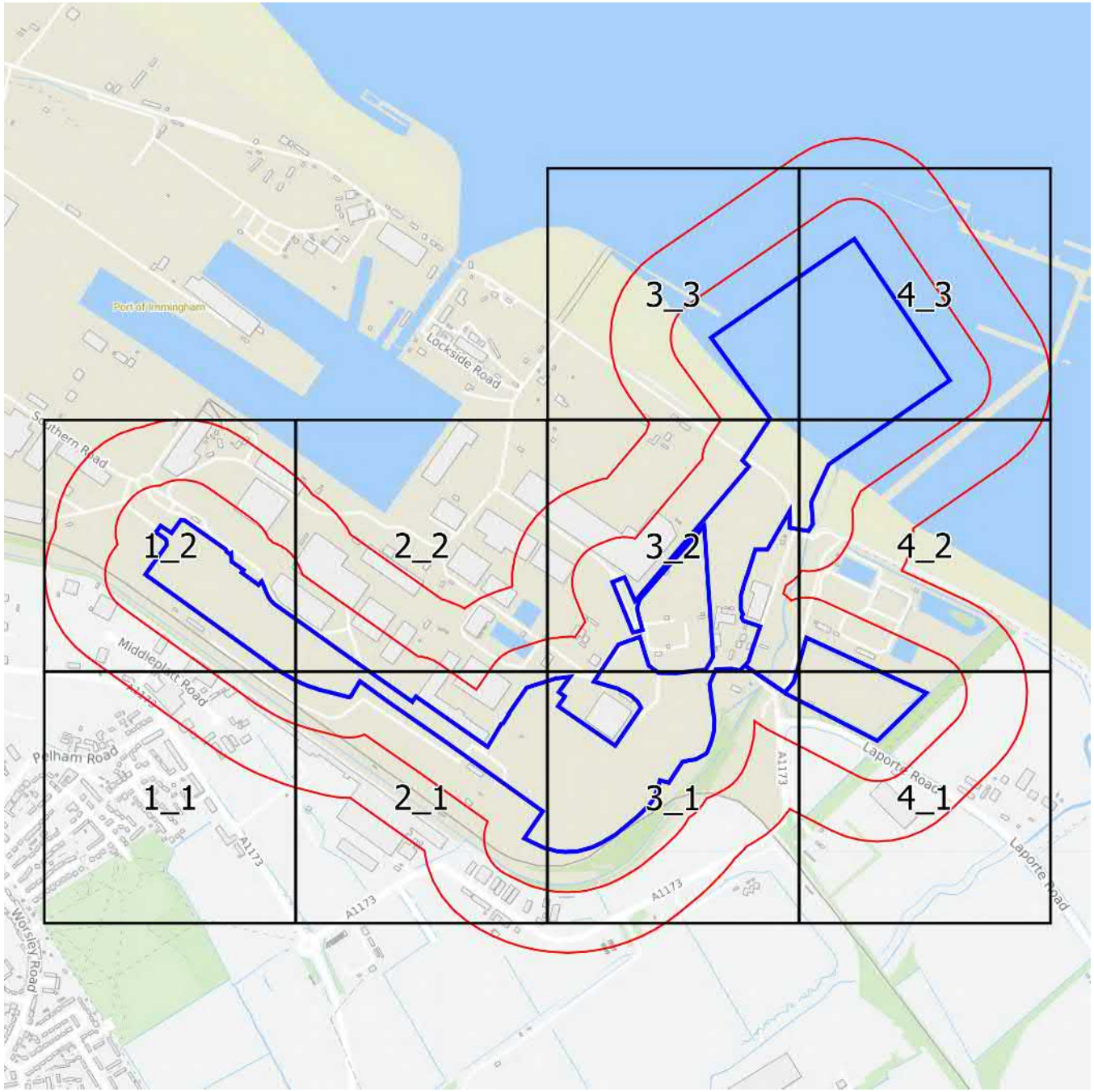
Map legend available at: [redacted]



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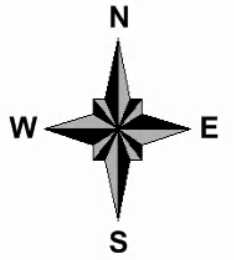

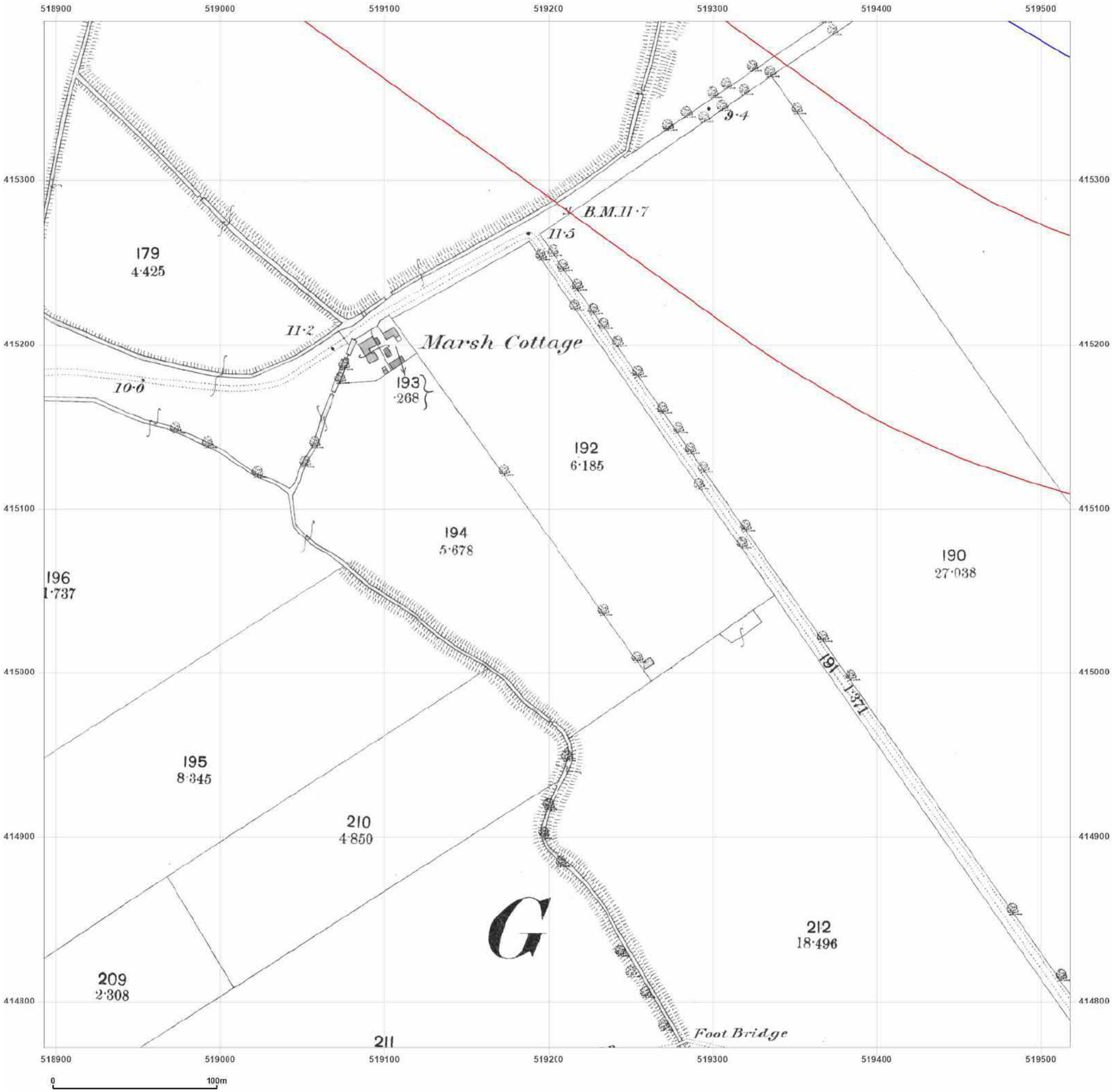

Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: County Series
Map date: **1888**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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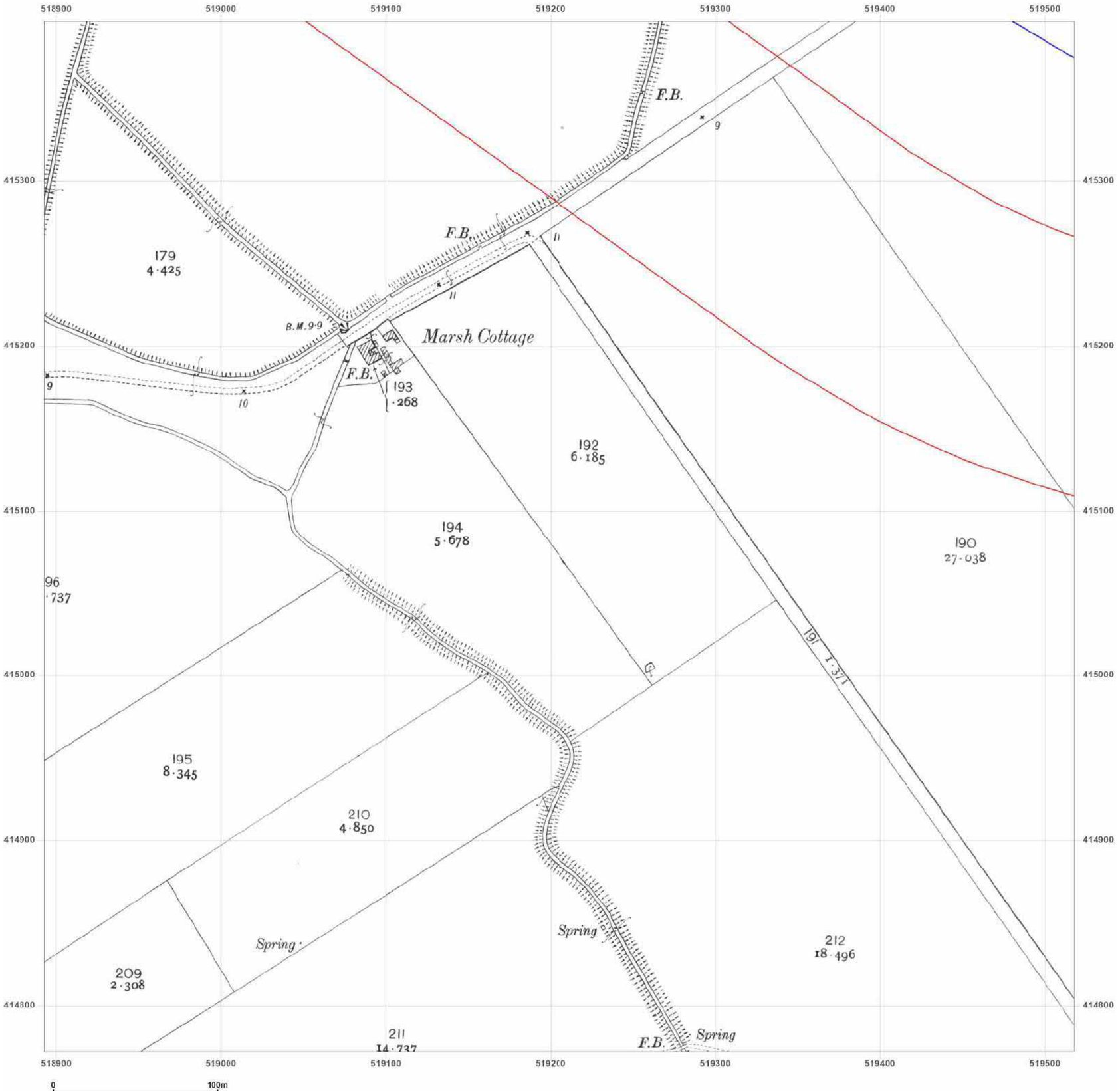
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: County Series
Map date: **1907**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

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Map legend available at:



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Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 08 October 2021

Map legend available at: [redacted]



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Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid

Map date: **1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1951

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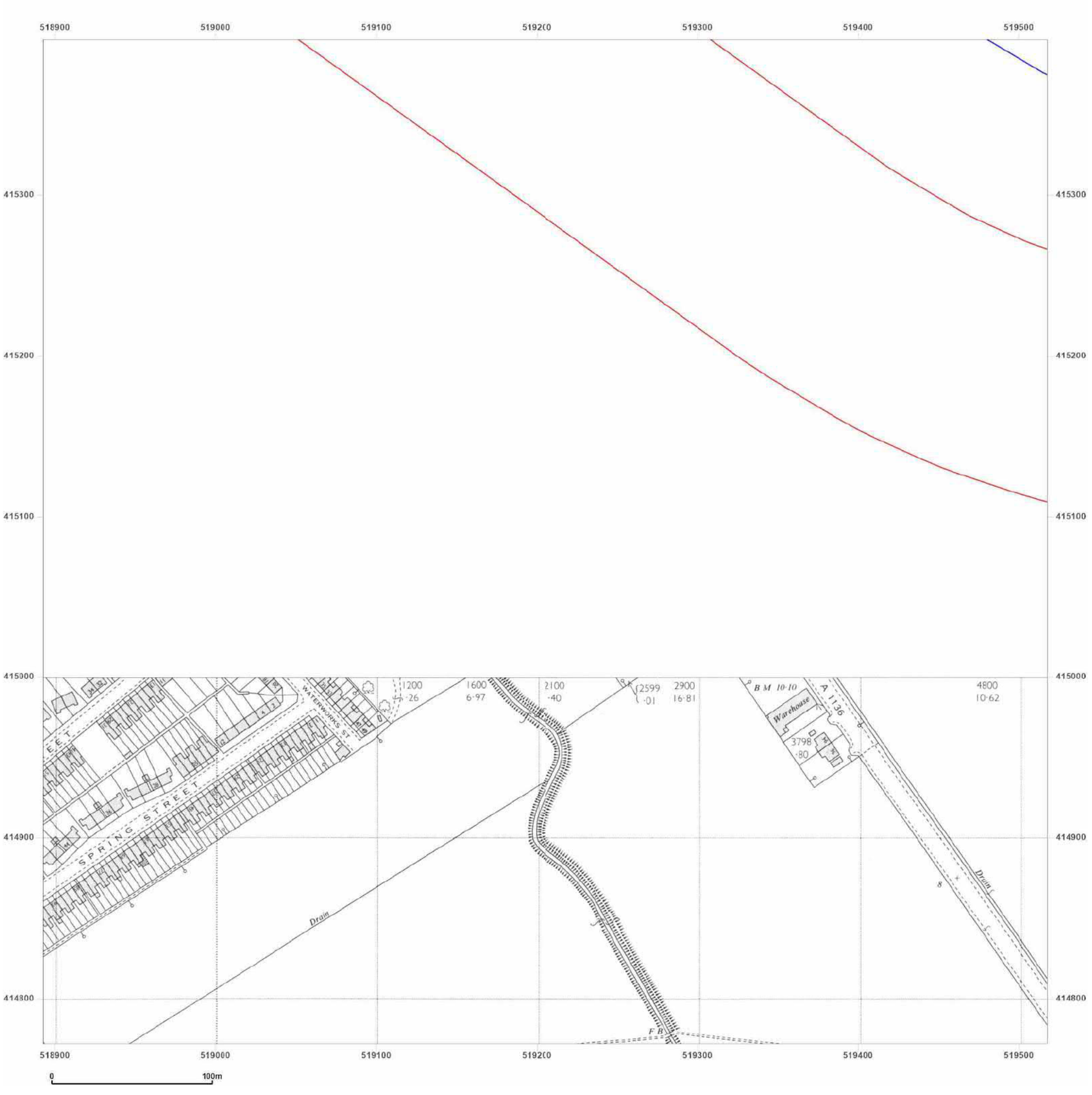
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid
Map date: **1966**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
Levelled 1959

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Production date: 08 October 2021

Map legend available at: [redacted]



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Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid

Map date: **1969-1972**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1972
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 08 October 2021

Map legend available at: [redacted]



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Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid

Map date: **1969-1973**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1969
Revised 1969
Edition N/A
Copyright 1969
Levelled 1969

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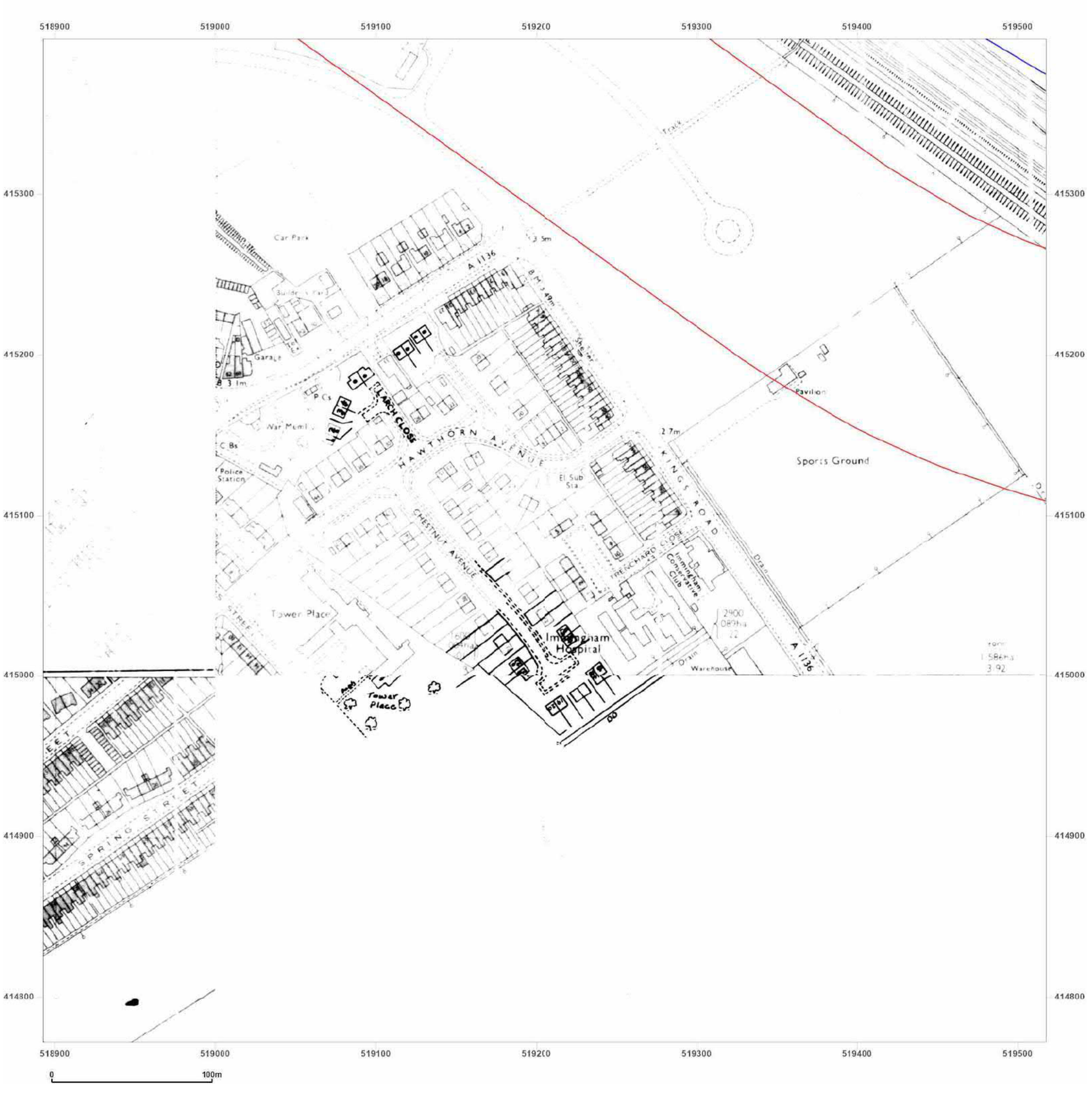
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid
Map date: **1975-1978**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

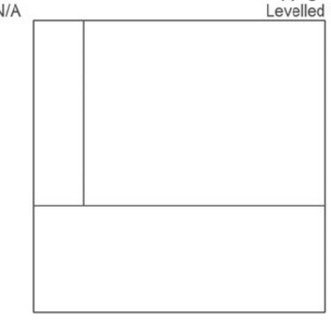
Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid
Map date: **1977-1982**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1969
Revised 1982
Edition N/A
Copyright 1982
Levelled 1969



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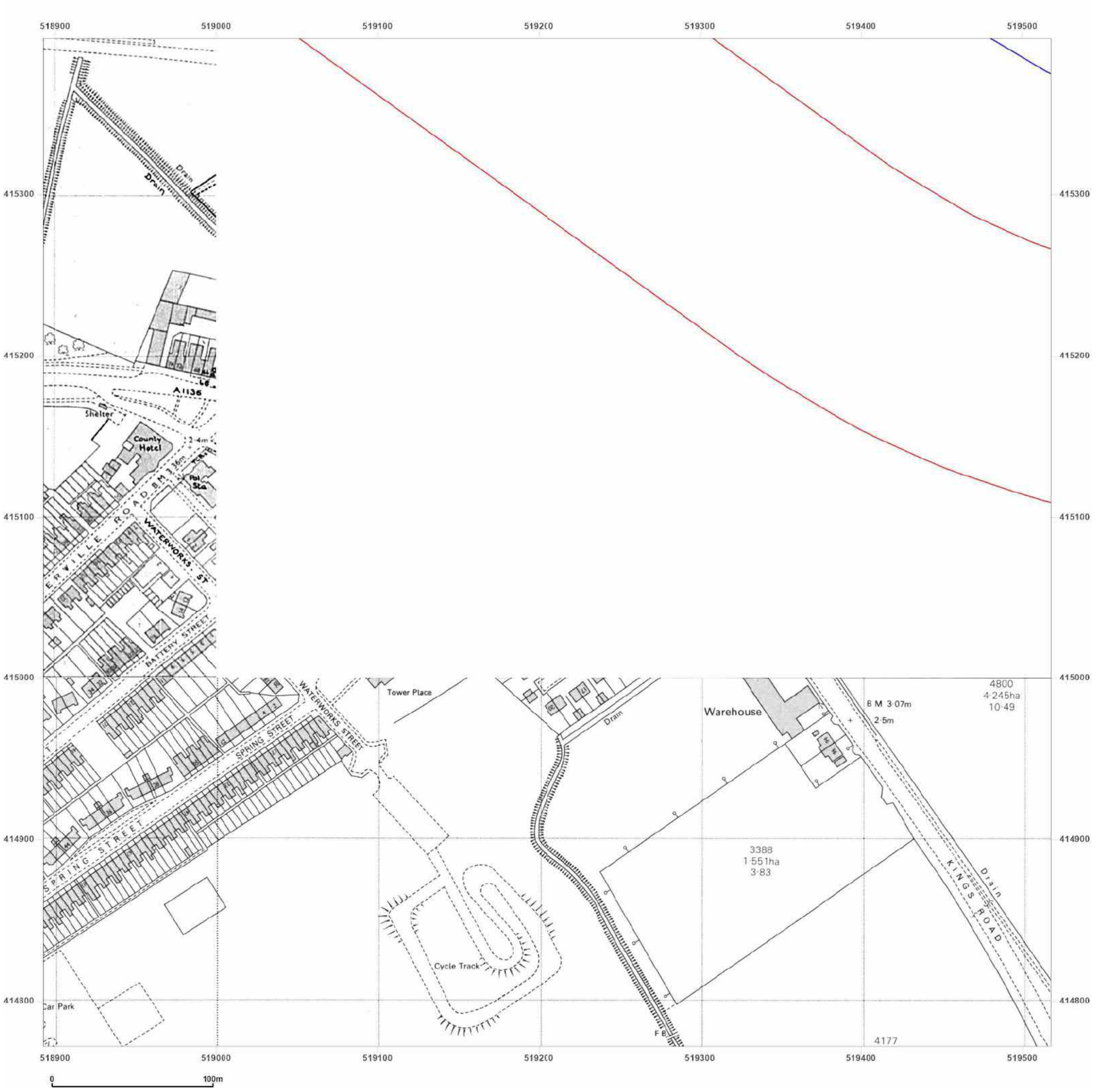
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid
Map date: **1982-1985**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1969
Revised 1982
Edition N/A
Copyright 1982
Levelled 1969



Surveyed N/A
Revised 1985
Edition N/A
Copyright 1987
Levelled 1969

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Production date: 08 October 2021

Map legend available at: [redacted]



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Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_1
Grid Ref: 519205, 415084

Map Name: National Grid

Map date: **1985-1988**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1969
Revised 1969
Edition N/A
Copyright 1985
Levelled 1969

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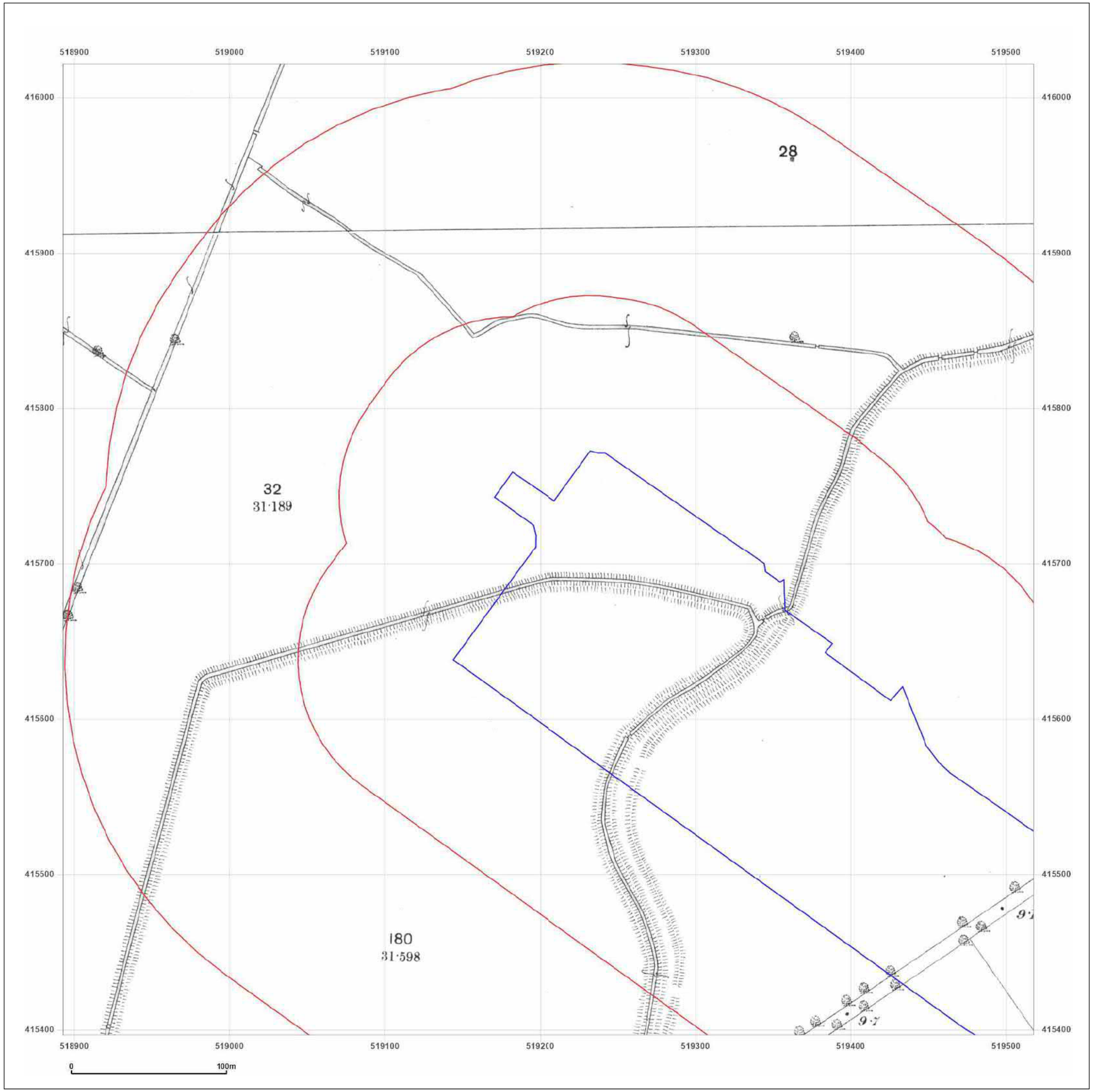
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

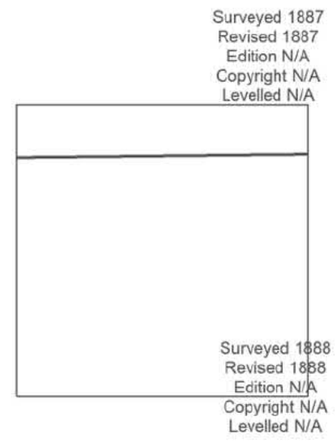
Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: County Series
Map date: **1887-1888**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



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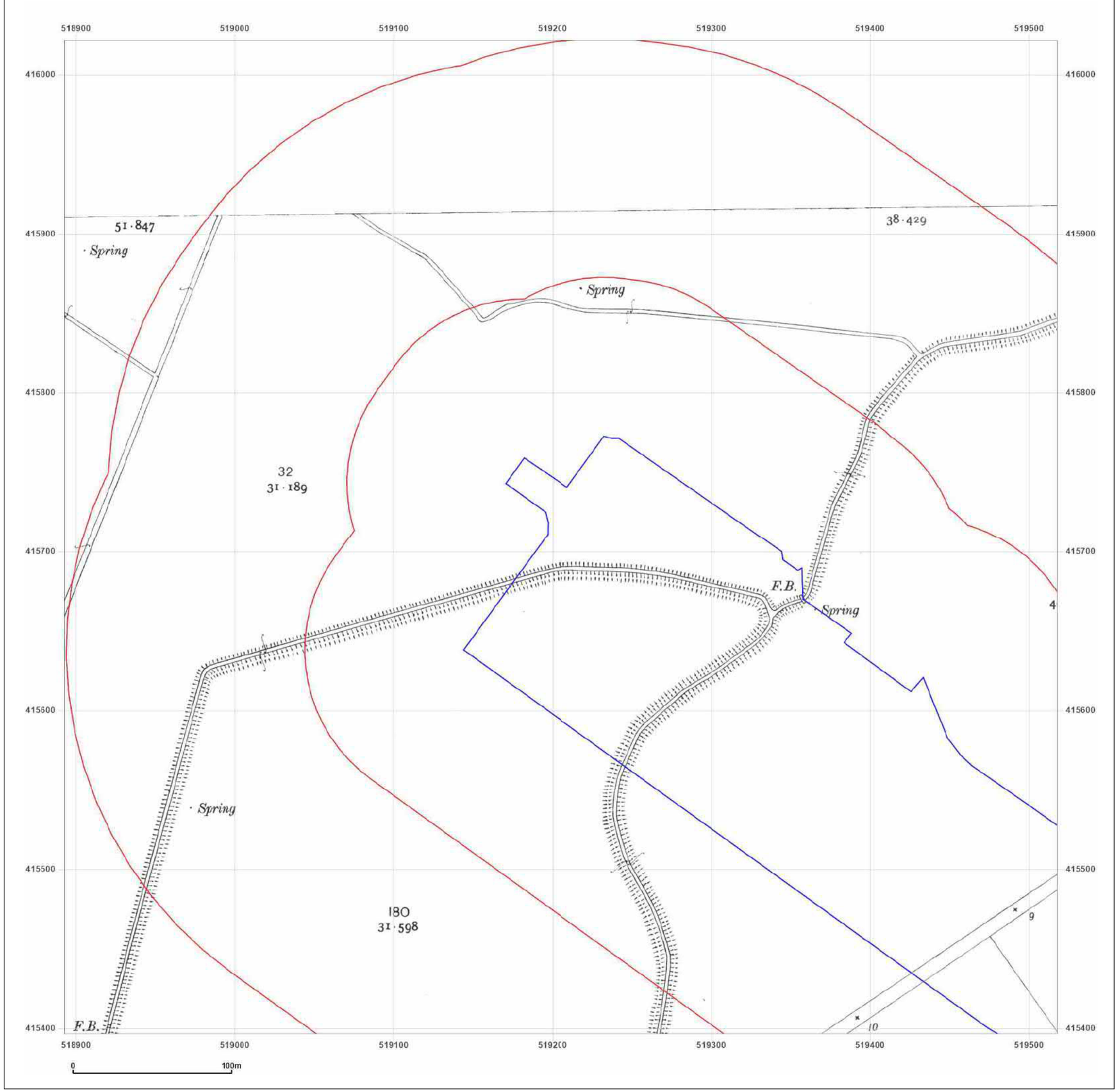
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

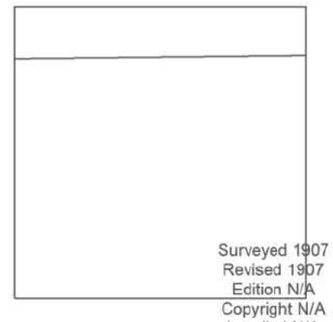
Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: County Series
Map date: **1907**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



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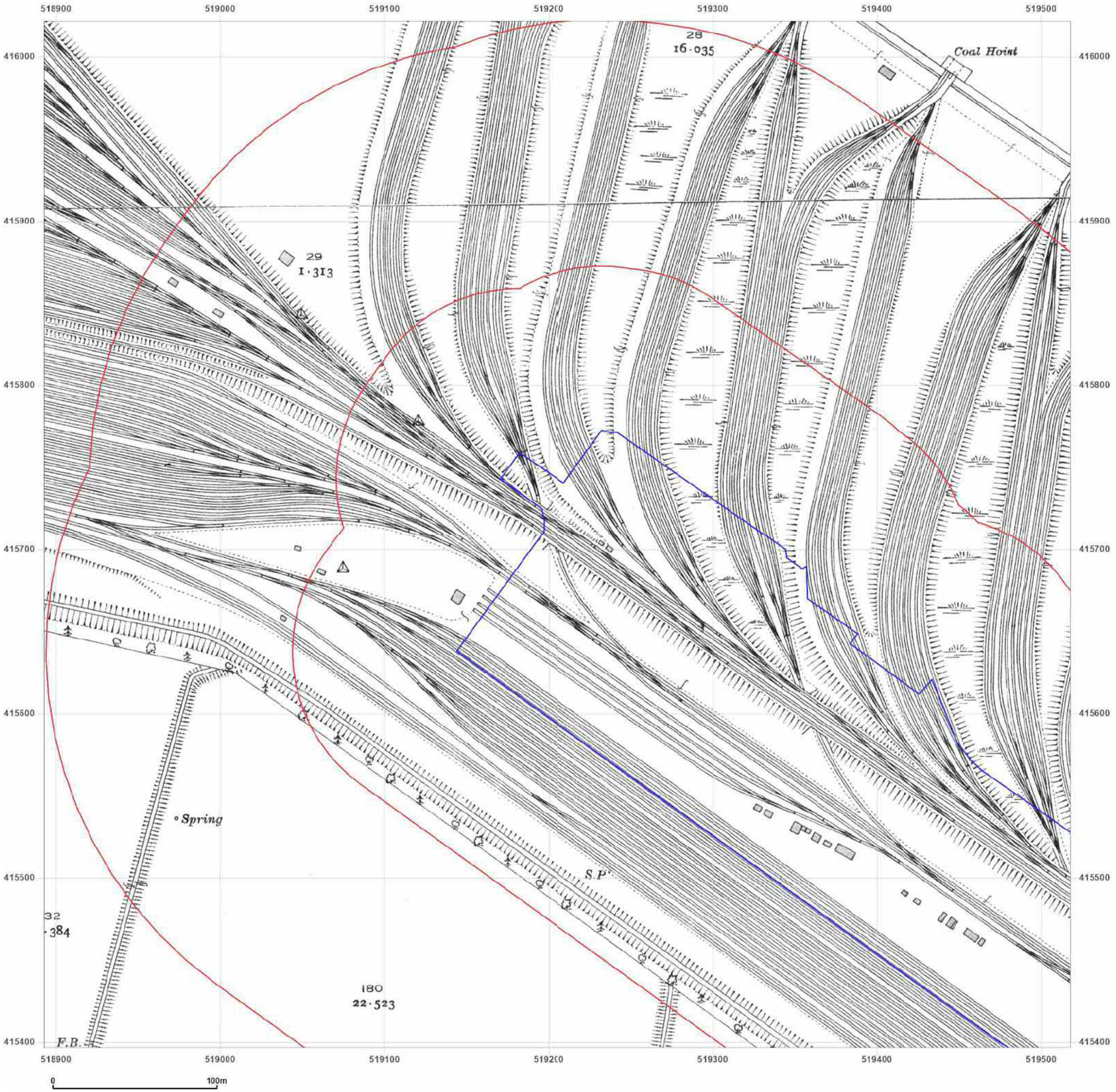
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: County Series

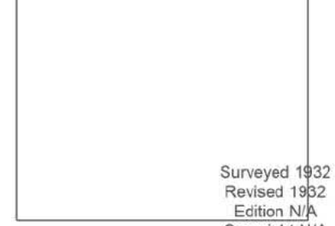
Map date: **1932**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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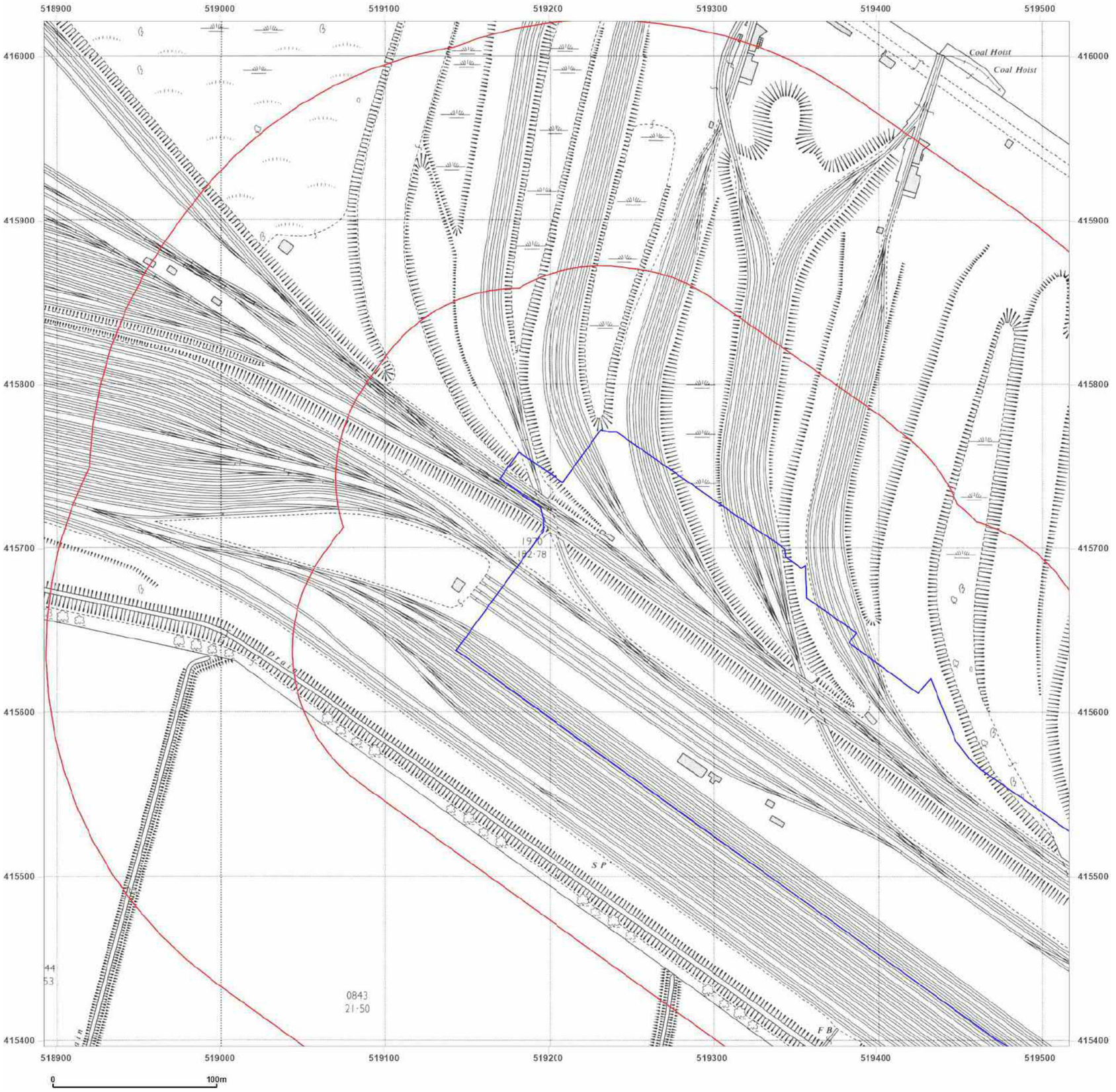
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: National Grid

Map date: **1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1951

Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

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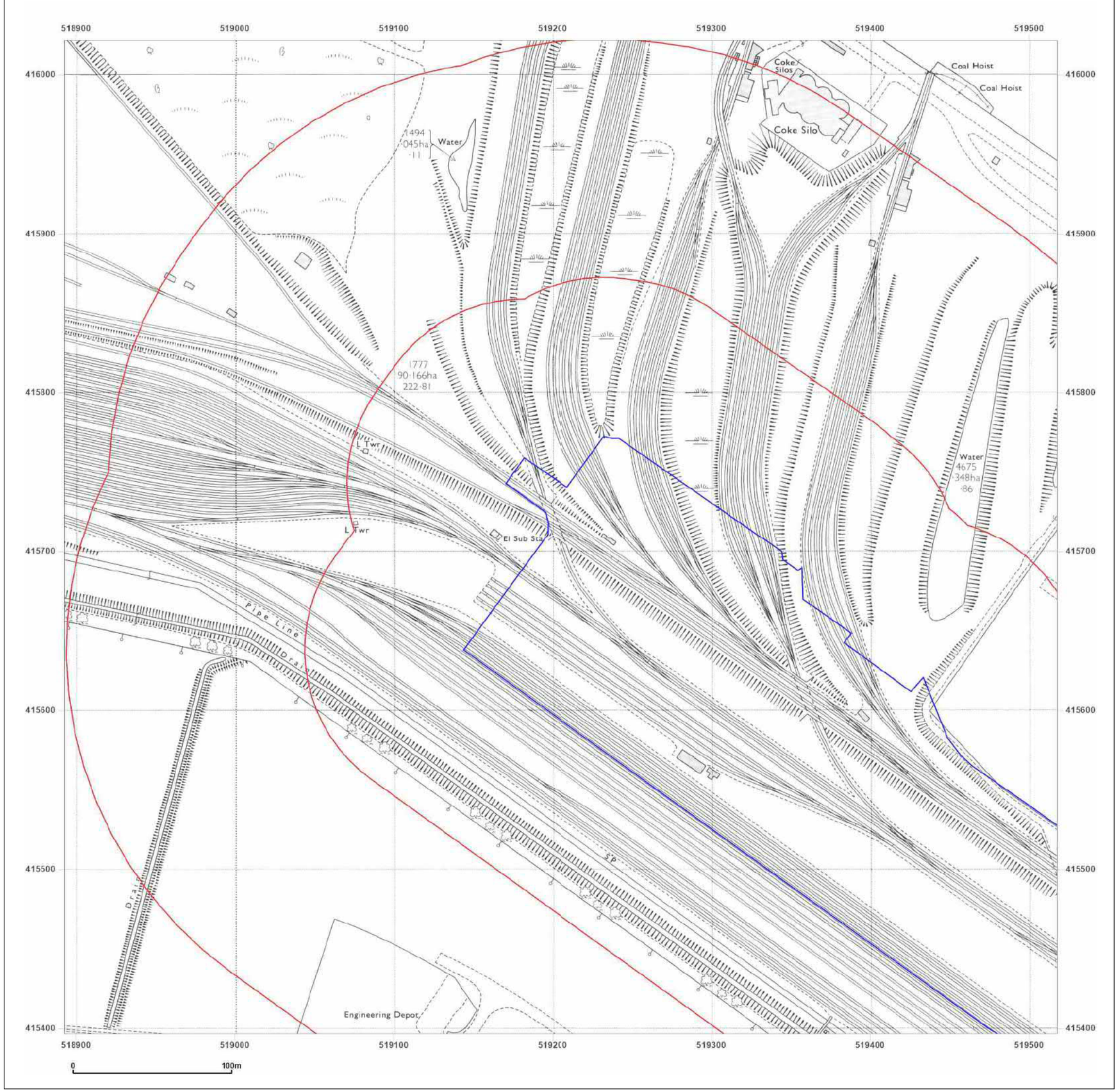
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: National Grid

Map date: **1972**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
Levelled 1969

Surveyed 1964
Revised 1972
Edition N/A
Copyright N/A
Levelled N/A

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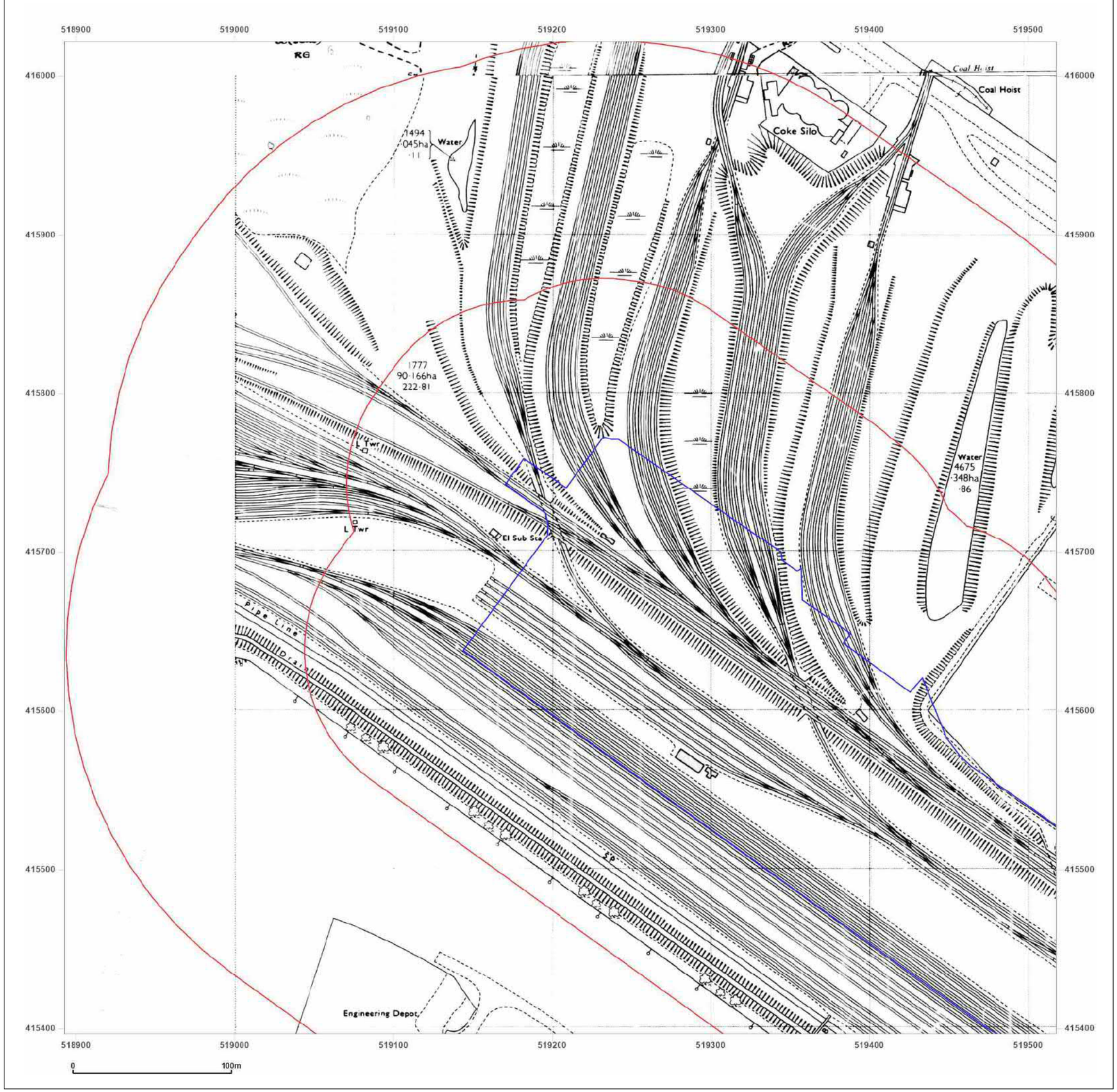
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: National Grid

Map date: **1973-1975**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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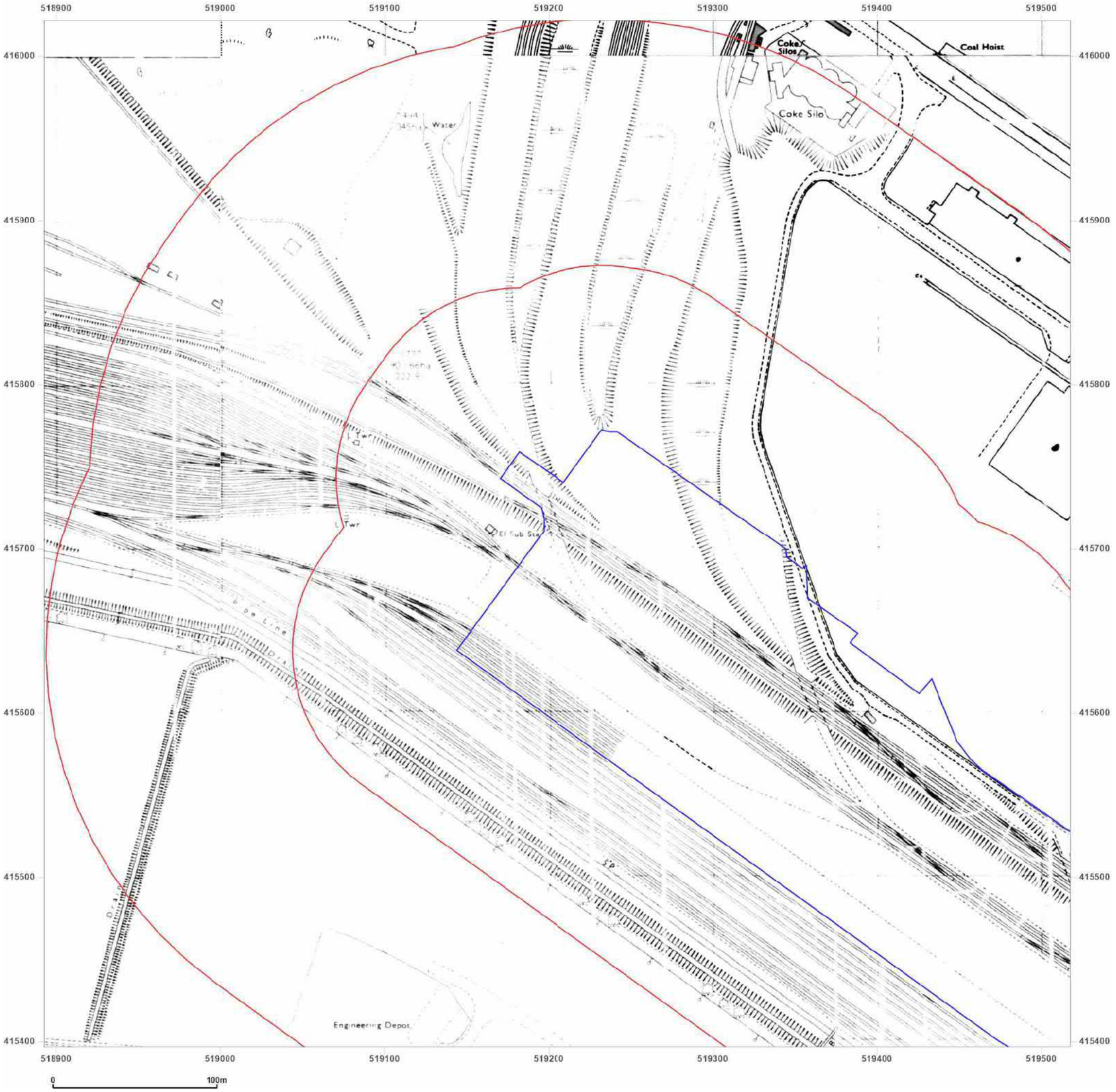
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: National Grid

Map date: **1973-1978**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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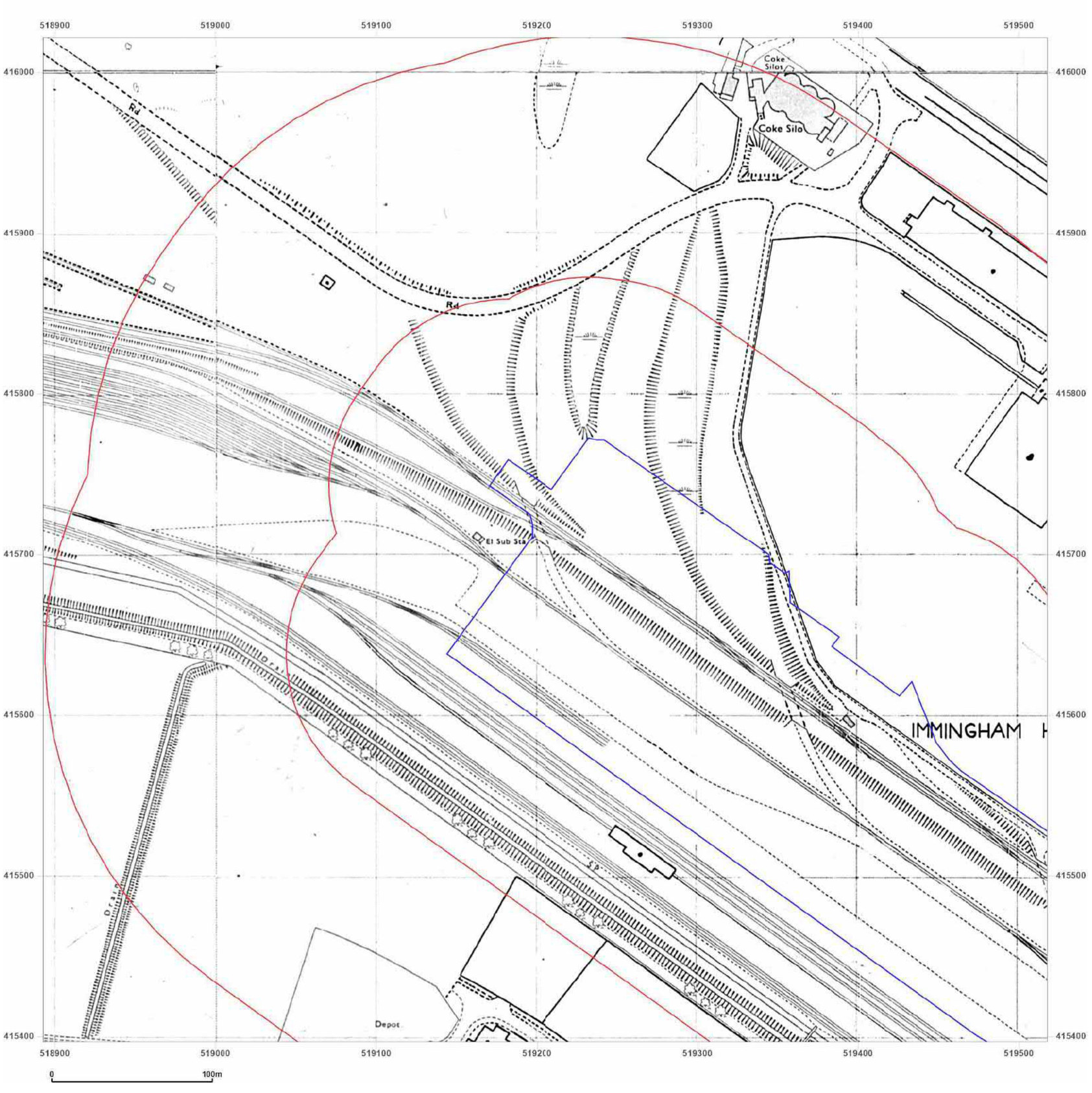
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: National Grid

Map date: **1982-1985**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1969
Revised 1982
Edition N/A
Copyright 1982
Levelled 1969

Surveyed 1969
Revised 1985
Edition N/A
Copyright 1985
Levelled 1969

Surveyed 1969
Revised 1982
Edition N/A
Copyright 1982
Levelled 1969

Surveyed 1969
Revised 1982
Edition N/A
Copyright 1982
Levelled 1969

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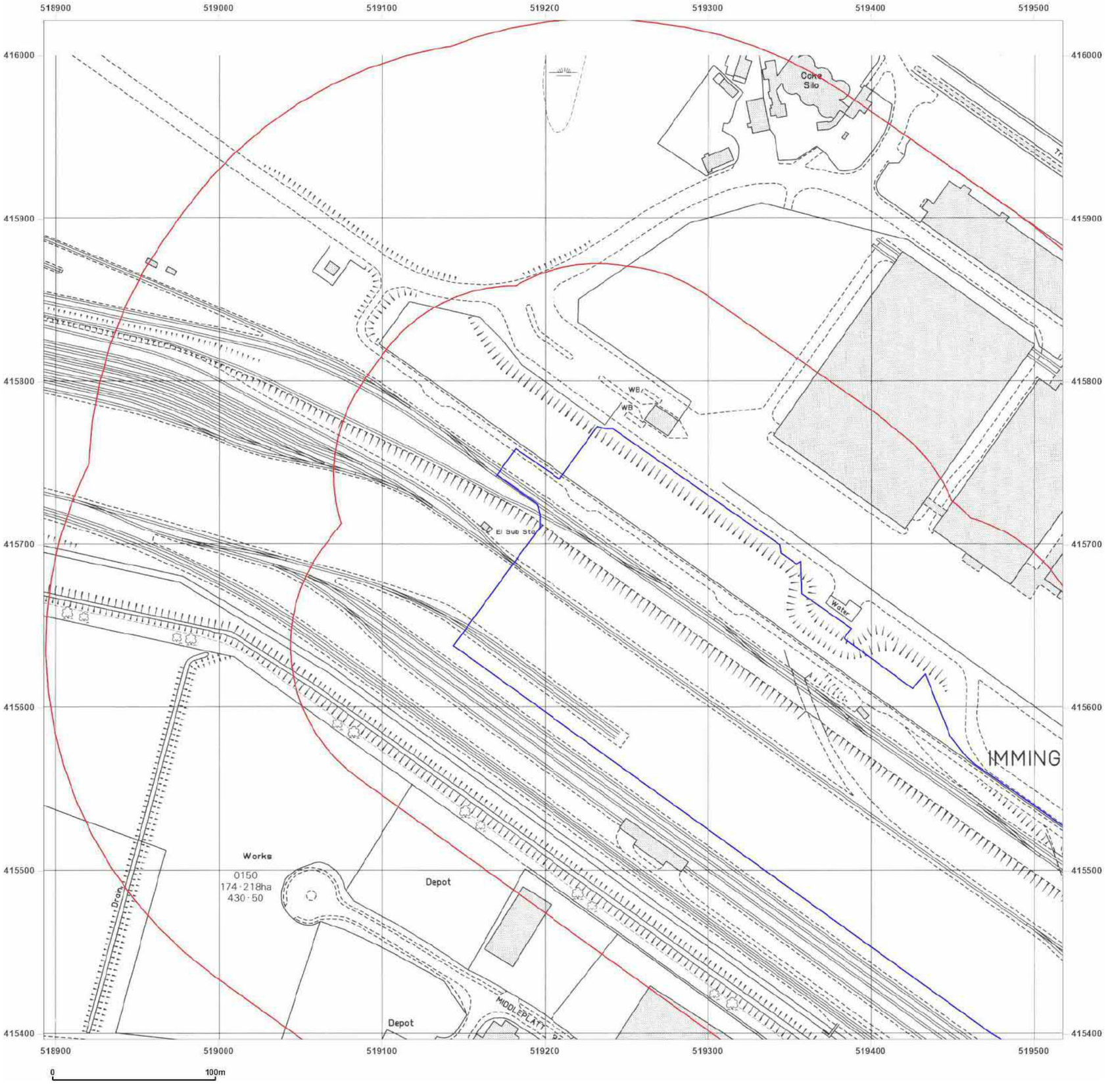
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_1_2
Grid Ref: 519205, 415709

Map Name: National Grid

Map date: **1988**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

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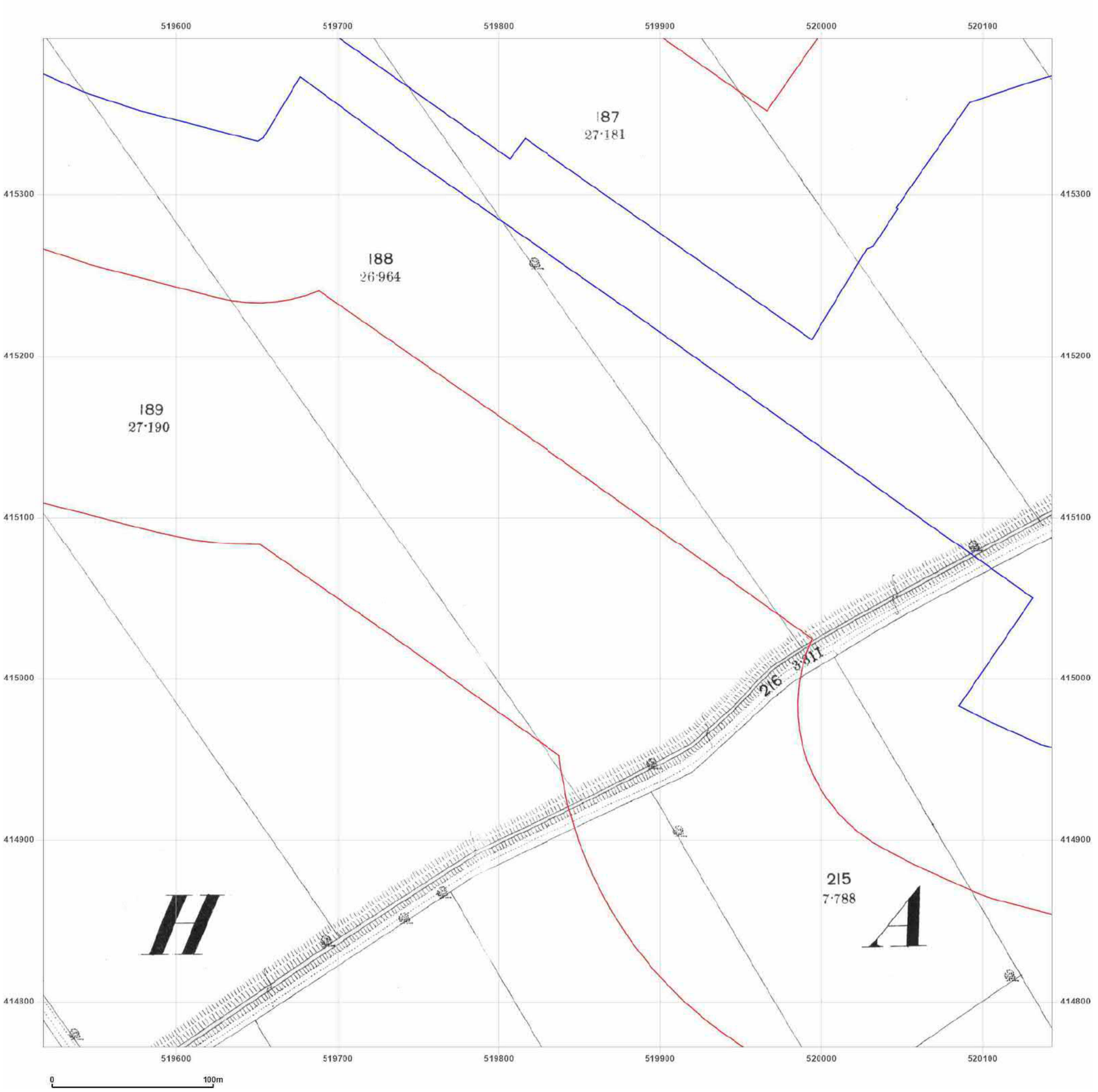
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: County Series
Map date: **1888**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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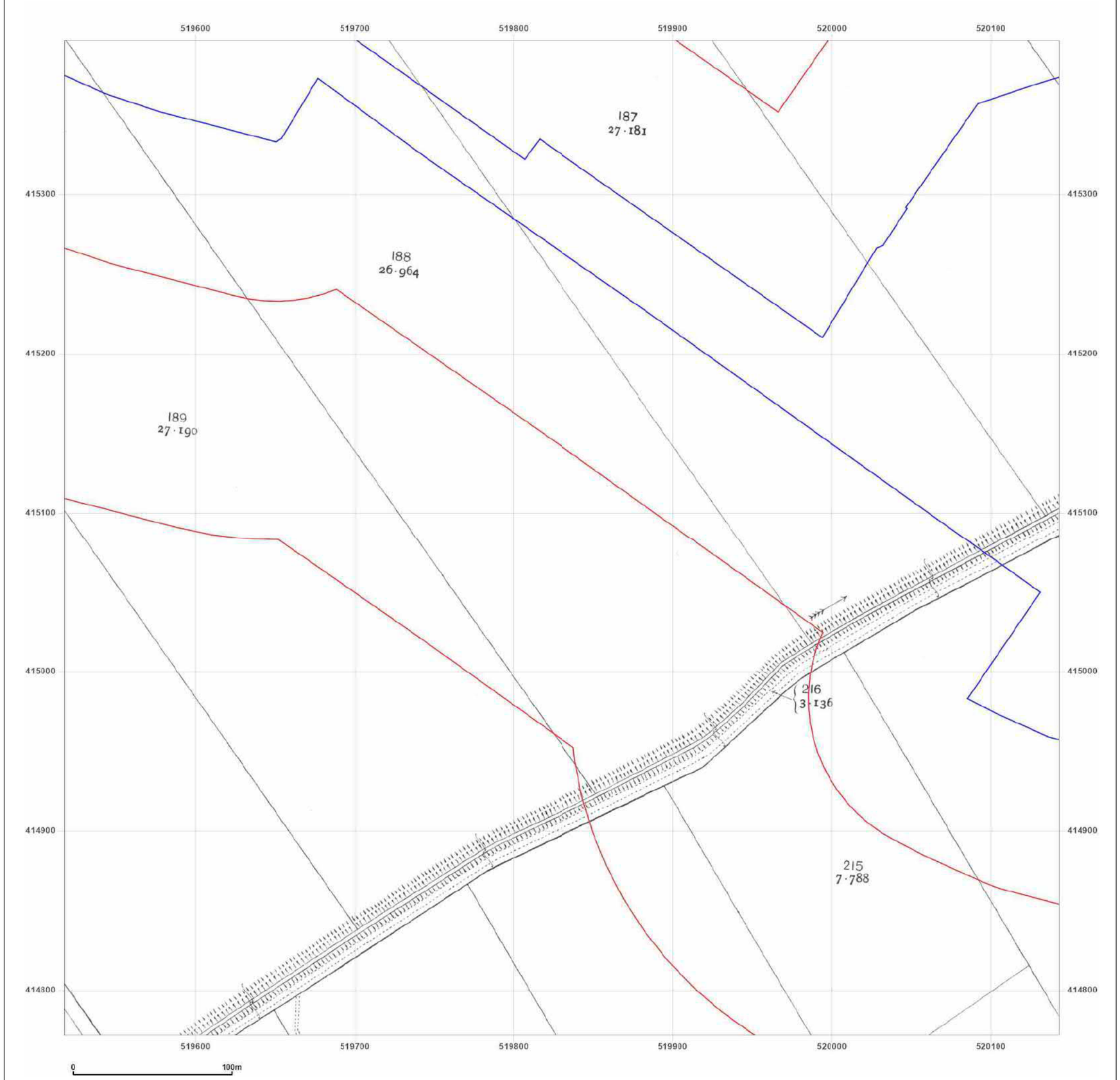
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: County Series
Map date: **1907**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

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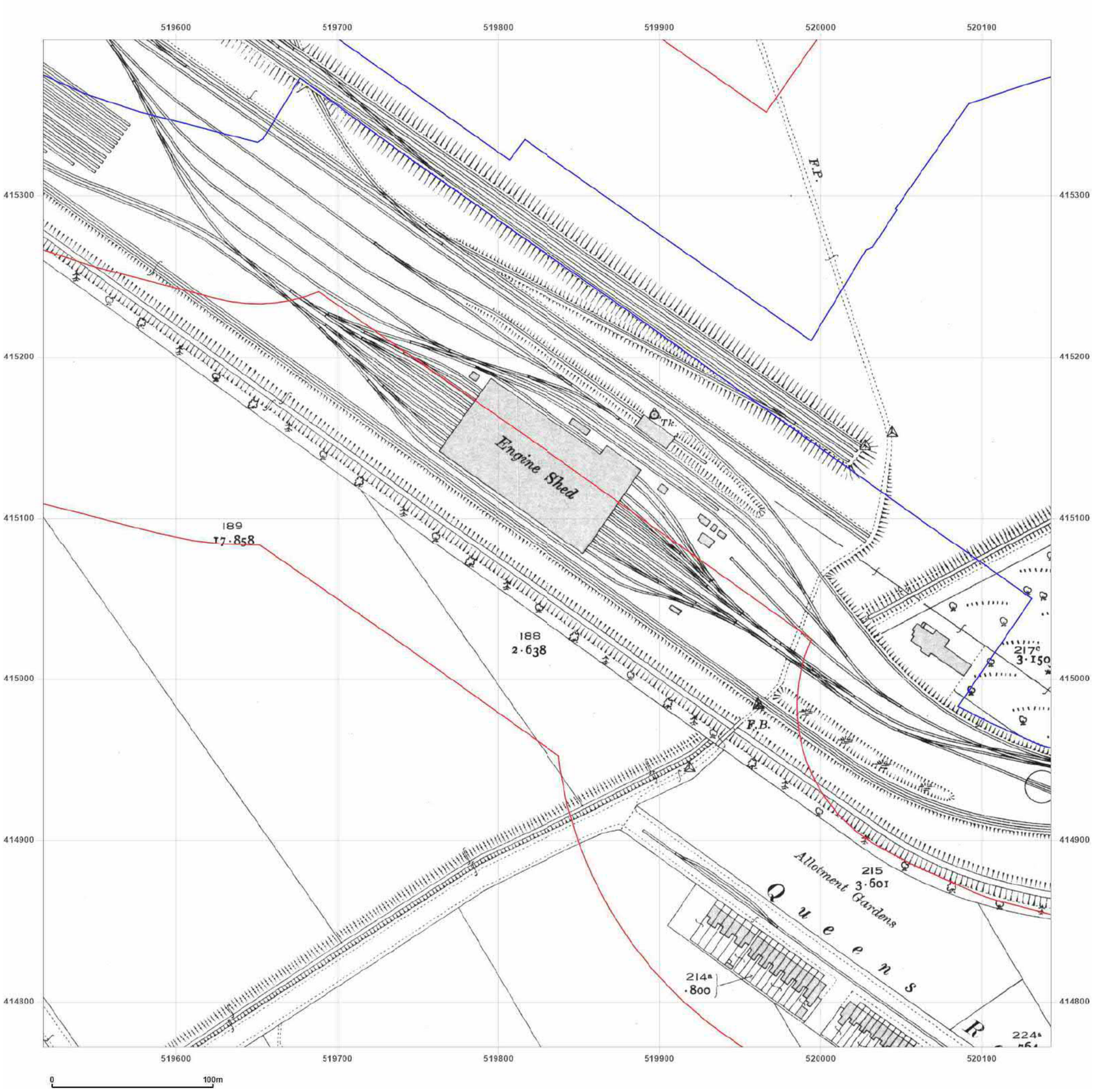
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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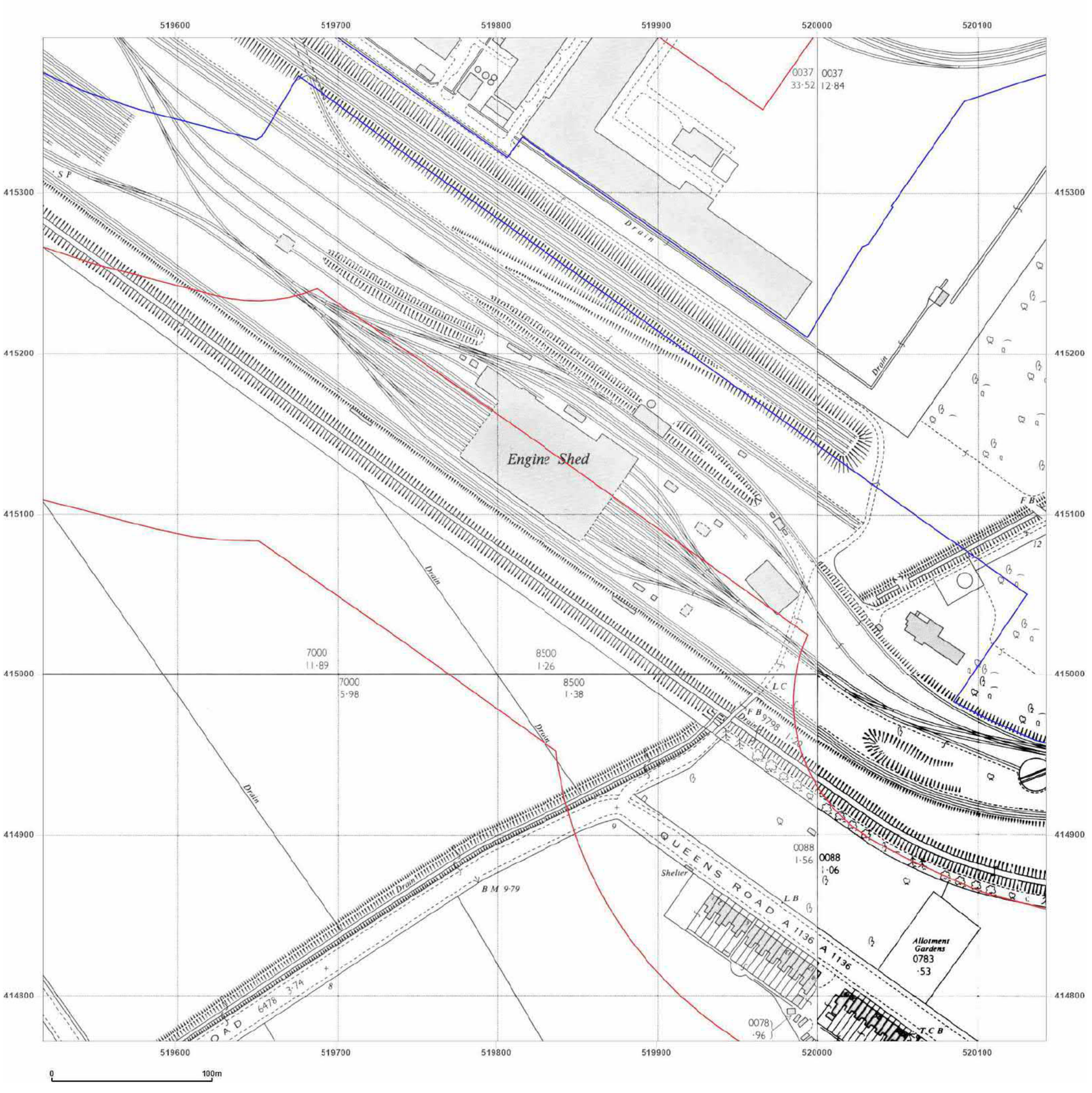
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: National Grid
Map date: **1964**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1964 Revised 1964 Edition N/A Copyright N/A Levelled N/A	Surveyed 1964 Revised 1964 Edition N/A Copyright 1964 Levelled 1959
Surveyed 1964 Revised 1964 Edition N/A Copyright 1964 Levelled 1951	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A

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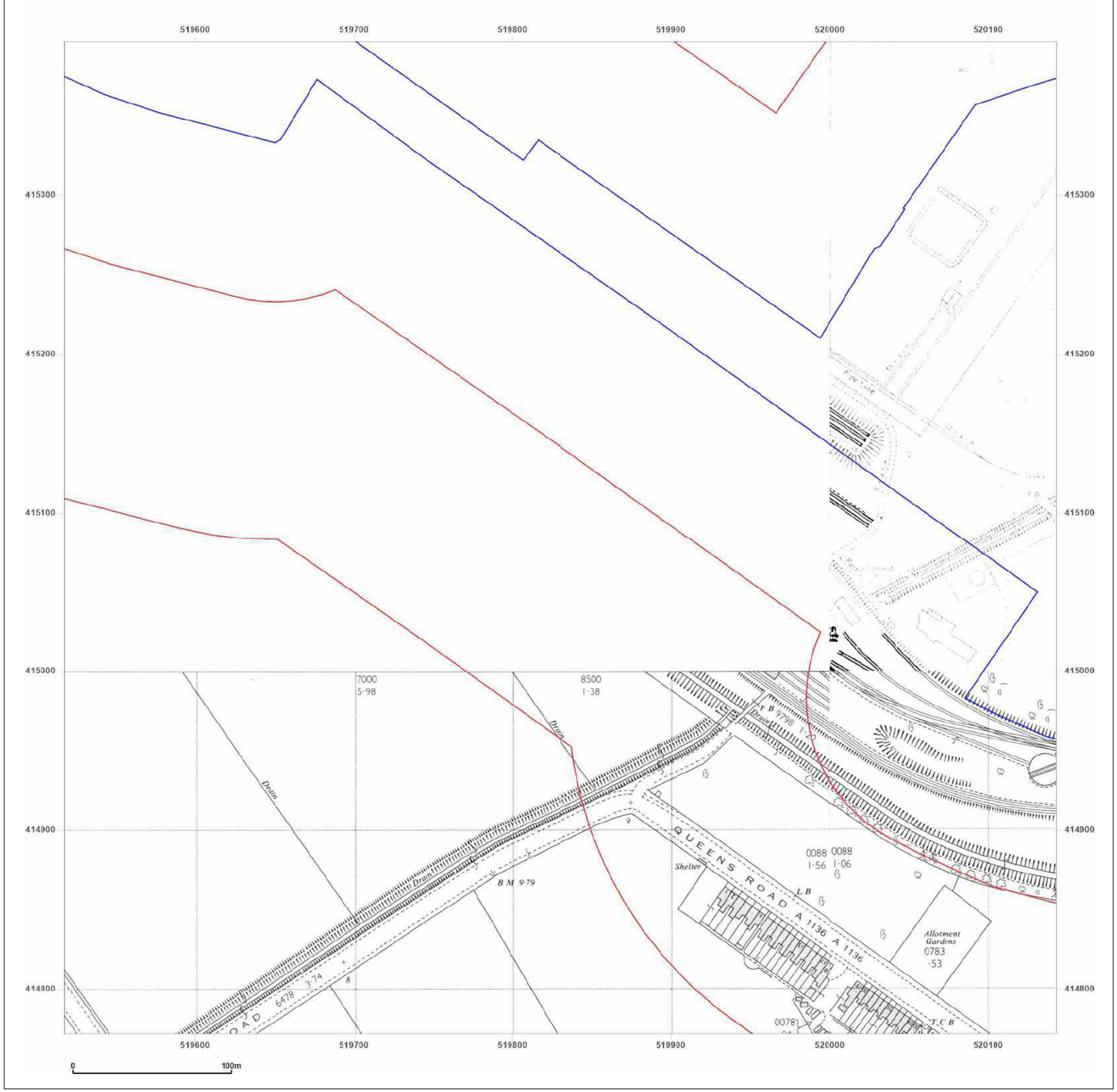
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: National Grid
Map date: **1964-1969**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled 1969

Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
Levelled 1959

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1959

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: National Grid
Map date: **1969-1972**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1972
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1971
Levelled 1969

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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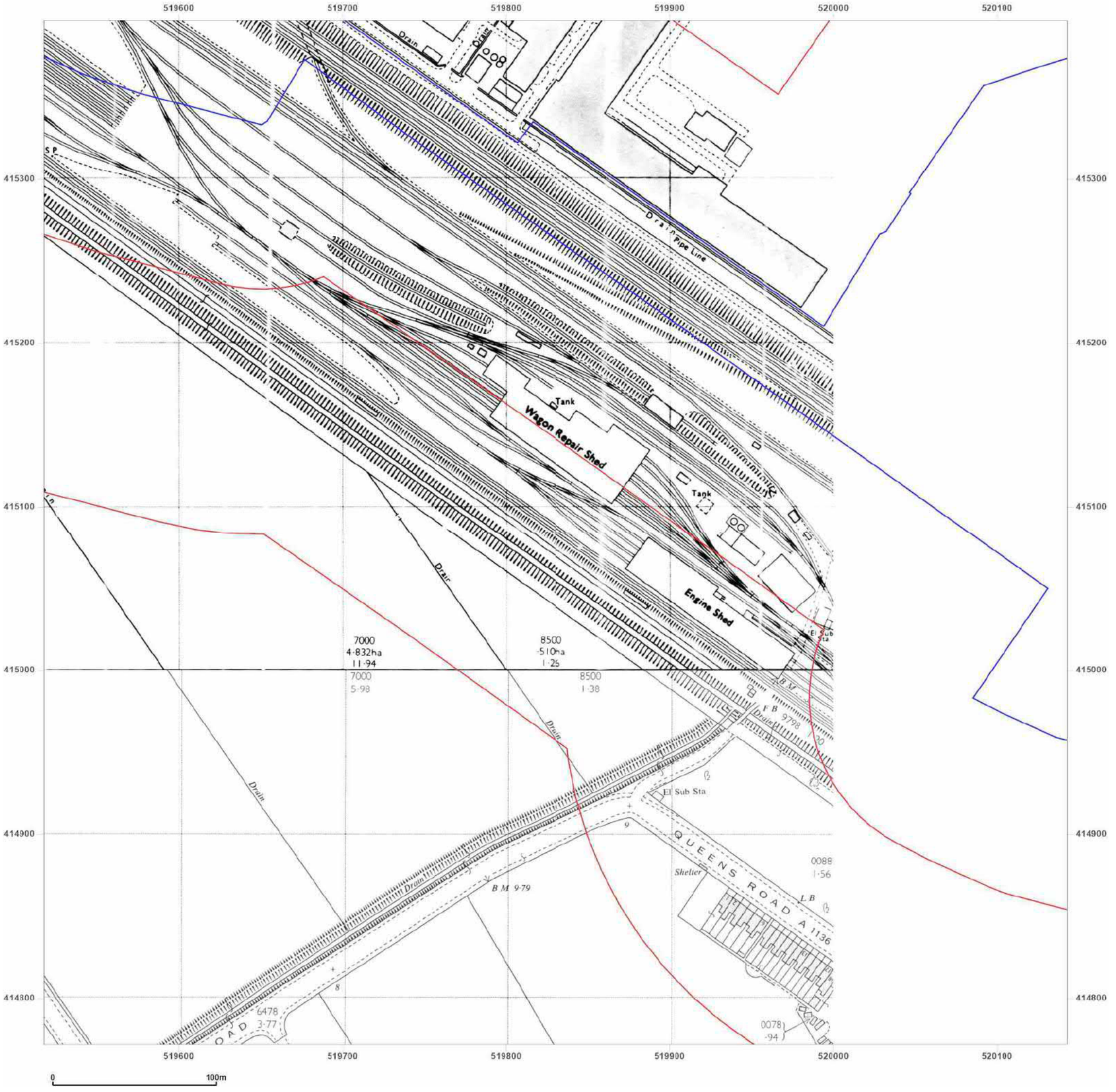
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: National Grid
Map date: **1969-1973**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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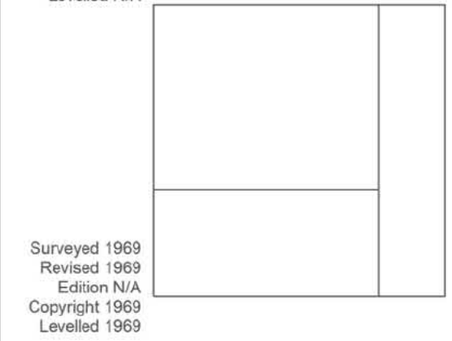
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1969
Revised 1969
Edition N/A
Copyright 1969
Levelled 1969

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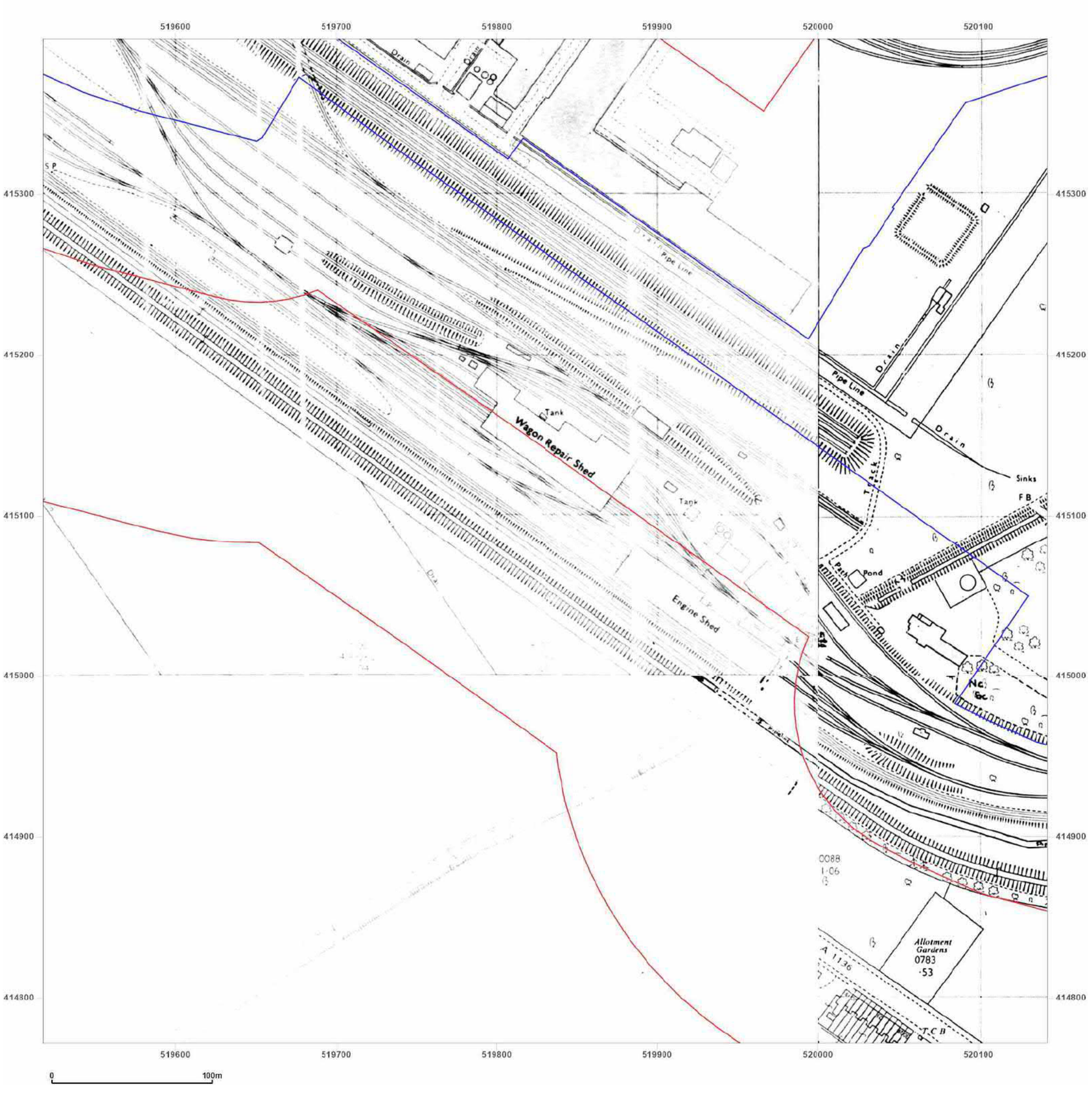
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: National Grid
Map date: **1976-1979**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1979
Revised 1979
Edition N/A
Copyright 1979
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1978
Levelled N/A

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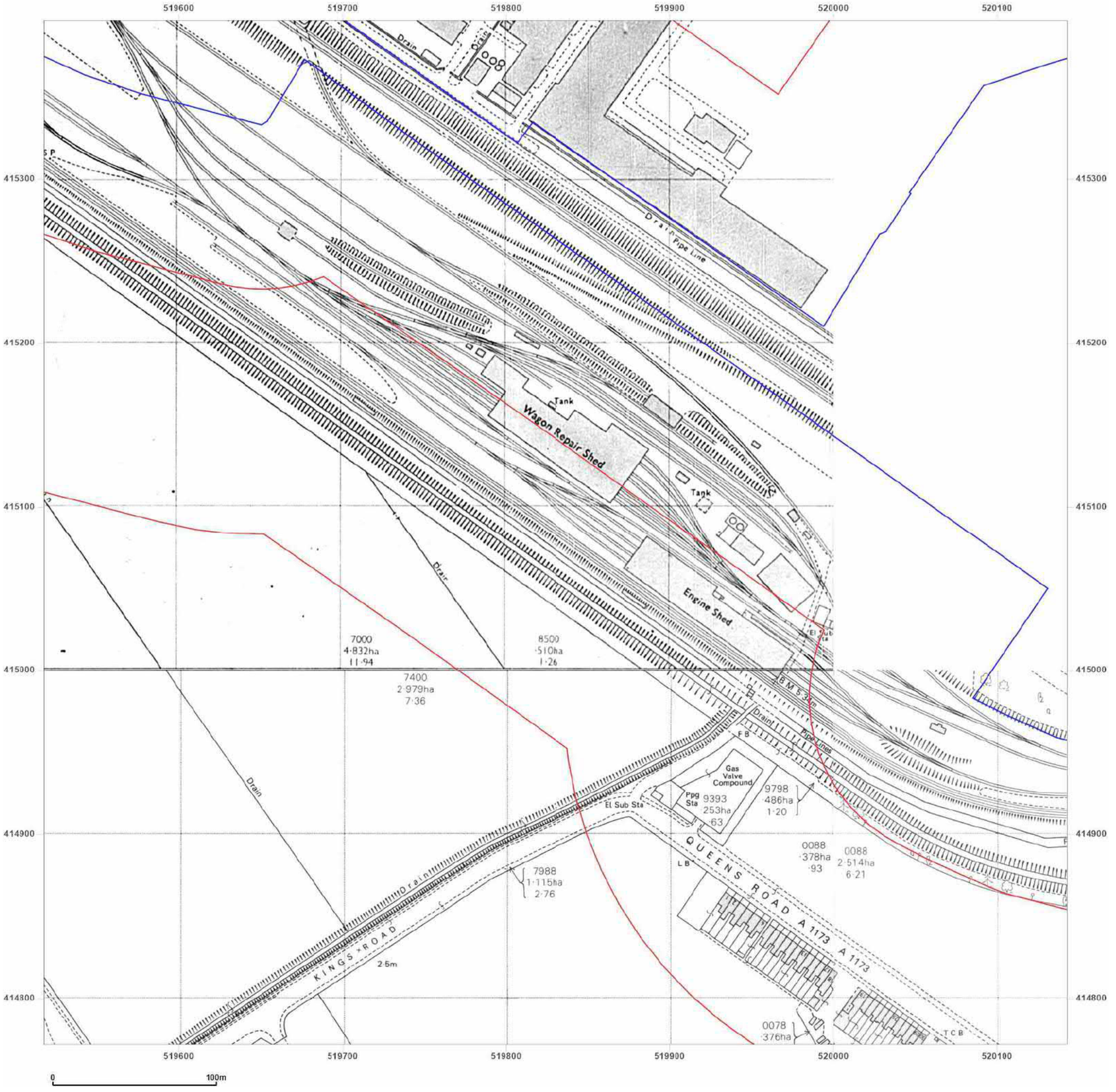
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: National Grid
Map date: **1982-1985**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1969
Revised 1982
Edition N/A
Copyright 1982
Levelled 1969

Surveyed N/A
Revised 1985
Edition N/A
Copyright 1987
Levelled 1969

Surveyed 1984
Revised 1984
Edition N/A
Copyright 1986
Levelled 1977

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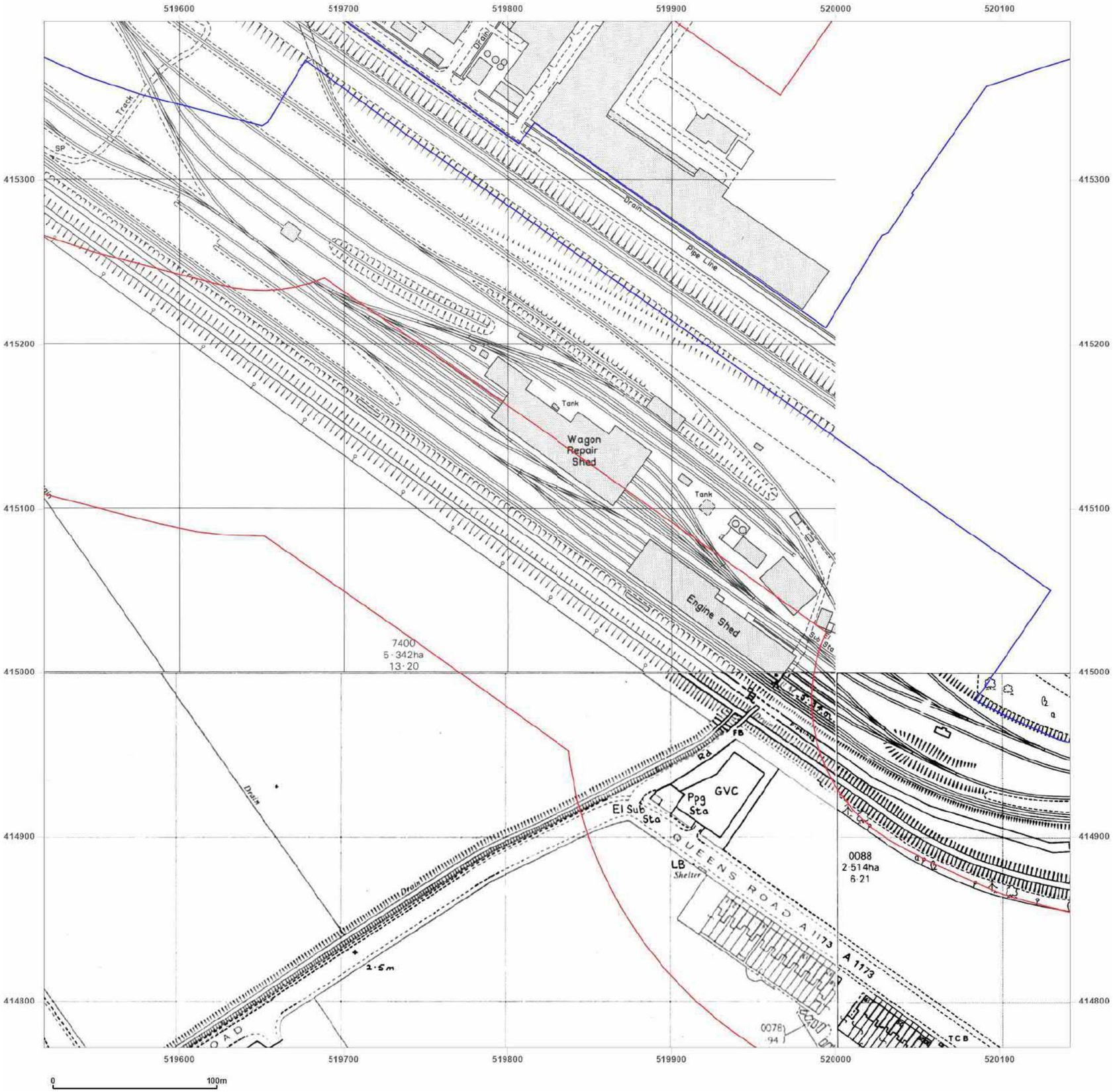
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_1
Grid Ref: 519830, 415084

Map Name: National Grid
Map date: **1985-1988**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1969
Revised 1969
Edition N/A
Copyright 1985
Levelled 1969

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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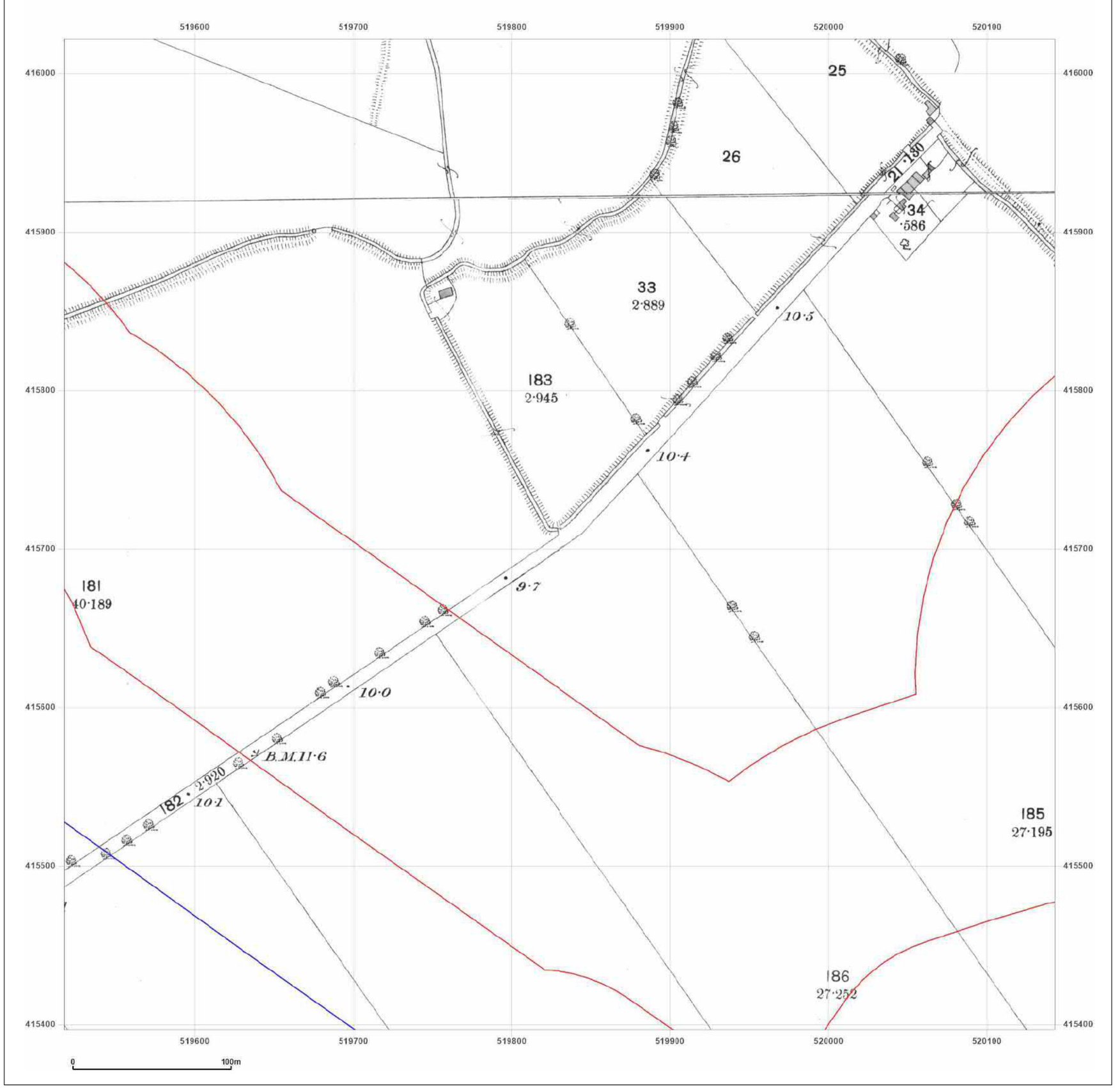
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: County Series
Map date: **1887-1888**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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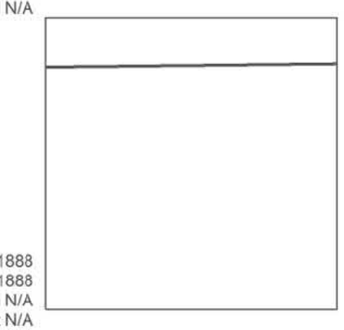
Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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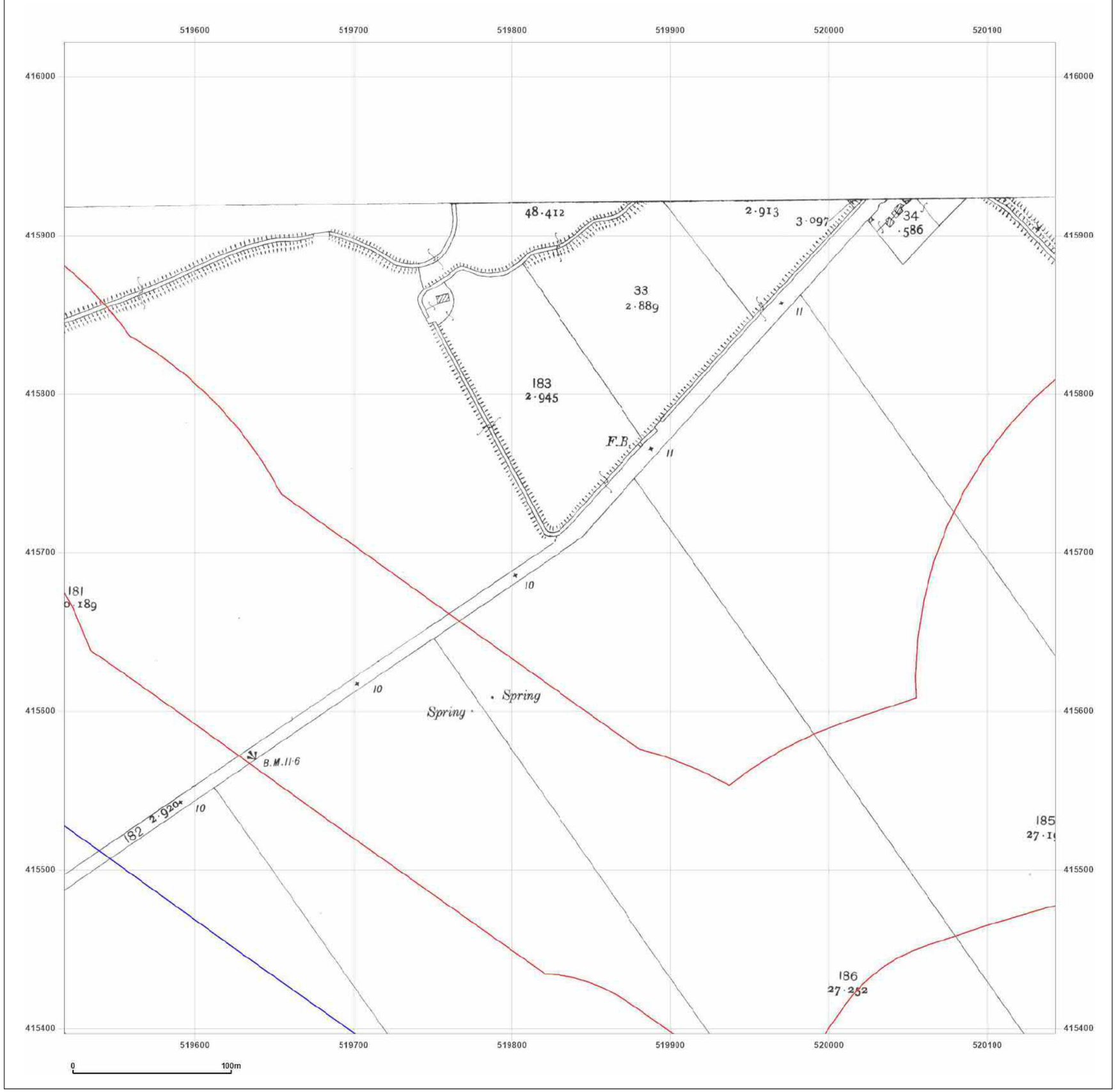
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: County Series
Map date: **1907**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

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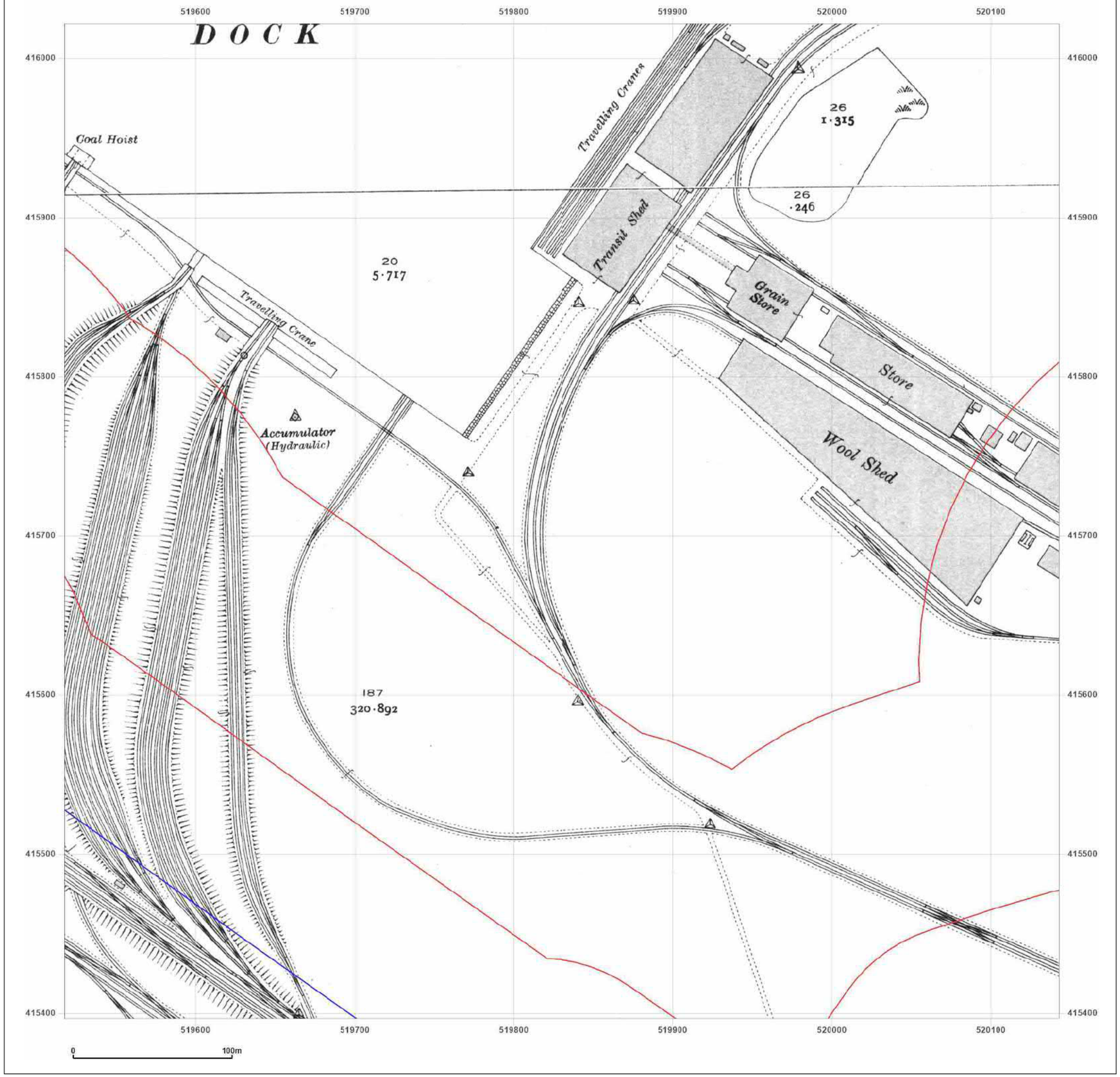
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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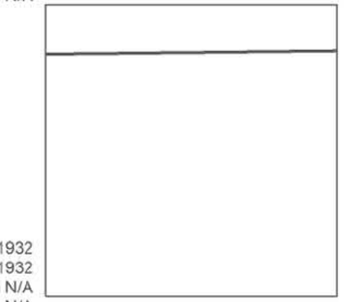
Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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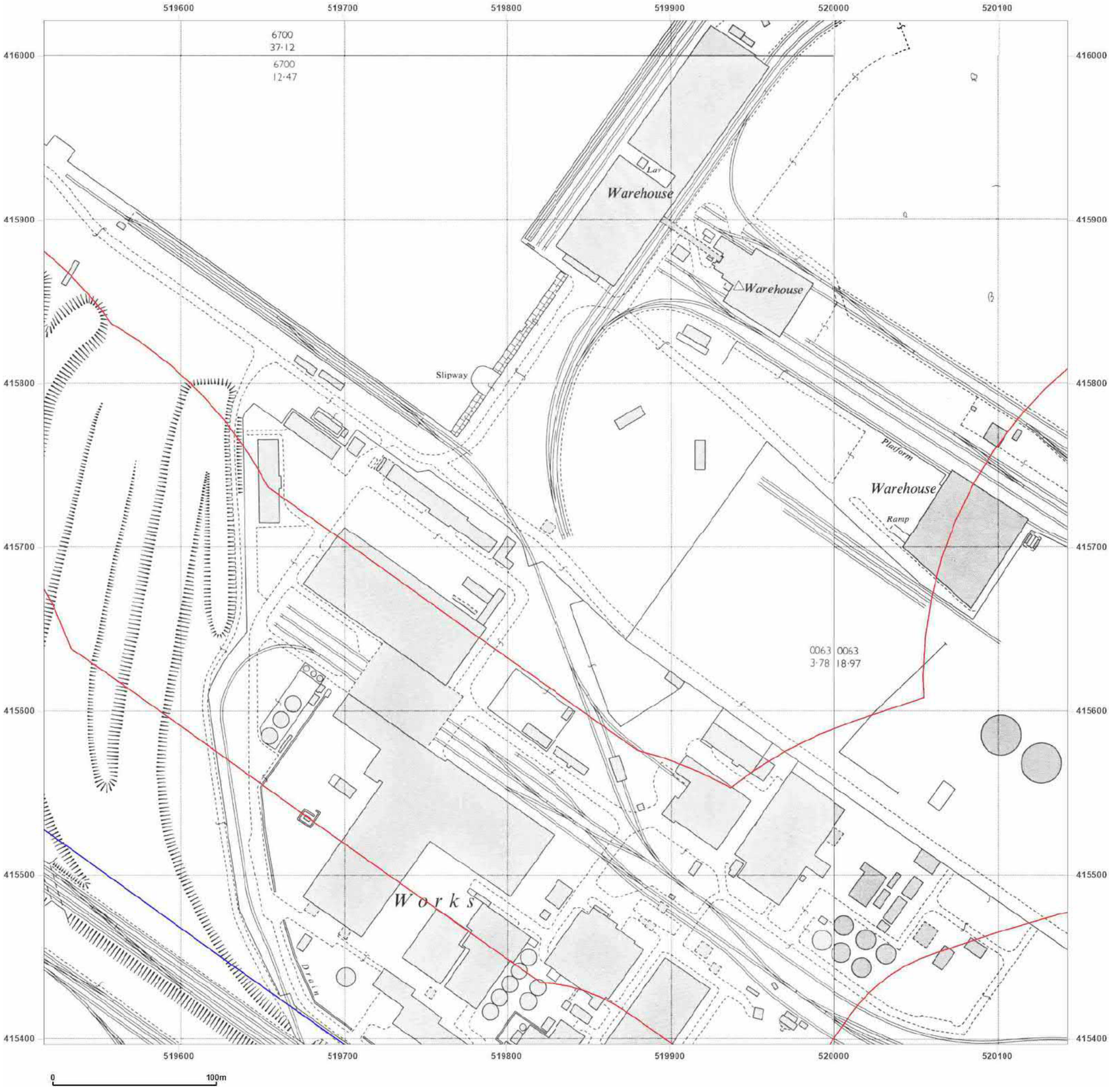
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: National Grid

Map date: **1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1951

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1959

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Production date: 08 October 2021

Map legend available at: [redacted]



Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: National Grid
Map date: **1970-1972**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
Levelled 1969

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1969

Surveyed 1964
Revised 1972
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1971
Levelled 1969

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Production date: 08 October 2021

Map legend available at: [redacted]



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Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: National Grid
Map date: **1971-1973**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

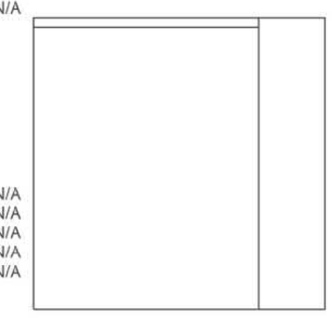
520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: National Grid
Map date: **1973-1978**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: National Grid
Map date: **1979-1985**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1969
Revised 1985
Edition N/A
Copyright 1985
Levelled 1969

Surveyed 1969
Revised 1982
Edition N/A
Copyright 1982
Levelled 1969

Surveyed 1979
Revised 1979
Edition N/A
Copyright 1979
Levelled N/A

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Map legend available at:



Groundsure INSIGHTS

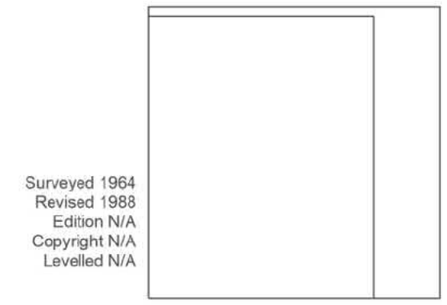
Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_2_2
Grid Ref: 519830, 415709

Map Name: National Grid
Map date: **1988**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



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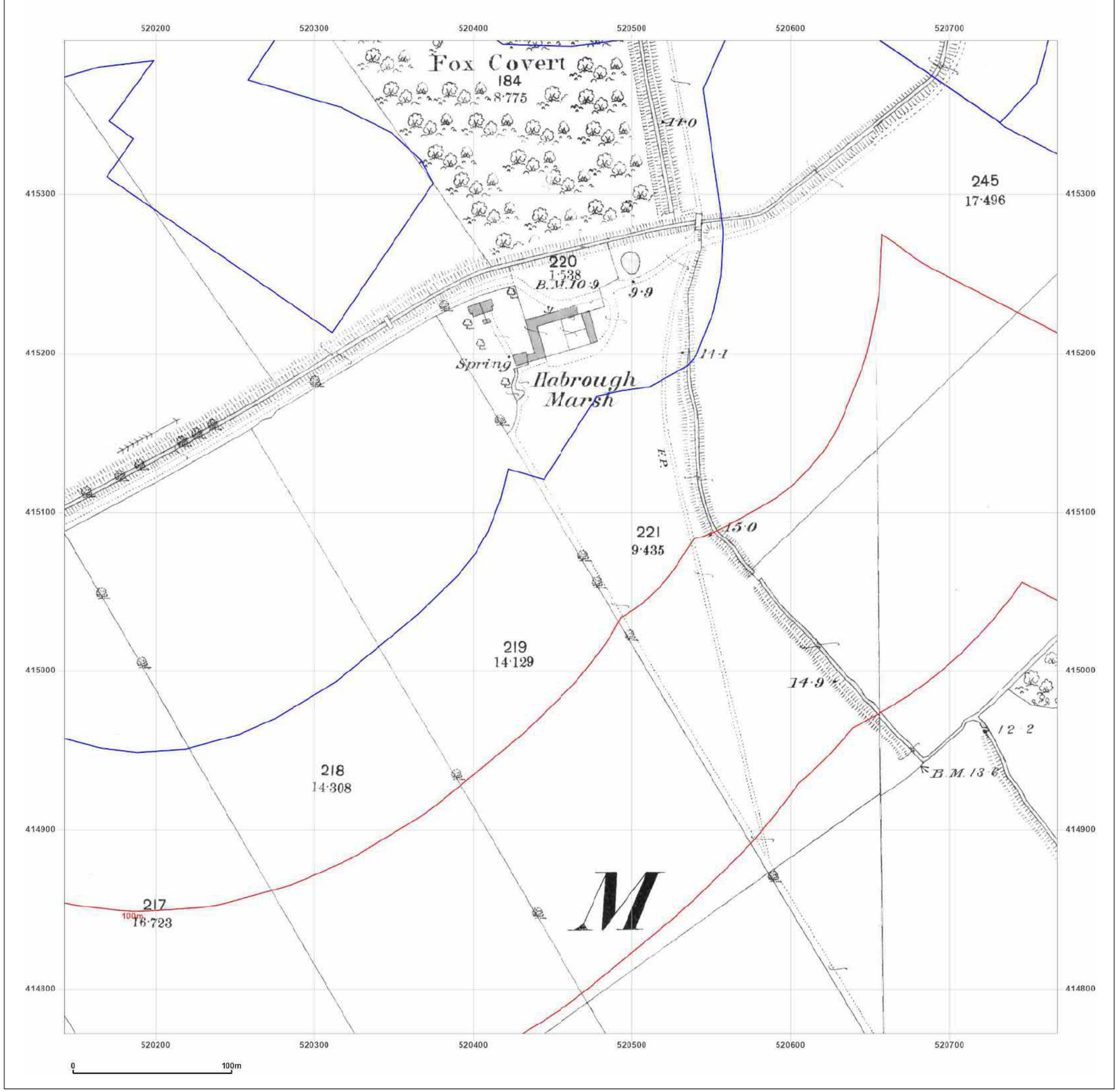
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: County Series
Map date: 1888
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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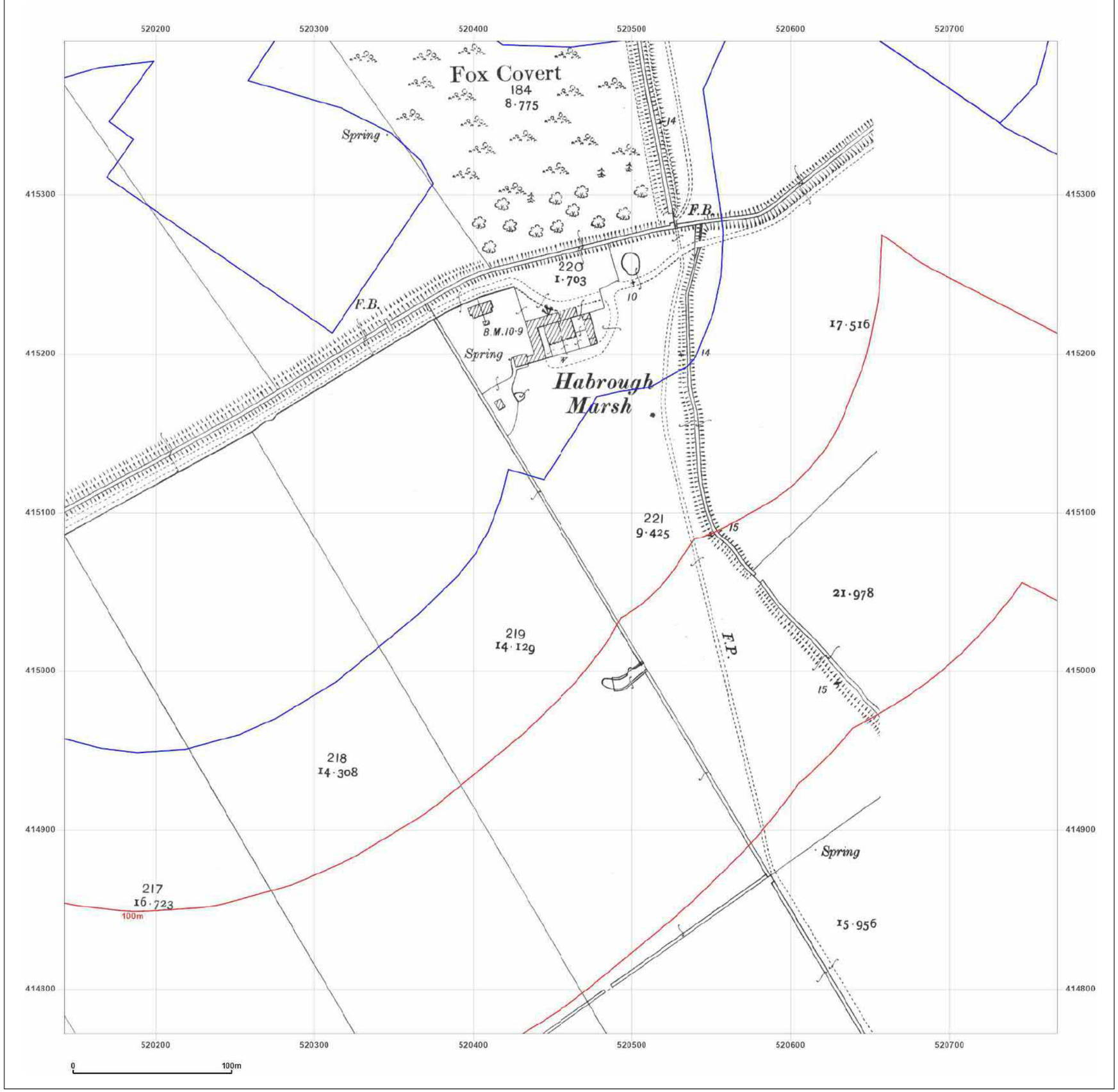
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: County Series
Map date: 1907
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

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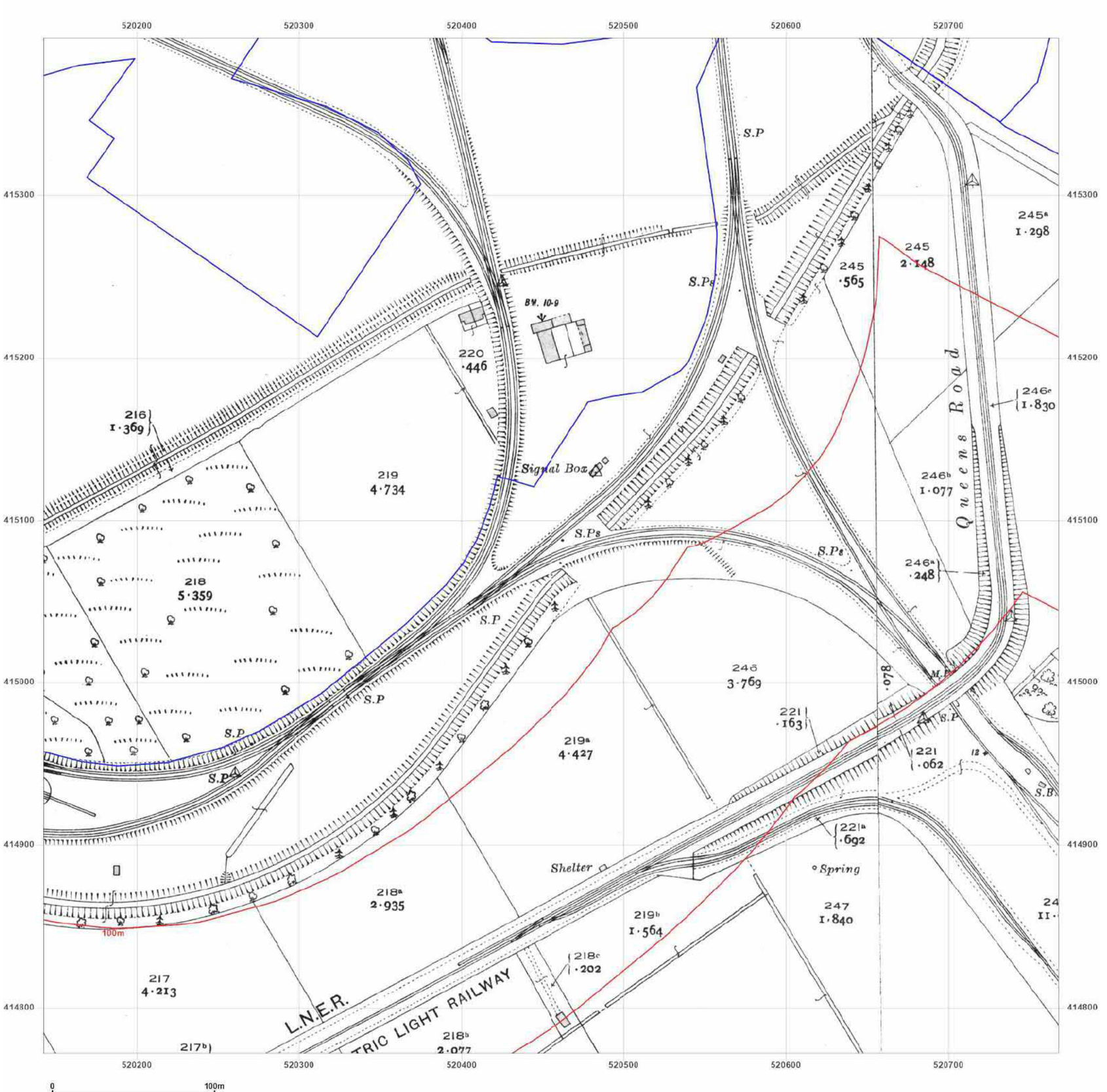
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

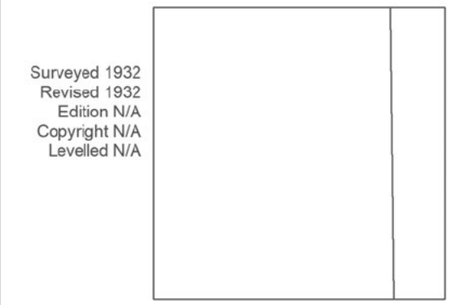
Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: County Series
Map date: 1932
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



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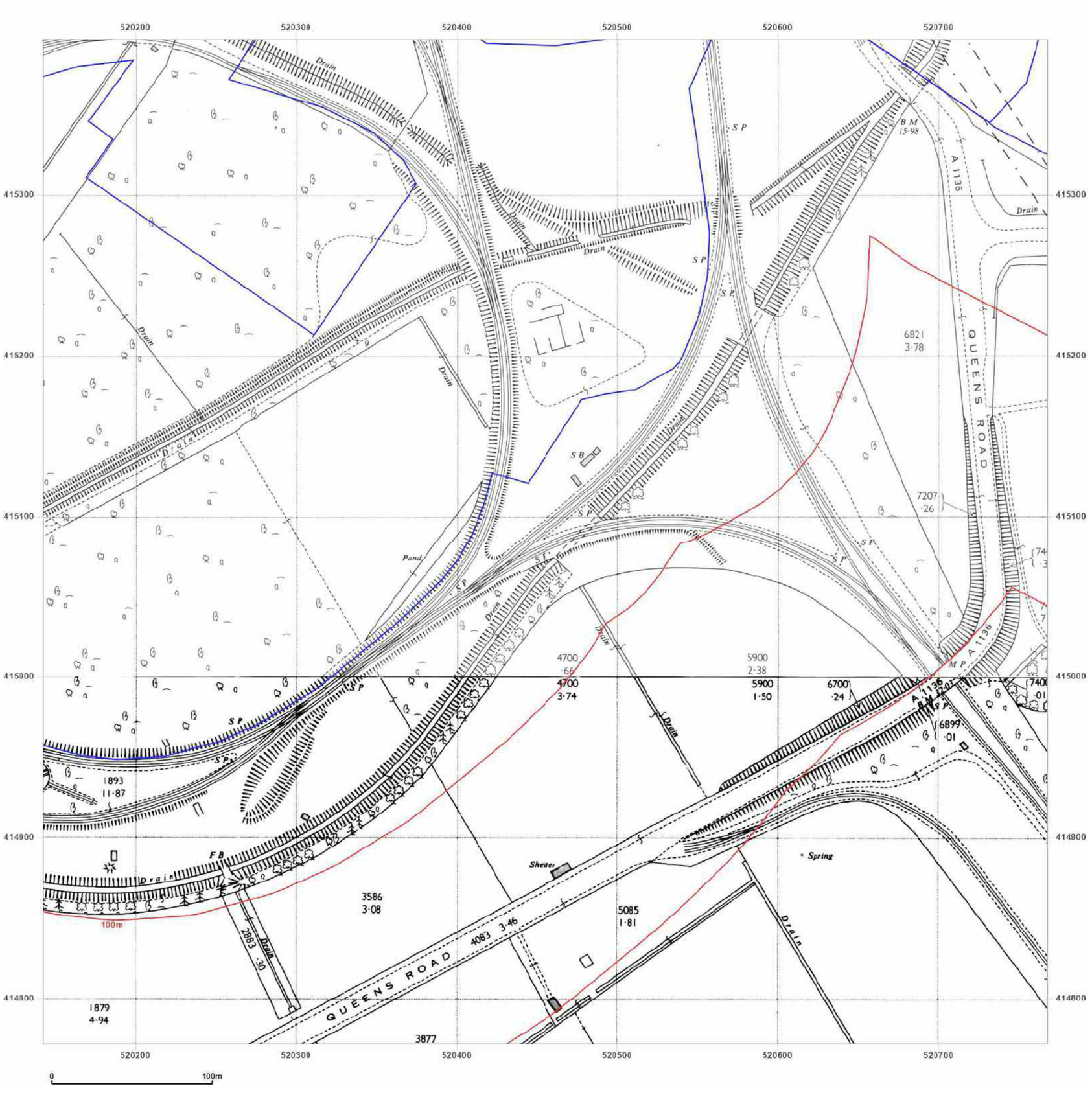
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: National Grid

Map date: **1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1959

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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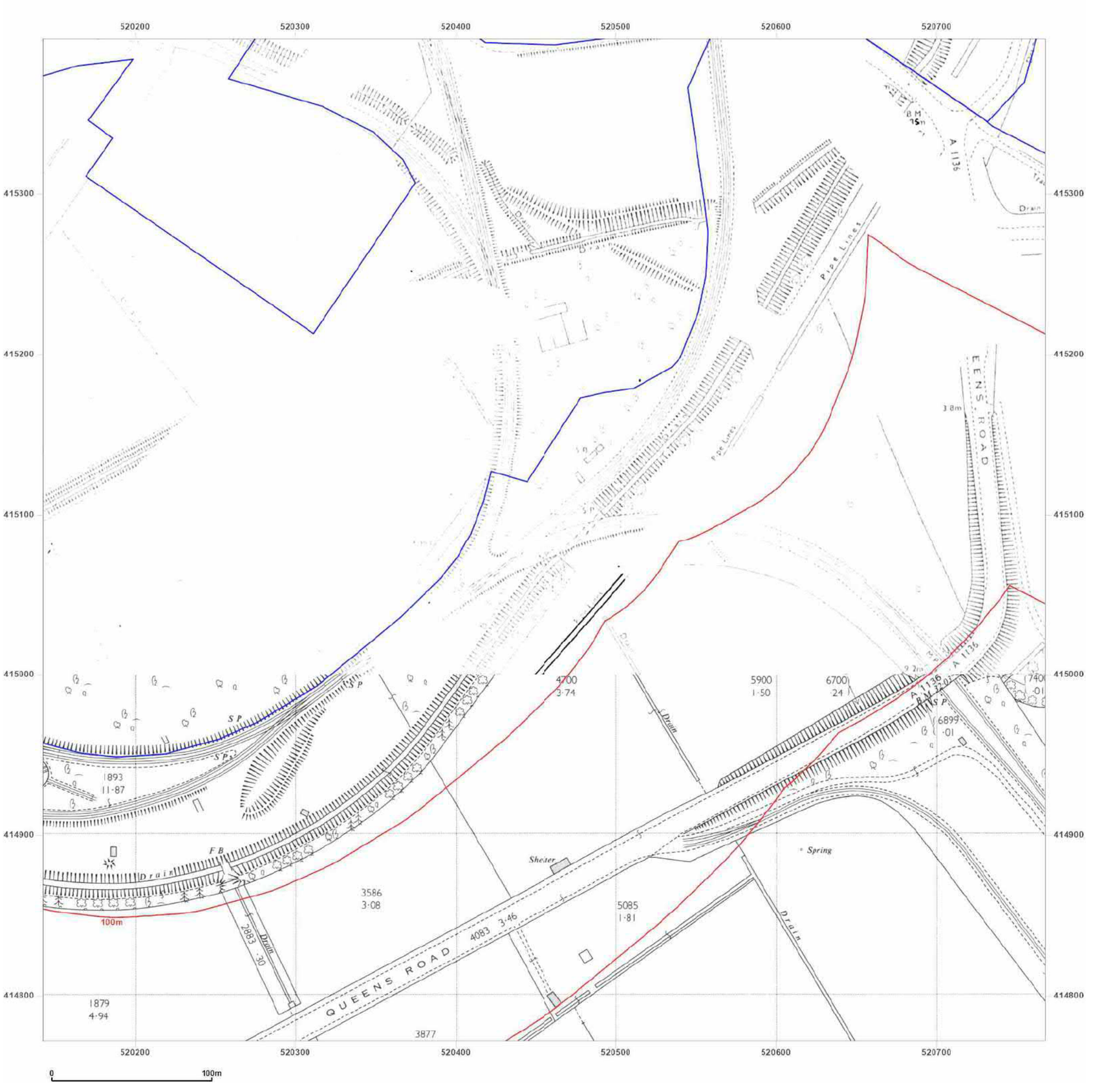
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: National Grid

Map date: **1964-1969**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled 1969

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1959

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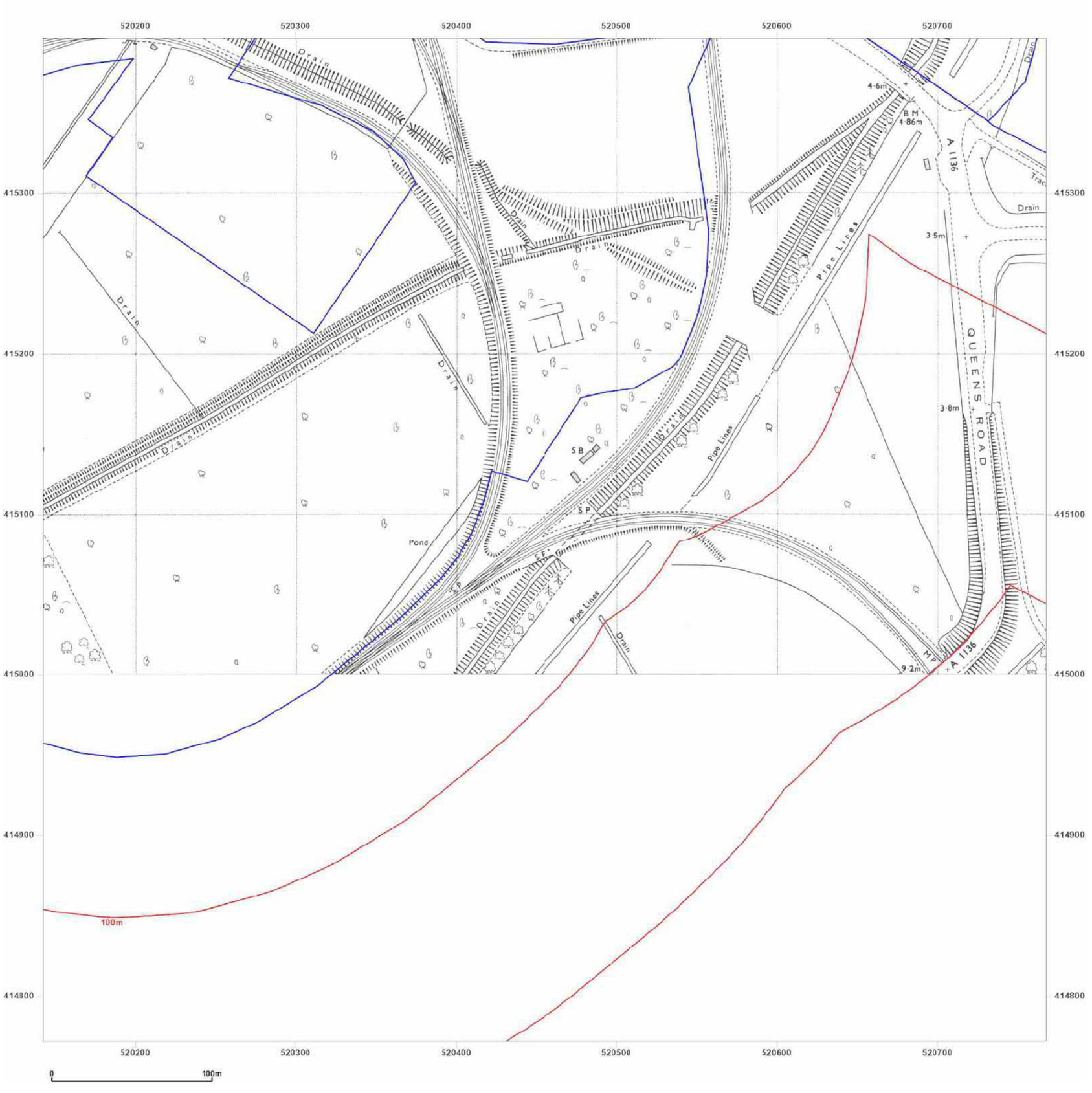
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: National Grid

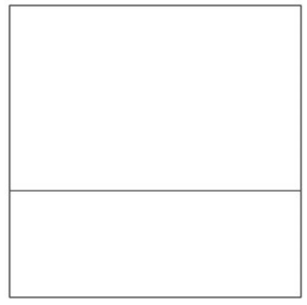
Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1971
Levelled 1969



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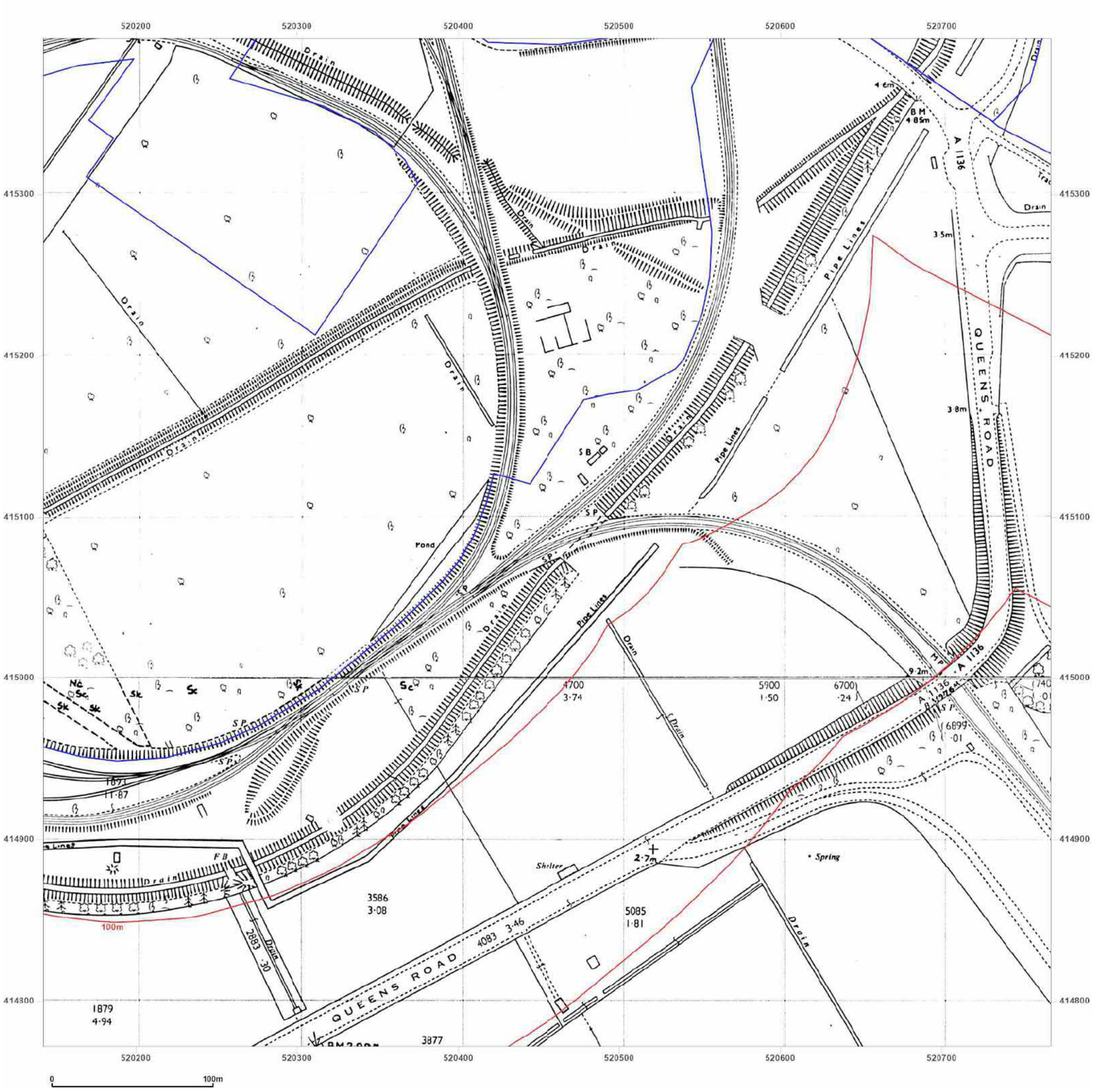
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: National Grid

Map date: **1978-1979**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1979
Revised 1979
Edition N/A
Copyright 1979
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1978
Levelled N/A

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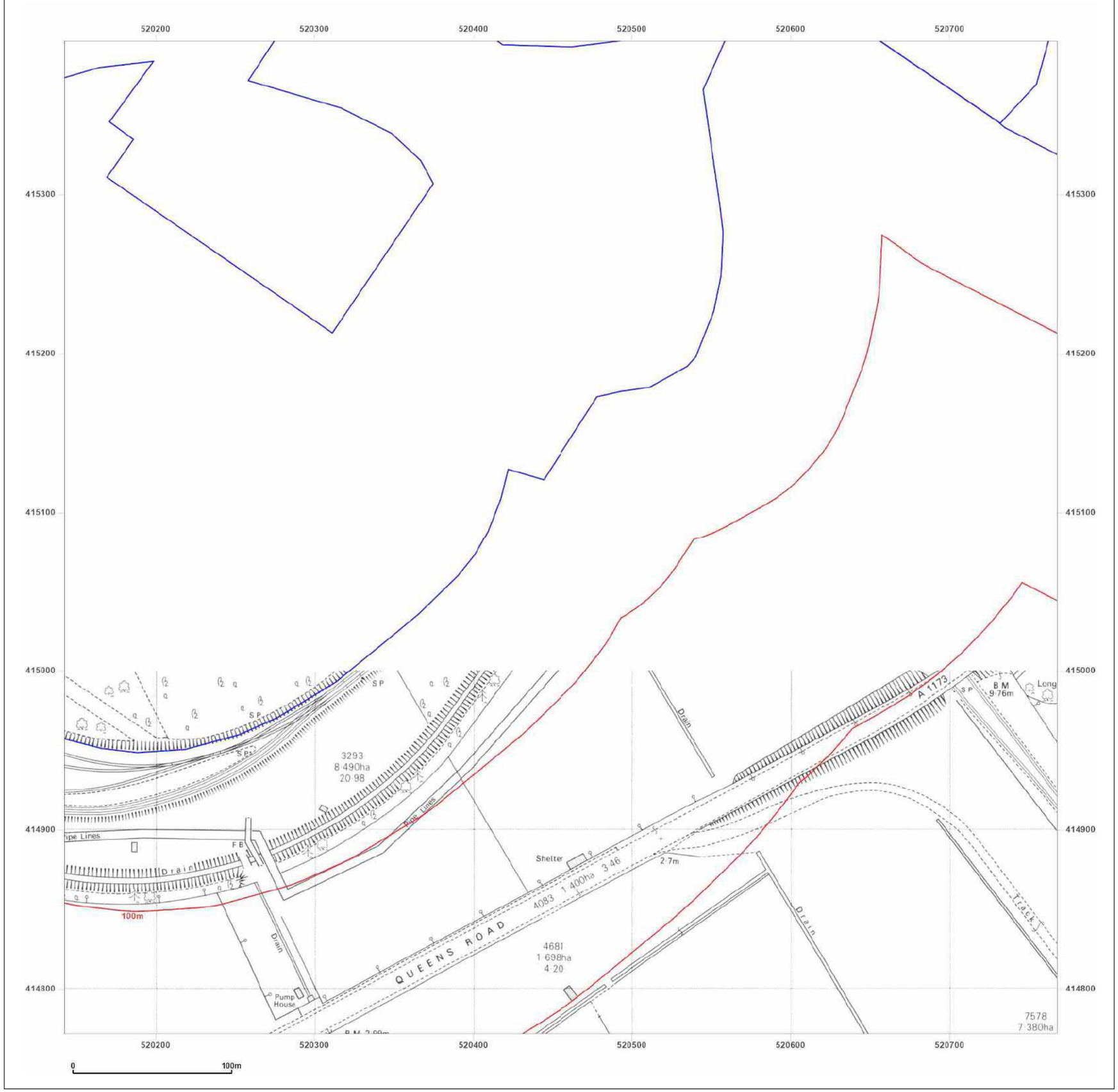
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: National Grid
Map date: **1984**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1984
Revised 1984
Edition N/A
Copyright 1986
Levelled 1977

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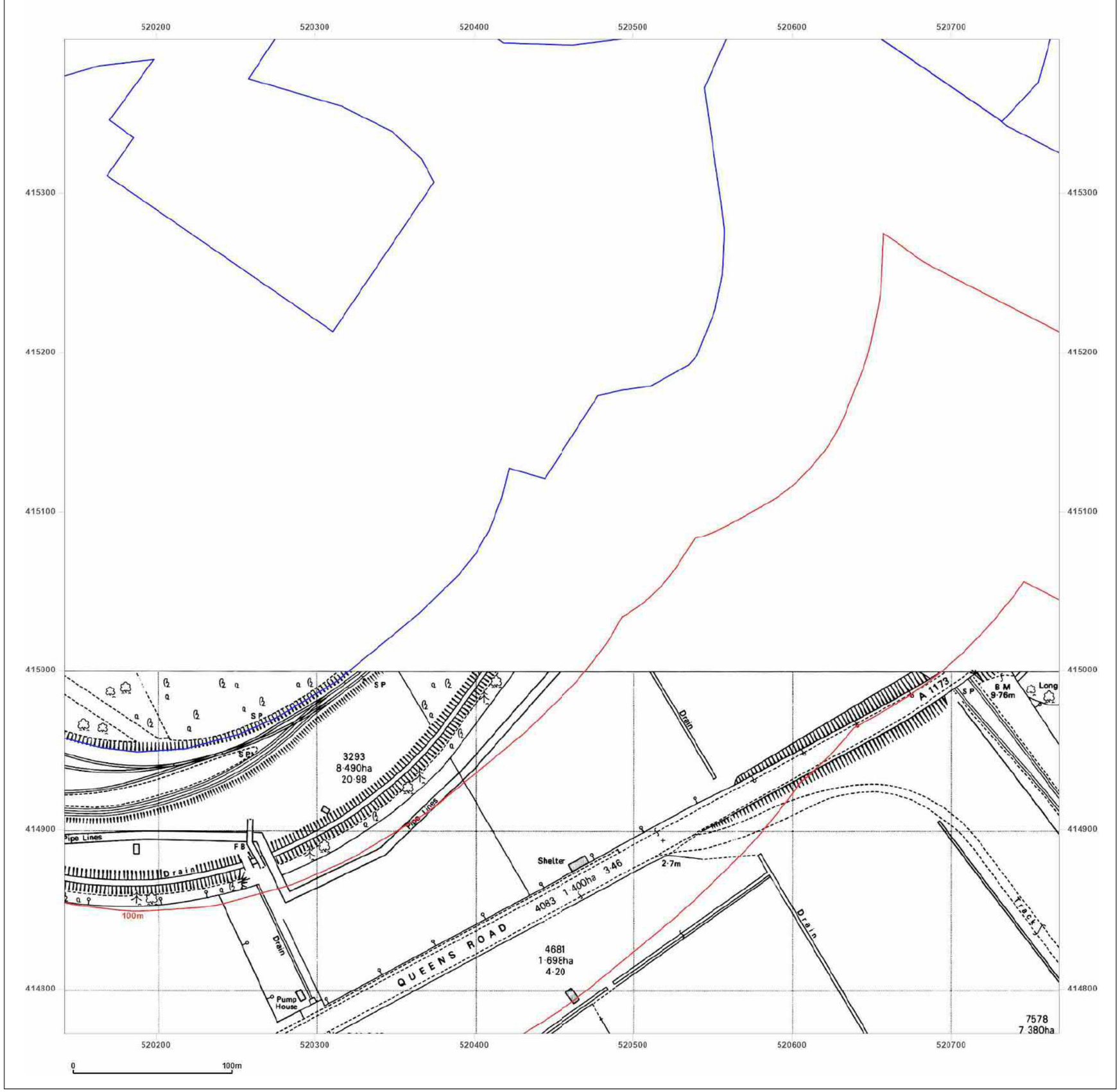
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_1
Grid Ref: 520455, 415084

Map Name: National Grid
Map date: **1986**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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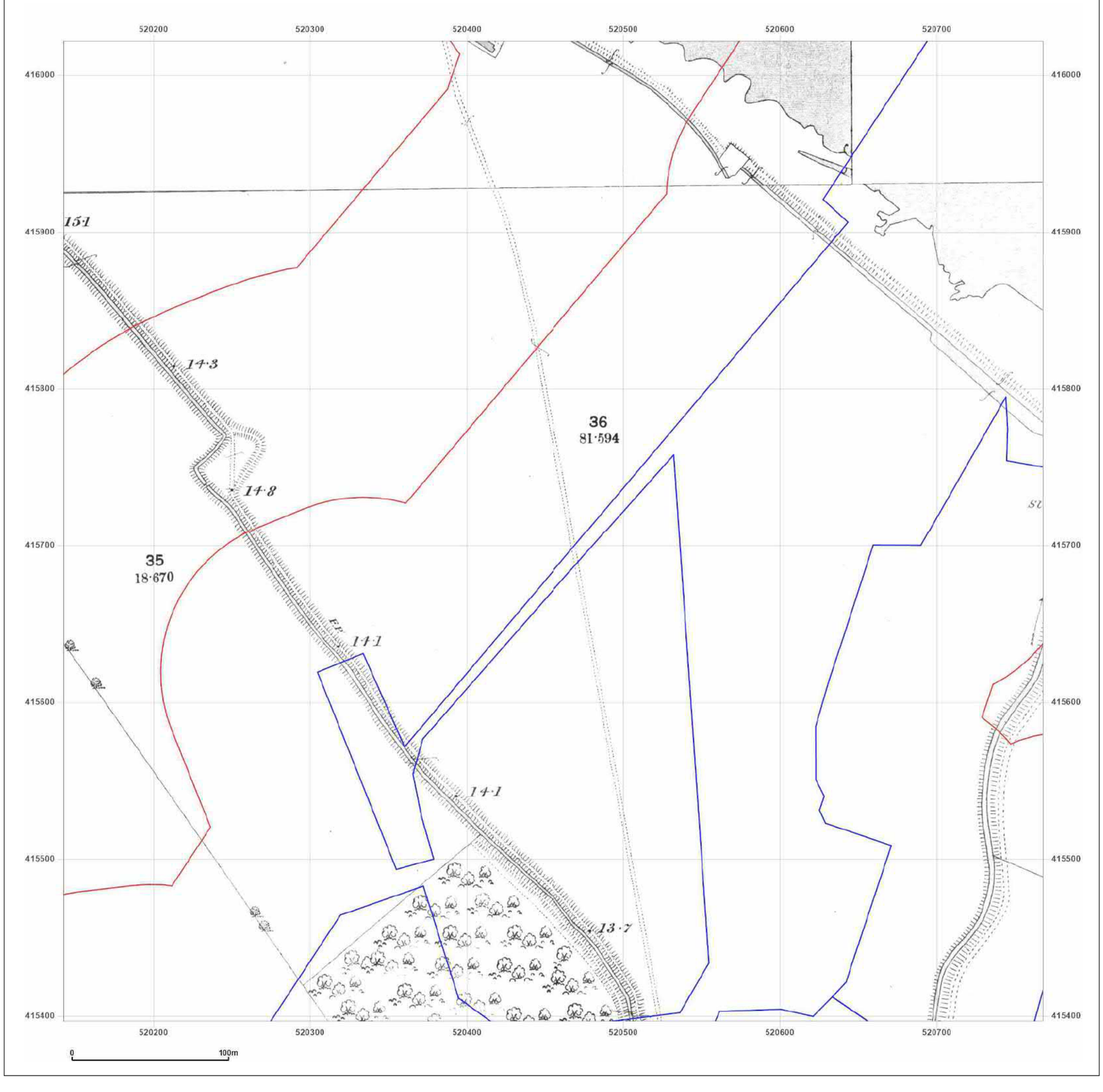
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_2
Grid Ref: 520455, 415709

Map Name: County Series
Map date: **1887-1888**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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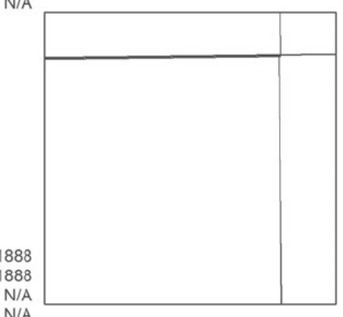
Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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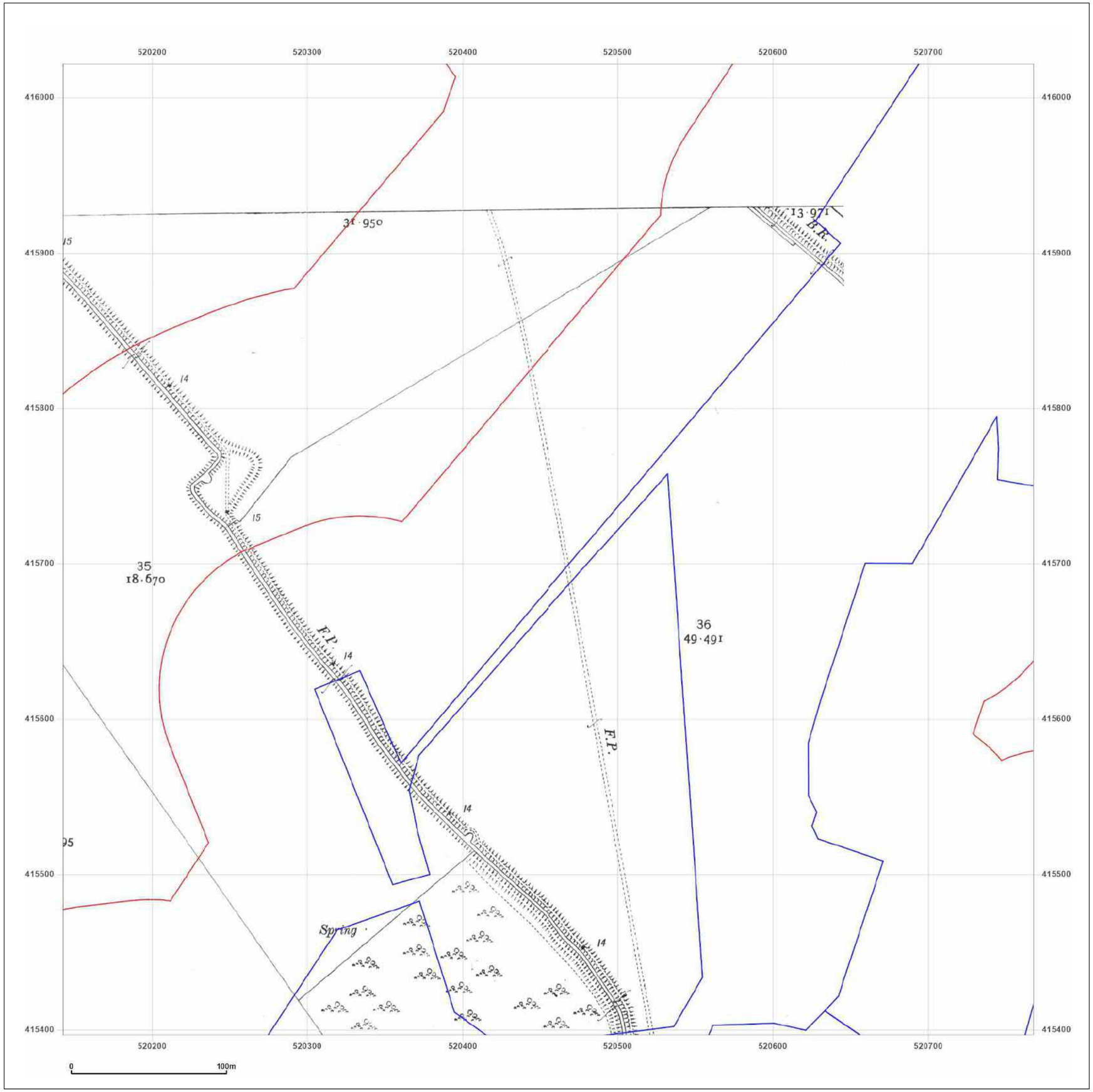
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_2
Grid Ref: 520455, 415709

Map Name: County Series

Map date: **1907**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

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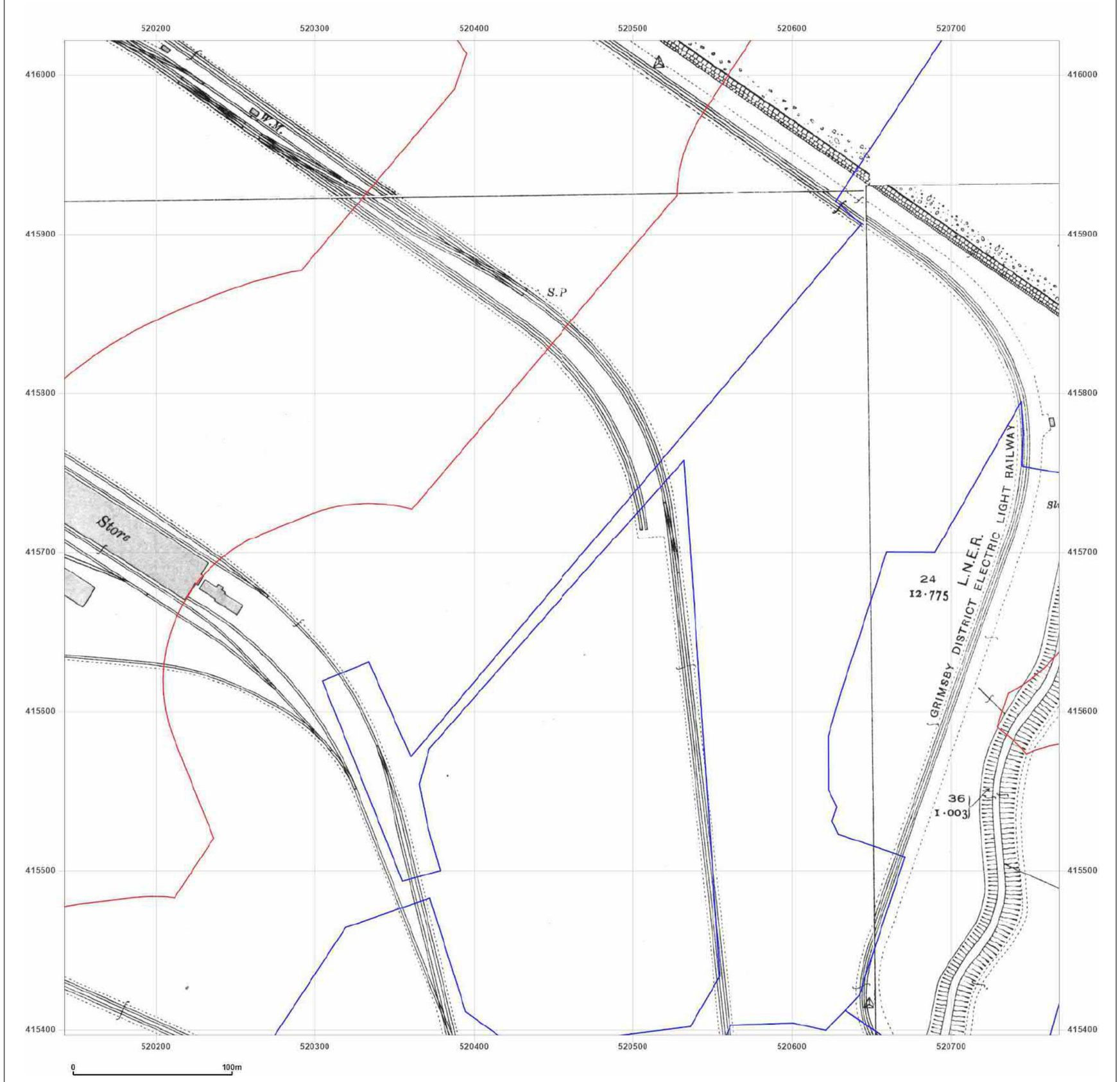
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_2
Grid Ref: 520455, 415709

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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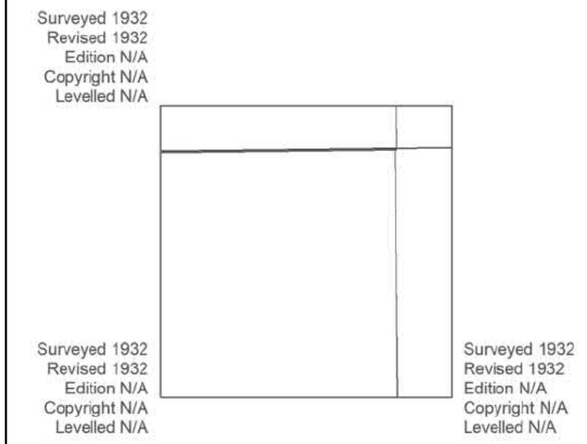

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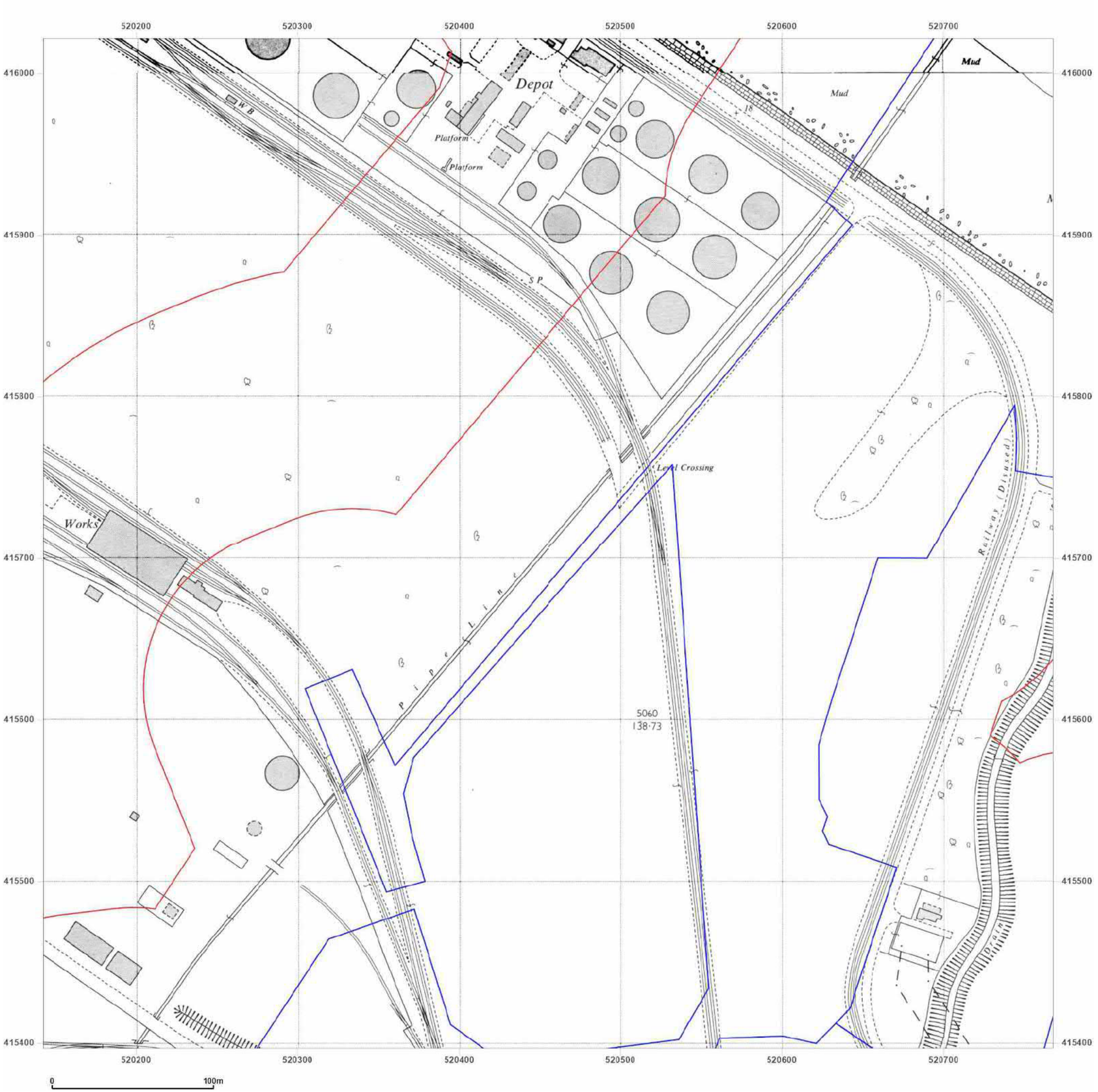
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_2
Grid Ref: 520455, 415709

Map Name: National Grid

Map date: **1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1959

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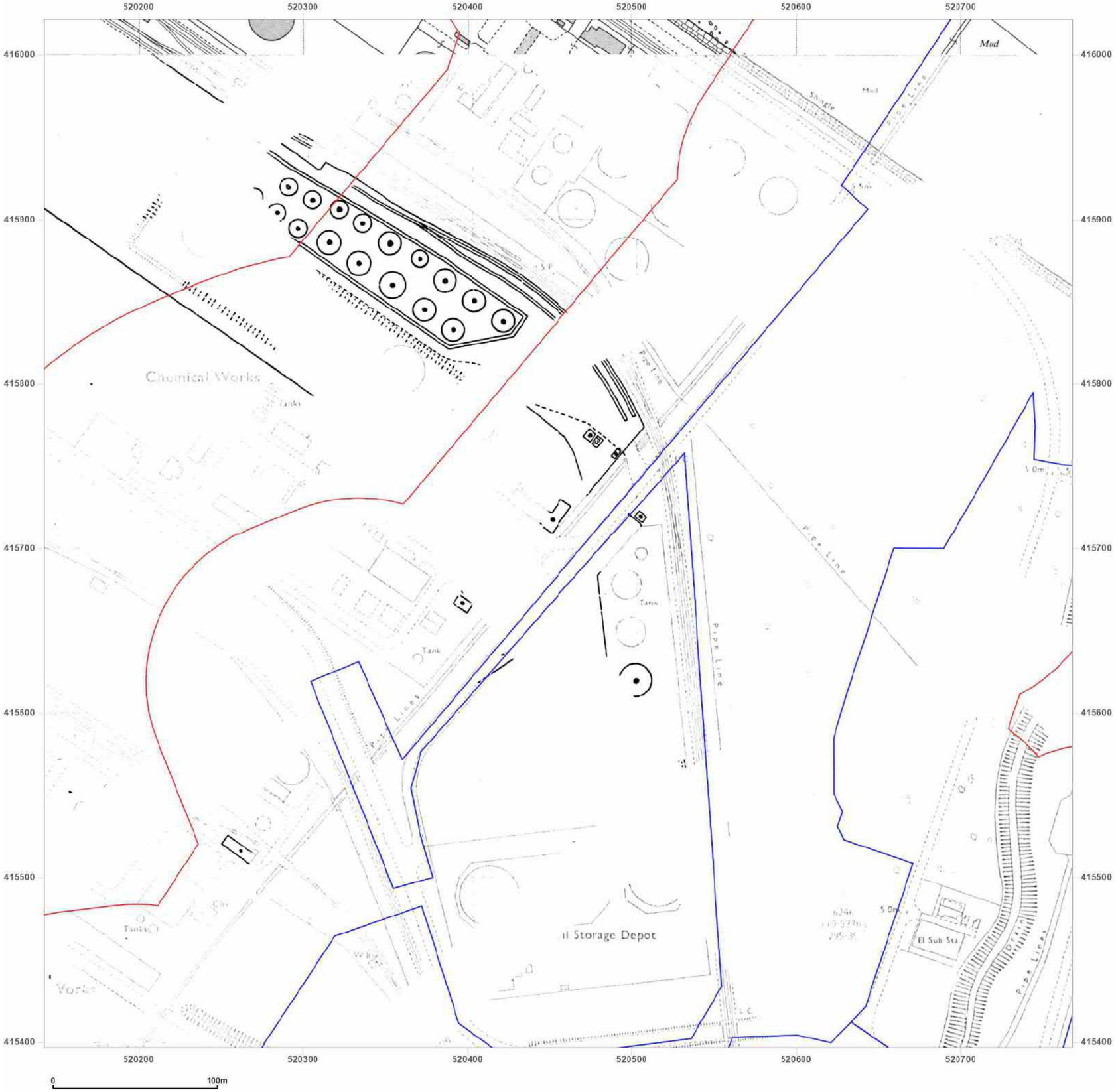
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_2
Grid Ref: 520455, 415709

Map Name: National Grid

Map date: **1964-1969**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1951

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled 1969

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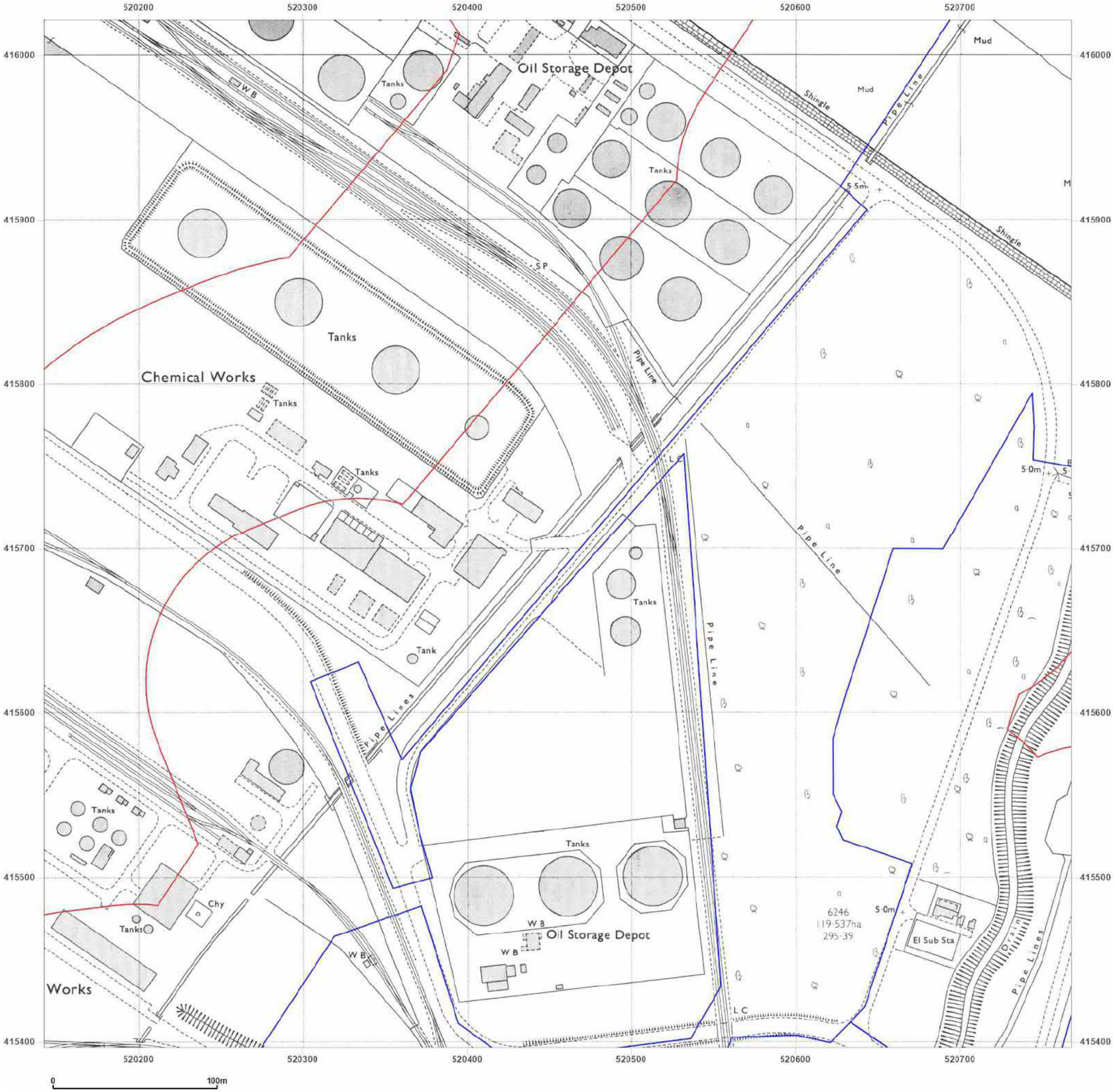
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_2
Grid Ref: 520455, 415709

Map Name: National Grid

Map date: **1970-1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1969

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1971
Levelled 1969

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_2
Grid Ref: 520455, 415709

Map Name: National Grid
Map date: **1979**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1979
Revised 1979
Edition N/A
Copyright 1979
Levelled N/A

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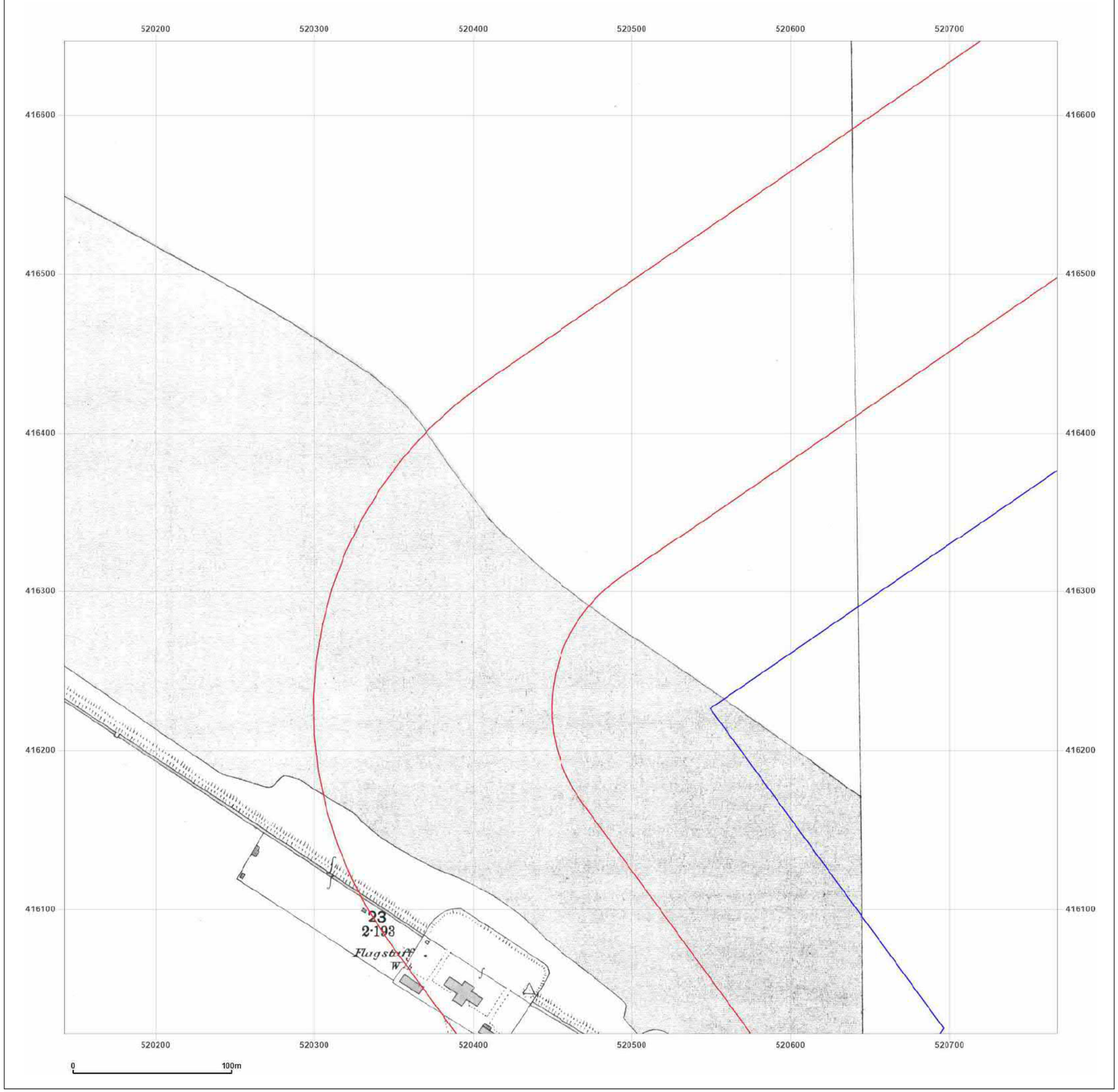
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

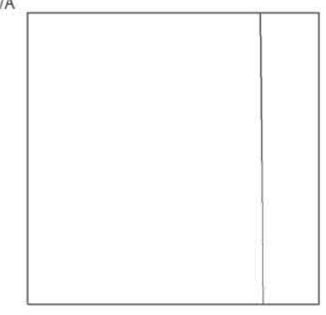
520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_3
Grid Ref: 520455, 416334

Map Name: County Series
Map date: **1887**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A



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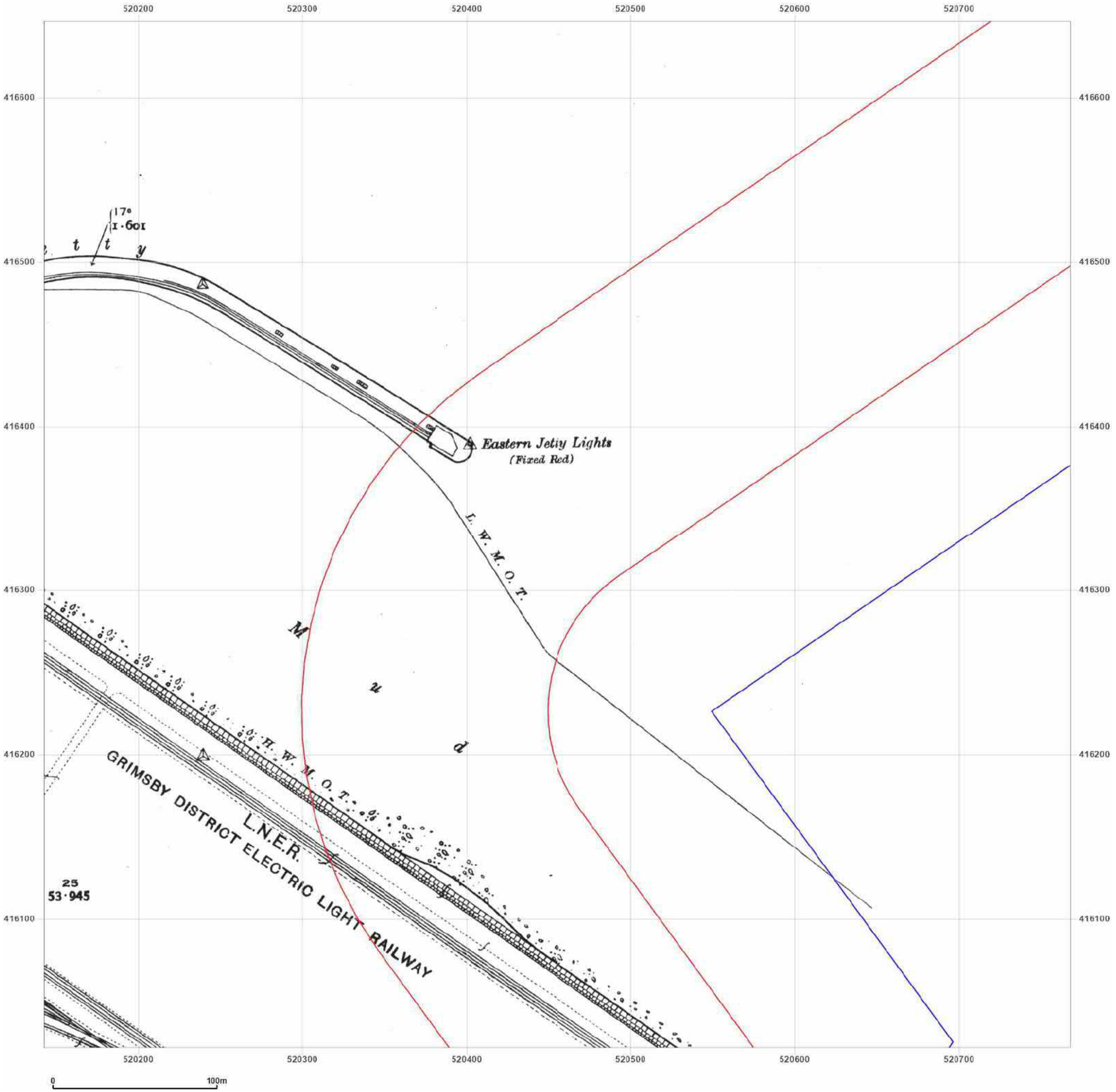
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_3
Grid Ref: 520455, 416334

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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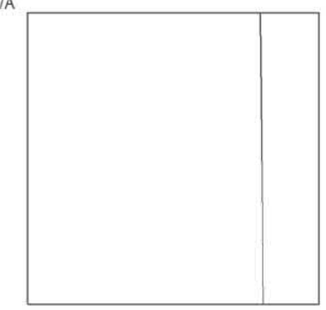
Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A



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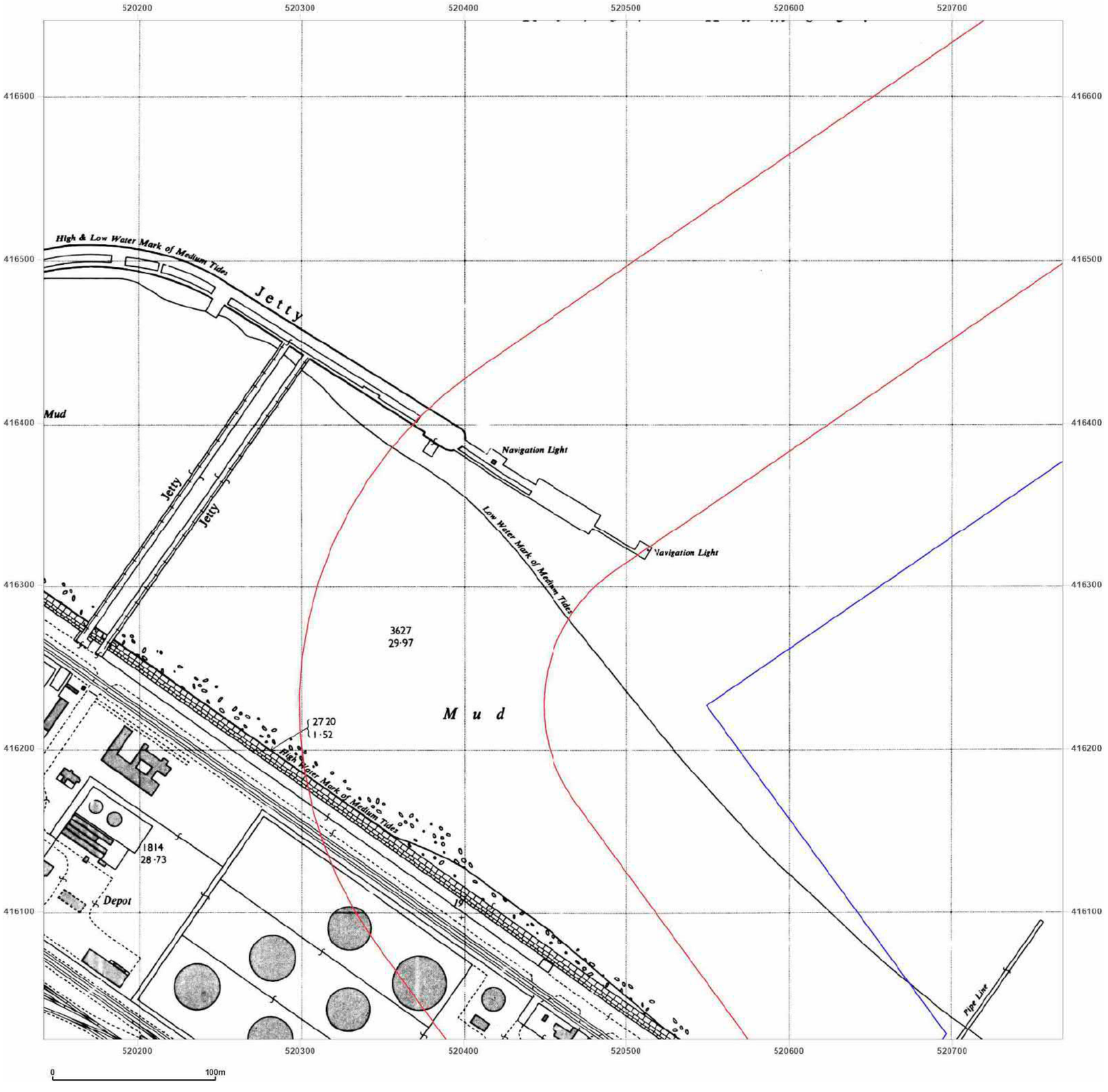
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_3
Grid Ref: 520455, 416334

Map Name: National Grid
Map date: **1964**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

~~Surveyed N/A~~
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_3
Grid Ref: 520455, 416334

Map Name: National Grid

Map date: **1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

~~Surveyed 1964~~
Revised 1964
Edition N/A
Copyright 1964
Levelled 1951

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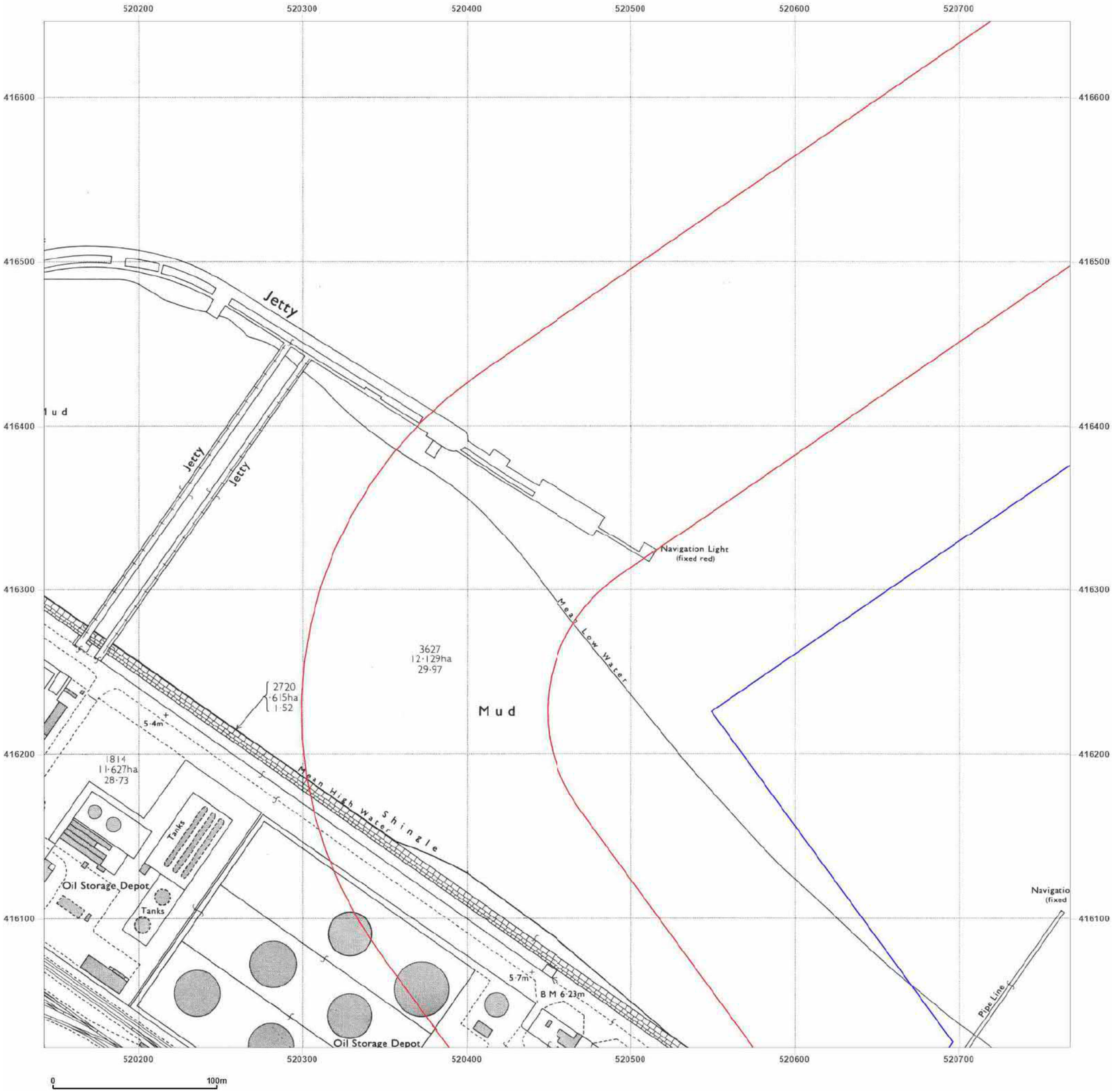
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_3
Grid Ref: 520455, 416334

Map Name: National Grid
Map date: **1970**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1969

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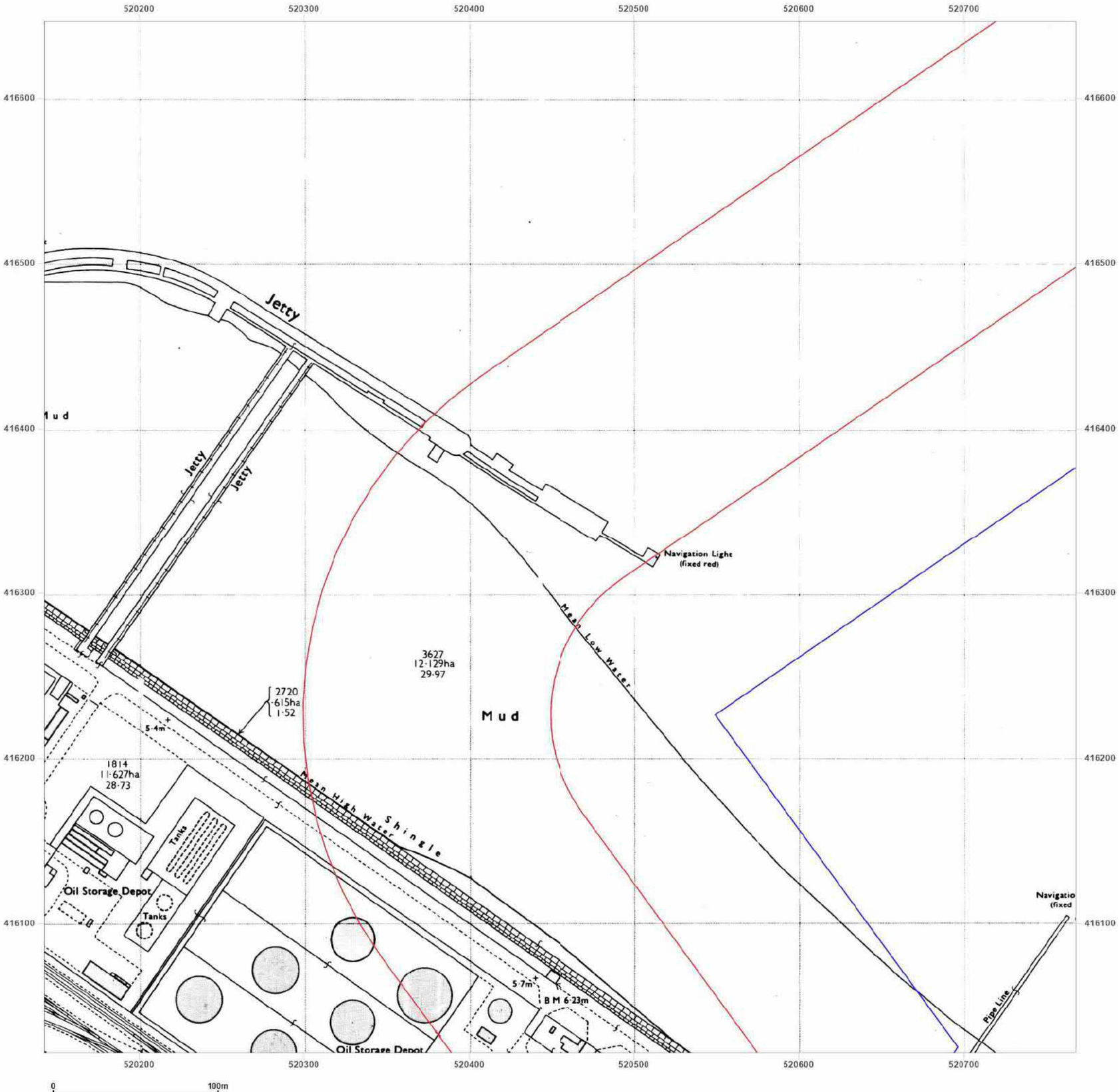
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_3_3
Grid Ref: 520455, 416334

Map Name: National Grid
Map date: **1971**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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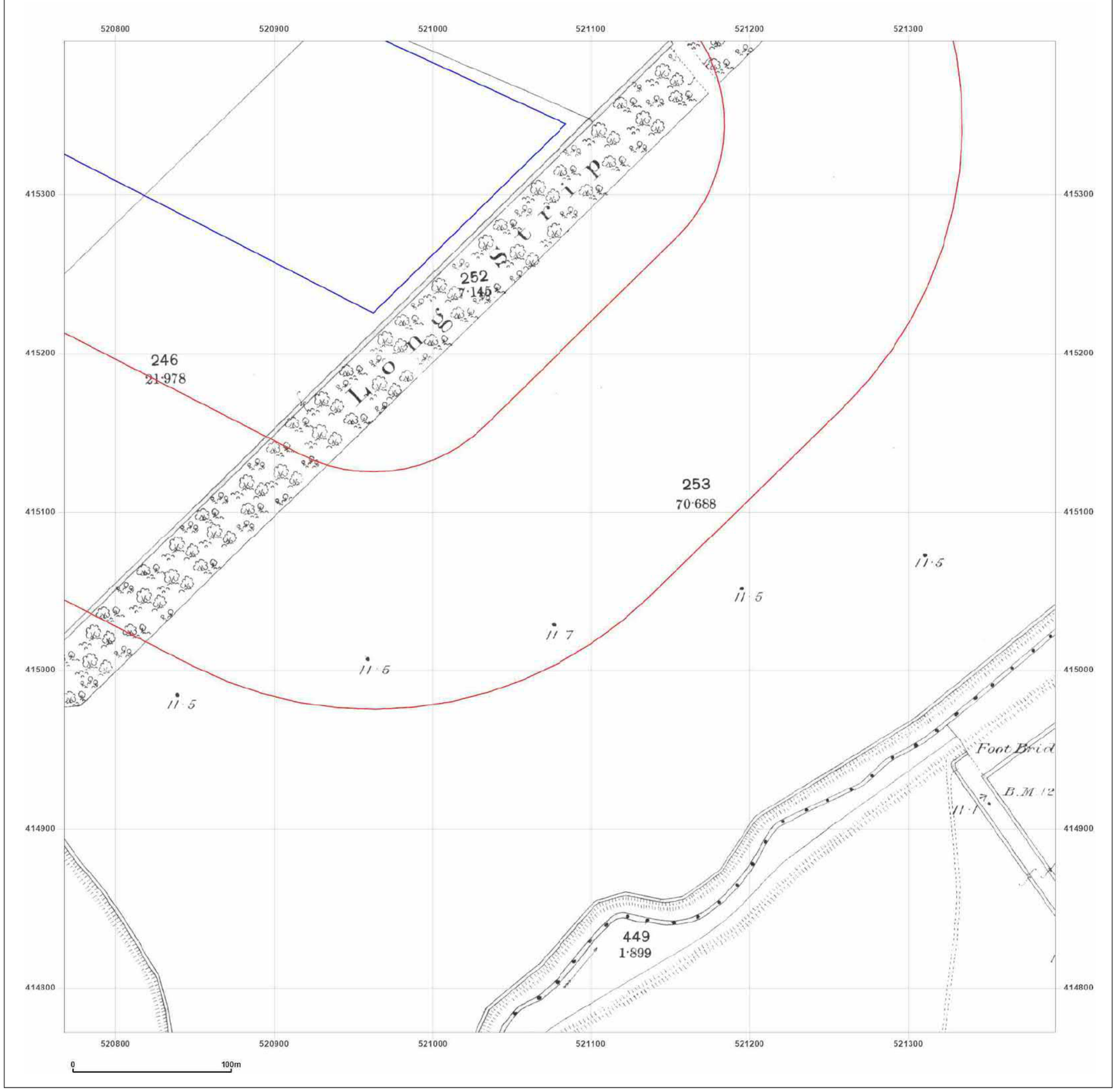
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: County Series
Map date: **1888**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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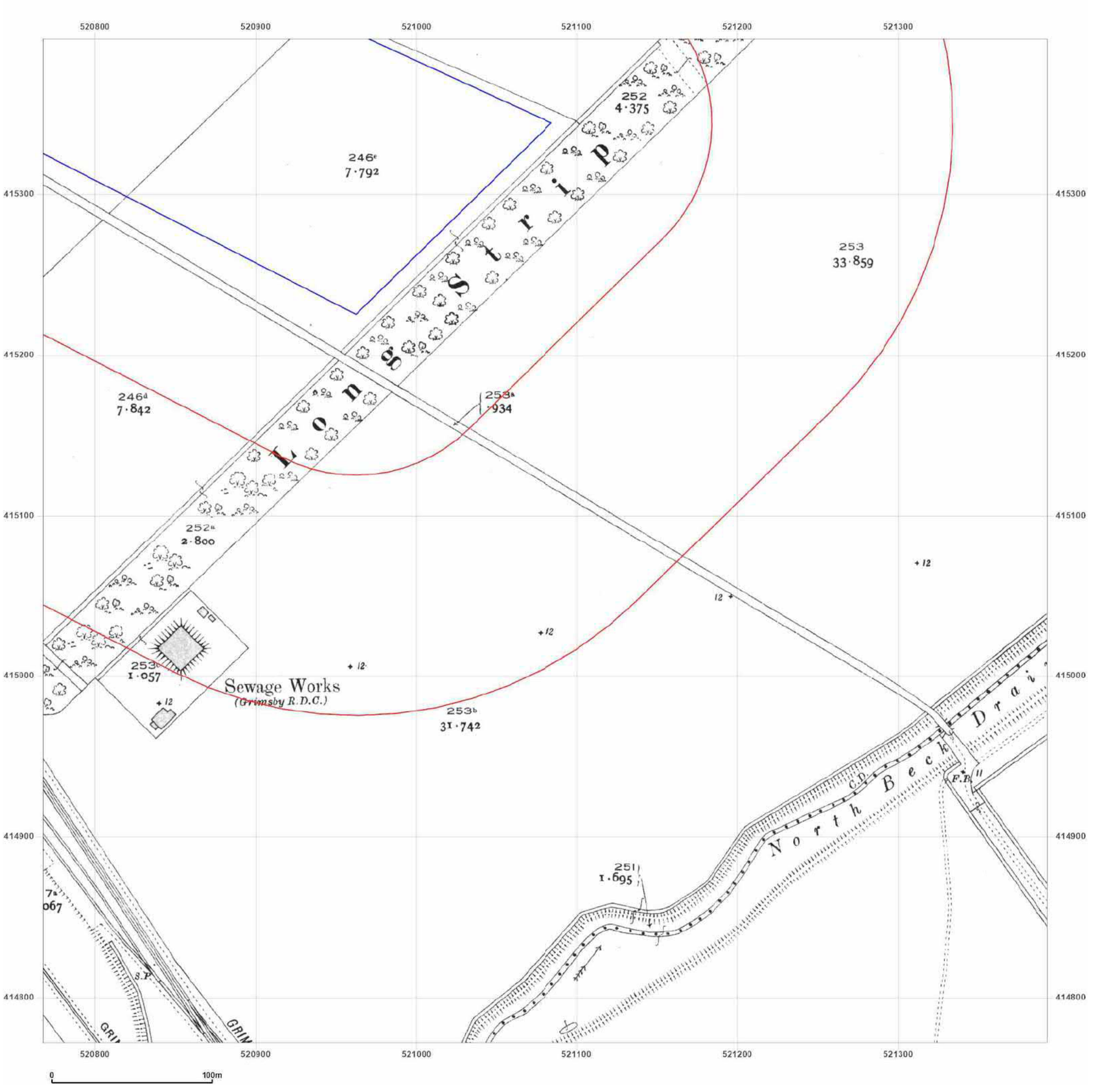
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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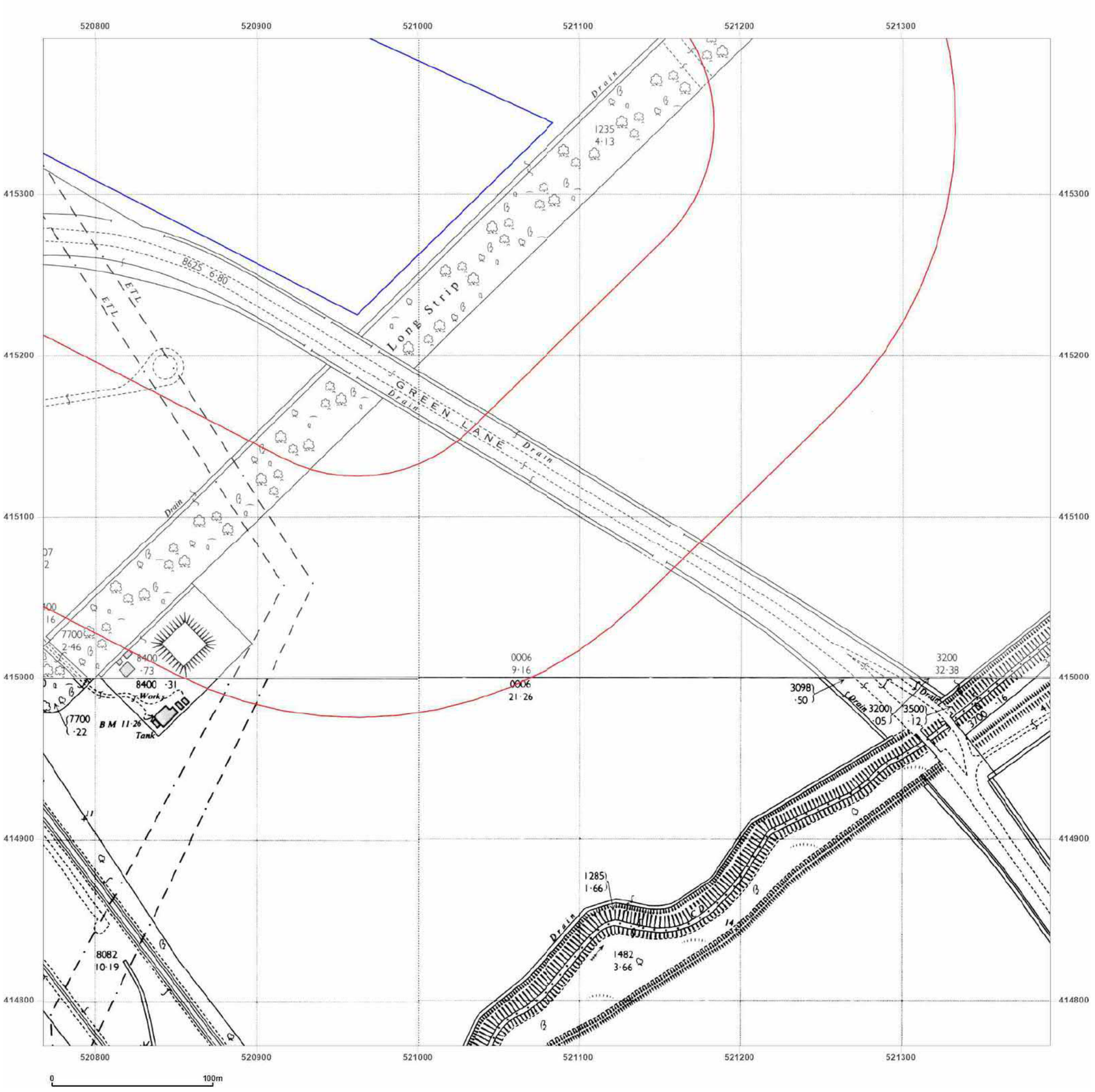
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: National Grid
Map date: **1964**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1959

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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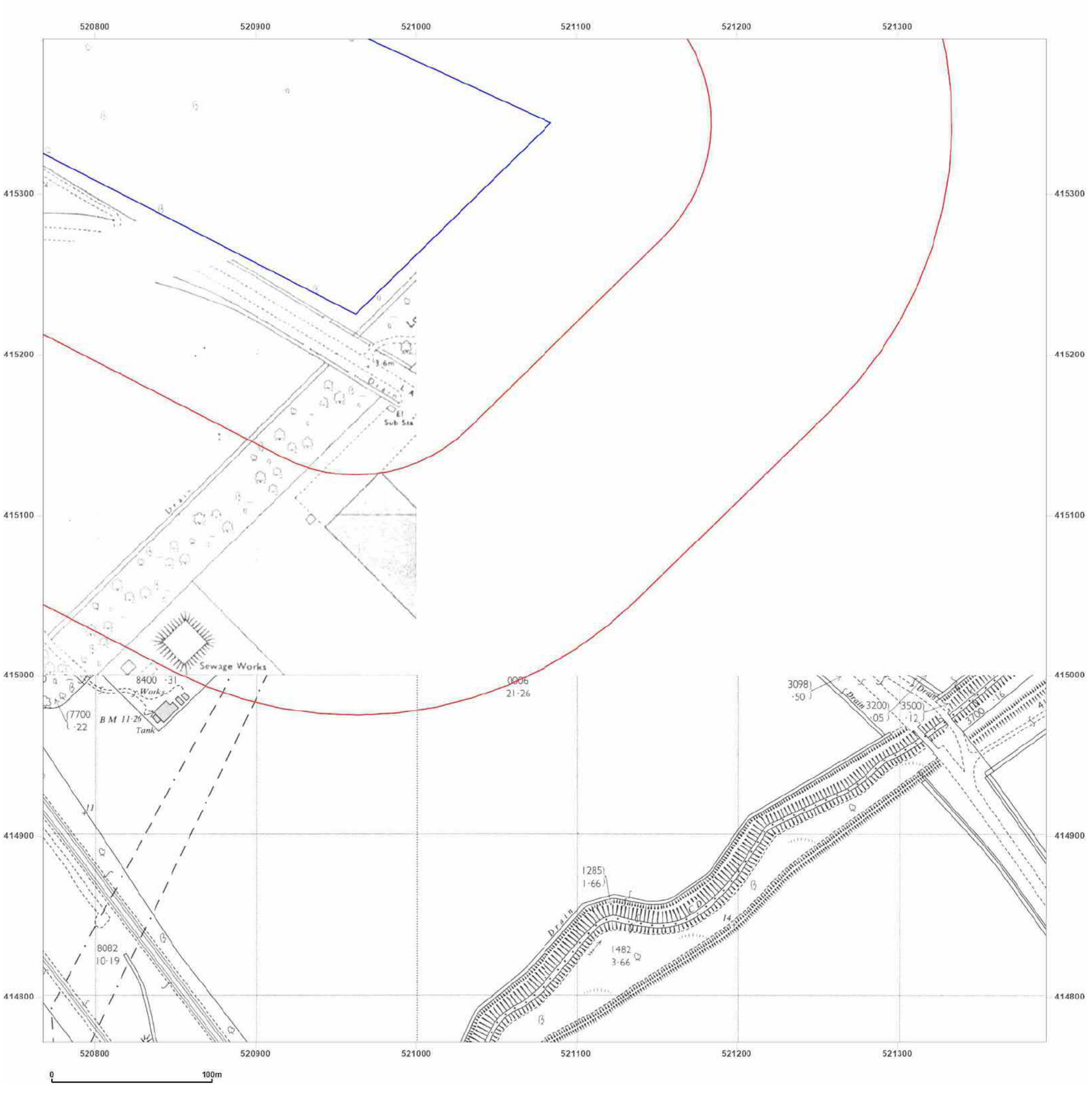
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: National Grid

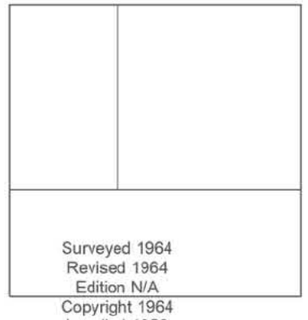
Map date: **1964-1969**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled 1969



Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1959

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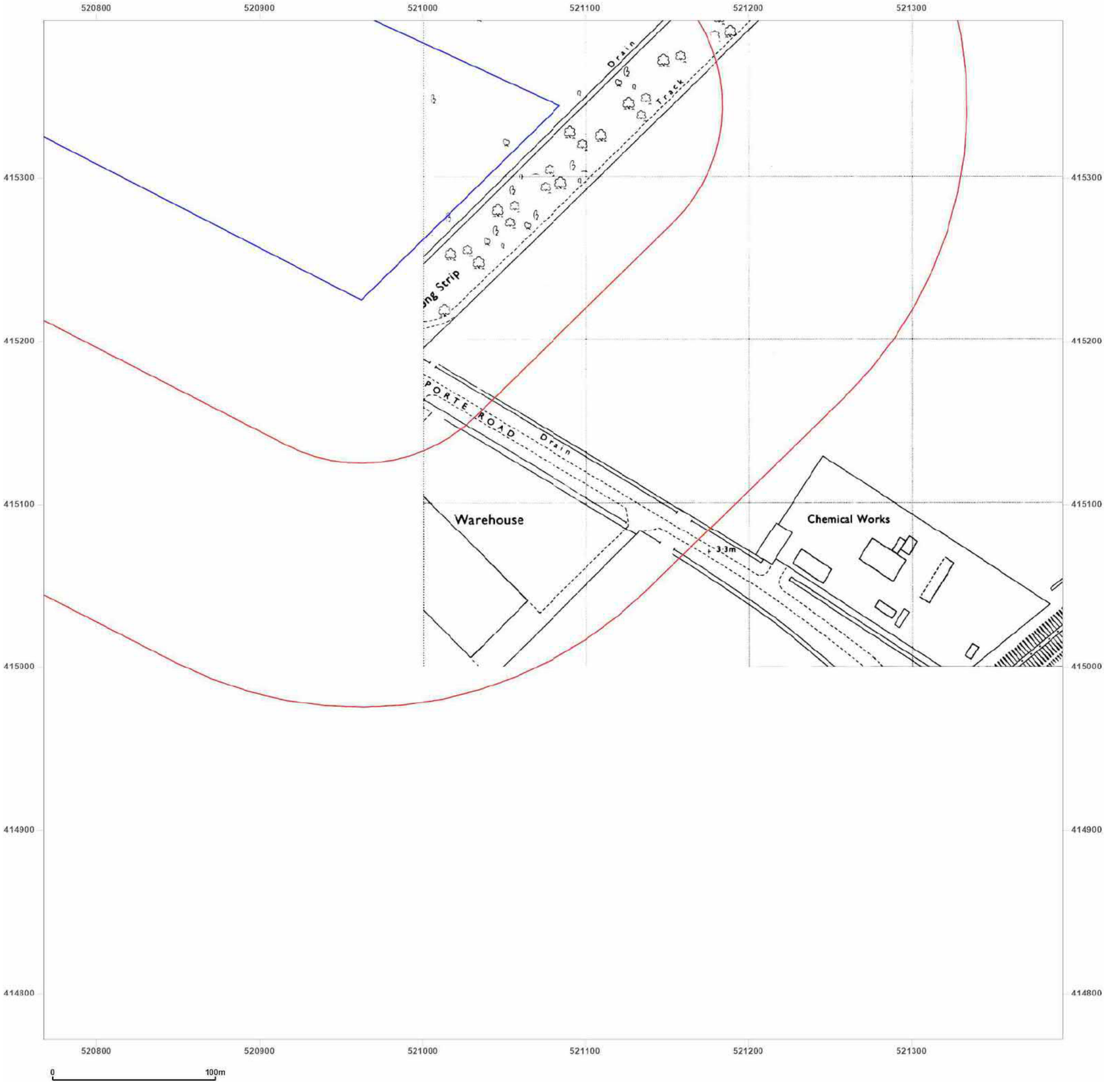
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: National Grid

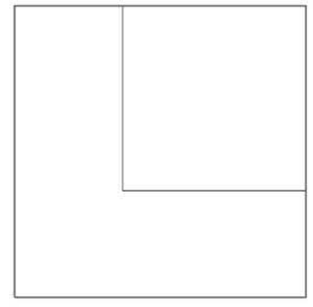
Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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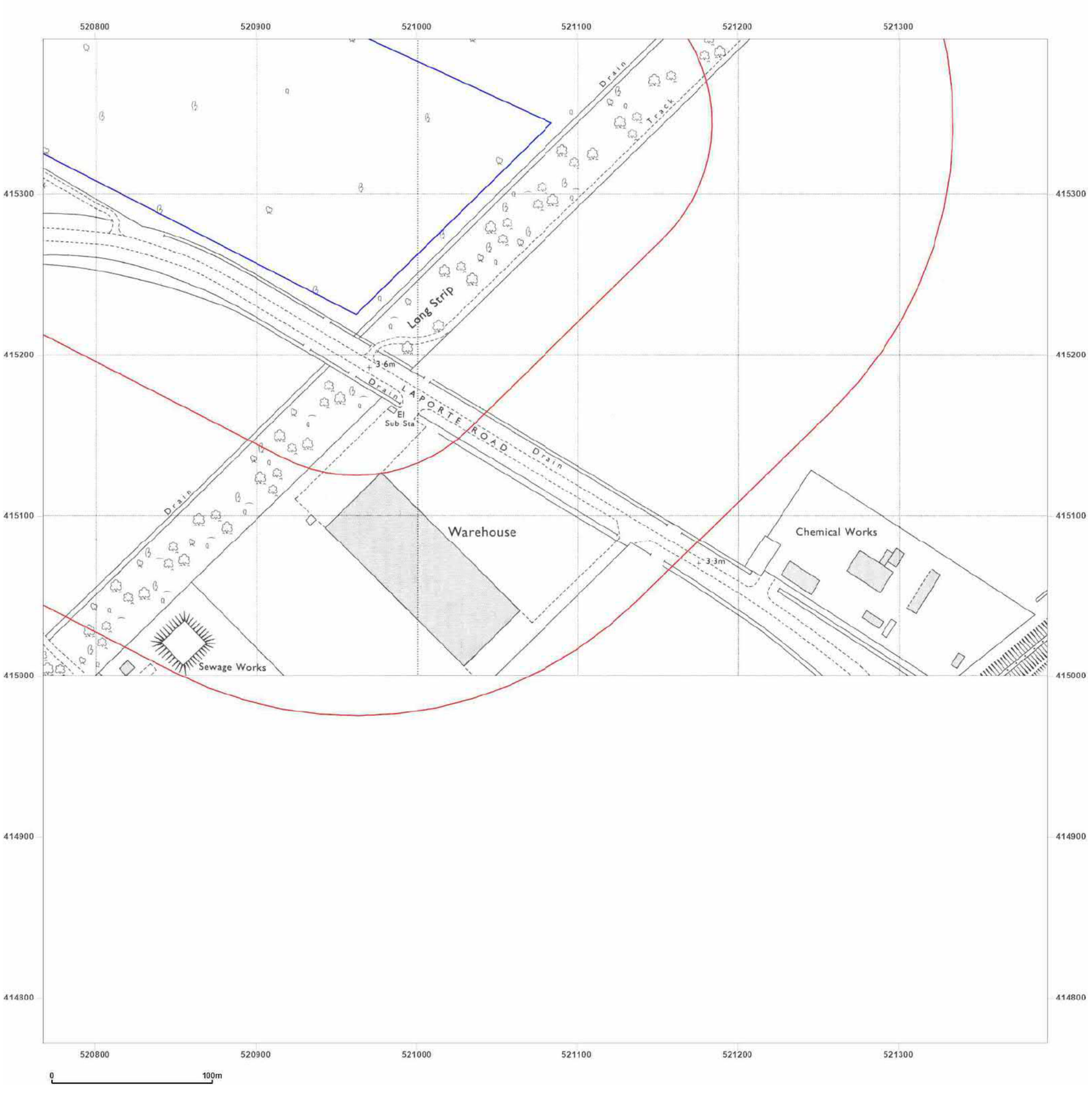
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: National Grid

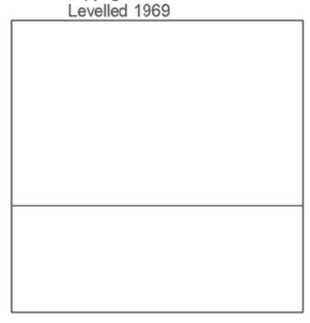
Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1971
Levelled 1969



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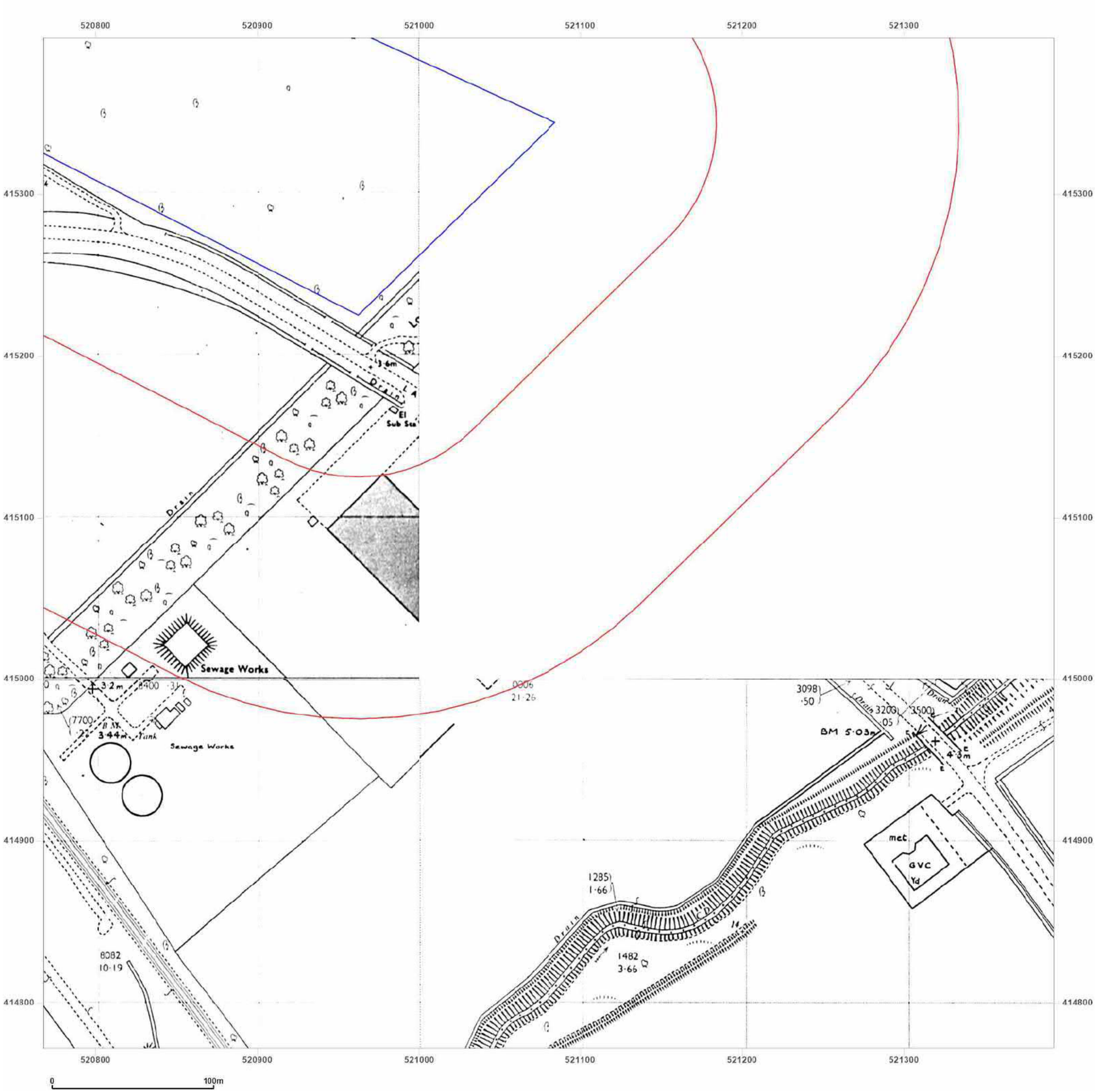
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: National Grid
Map date: **1978-1979**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1979
Revised 1979
Edition N/A
Copyright 1979
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1978
Levelled N/A

Surveyed 1978
Revised 1978
Edition N/A
Copyright 1978
Levelled N/A

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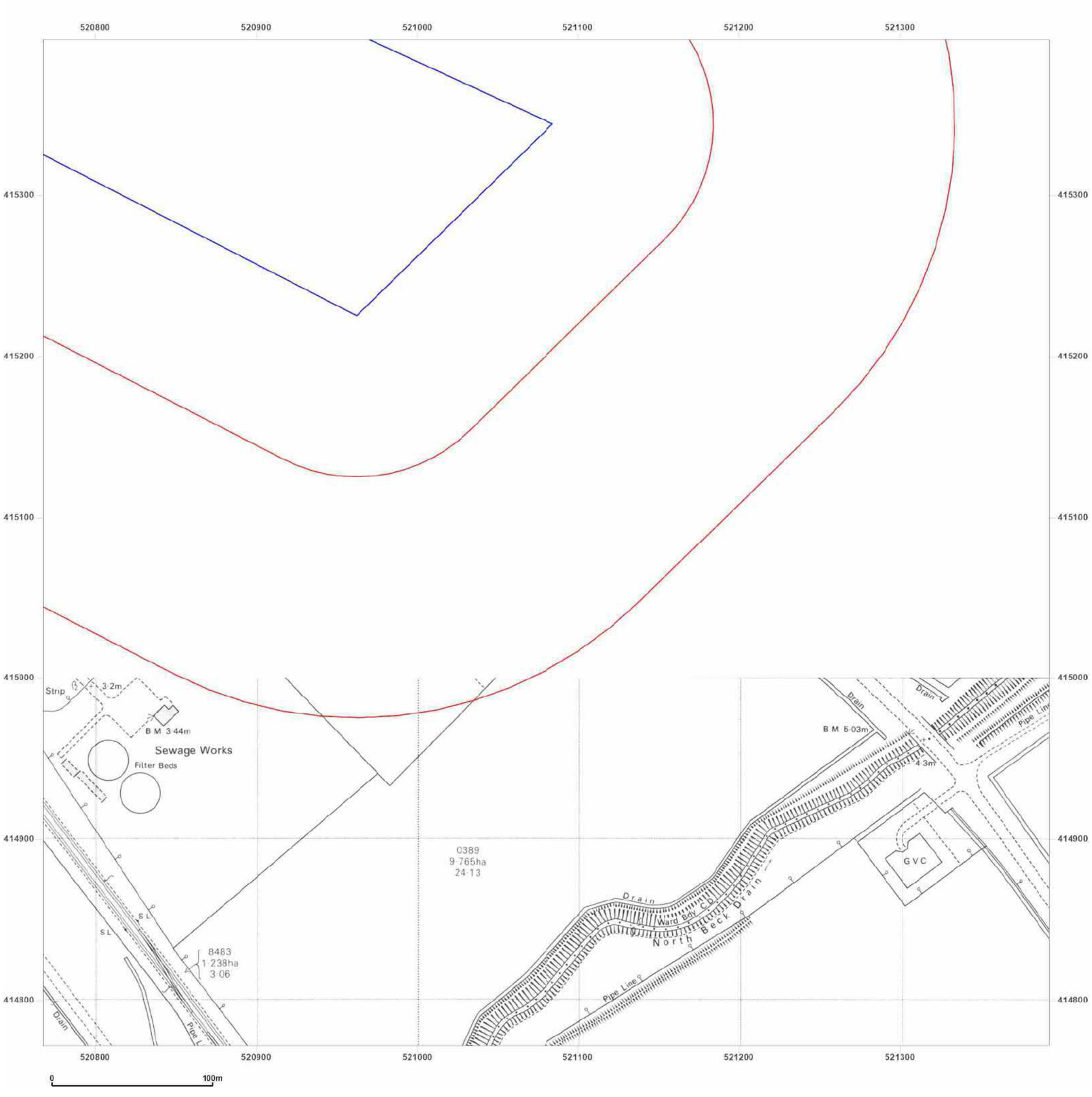
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: National Grid
Map date: **1984**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1984
Revised 1984
Edition N/A
Copyright 1986
Levelled 1977

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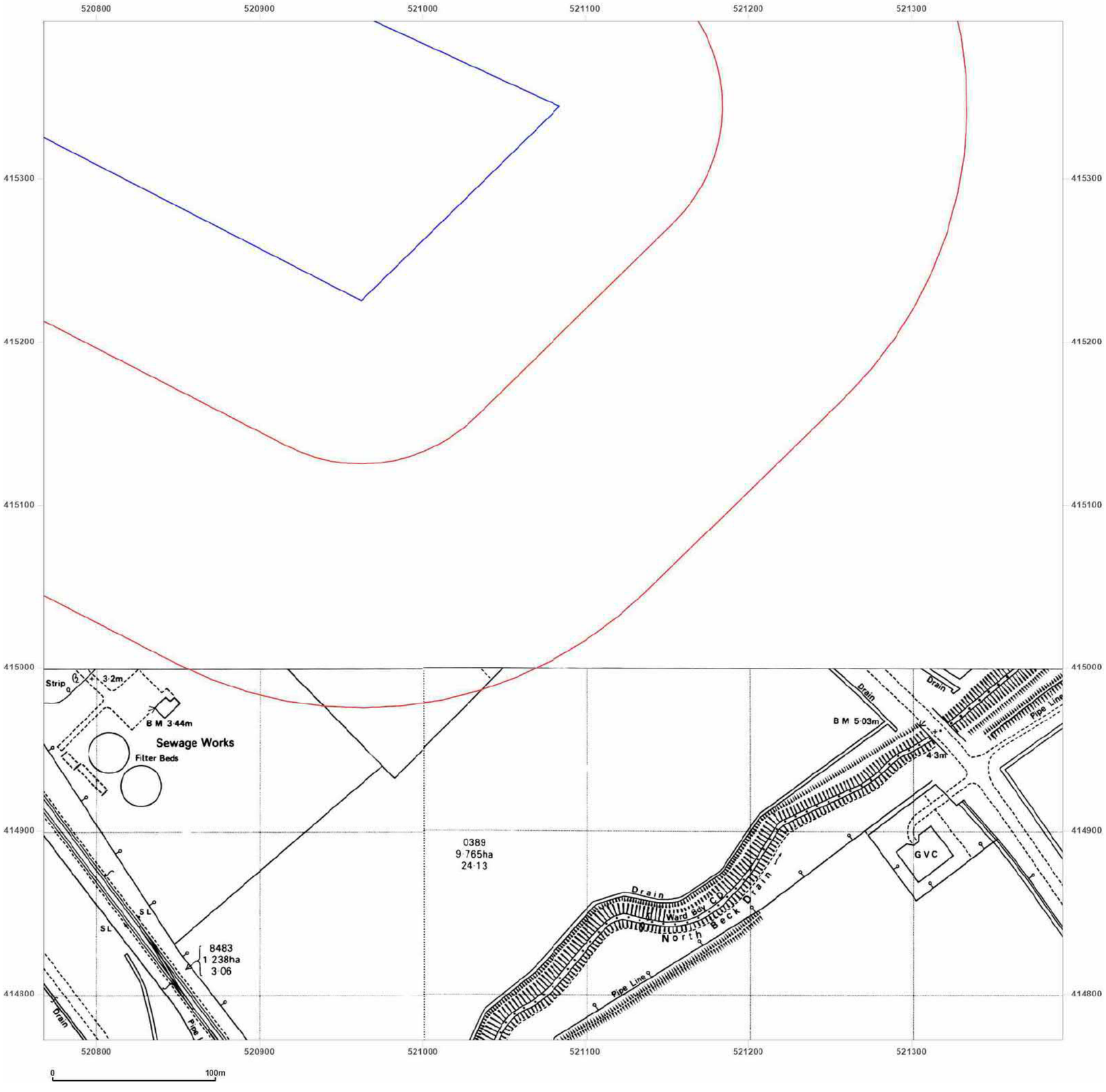
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_1
Grid Ref: 521080, 415084

Map Name: National Grid
Map date: **1986**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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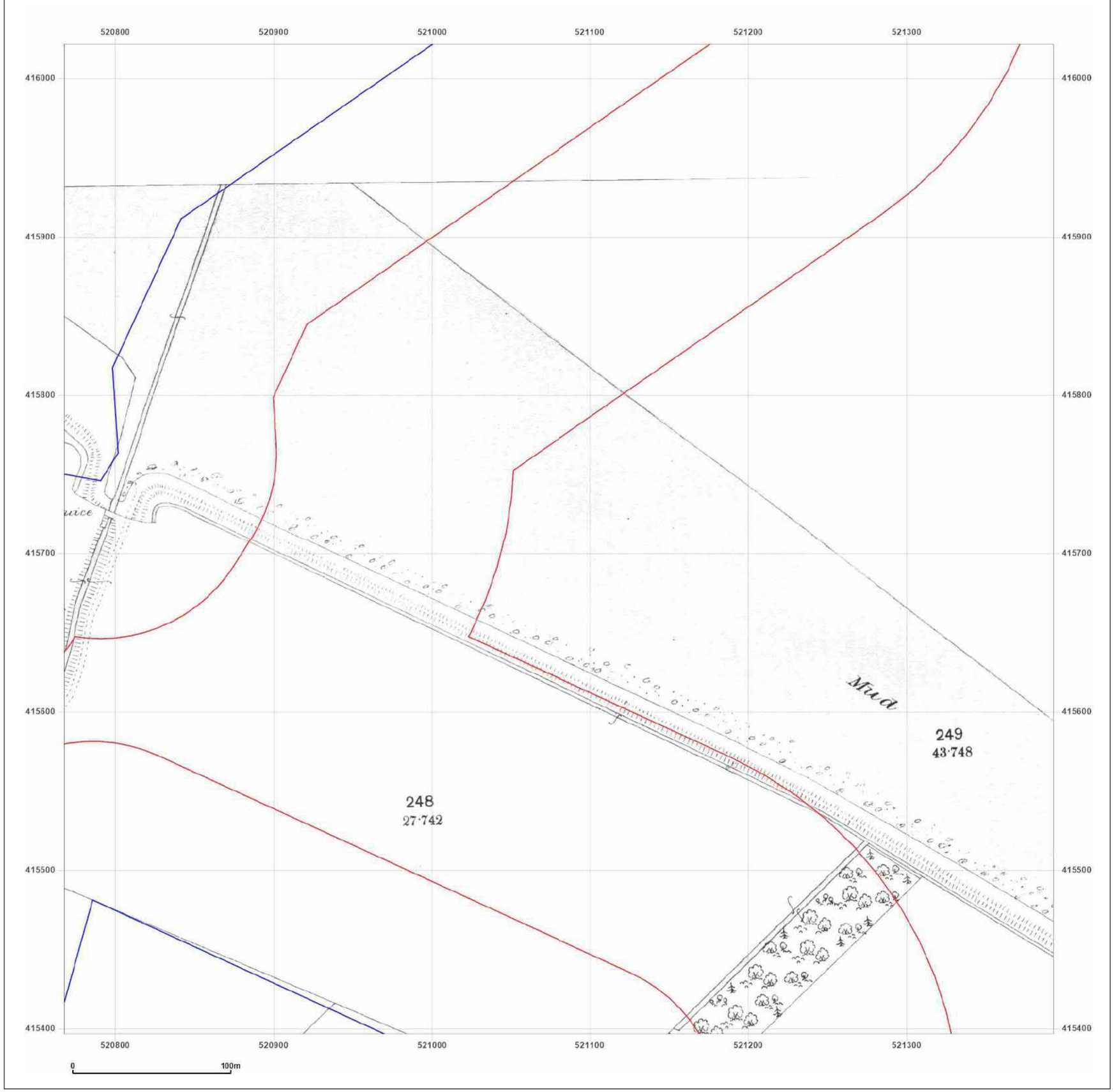
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_2
Grid Ref: 521080, 415709

Map Name: County Series
Map date: **1888**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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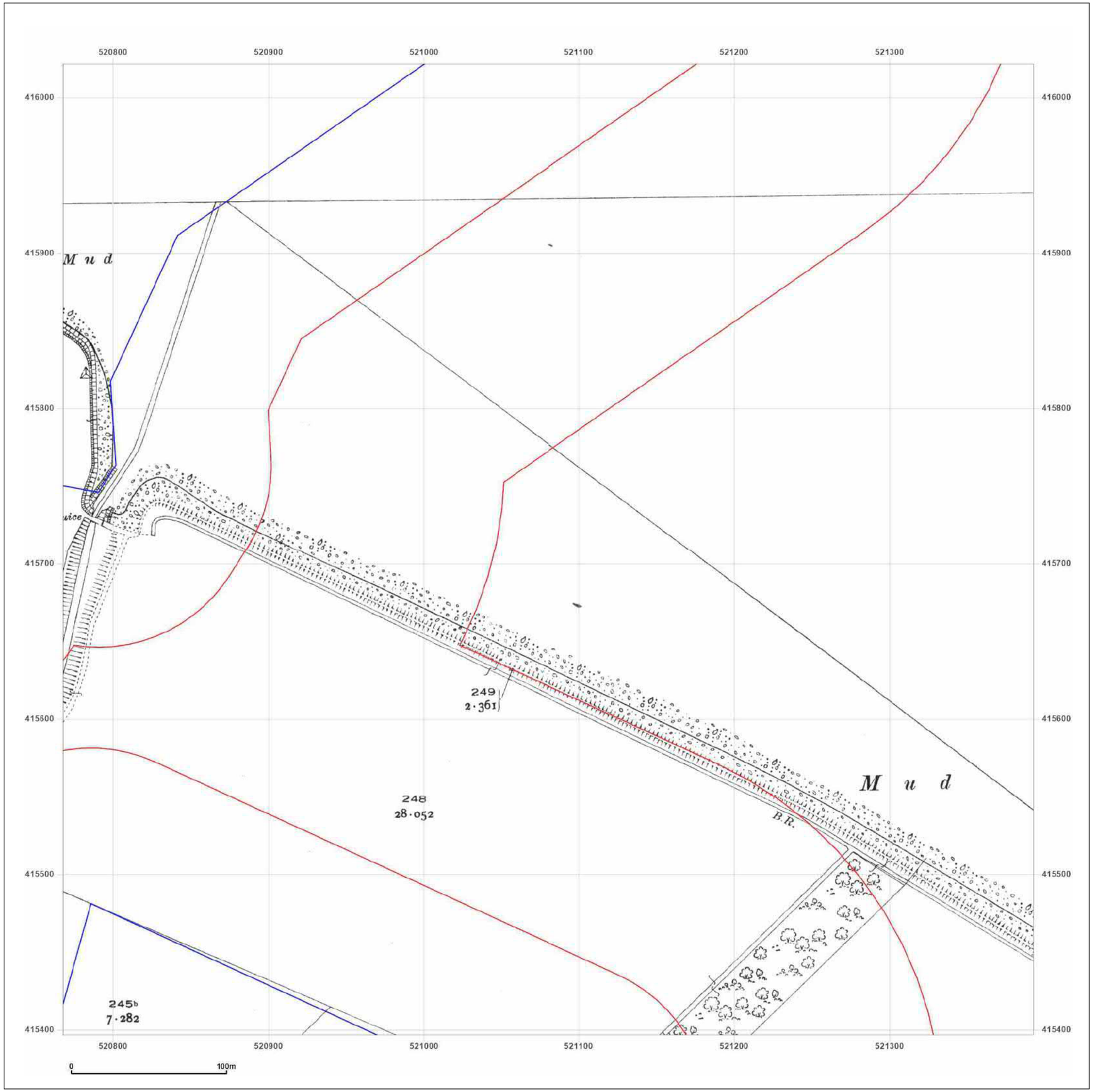
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

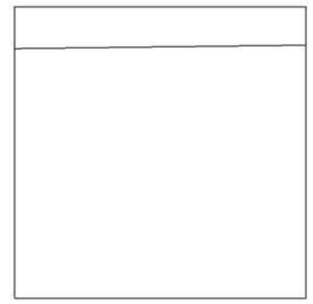
Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_2
Grid Ref: 521080, 415709

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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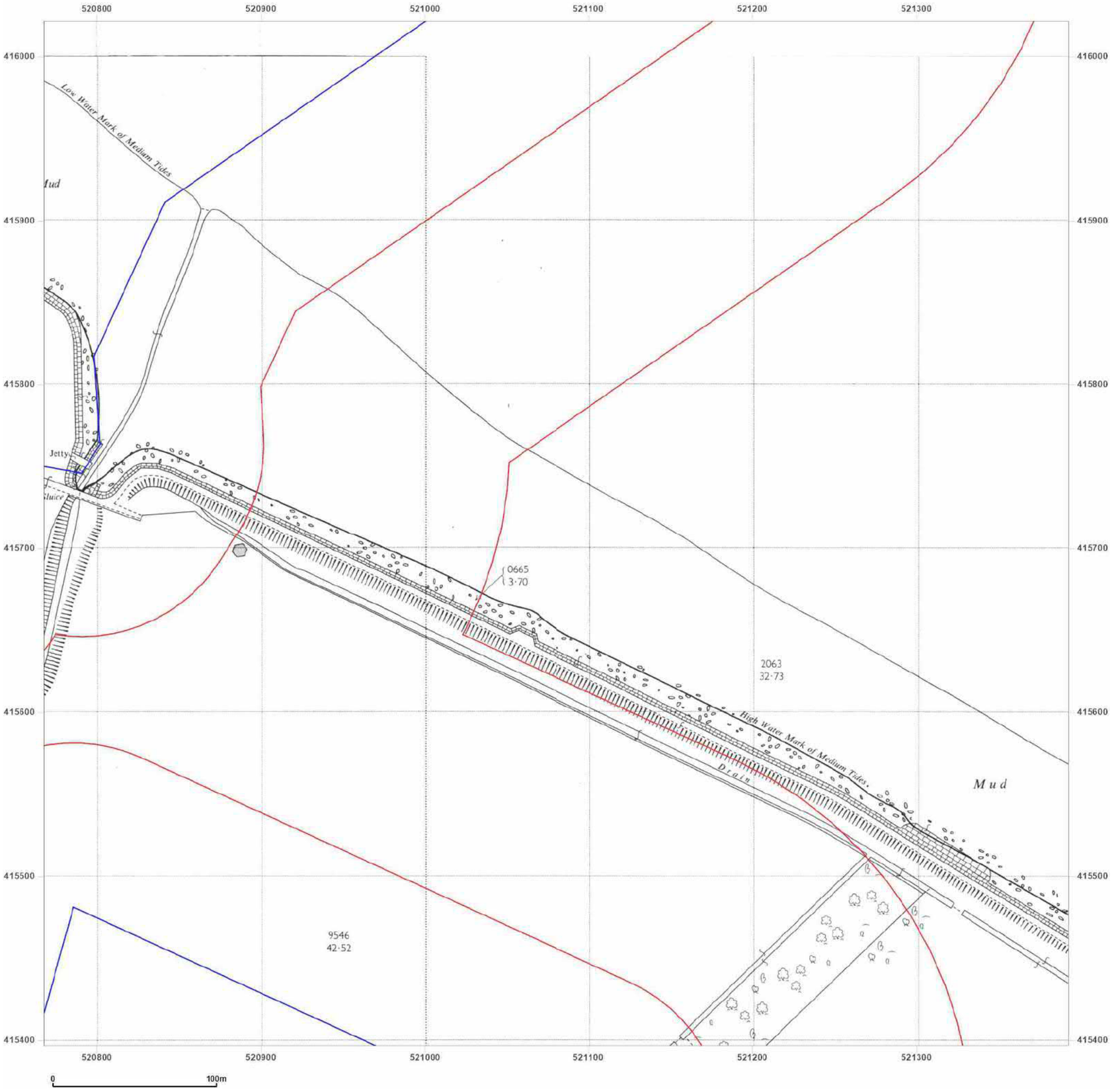
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

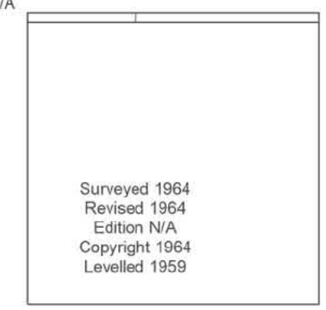
520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_2
Grid Ref: 521080, 415709

Map Name: National Grid
Map date: **1964**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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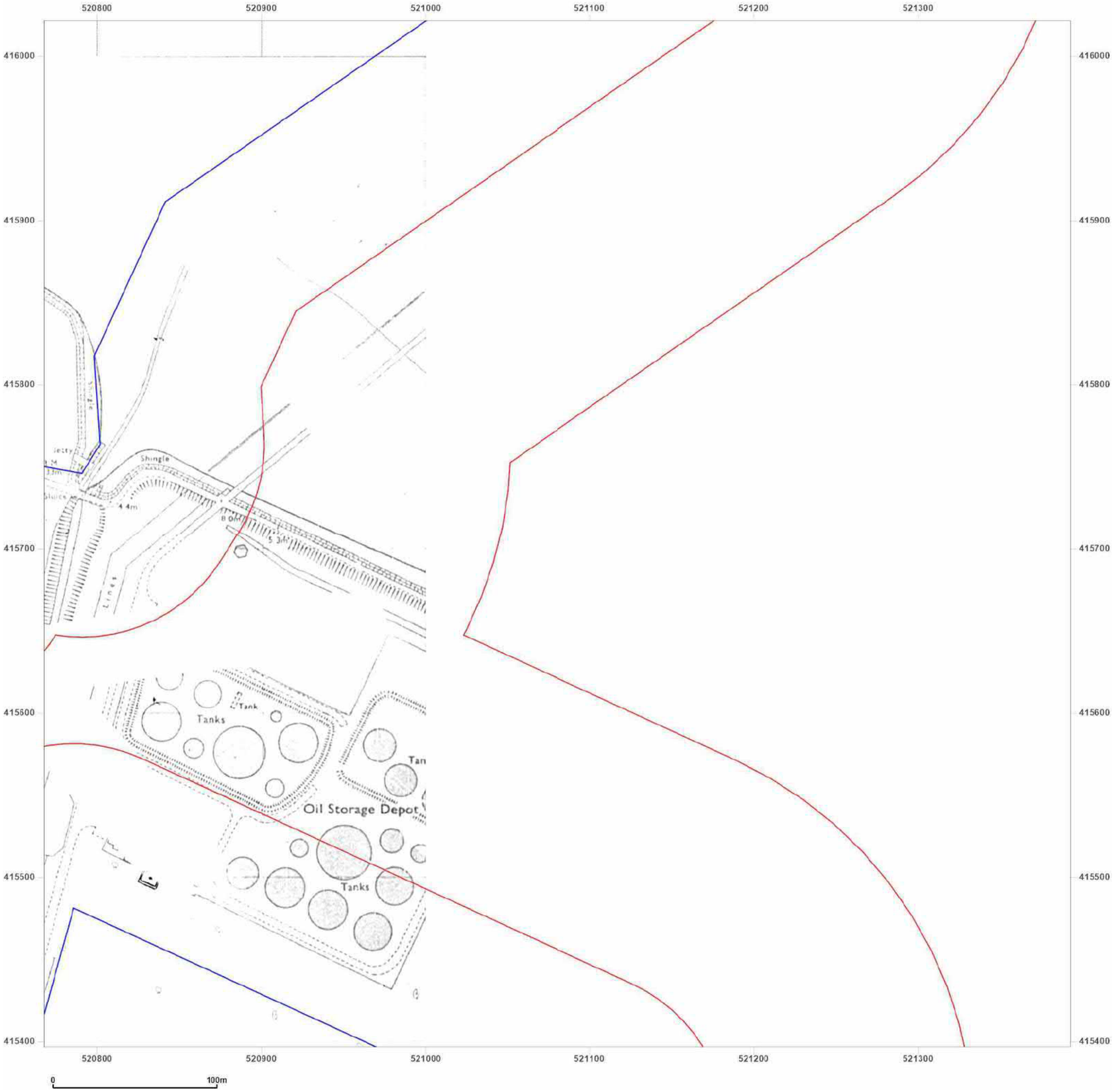
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_2
Grid Ref: 521080, 415709

Map Name: National Grid
Map date: **1964-1969**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1951

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled 1969

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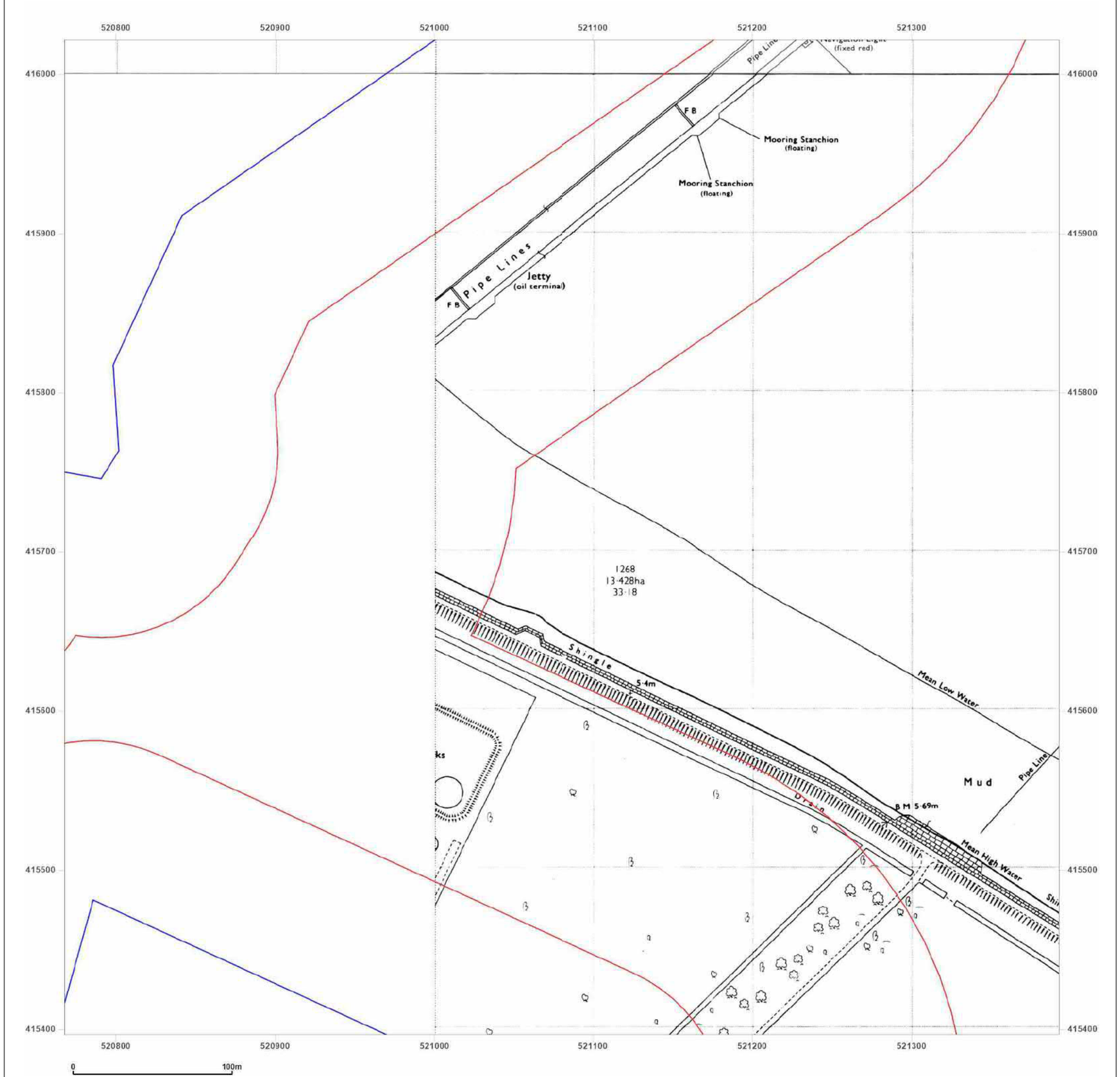
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_2
Grid Ref: 521080, 415709

Map Name: National Grid
Map date: **1970-1971**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1969

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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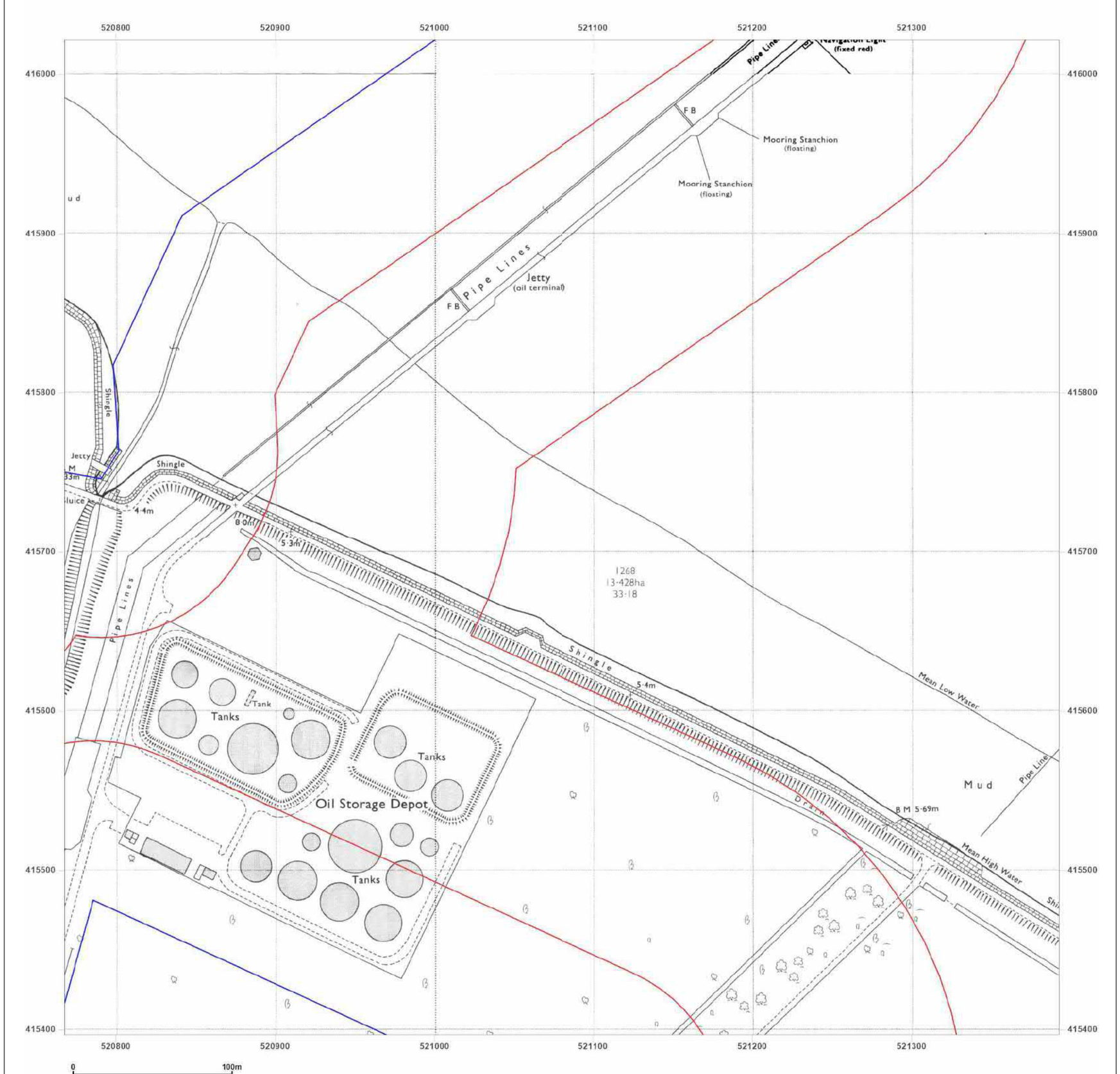
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_2
Grid Ref: 521080, 415709

Map Name: National Grid

Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1971
Levelled 1969

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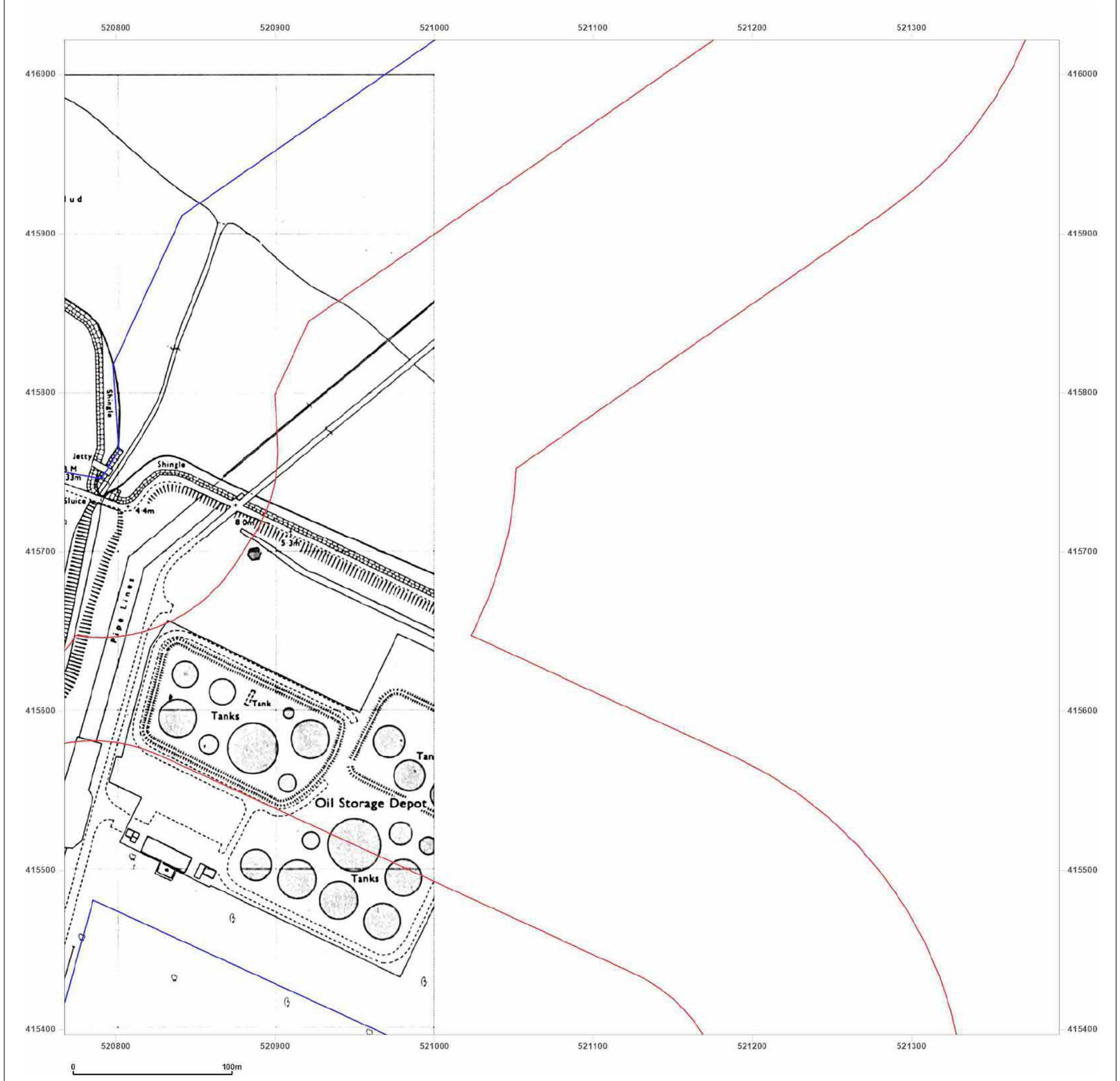
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

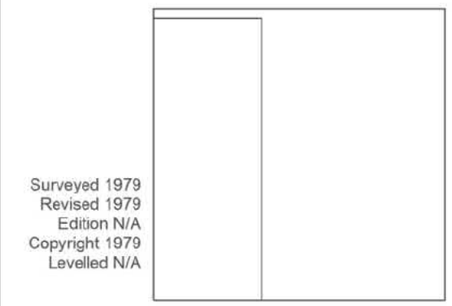
Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_2
Grid Ref: 521080, 415709

Map Name: National Grid
Map date: **1979**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



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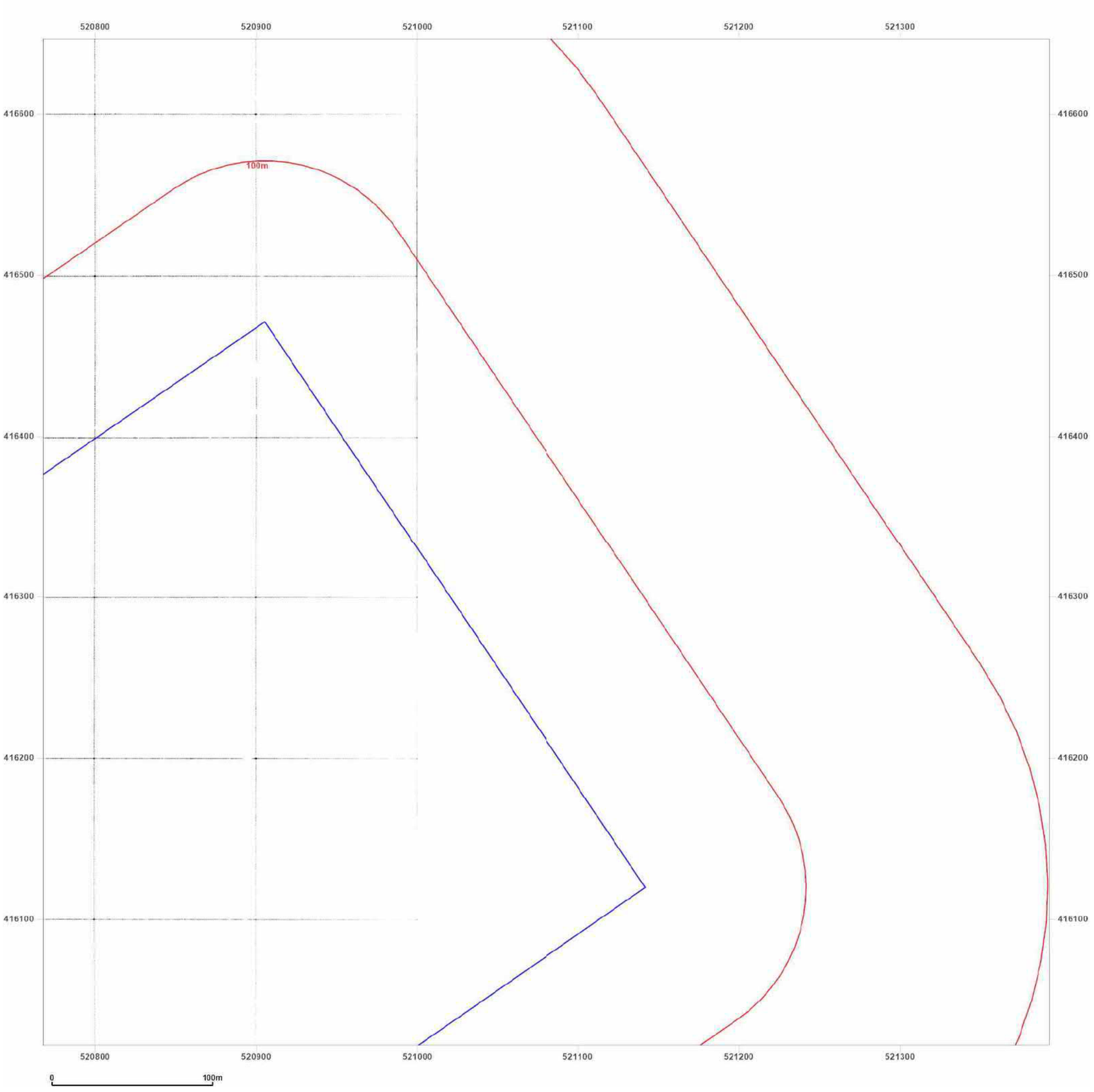
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

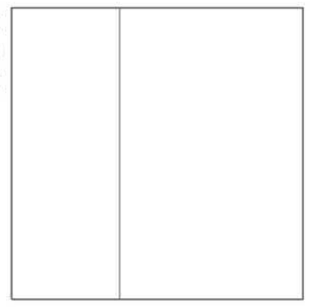
520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_3
Grid Ref: 521080, 416334

Map Name: National Grid
Map date: **1964**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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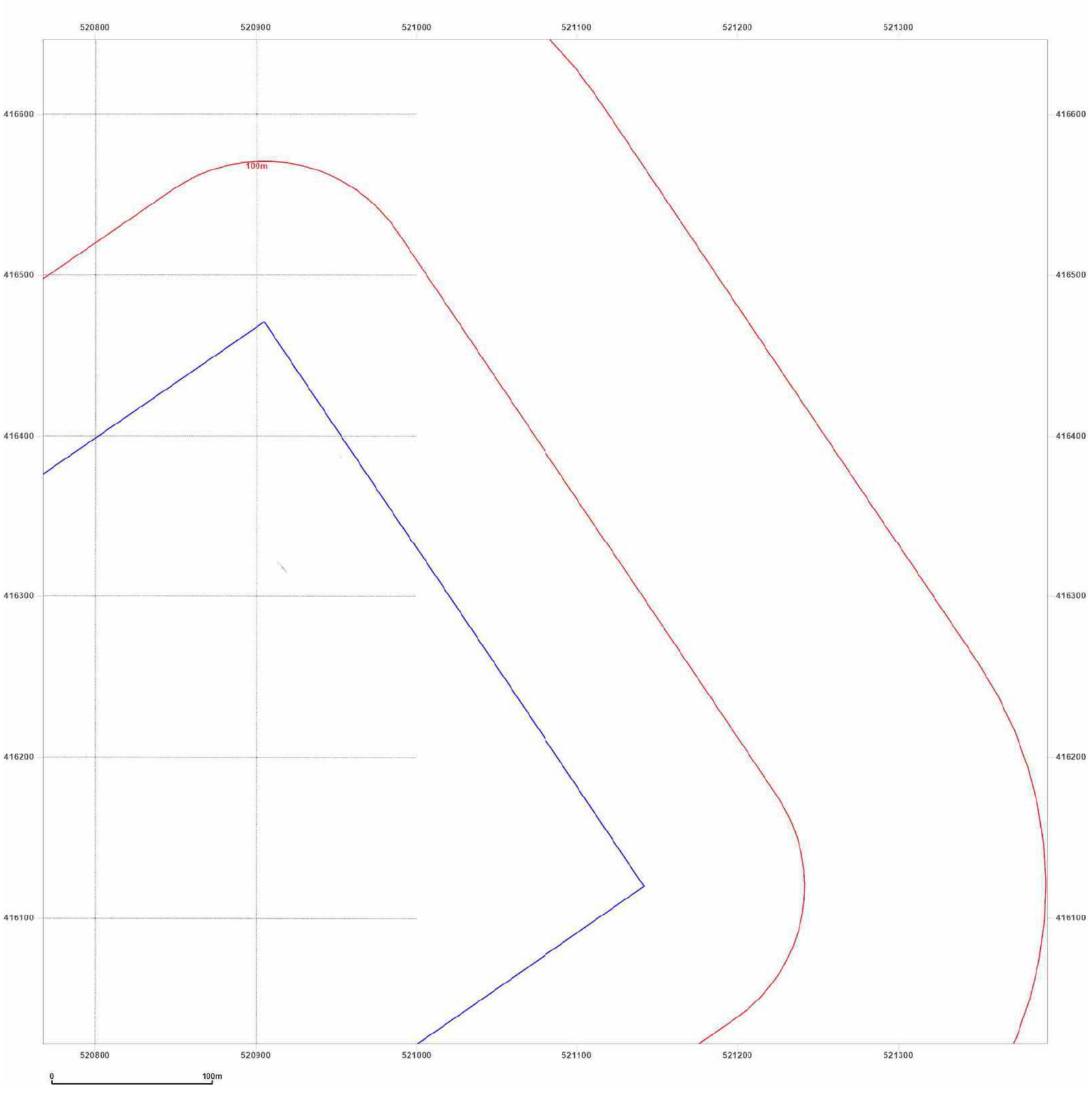
Production date: 08 October 2021

Map legend available at: [redacted]



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_3
Grid Ref: 521080, 416334

Map Name: National Grid

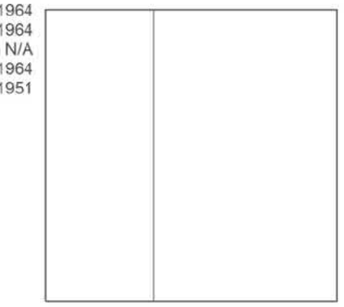
Map date: **1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1964
Levelled 1951



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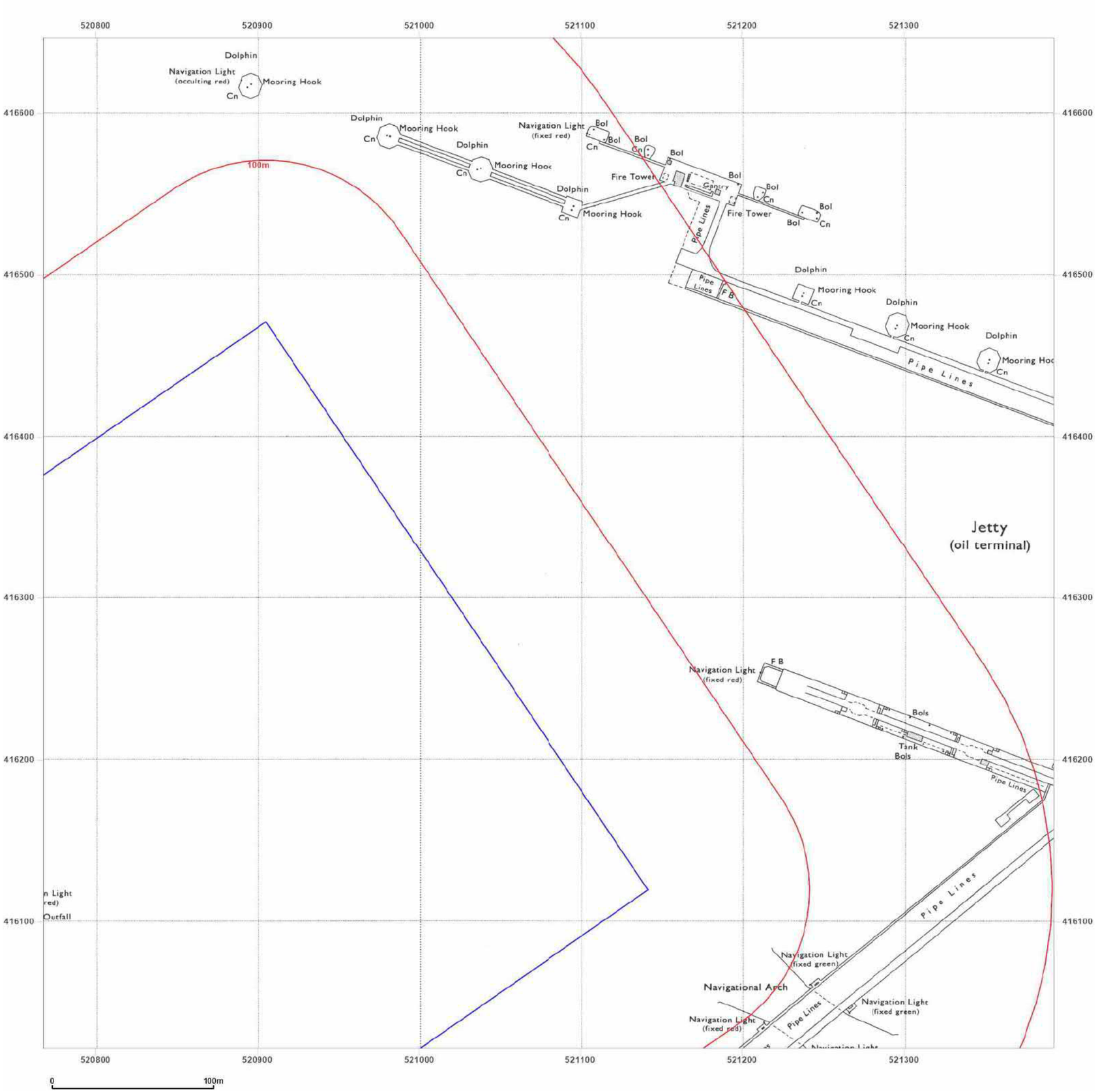
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_3
Grid Ref: 521080, 416334

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1969

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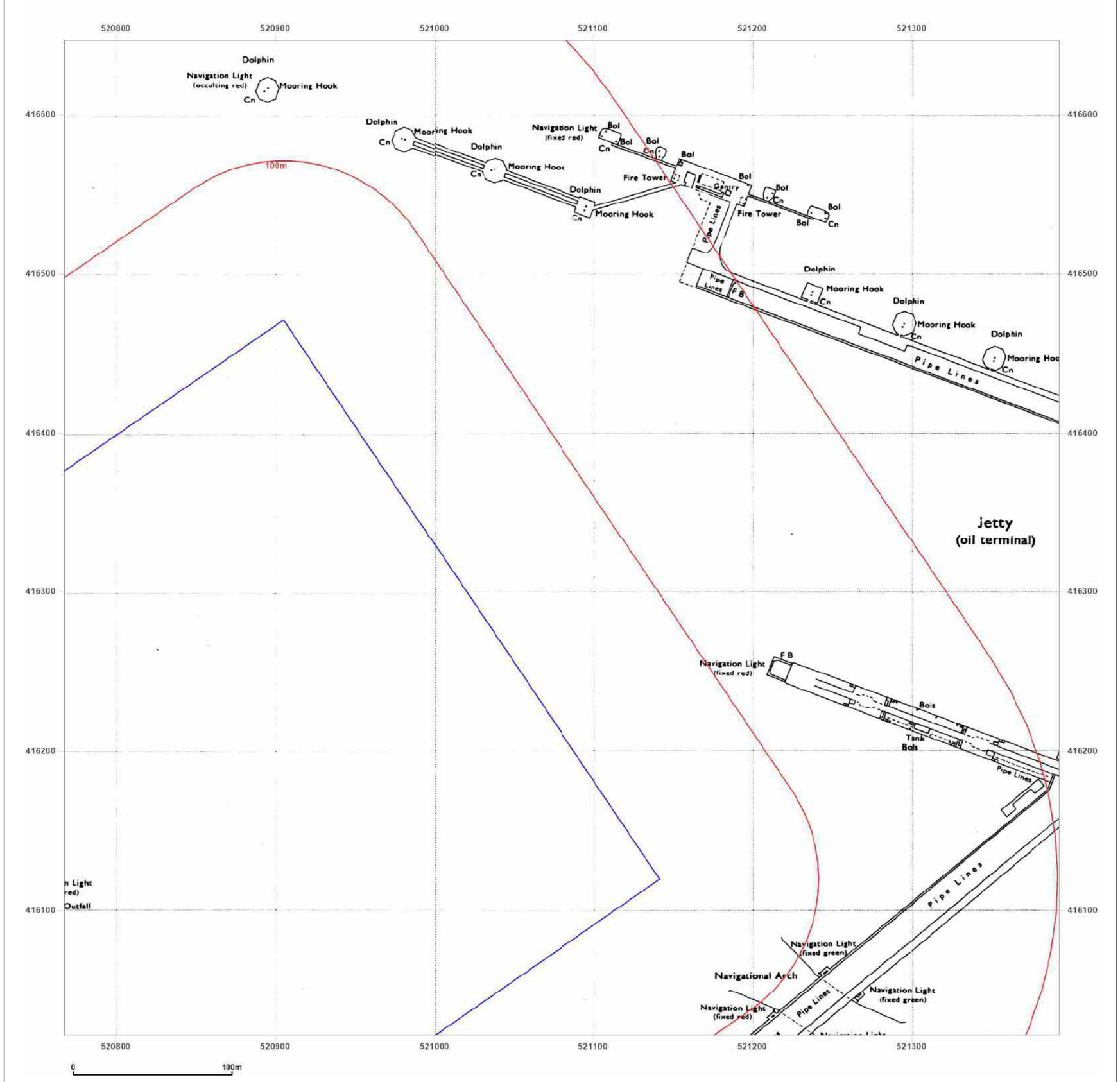
Production date: 08 October 2021

Map legend available at:



Groundsure INSIGHTS

Site Details:

520380 , 415389

Client Ref: Project_Sugar_60664611
Report Ref: GS-8247702_LS_4_3
Grid Ref: 521080, 416334

Map Name: National Grid
Map date: **1971**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

Annex C – Historical Borehole Records

1063 Wt. 22438/0384 10M 7/45 (51) F.&S.

RECORD OF WELL (SHAFT OR BORE)

TAZINW 816

(Survey use only) N462 N388 Registered No.

189

At Immingham Dock

Town or Village Immingham.

County Lincolnshire Six-inch quarter sheet XIII. S.E.

For Mr. L & N.E. Railway Co.

Exact site of well L.N.E.R. Cottages Immingham Dock.

Attach a tracing from a map, or a sketch-map, if possible.

Level of ground surface above sea-level (O.D.) 3.05 ft. If well-top is not at ground level, state how far ... above; below; ft.

SHAFT ft.; diameter ft. Details of headings

TA 54 / 20411522

BORE 102 ft.; diameter of bore: at top 2½ ins.; at bottom 2½ ins. Lengths, diameters, perforations, etc., of lining tubes 86'-0" x 2½" Galv tubes.

Water struck at depths, below well top, of (feet)

Rest-level of water 1. ft. ~~above~~ below well-top. Suction at 15. ft. Yield on 4 hours' ~~days~~ pumping, 500. gal. per hour. with depression to ft. below well-top, Capacity of pump 500. g.p.h. Recovery to rest level in mins. hours Date of measurements April 1946 Date of well 13 · 4 · 46

Quality of water (*attach copy of analysis if available*)

Well made by F. Smith and Son (Grimsby) Ltd

Information from " " " " " " 5 Osborne St Grimsby Lincs

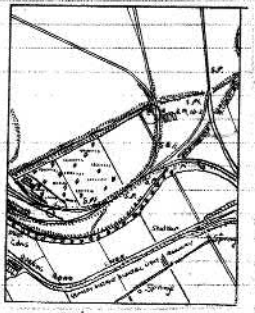
Additional notes in space overleaf.

(For Survey use only) GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS Feet	THICKNESS Ins.	DEPTH Feet	DEPTH Ins.
	If measurements start below ground surface, e.g., from bottom of an existing shaft, state how far				
	Made up ground →	1	0.30 0	1	0.30 0
	Soft brown warp	11	3.35 0	12	3.66 0
	Soft blue warp	18	5.49 0	30	9.14 0
	Peat →	2	0.61 0	32	9.75 0
	Marl clay	18	5.49 0	50	15.24 0
	Chalk Gravel	25	7.62 0	75	22.86 0
	Chalk.	27	8.22 0	102	31.09 0

Continued overleaf

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.	Date received	Correspondence File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map	on 6" Map
	6/5/46		81.		⊙	

(For Survey use only) GEOLOGICAL CLASSIFICATION	NATURE OF STRATA *(Continued)*	THICKNESS		DEPTH	
		Feet	Ins.	Feet	Ins.



IMMINGHAM DOCK
LINCOLNSHIRE SHEET X NE SE.

ADDITIONAL NOTES

(1)

1000 WL 22438/0084 10M 7/45 (51) F&S.

RECORD OF WELL (SHAFT OR BORE)

Survey use only
1-inch Map Registered No. 81 189

N 4 6 2
N 3 3 8
TA 21/51
TA 21 NW/10

At Immingham Dock

Town or Village Immingham.

County Lincolnshire Six-inch quarter sheet XIII. S.E.

For Mr. L. & N.E. Railway Co.

Exact site of well L.N.E.R. Cottages

Gr. ~~[illegible]~~ 2040 1522 TA 21 NW Immingham Dock.

Attach a tracing from a map, or a sketch-map, if possible.

Level of ground surface above sea-level (O.D.) ... ft. If well-top is not at ground level, state how far ... above; below; ... ft.

SHAFT ... ft.; diameter ... ft. Details of headings ...

BORE 102 ft.; diameter of bore: at top 2½ ins.; at bottom 2½ ins. Lengths, diameters perforations, etc., of lining tubes 86'-0" x 2½" Gals tubes.

Water struck at depths, below well top, of (feet) ...

Rest-level of water 1 ft. ~~above~~ below well-top. Suction at 15 ft. Yield on 4 hours' ~~days~~ pumping, 500 gal. per hour with depression to ... ft. below well-top, Capacity of pump 500 g.p.h. Recovery to rest level in ... mins. hours Date of measurements April 1946 Date of well 13 · 4 · 46

Quality of water (*attach copy of analysis if available*)

Well made by F. Smith and Son (Grimsby) Ltd

Information from " " " " " " 5 Deborne St Grimsby Lincs

Additional notes in space overleaf.

(For Survey use only)
GEOLOGICAL CLASSIFICATION

NATURE OF STRATA	THICKNESS Feet	THICKNESS Ins.	DEPTH Feet	DEPTH Ins.
If measurements start below ground surface, e.g., from bottom of an existing shaft, state how far				
Made up ground	1	0	1	0
Soft brown warp	11	0	12	0
Soft blue warp	18	0	30	0
Peat	2	0	32	0
Marl clay	18	0	50	0
Chalk Gravel	25	0	75	0
Chalk	27	0	102	0

Continued over leaf

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.	Date received	Correspondence File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map	on 6" Map
	6/5/46		81.		⊙	[illegible]

(For Survey use only) (2)

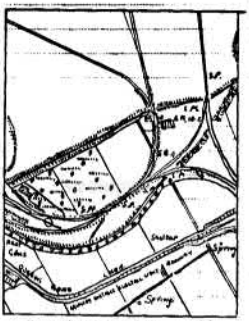
GEOLOGICAL CLASSIFICATION

NATURE OF STRATA *(Continued)*

THICKNESS		DEPTH	
Feet	Ins.	Feet	Ins.

81/189

TA 21/51



IMMINGHAM DOCK
LINCOLNSHIRE SHEET XII SE.

0 ¼ ½ ¾ 1 mile

ADDITIONAL NOTES

NGRC
BOREHOLE RECORDS
ADJUSTMENT FORM

QUARTER SHEET TF21SD

BH REGISTRATION NUMBER 242 - 341.

RECORDS ENTERED AND HELD BY WALLINGFORD

BH REGISTRATION NUMBER(S)

RECORD OF WELL (SHAFT OR BORE)

(attach copy of analysis if available)

For Survey use only

N.

81 TA21 SW

81/217 F

EXACT SITE OF WELL

At IMMINGHAM LOCO SHEDS. NO.3 BORE.

TA21 NW/18 TA 2032 1492

Town or Village IMMINGHAM DOCK.

LINCOLNSHIRE (PARTS OF LINDSAY)

County LINCOLNSHIRE. Six-inch quarter sheet X111 S.E. GRID 20119

For Mr. B.T.C. State whether owner, tenant, builder, contractor, consultant, etc. :— OWNER

Address (if different from above) —

Level of ground surface above sea-level (O.D.) 9.00 ft. approx. If ~~above~~ is not at ground level, state how far ... above ; below ; 4'-6" approx. ft.

Depth of concrete chamber ~~sheet~~ 10'-6" ft. ; diameter 5 ft. square ; Details of headings concrete chamber

BORE 202 ft. ; diameter of bore : at top 8 ins. ; at bottom 8 ins.

Details of permanent lining tubes below bottom of concrete chamber. Steel Tube 8" diam. about 10½ ft. below bottom of well.

TEST CONDITIONS

Water struck at depths of ft. below well-top.

Rest-level of water 10.4 ft. above ~~well-top~~ below Top of concrete chamber. Suction at 29 ft. Yield on ONE hours' test ~~days~~

pumping at 10,500 galls. per hour with depression to — ft. below well-top.

Recovery to rest-level in 90 ~~hours~~ mins. Capacity of pump 210,000 g.p.h. Date of measurements 6/3/49

NORMAL CONDITIONS

Description of permanent pumping equipment :

Make and/or type REES ROTURBO 3 No. Motive power ELECTRICITY

Capacity 10,000 gallons per hour. each Suction at 30 ft.

Amount pumped 216,000 approx. galls. per day. Estimated consumption 1,512,000 galls. per week.

Well made by — Date of well 1918

Information from —

ADDITIONAL NOTES

This is syphoned to Nos 4 & 5 which are all pumped together — for abstraction see no 4 (217 B) WL. July 51

LOG OF STRATA OVERLEAF.

(7828)T W.L.44/3/0484 12,000 3/48 A.E.W.Ltd. Gp.685

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.		Date Received	1" O.S. Map No.	Site marked on 1" Map	(see symbol) on 6" Map
			81	Chalk 000-701	

(12)

TA 21 SW

(For Survey use only) Geological Classification	Nature of Strata. If measurements start below ground surface, state how far ...	Thickness Feet ...	Thickness Inches ...	Depth Feet	Depth Inches
	Dimensions start about 6'-0" below O.L.			6	0
	Red Warp.	5	0	11	0
	Black Warp.	25	0	36	0
	Peat	1	0	37	0
	Marl Clay.	31	0	68	0
	Sand & gravel (very watery)	11	0	79	0
	Soft loose chalk.	23	0	102	0
	Firm chalk.	10	0	112	0
	Hard chalk.	96	0	208	0
	(Termination of bore)				

NGRC
BOREHOLE RECORDS
ADJUSTMENT FORM

QUARTER SHEET TF21SD

BH REGISTRATION NUMBER 242 - 341.

RECORDS ENTERED AND HELD BY WALLINGFORD

BH REGISTRATION NUMBER(S)

(3)

RECORD OF WELL (SHAFT OR BORE)

(attach copy of analysis if available)

For Survey use only 3

N.

81 TA 21/54 B

27B

EXACT SITE OF WELL

At IMMINGHAM LOCO SHEDS. No.4 BORE.

GR: 2017 1489 TA 215W

Town or Village IMMINGHAM DOCK

County LINCOLNSHIRE. Lincolnshire (Parts of Lindsay) Six-inch quarter sheet X.111 S.E. GRID 202149

For Mr. B.T.C. State whether owner, tenant, builder, contractor, consultant, etc. :— OWNER.

Address (if different from above)

Level of ground surface above sea-level (O.D.) approx 8.00 ft. If well-top is not at ground level, state how far ... above; ~~below~~; 6 approx. ft.

Depth of well ~~XXXXX~~ 24½ ft.; diameter 7 ft.; Details of headings

BORE 138 ft.; diameter of bore: at top 6 ins.; at bottom 6 ins. below bottom of well.

Details of permanent lining tubes Steel tube 6" diam. approx. 68 ft. below bottom of well.

Water struck at depths of ft. below well-top.

TEST CONDITIONS

Rest-level of water 11 ft. ~~above~~ below well-top. Suction at ft. Yield on hours' days' test pumping at galls. per with depression to ft. below well-top.

Recovery to rest-level in 3 ~~mins.~~ hours Capacity of pump g.p.h. Date of measurements

NORMAL CONDITIONS

Description of permanent pumping equipment:

Make and/or type Motive power

Capacity gallons per hour. Suction at ft.

Amount pumped galls. per day. Estimated consumption galls. per week.

Well made by Date of well 1911

Information from

ADDITIONAL NOTES

For pump details see record of Immingham Loco Sheds No. 3 Bore. There are three pumps in all which can be operated on Nos. 3,4 & 5 bores together or No. 3 bore alone or Nos. 4 & 5 bores alone. Nos. 4 & 5 bores discharge into a common well, the level of which is kept fairly constant at about 15'-6" below top of well. The combined yield at this level is about 500 gallons per hour. (9.3.49).

Abstraction of nos 3, 4 & 5 together in 1950 was 99M gpyr. Varying from 1.6 to 2M gpweek. Mainly for loco supply - also some drinking water.

Conductivity of B and C together (Nos 4 & 5) 490 ~~at 10°C~~ Chloride 30ppm PWL July 50

Conductivity of B, C and F together (Nos 4, 5 & 3) 500 ~~at 10°C~~. 3/3/53 REA.

(Water from B C & F together thought to have been saline after flooding but pumping since has now cleared the salinity.

LOG OF STRATA OVERLEAF.

(25842) W1.447/1/0484 12,000 3/48 A.& E.W.Ltd. Gp.688

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.

Date Received	1" O.S. Map No.	Site marked on 1" Map	(use symbol) on 6" Map
	81	⊙	⊙

(4)

(For Survey use only)
GEOLOGICAL CLASSIFICATION

TA21.548
81/247

NATURE OF STRATA If measurements start below ground surface, state how far ...	THICKNESS		DEPTH	
	Feet ...	Inches ...	Feet	Inches
Red Warp.	6	0	6	0
Blue warp.	17	0	23	0
Peat.	2	0	25	0
Marl clay.	45	0	70	0
Sand & gravel.	5	0	75	0
Chalk rock	81	0	156	0
(Termination of bore)				

RECORD of WELL or BORING (continued) TAINE 8/21

at Immingham Dock — County Lincs — Survey No. N.S. — sheet map. XI

GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA.	THICKNESS. Feet.	Inches	DEPTH Feet.	Inches
(9) No. 11	6" Bore at Loco. Ground [added later in figures in ink]. Approx O.D. +17'. February 1911.				
	Warp	23	7 16 6	23	7 16 6
	Peat	1	0 46 6 9 75	25	7 62 17 37
	Marl	32	—	57	—
	Hard marl	10	2 03 —	67	20 42 —
	Clay without marl	23	7 01 —	90	27 43 —
	Red clay	20	6 10 —	110	33 53 —
	Chalk rock	132	40 23 —	242	73 76 —

TAINE-264

K

TA 34 | 19851516

Strata [corrected] 0 to 25 ft; marl, loose. Losing 10s 97 ft., from 25 to 121 ft.
Yield (48 hrs duty) 2,000 g.p.hr.
Exact site last in N side of water softening plant near loco shed. Now concreted over.

In a 6ft6 boring (W81/3mm) of 10.xi.98 Mr. Tulip adds (in 1899 to my enquiries):—

"Rest-level for all the bores is approx +7 ft O.D. as shown [by] No 6 +7" and
Bores 1, 2 & 11 are situated for reasons unconnected with the water level:—
Bore No 1 was abandoned soon after being put down owing to the presence of sand in the water
Bore No 2 gave only a small yield when made. It [was] not found, but all [agree] the yield, if it [existed] at all, was very small
but was called 'dry' & abandoned
Bore No 11 also had no [sand] & yield, & Bore No 3 was [also] inferior."

Figures for Yield & Test are the yield & test duration (see for example yield of No 6 +7, tested when Nov 6 was [also] in use)

C.A.B 4.11.98

G.S.M. Ref. No ....84/217.2.....
Government Chemist Lab. Nos. ....893...912.....1007.....
Date ....17.2.99..... Original data filed W/M Govt. Chemist.

Total Alkalinity as $CaCO_3$ ..240..... p.p.m

Total Hardness as $CaCO_3$ ....247. (1. 240...P.7)

Chloride as Cl. ....48.....

Conductivity ....450.....

Ca as $CaCO_3$ 230

Mg " 17

(13989E) Wt 19230/0175 2,500 9/22 H, J, S & L, Ltd Gp 646

81/217 A–L IMMINGHAM DOCK

TA 11/93

A	1858	1656
B	2017	1489
C	2017	1486
D	1822	1598
E	1860	1660
F	2032	1492
G	1945	1661
H	1909	1671
I	2047	1485
J	1851	1697
K	1990	1516
L	1755	1612

TA 21/54 B

TA 21/54 C

TA 21/54 D

TA 21/54 A

RECORD of WELL or BORING (continued)

TA 11/93

81 21 7

at Immingham Dock — County Lincs — Survey No. — 1" O.S. sht map 81

GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA.	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
(9) No. 11	6" Bore & Log. Ground [called Lat. + Spot ht.], Approx O.D. +17'. February 1911.				
	Warp	23	6	23	6
	Peat	1	6	25	-
	Marl	32	-	57	-
	Hard marl	10	-	67	-
	Clay with hard marl	23	-	90	-
	Red clay	20	-	110	-
	Chalk rock	132	-	242	-

GK

GR: 1990 1516
TA 11 NE

Sunk & bored, 0 to 25 ft gravel, bore. Lining tube 97 ft., from 25 to 122 ft.
Yield (48 hr test) 2,000 g.p.hr.
Exact site lat. in N side of water softening plant near boco shed. Now converted over.

I: ~~NO SITE~~

TA 21/54A
GR: 2047
1485

In a letter letter (WPI/Imm) of 10.10.46 Mr. Tubb adds (in reply to my enquiry):-

"Rest-level for all the bores is approx +7 ft O.D. as shown [by] No 6 + 7" rd
Bores 1, 2 & 11 are disused for reasons connected with the water level:-
Bore No 1 was abandoned soon after being put down owing to the presence of sand in the water
Bore No 2 gave only a small yield when made. It went on yield, but all increase the yield, or to put it in the end; has still in channel rd, & was abandoned
Bore No 11 also had no sand + yield, & Bore No 3 was put in instead

Figure for yield & test on the yield NK but for construction (as for actual yield of Nos 6 + 7, tested in Nov 5 on pattern in 1911)

G.S.M. Ref. No ....84/217.....
Government Chemist Lab. Nos. ....892...912.....1007.....
Date ....17.7.86..... Original data filed W/M Govt. Chemist.

Total Alkalinity as $CaCO_3$ ..240..... p.p.m

Total Hardness as $CaCO_3$ ....247.(1.240...P.7)

Chloride as Cl. ....18.....

Conductivity ...450.....
Ca as $CaCO_3$ 270
Mg " 17

(11692D) Wt 10256/0175 2,500 9/32 H, J, R & L, Ltd Gp 646

TA11/93
81
217

(20)

Oct 27. 192[illegible]

Dear Mr Denham

Immingham Dock Bores

I am now returning your copy of bores and strata from Mr Tulip's drawing and have traced a 6" to a mile tracing with his points enlarged onto it for you.

I make out that the Engineer's Drawings as published in "Engineering" were figured from a datum line 100 feet below O.D. Their coping at the outer lock gates was figured at +119 at middle gates +117. Formation level +115. H.W.O.S.T +111 L.W.O.S.T +91.5D and the average fill on the section 5'-0" making original marsh level +10 O.D.

No 1. 4'-0" made ground + approx +15 makes the original marsh +11. My list from Mess F. Smith & Son gave 77 feet of 12" tube (this would be the outer tube of your memo) and 167 feet of 10" Tube. This position by the old Creek was further from the power house than I got on my section but as it did not reach chalk it would not alter the line of chalk dotted

No 2 The surface O.D +15 would include the made ground + should be noted. (The Humber bank was raised as well as the various drains involved and a dredger in the Humber pumped up the modern warp into barges which laid to a jelly carrying a pipe to various moveable points + when settled the water was returned through sluices into the Humber so in later bores there was little distinction of material)

1

TA 11/93 81

(21) There is a portion towards Nun's Creek which is unfilled up [illegible]
so. N. 3. 4 + 5 start on the old level.
N. 3 When pumping 12,000/13,000 gph water level in borehole 11 feet below surface
N. 6 + 7 6" bore timber yard + 182 O.D. Approx. Portion of the 43'-6" [illegible]
be made ground. These are new to me and will put the chalk
level compared with the Gate-keepers Lodge with a steeper drop.

N. 8. 6" bore. +17 f. O.D.
My list from Mess. J. Smith & Son gives the upper portion of this bore as follows.

Ashes	2'-6" (ballast)
Made ground	6.0
Red clay	3.0
Blue clay	6.0
Peat	2.6
Boulder clay	3.0
Silt	4.0
Boulder clay	20.0

When the 2'-0" sand follows as your list

N. 9. 2½" bore Jobson's field. Approx +11.6.
I have measured this today & put the site on the 6" tracing
There is a 2½" pipe to [illegible] drinking place 4.0×3.0
in brickwork cemented [illegible] bottom. 23'-0" from the drain
& 314 feet from Manby Road fence. (This would be compensation
water at the road cut off the watered portion of the field)

overflowing at ground level. now.

N. 10. Mess. J. Smith & Son. water level 2'-6" below surface.
117'-6 - 2" tubes.

N. 11. 6" Bore at Loco +17 Water level. 6" below surface Inserted 122 feet
6" tubing. Tested the yield for 52 hours and when pumping
2340 gallons per hour water level in the borehole was 30 feet
below surface. Shaft. 0 to 25 feet

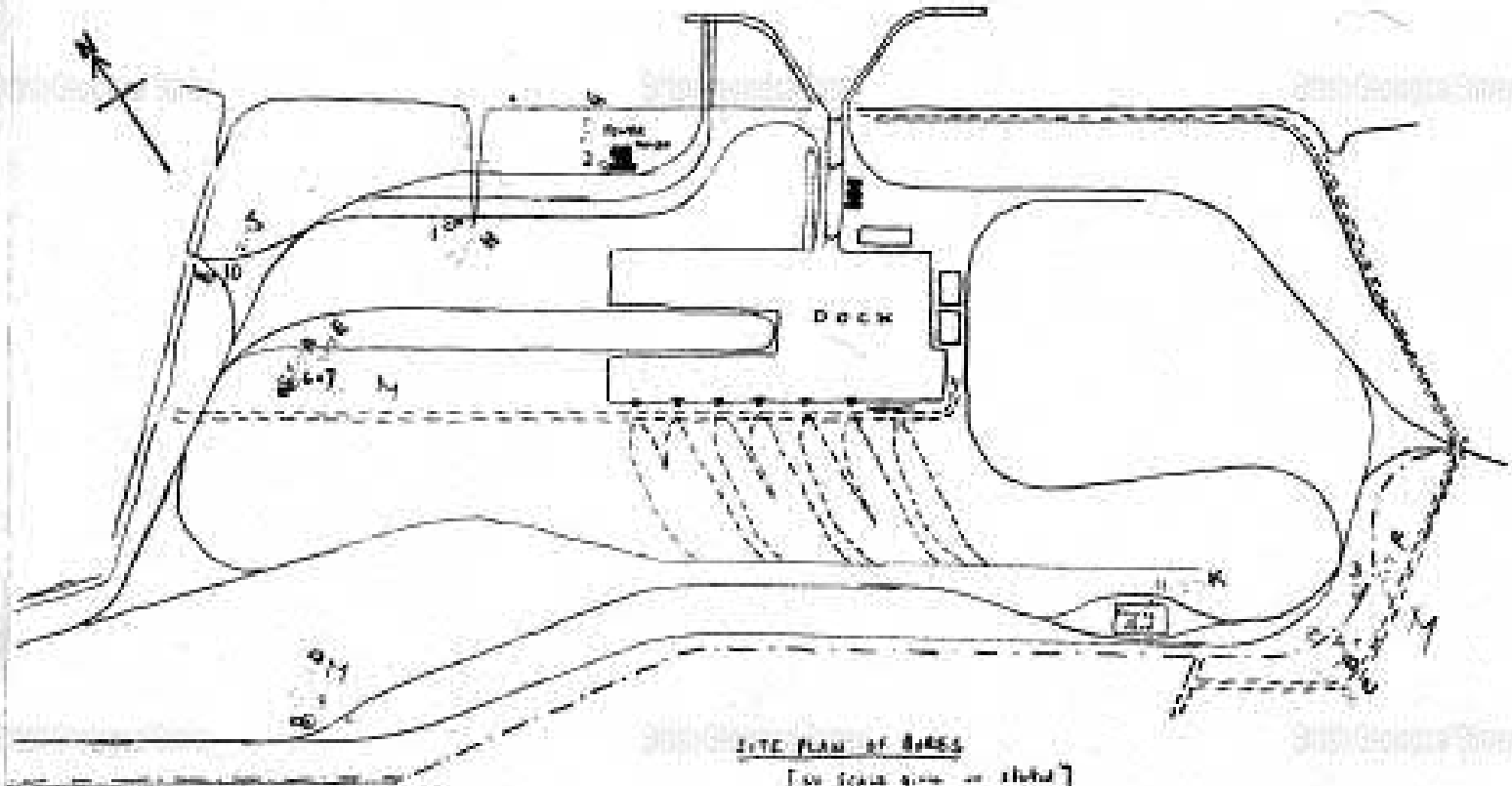
TA 11/93

(22) No. 9. This is a good addition to the northern sides of channel and the chalk level is very near 6 + 7 + 9. No. 6 – 195·5 No. 7 – 190·5 No. 8 – 198' No. 9 – 190·5 whilst No. 2 is – 236·4

The whole of these bores are Mr Smiths and I enquired also for Messrs Isler's bores on Mr Evans list No. 169 with 123 feet drift would be useful if position could be traced. The 4" bore by Smith was only 69' drift being very similar to No. 170 – 173. If Isler's have no site plan the consulting engineer Sir Wolfe Barry firm would be the only chance to add this point to the topography

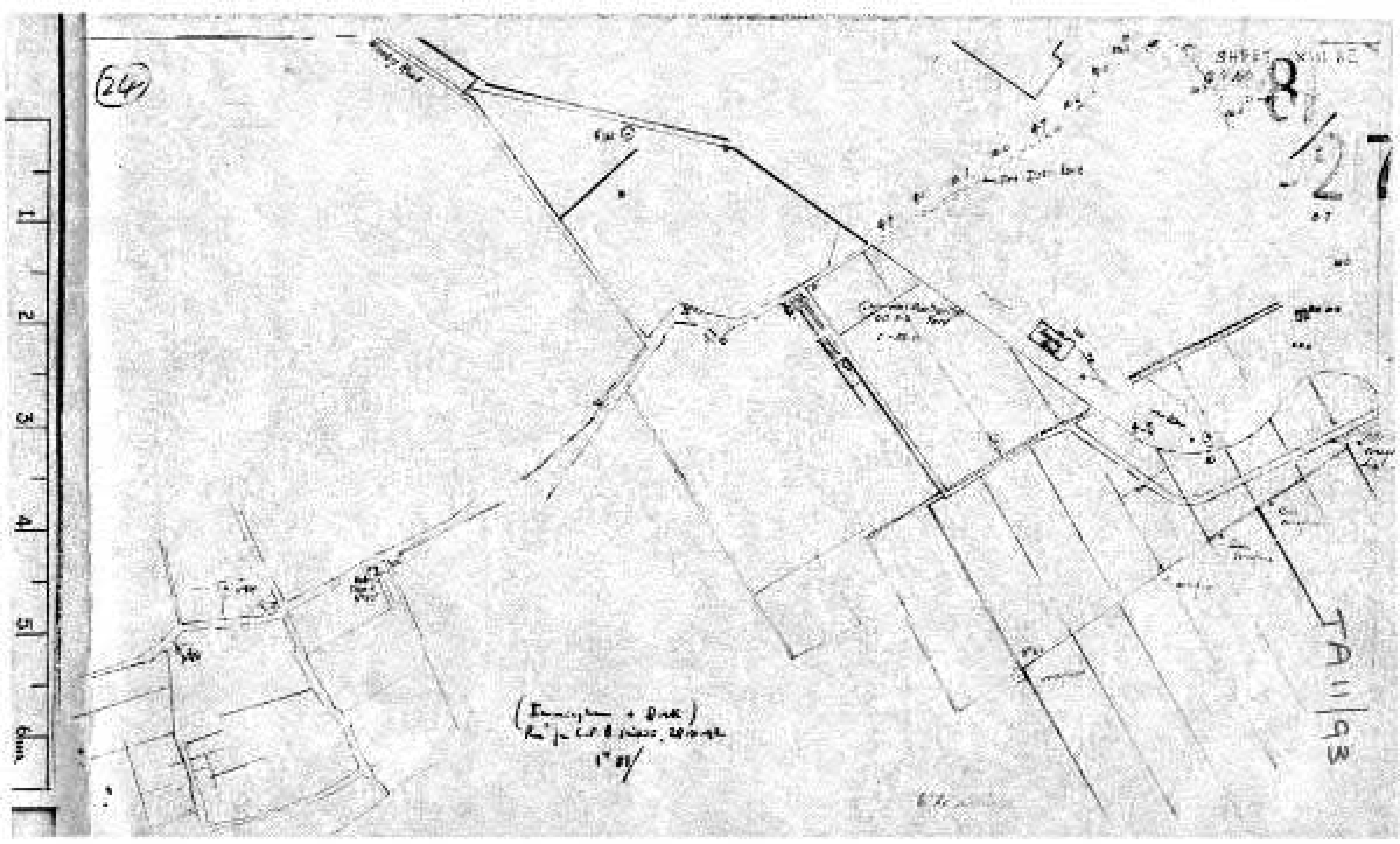
Yours faithfully

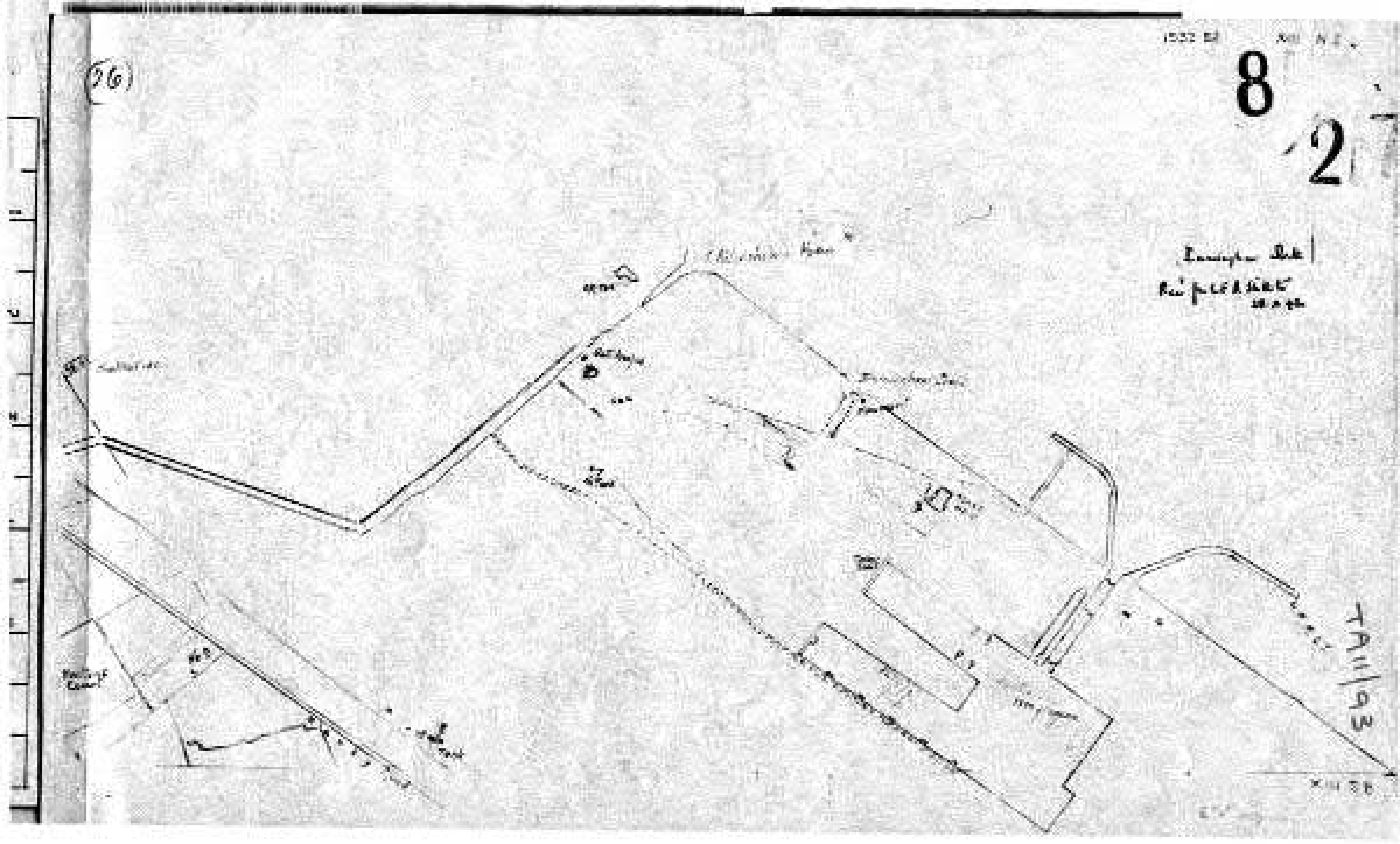
[redacted]



SITE PLAN OF BORES
[no scale given - [illegible]]

TA11/93


(24)
SHEET NO. 82
8/27
TA 11/93


(96)
8
2

RECORD OF WELL (SHAFT OR BORE)

TA 84/20301532

TA21 NW/5 215

N171

At Immingham Dock

Town or Village Immingham.

County Lincolnshire. Six-inch quarter sheet

For Mr. London and North Eastern Rly Co.

Exact site of well Near Railway Sidings & Dwelling Houses. (Attach a tracing from a map, or a sketch-map, if possible.)

Level of ground surface above sea-level (O.D.) 31 (Estimated) feet.

Is well-top at ground level? Yes If not, state how far above ; below ; feet.

Shaft ft., diameter ft. Details of headings

Bore 200 ft. ; diameter of bore : at top 6" ins. ; at bottom 6" ins.

Lengths, diameters, perforations, etc., of lining tubes 105'-0" of 6" Steel jointed Block Tubes. inserted, 1'-6" Above ground.

Water struck at depths, below well-top, of (feet)

TEST DETAILS

Month Nov

Year 1945.

Rest-level of water 7'-6" ft. above below well-top. Suction at ft. Yield on 16½ hours' days' pumping 9500 gallons per Hour (max. capacity of pump 9500 g.p.h.), with depression of 36'-6 feet. Recovery to in mins. hours.

WORKING CONDITIONS

Rest-level of water in (month), (year), ft. above below well-top.

Highest " in (month), (year), ft. above below "

Lowest " in (month), (year), ft. above below "

Suction at ft. Rate of pumping galls. per for hours per day.

with average depression of ft. Recovery to in mins. hours

Quality of water (*attach copy of analysis if available*) Softened.

Well made by H. Smith and Son (Grimsby) Ltd Date of well 23/11/45

Information from "

ADDITIONAL NOTES.

Trial Borehole.

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.

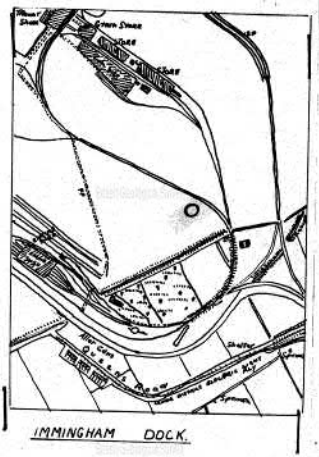
Date received.	G.S.M. Office File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map.	on 6" Map.
29.1.46					

(17208) Wt.42901/0877 10,000 2/41 A.& E.W.Ltd. Gp.686

(For Survey use only)
GEOLOGICAL CLASSIFICATION

TA21/50 81/215

NATURE OF STRATA If measurements start below ground surface, state how far...	THICKNESS Feet	 Inches	DEPTH Feet	 Inches
Made Up Ground	2	0	2	0
Soft Brown Warp	12	0	14	0
Soft Blue Warp	21	0	35	0
Boulder Clay. Wild seames of Running Sand	23	0	58	0
Sand and Gravel	14	0	72	0
Boulder Clay	13	0	85	0
Chalk Gravel	5	0	90	0
Soft Dirty Chalk	10	0	100	0
White Chalk	100	0	200	0


Town Stage
Shed
Shed
Shed

3

(3)

81 TA21/50

215

COPY

Sample of water received from F. SMITH & SON (GRIMSBY) LTD. on the 12th day of December 1945, taken from borehole at Immingham Dock on the 11th December, examined with the following results.

Physical Characters - clear and bright, contains small amount of white sediment (chalk)

Bacteriological Exam.

Colonies per 1 m.l. on Nutrient Gelatine at 22°C		
	after 48 hours	62
	" 72 hours	180
" " " on Agar at 37°C		
	after 48 hours	4
	" 72 hours	9

B.Coli (Faecal or Presumptive) in 100 m.l. Negative

Chemical Analysis		Parts per million
Total solids dried at 100°C		292.000
do do at 180°C		264.000
Free Ammonia		0.005
Albuminoid Ammonia		0.008
Chlorine as Chlorides		19.000
Nitrogen as Nitrates		2.000
Lead, iron and other heavy metals		nil
Total Hardness (Clarkes)	23.60°	
Permanent do	3.90°	
Temporary do	19.70°	

This is a good Wold Water and satisfactory in all respects for domestic and other purposes.

(Sgd) J.A.Foster F.R.I.C. Etc.Capt.

County Analyst E.R. of Yorks
etc.

INDIAN WELL ENGINEERS
F. SMITH & SON
(GRIMSBY) LTD.
TEL. No. 2655

RECORD OF WELL (SHAFT OR BORE)

81 N171 TA 21/50

215

At Immingham Dock.

Town or Village Immingham.

County Lincolnshire. Six-inch quarter sheet 13 SENE

For Mr. London and North Eastern Rly Co.

Exact site of well Near Railway Sidings & Dwelling Houses.

GR 2033 1532 TA 21 NW/5

Attach a tracing from a map, or a sketch-map, if possible.

Level of ground surface above sea-level (O.D.) _____ feet.

Is well-top at ground level? Yes If not, state how far above / below _____ feet.

Shaft _____ ft., diameter _____ ft. Details of headings _____

Bore 200 ft. ; diameter of bore: at top 6" ins.; at bottom 6" ins.

Lengths, diameters, perforations, etc., of lining tubes 105'-0" of 6" Flush jointed Black Tubes inserted, 1'-6" above ground.

Water struck at depths, below well-top, of (feet) _____

TEST DETAILS Month Nov Year 1945.

Rest-level of water 7'-6" ft. ~~above~~ below well-top. Suction at _____ ft. Yield on 16½ hours' ~~days'~~ pumping 9500 gallons per Hour (max. capacity of pump 9500 g.p.h.), with depression of 36'-6" feet. Recovery to — in — mins. hours.

WORKING CONDITIONS

Rest-level of water in _____ (month), _____ (year), _____ ft. above / below well-top.

Highest " in _____ (month), _____ (year), _____ ft. above / below "

Lowest " in _____ (month), _____ (year), _____ ft. above / below "

Suction at _____ ft. Rate of pumping _____ galls. per _____ for _____ hours per day with average depression of _____ ft. Recovery to _____ in _____ mins. / hours

Quality of water (*attach copy of analysis if available*) Enclosed.

Well made by F. Smith and Son (Grimsby) [redacted] Date of well 25/11/45

Information from — " —

ADDITIONAL NOTES.

Trial Borehole.

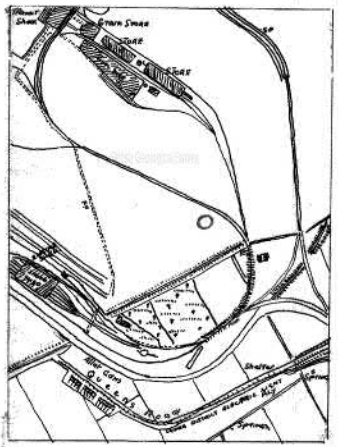
LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.

Date received.	G.S.M. Office File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map.	on 6" Map.
29.1.46					

(17206) Wt.42901/0877 10,000 2/41 A.& E.W.Ltd. Gp.686

(For Survey use only) Geological Classification	NATURE OF STRATA If measurements start below ground surface, state how far... ...	Thickness Feet	Thickness Inches	Depth Feet	Depth Inches
	Made Up Ground	2	0	2	0
	Soft Brown Warp.	12	0	14	0
	Soft Blue Warp.	21	0	35	0
	Boulder Clay. Wild seams of Running Sand.	23	0	58	0
	Sand and Gravel	14	0	72	0
	Boulder Clay	13	0	85	0
	Chalk Gravel	5	0	90	0
	Soft Dirty Chalk.	10	0	100	0
	White Chalk.	100	0	200	0


Ground Sluice
Steam Sluice
Steam Sluice
Sluice
Sluice

Annex D – Utilities Report

Utilities Report

Utility Type		
Electricity	STATUS: AFFECTED	NUMBER AFFECTED: 2
Gas	STATUS: AFFECTED	NUMBER AFFECTED: 1
Water and Sewerage	STATUS: AFFECTED	NUMBER AFFECTED: 1
Telecoms	STATUS: AFFECTED	NUMBER AFFECTED: 2
Other	STATUS: AFFECTED	NUMBER AFFECTED: 4

Total Number of Utility Companies Contacted: **20**

Report Information

Works Description: Development Appraisal

Batch: A

Status: Complete - Please see 'Understanding This Report'

This report is issued for the site described as:
Site off Queens Road, Immingham

Report Number
LM / 100245

National Grid Reference
520610 415720,521083 416229,519144 415638,520805 416488,520193 414952

Customer Reference
285109404_1

Report Date
19 October 2021

CONTACT DETAILS

If you require any assistance, please contact our customer services team on:

0844 844 9966

or by email at:
helpdesk@landmark.co.uk

Conveyancing Information Executive

The Property Ombudsman
Consumer Redress

Understanding this report

We have asked a comprehensive list of Utility companies whether they have any apparatus or underground services in the vicinity of the site.

Report Summary

The table provides a breakdown of the number of responses received by utility category; however, it must be noted that some utility companies provide services across multiple categories. As a result, the total number of responses gathered will often be greater than the total number of utility companies contacted.

Location Map

This shows the plan that was dispatched to the Utility companies. The companies have been asked to return information on the area outlined, which will encompass your chosen site.

Request Status Report

This will confirm the current status of the information requests. We list which responses we have received and whether the company is affected. The Status Report will be divided into the following sections.

Affected Utilities – We have received plans/information
No Response Received – We are still awaiting a full response
Not affected Utilities – We have received a not affected/no plant present response

Responses

Affected responses are listed by company. Any responses from companies confirming they are not affected are provided at the back of the report for your records.

'Awaiting Further Responses' or 'Pack Complete'?

We do not include Local Authority requests when indicating if the pack is 'Complete' or 'Awaiting Further Responses' as Local Authorities are not obliged to reply to these enquiries.

The local authority for the area is contacted to see if they have any council owned property that may be affected by works. In general, these plant enquiries go to the highways department for responses regarding street lighting and drainage. However, the responses we receive can vary each time depending on resources available at the council and we often don't receive replies from local authorities at all

Landmark Utilities Report Service PAS 128 Statement

Prepared for: **Landmark Information Group Ltd**
Practitioner: **Atkins**
Report Number: LM / 100245
Client Reference: 285109404_1
Site Name: Site off Queens Road, Immingham
Date of Order:22 September 2021
Date of Issue: 19 October 2021

Thank you for using our Utility Report Service.

This report has been completed in accordance with the standards defined under Survey Category D of PAS128, a Publicly Available Specification for underground utility detection, verification and location published by the British Standards Institution.

Positional accuracy of plant is not guaranteed from information presented in a desktop search alone and the location of underground utilities should be verified through other means prior to breaking ground.

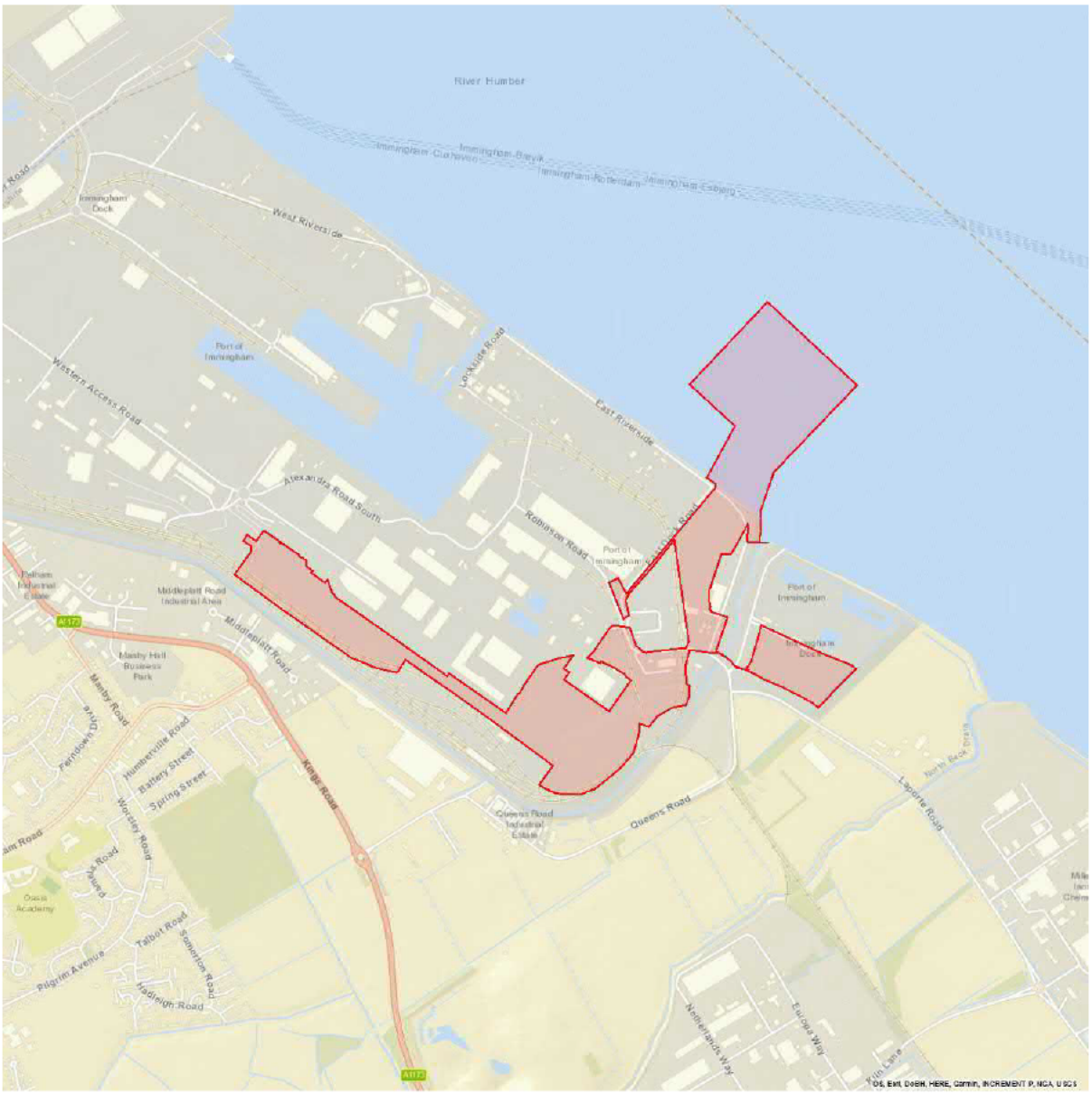
Information relating to the presence of Radio Frequency Identification Devices (RFIDs) has been requested from relevant utility companies or taken from mapping systems where available.

Utility companies who have not responded to enquiries are referenced on the enclosed Status Report accordingly. Their response will be chased and forwarded on for a period of up to four working weeks. Whilst we cannot guarantee that a utility company will respond to our enquiries, we endeavour to obtain responses from those that have not responded.

Any responses contained within this report have been obtained between the start date of the order and the date of issue.

If you want to discuss your report further with us, please contact Landmark Customer Services.

Search data map



Please ensure that search data covers the COMPLETE AREA within the boundary lines on this map. This is marked by

Landmark will not be held responsible for any incident or accident arising from the use of the information associated with this particular Statutory Search. The details provided are given in good faith, but no liability whatsoever can be accepted in respect thereof.

Client Reference:
285109404_1

Route:
Site off Queens Road, Immingham

Postcode:
DN40 2QQ

OSGR:
520390 415640

Check by:
PS

Request Status Report

Route:
Site off Queens Road, Immingham

Postcode:
DN40 2QQ

OSGR:
520390 415640

Date Requested:
22 September 2021

Client Reference:
285109404_1

Report Number:
LM / 100245

Checked and Validated By:
SCG

Validation Date:
19 October 2021

Affected Utilities

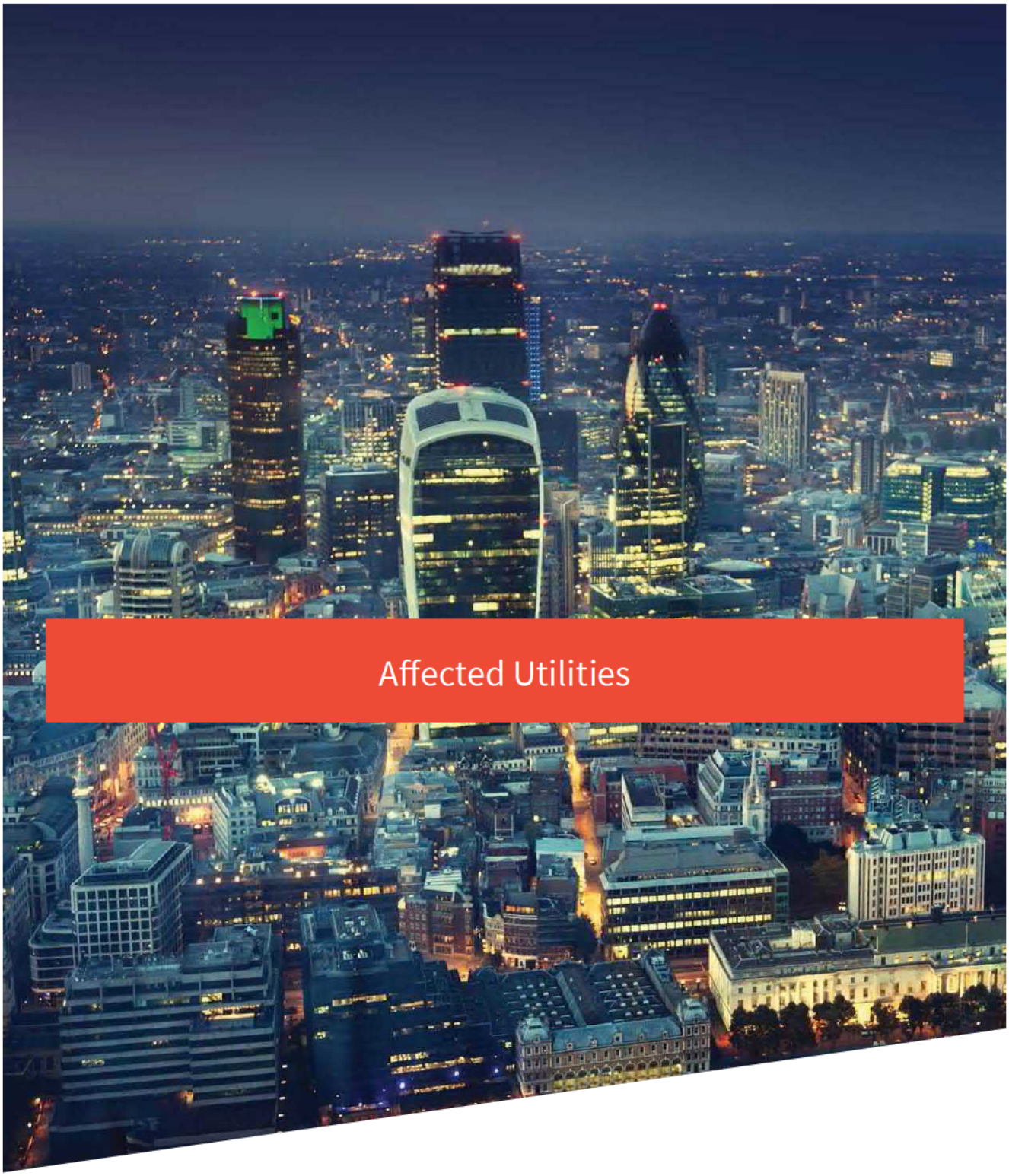
We have received plans/information from the following companies. Please see the enclosed response.

Utility	Category	Date Issued	Notes
Anglian Water	Water, Sewerage	19 October 2021	Only affected shown.
Cadent Gas	Gas	19 October 2021	
Environment Agency	Environmental Agency	19 October 2021	See response.
LinesearchbeforeUdig	Other	19 October 2021	Cadent Gas, National Grid Gas Transmission - Identified as affected. See separate responses.
Network Rail	Rail	19 October 2021	
North East Lincolnshire Council	Council	19 October 2021	See response.
Northern Powergrid	Electric	19 October 2021	
Openreach - [British Telecommunications]	Telecom	19 October 2021	Only affected shown.
Utility Assets	Electric	19 October 2021	See response.
Virgin Media	Telecom	19 October 2021	

Not Affected Utilities

We have received a not affected/no plant present response from the following companies.

Utility	Category	Date Issued	Notes
C.A. Telecom UK - [Colt Technology Services]	Telecom	19 October 2021	
CityFibre	Telecom	19 October 2021	
GTC	Telecom, Gas, Electric, Water	19 October 2021	
Instalcom - [CenturyLink, Global Crossing, Fibernet & Fibrespan]	Telecom	19 October 2021	
KCOM Group	Telecom	19 October 2021	
Lincolnshire County Council	Council	19 October 2021	
National Grid Gas Transmission	Gas	19 October 2021	
SKY Telecommunications Services	Telecom	19 October 2021	
Verizon	Telecom	19 October 2021	
Vodafone	Telecom	19 October 2021	



Affected Utilities

Landmark® INFORMATION



!

Affected Utilities

Anglian Water

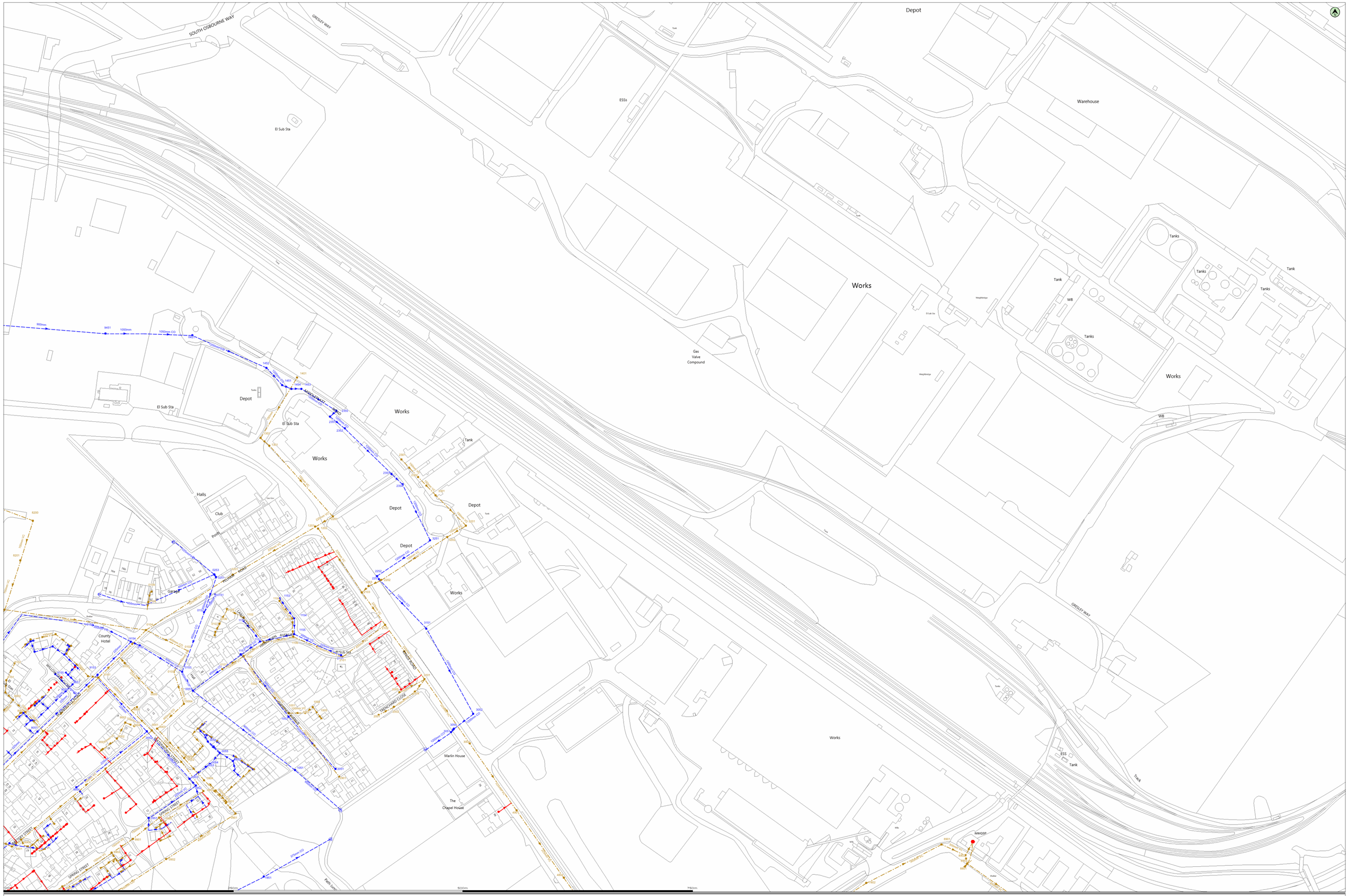
Landmark INFORMATION

SOUTH OSBOURNE WAY
GRESLEY WAY
El Sub Sta
ESSs
Depot
Warehouse
Works
Gas
Valve
Compound
Tanks
Tank
WB
Weighbridge
El Sub Sta
Tanks
Tank
Tanks
Tanks
Works
WB
Depot
El Sub Sta
MIDDLEPLATT
ROAD
Works
El Sub Sta
Tank
Works
Halls
Club
Depot
Depot
Depot
Works
Garage
PELHAM ROAD
County
Hotel
LABURNUM CLOSE
HAWTHORN AVENUE
El Sub Sta
KINGS ROAD
TREMONTAD CLOSE
CHESTNUT AVENUE
WILLOW TREE CLOSE
HUMPHREYS ROAD
WATERWORKS STREET
SPRING STREET
BATTERY STREET
SPRING STREET
Marlin House
The
Chapel House
Works
GRESLEY WAY
ESS
Tank
Track
Path (pu)
0m
250m
500m
750m
RAW
love every drop
anglianwater

Tanks
Depot
WB
Tanks
Tanks
Tank
Tanks
Depot
Tanks
WB
Tank
Tanks
Track
Tanks
Tank
ESS
Tank
Tanks
Path And Pipe
Path And Pipe
El Sub Sta
WB
WB
Track
QUEENS ROAD
LAPORTE ROAD
Long Strip
Path (um)
Weighbridge
Warehouse
Weighbridge
Tanks
LAPORTE ROAD
A1173
Tanks
Sewage Works
Track
Shelter
Track
Track
0m
100m
200m
300m

Potable Water
Raw Water
Decommissioned Water
Fitting
Hydrant
Please note: Not all fittings are shown on the map

love every drop
anglianwater



love every drop
anglianwater

Tanks
Depot
WB
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El Sub Sta
WB
WB
Track
QUEENS ROAD
Track
A1173
Track
Shelter
Track
Path And Pipe
Path And Pipe
Track
Tanks
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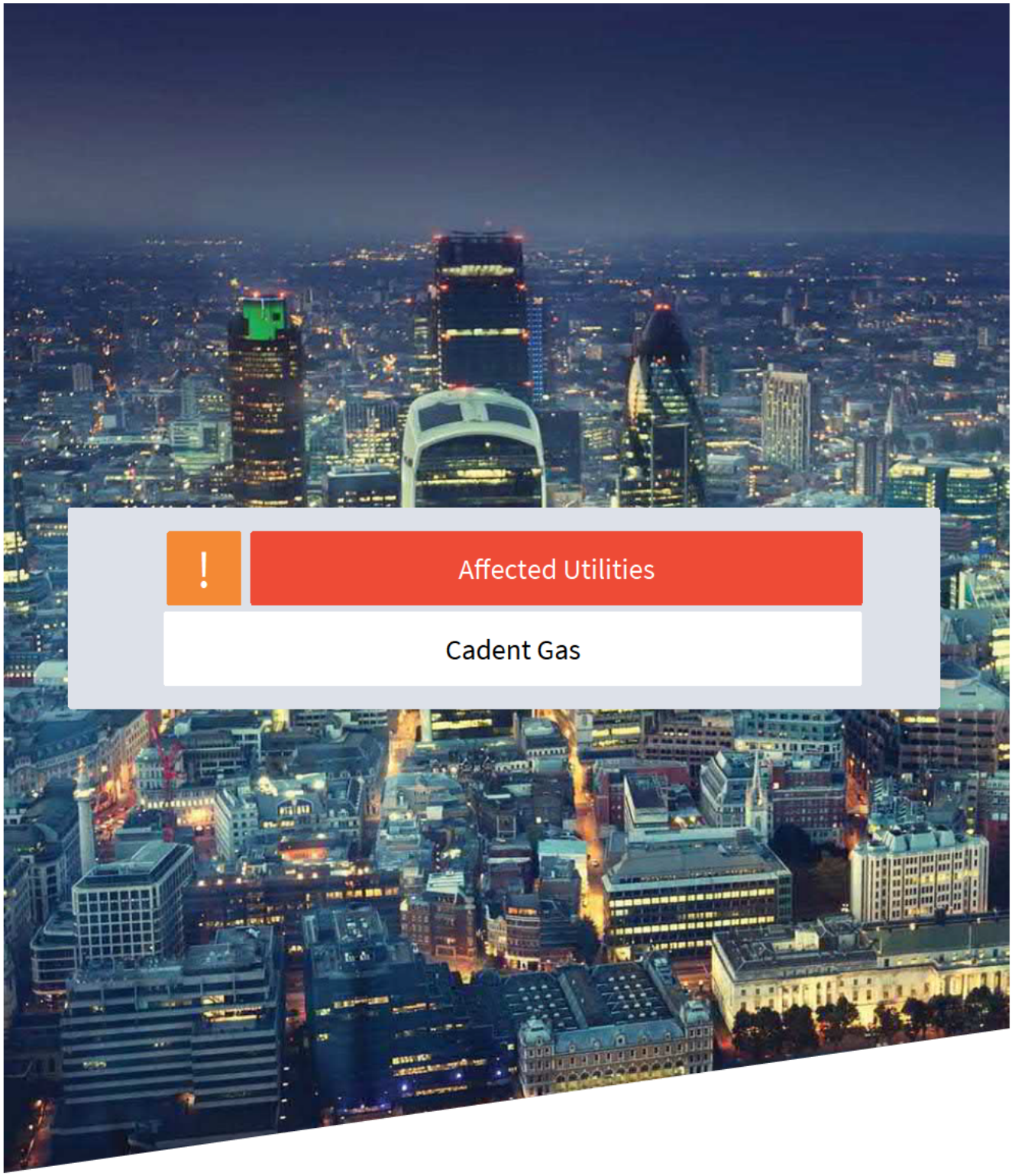
Tank
ESS
Tank
Tanks
Tanks
LAPORTE ROAD
Long Strip
Path (um)
Weighbridge
Warehouse
LAPORTE ROAD
Weighbridge
IMMIST
IMMSSM
Tanks
Sewage Works
7901
6901
5801
5802
4801
27m OTH
450mm CO
300mm VC
0m
100m
200m
300m
love every drop
anglianwater



Affected Utilities

Cadent Gas

Landmark® INFORMATION

From: plantprotection@cadentgas.com
Sent: 27 September 2021 09:48
To: Utility Solutions Searches
Subject: Saved/RPA LSBUD Ref: 23378509 Your Ref: LM 100245/DoM DBYD Initial Enquiry
Attachments: 23378509_CadentGas.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Date: 27/09/2021
LinesearchbeforeUdig ref: 23378509
Your ref: LM 100245/DoM

Dear Sir/Madam,

Please submit a planned works enquiry for your project

We have received a notification from the LinesearchbeforeUdig (LSBUD) platform regarding your initial enquiry to undertake works. As this is an initial enquiry, we haven't undertaken an assessment into the impact and risk posed to our assets. We need more information from you to do so.

You must not start any work until we confirm it is safe to do so after submission of a planned works enquiry.

There are Cadent gas pipes in the area you're planning to work. These pipes may impact and possibly prevent your work for safety or legal reasons.

If your works are proposed to be undertaken in an easement, please note any auto-response from our enquiry system does not constitute written consent and formal, signed written consent which will only be provided following consultation with our plant protection team.

What you need to do

To help develop your initial enquiry into a planned works enquiry, please review our attached plans, which detail the Cadent gas assets in the area along with our key guidance document Specification for Safe Working in the Vicinity of Cadent Assets.

Once you have a plan for review by our engineering teams, please submit a "Planned Works" enquiry via LSBUD. In the meantime, if you want to discuss specifics associated with your initial enquiry please contact us at [redacted] or on 0800 688 588 quoting your reference at the top of this letter.

Your responsibilities and obligations

It is your responsibility to ensure that the information you have given us is accurate, therefore you must not undertake any works until a planned works enquiry has been submitted for assessment. You must also share all relevant documents, including the guidance notes, with anyone who carries out work on your behalf.

Cadent may have a Deed of Easement on the pipeline, which provides us with a right of access for a number of functions and prevents change to existing ground levels and storage of materials. It also prevents the erection of permanent/temporary buildings, or structures. If necessary Cadent will take action to legally enforce the terms of the easement.

This letter does not constitute any formal agreement or consent for any proposed development work either generally or related to Cadent's easements or other rights, or any planning or building regulations applications.

Cadent Gas Ltd or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

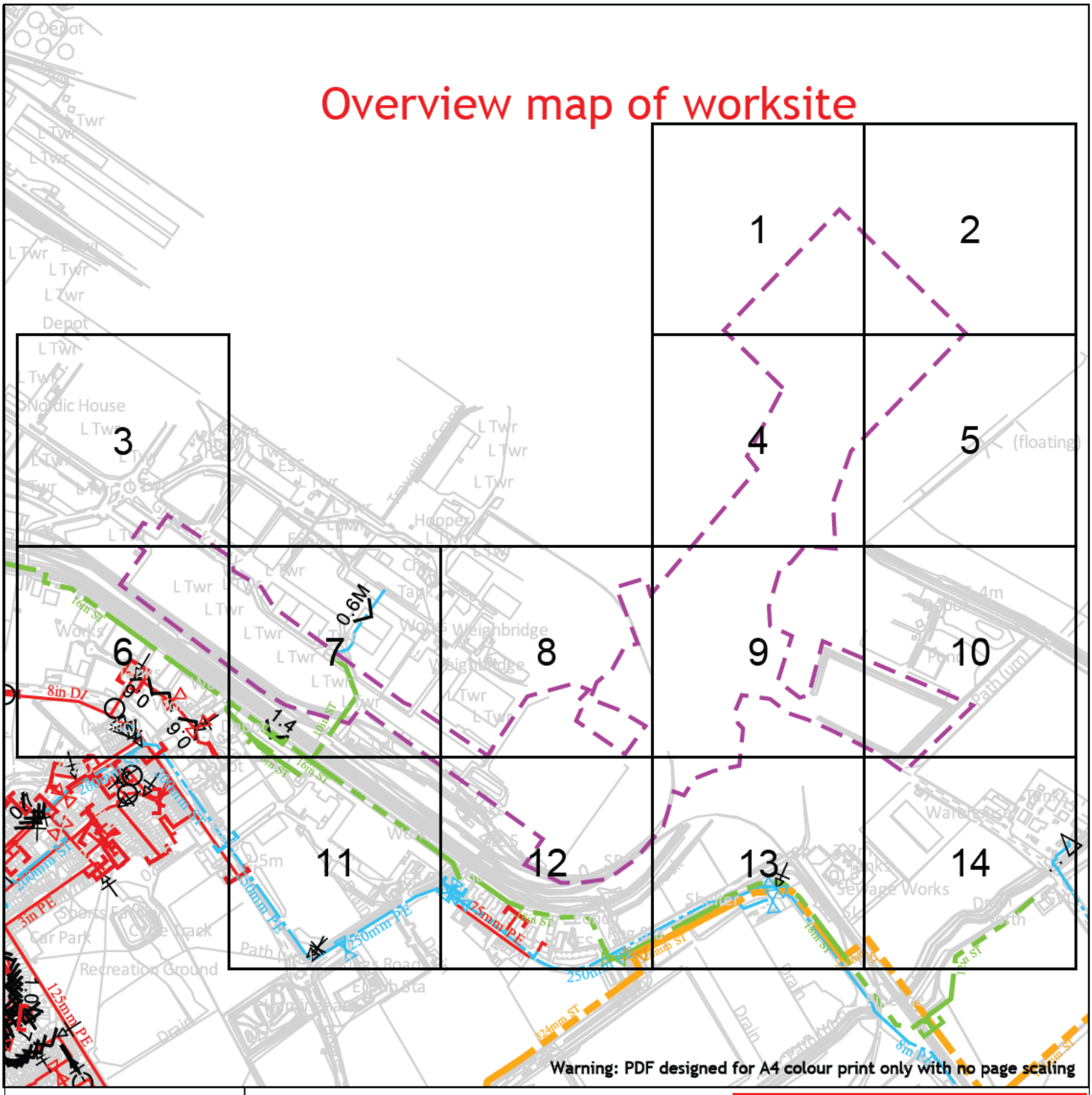
Kind Regards,

Plant Protection Team
T: 0800 688 588
plantprotection@cadentgas.com
cadentgas.com





Overview map of worksite



WARNING! This area contains Gas Mains Operating at High Pressure (in excess of 7 bar) and/or Intermediate Pressure (between 2 and 7 bar). Before excavating in the area contact the Plant Protection team on 0800 688 588 or plantprotection@cadentgas.com

Dig Sites Area: Line:

- LP Mains
- MP Mains
- IP Mains
- LHP Mains

- Valve
- Depth of cover
- Syphon
- Diameter Change
- Material Change
- Out of Standard Service

Cadent
Your Gas Network

Date Requested: 27/09/2021
Job Reference: 23378509
Site Location: 520645 415741
Requested by: Mr Ben Evans

Your Scheme/Reference: LM 100245/DoM

View extent: 100m, 100m

Scale: 1:12813 (When plotted at A4)

IMPORTANT NOTICES

This plan shows these pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GT s or otherwise privately owned may be present in this area. Information with regards to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any errors or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

In case of emergency call - 0800 111 999

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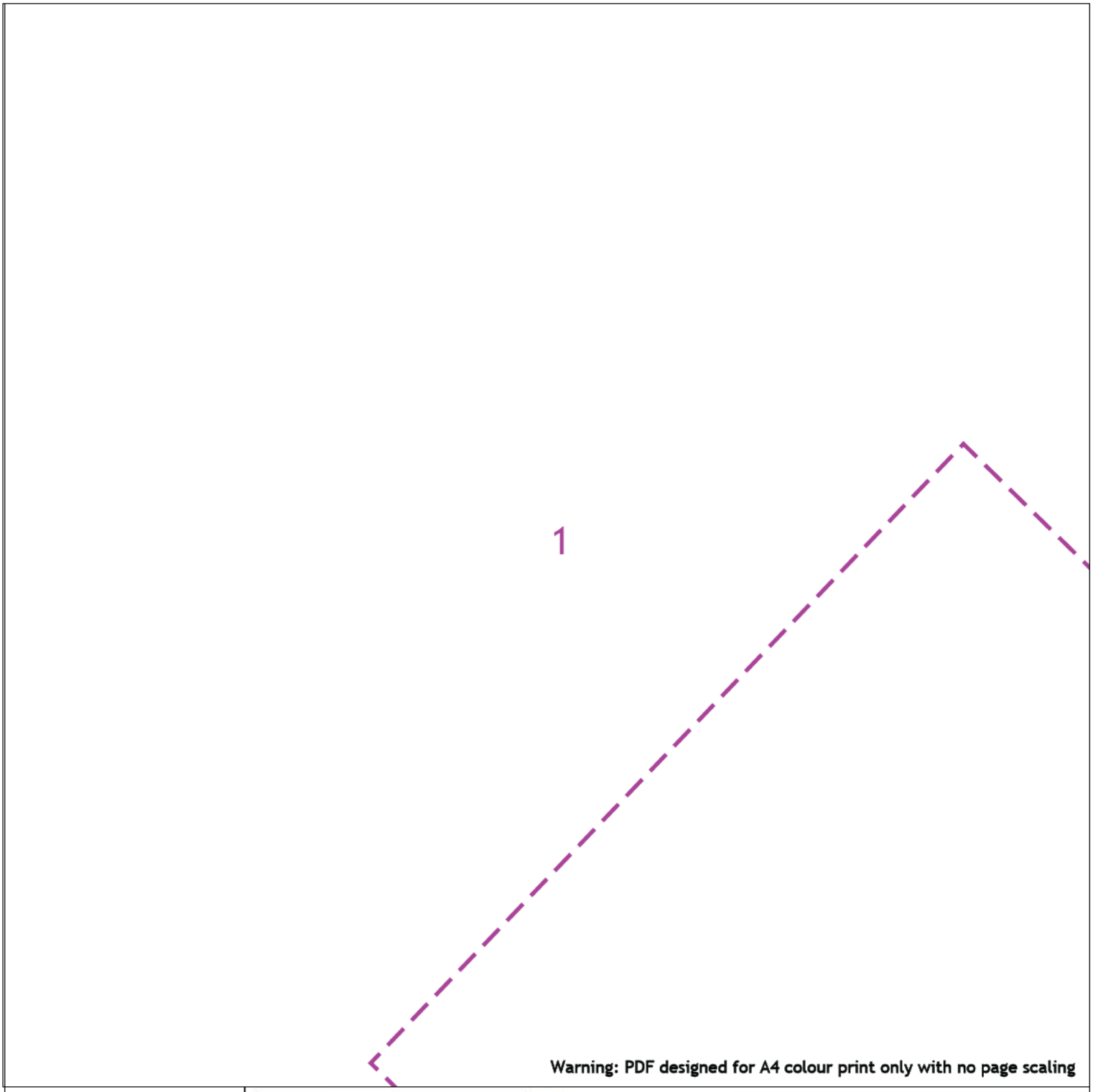

Warning: PDF designed for A4 colour print only with no page scaling

25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon
Diameter Change
Material Change
Out of Standard Service

WARNING! This area contains Gas Mains Operating at High Pressure (in excess of 7 bar) and/or Intermediate Pressure (between 2 and 7 bar). Before excavating in the area contact the Plant Protection team on 0800 688 588 or plantprotection@cadentgas.com

Cadent
Your Gas Network

Date Requested: 27/09/2021
Job Reference: 23378509
Site Location: 520645 415741
Requested by: Mr Ben Evans

Your Scheme/Reference: LM 100245/DoM

View extent: 100m, 100m

Scale: 1:2500 (When plotted at A4)

IMPORTANT NOTICES

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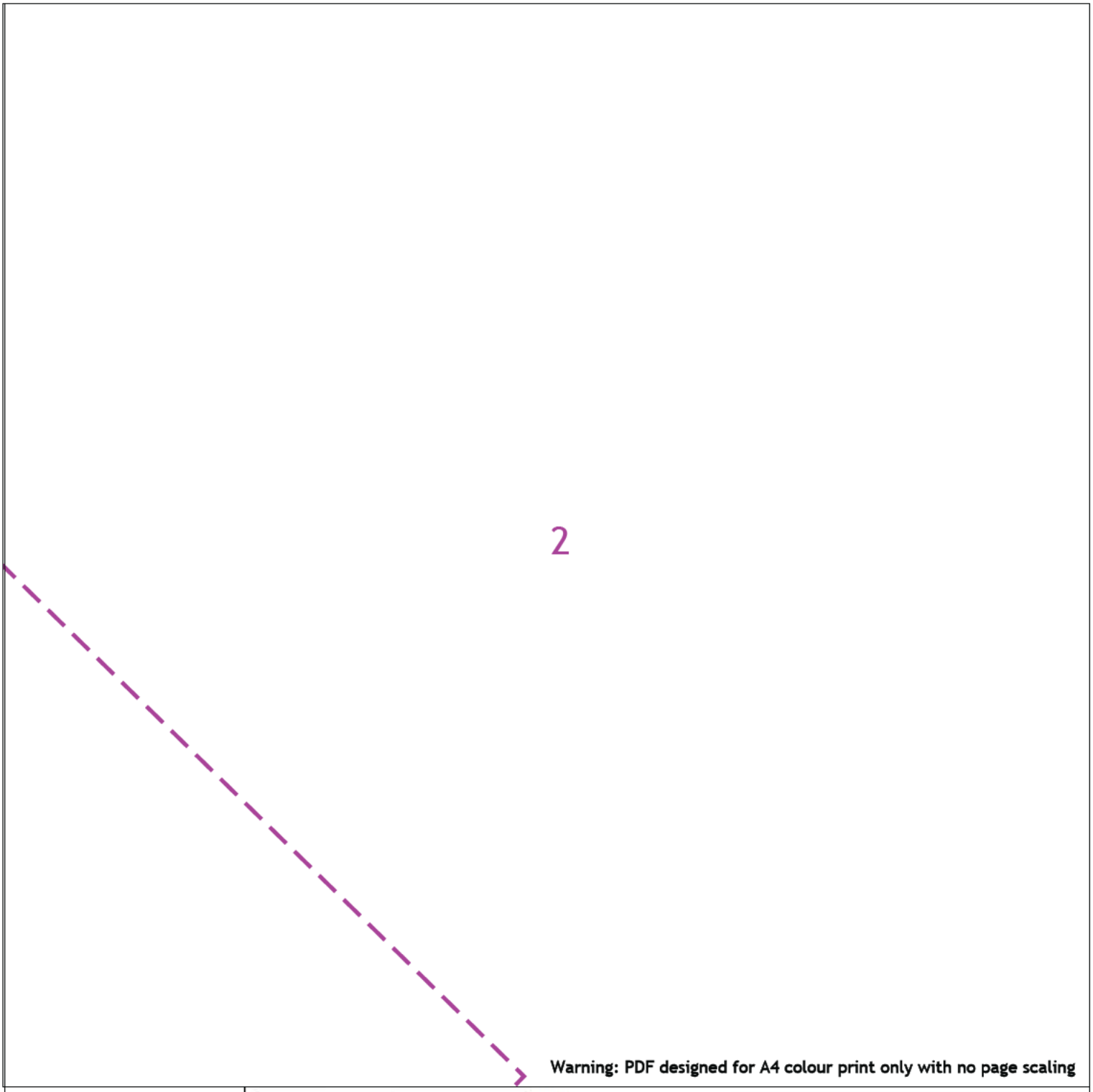

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25m

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Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon
Diameter Change
Material Change
Out of Standard Service

Cadent
Your Gas Network

Date Requested: 27/09/2021
Job Reference: 23378509
Site Location: 520645 415741
Requested by: Mr Ben Evans

Your Scheme/Reference: LM 100245/DoM

View extent: 100m, 100m

Scale: 1:2500 (When plotted at A4)

IMPORTANT NOTICES

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In case of emergency call - 0800 111 999

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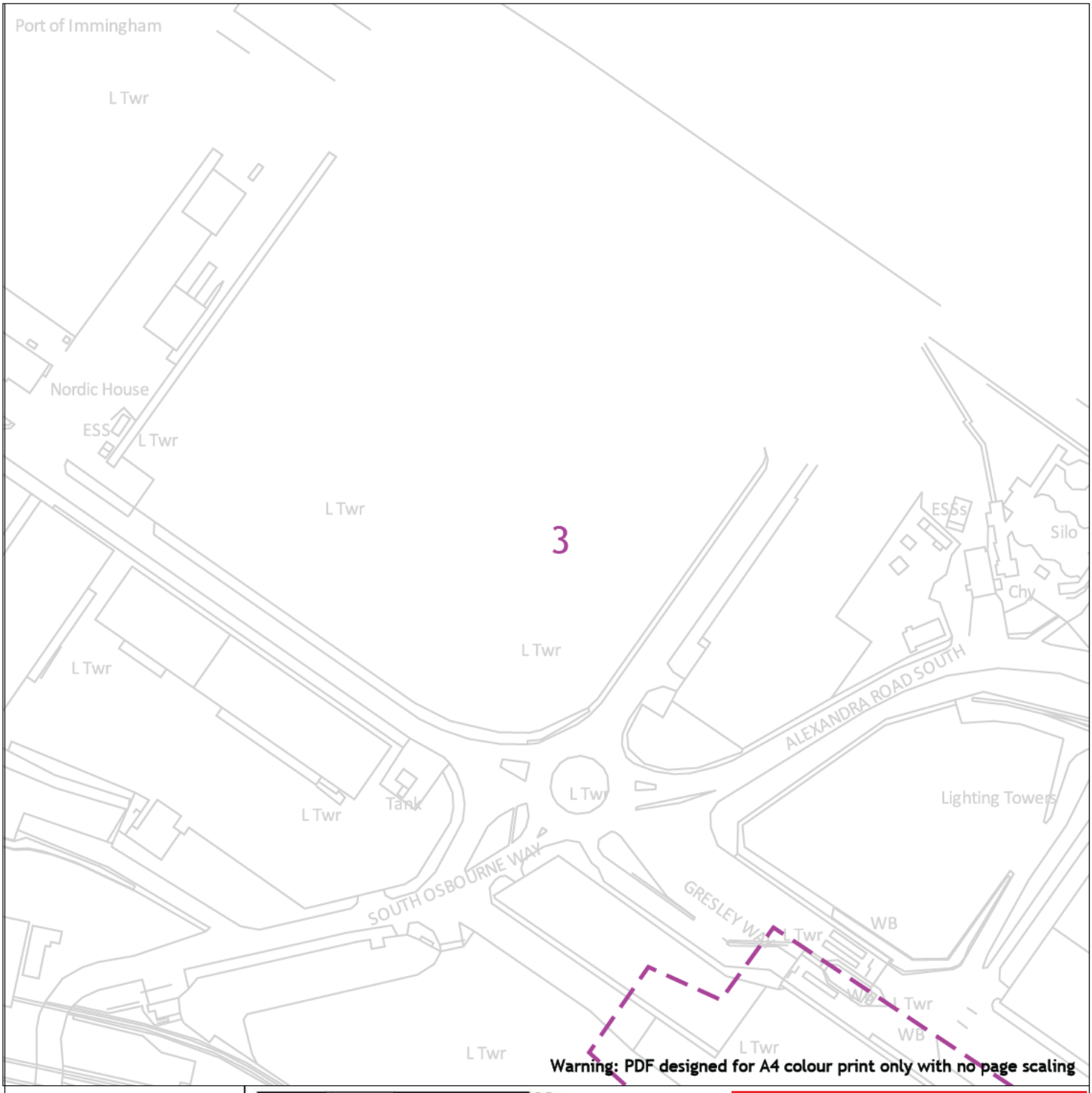

Warning: PDF designed for A4 colour print only with no page scaling

25m

WARNING! This area contains Gas Mains Operating at High Pressure (in excess of 7 bar) and/or Intermediate Pressure (between 2 and 7 bar). Before excavating in the area contact the Plant Protection team on 0800 688 588 or plantprotection@cadentgas.com

Dig Sites Area: Line:

- LP Mains
- MP Mains
- IP Mains
- LHP Mains
- Valve
- Depth of cover
- Syphon
- Diameter Change
- Material Change
- Out of Standard Service

Cadent
Your Gas Network

Date Requested: 27/09/2021
Job Reference: 23378509
Site Location: 520645 415741
Requested by: Mr Ben Evans

Your Scheme/Reference: LM 100245/DoM

View extent: 100m, 100m

Scale: 1:2500 (When plotted at A4)

IMPORTANT NOTICES

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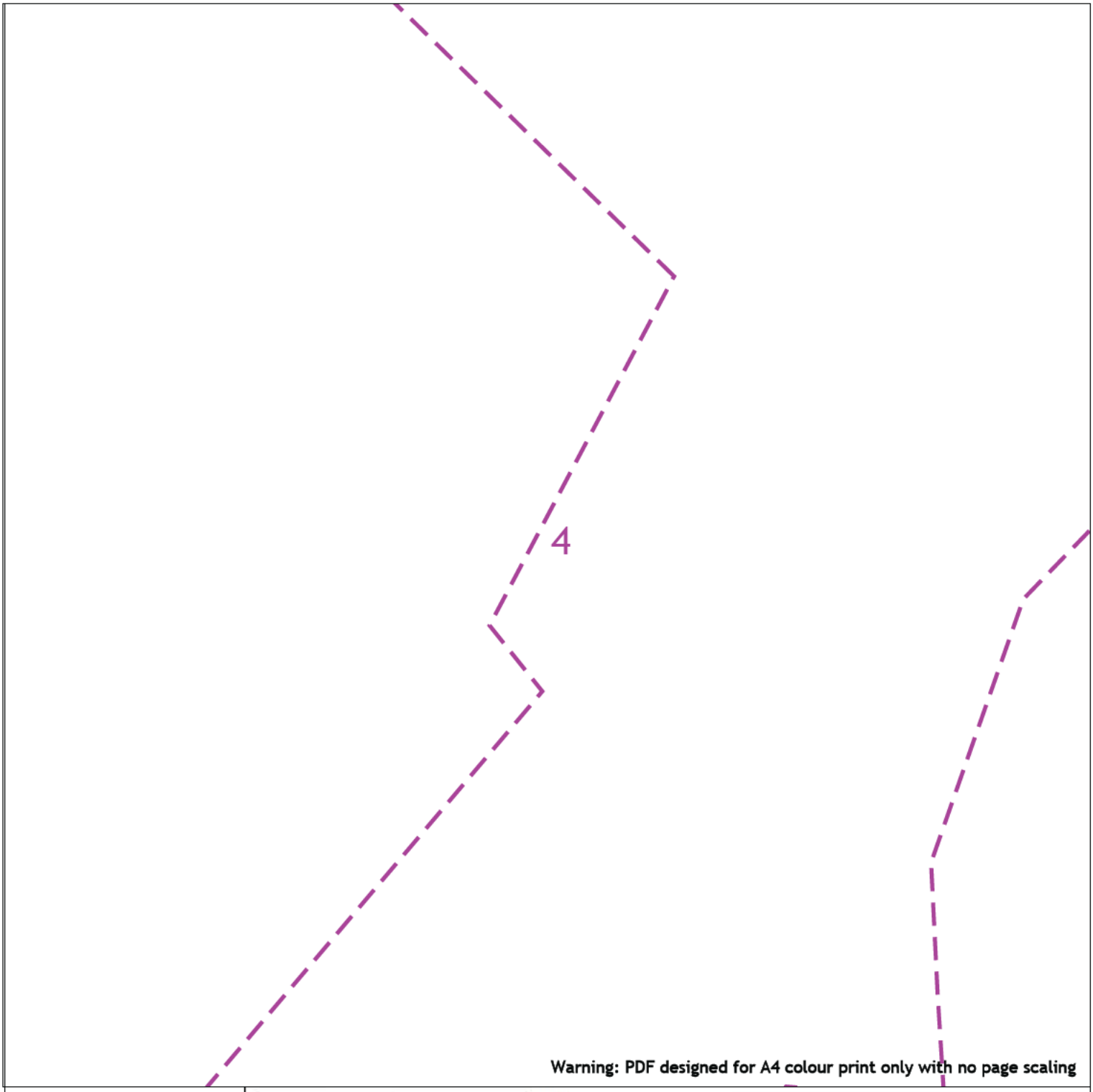

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25m

WARNING! This area contains Gas Mains Operating at High Pressure (in excess of 7 bar) and/or Intermediate Pressure (between 2 and 7 bar). Before excavating in the area contact the Plant Protection team on 0800 688 588 or plantprotection@cadentgas.com

Dig Sites Area: Line:

- LP Mains
- MP Mains
- IP Mains
- LHP Mains
- Valve
- Depth of cover
- Syphon
- Diameter Change
- Material Change
- Out of Standard Service

Cadent
Your Gas Network

Date Requested: 27/09/2021
Job Reference: 23378509
Site Location: 520645 415741
Requested by: Mr Ben Evans

Your Scheme/Reference: LM 100245/DoM

View extent: 100m, 100m

Scale: 1:2500 (When plotted at A4)

IMPORTANT NOTICES

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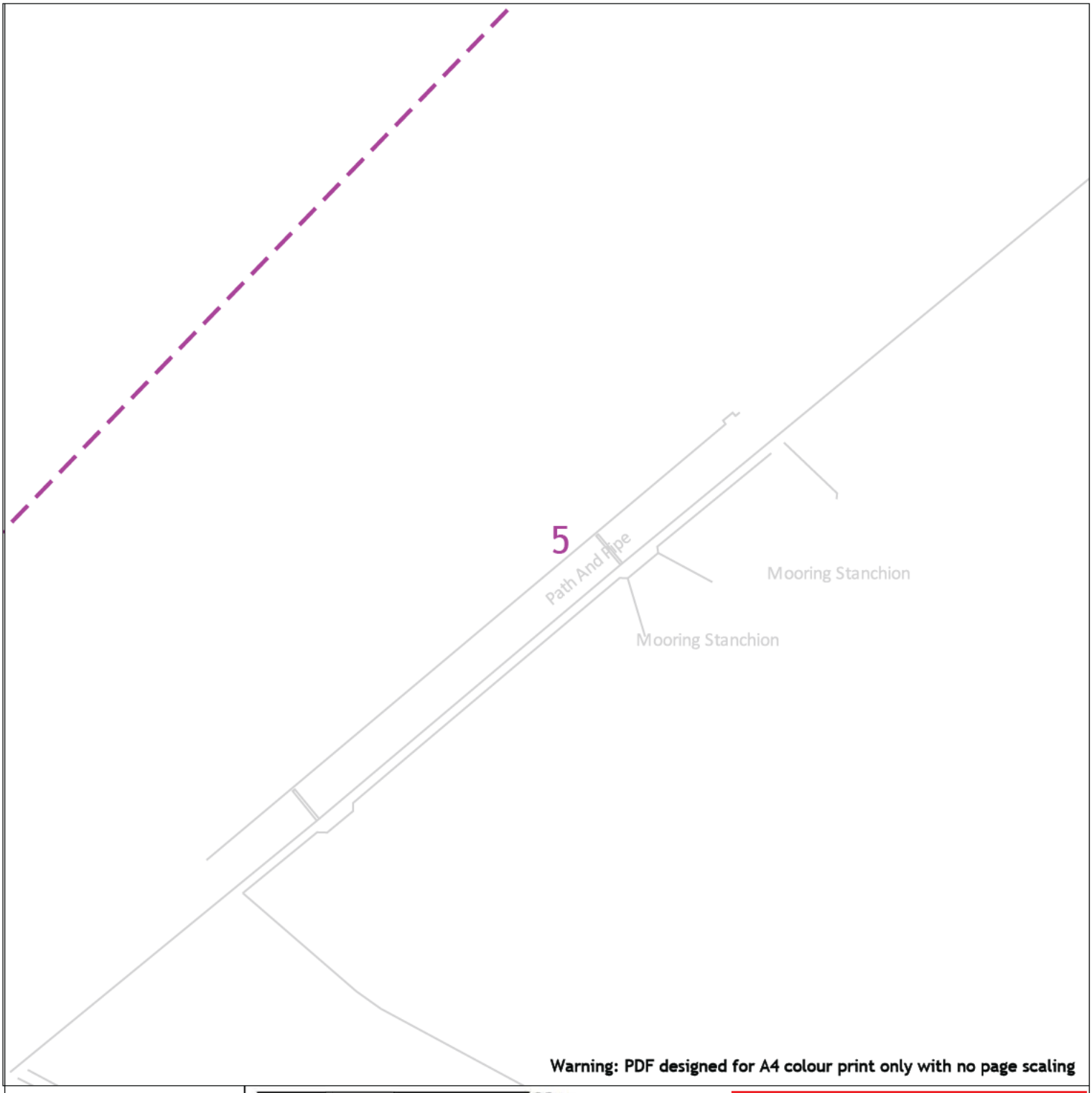

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25m

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Dig Sites Area: Line:

- LP Mains
- MP Mains
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- Valve
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Cadent
Your Gas Network

Date Requested: 27/09/2021
Job Reference: 23378509
Site Location: 520645 415741
Requested by: Mr Ben Evans

Your Scheme/Reference: LM 100245/DoM

View extent: 100m, 100m

Scale: 1:2500 (When plotted at A4)

IMPORTANT NOTICES

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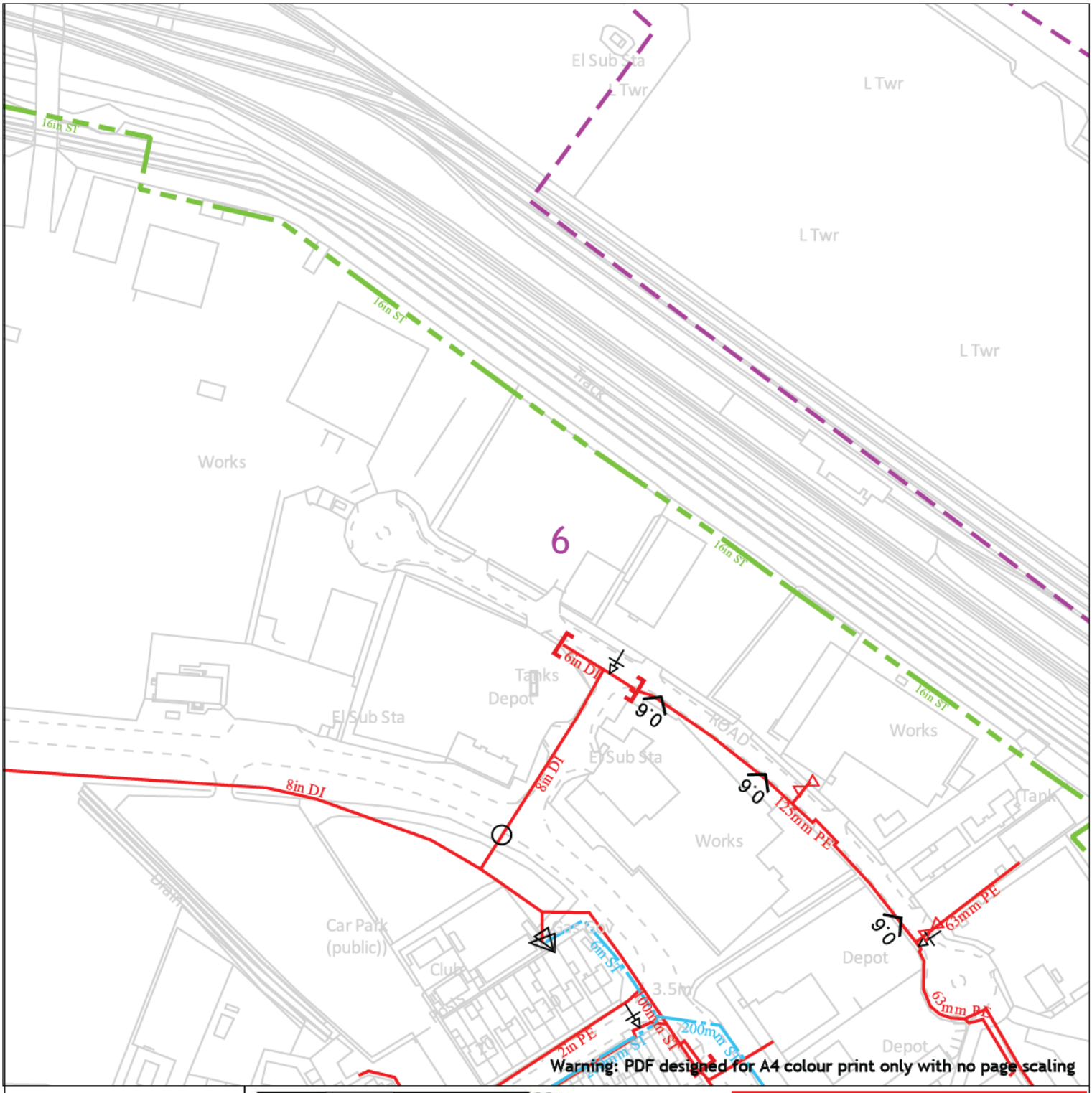

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- LP Mains
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- IP Mains
- LHP Mains

- Valve
- Depth of cover
- Syphon
- Diameter Change
- Material Change
- Out of Standard Service

Cadent
Your Gas Network

Date Requested: 27/09/2021
Job Reference: 23378509
Site Location: 520645 415741
Requested by: Mr Ben Evans

Your Scheme/Reference: LM 100245/DoM

View extent: 100m, 100m

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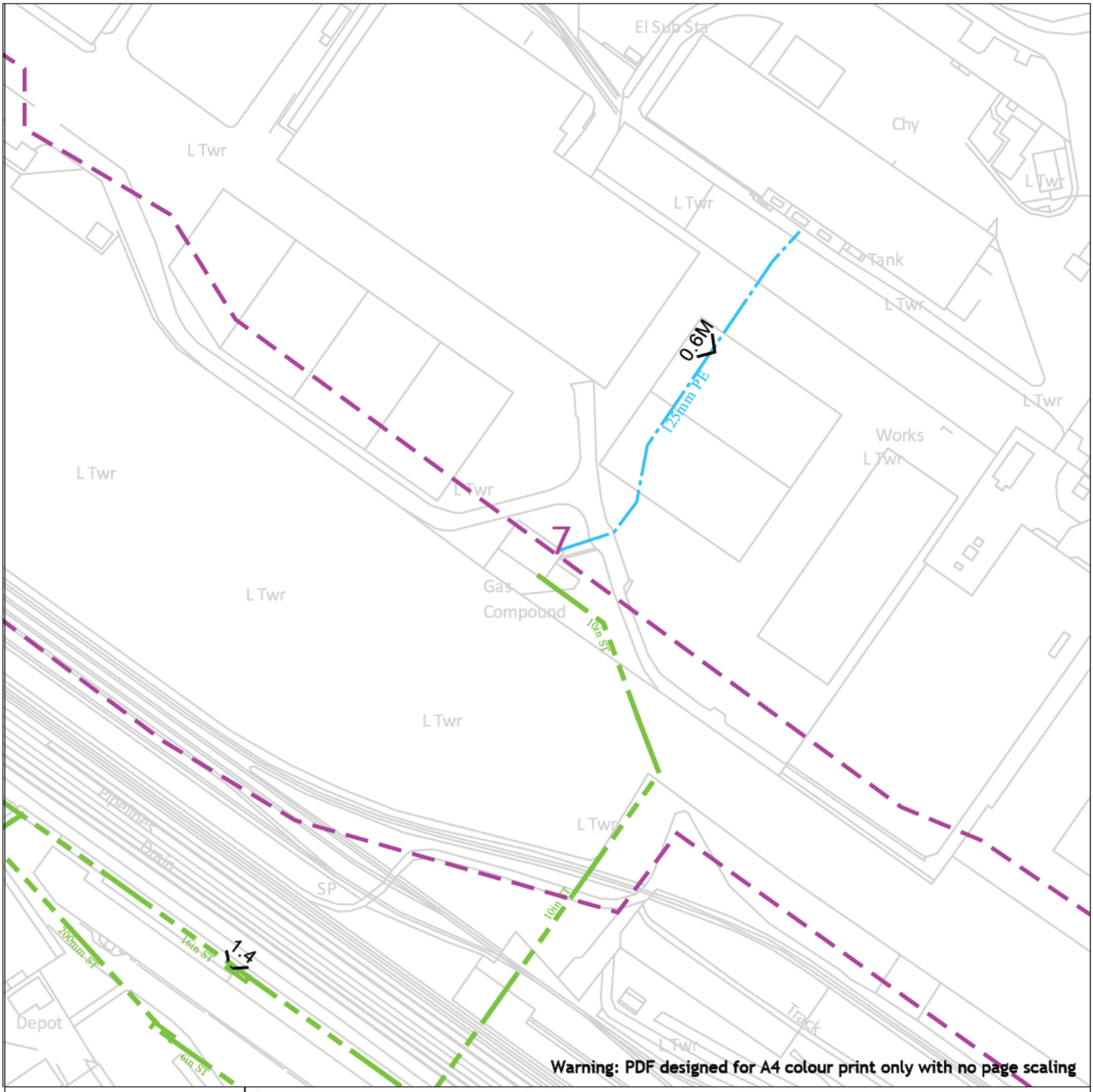

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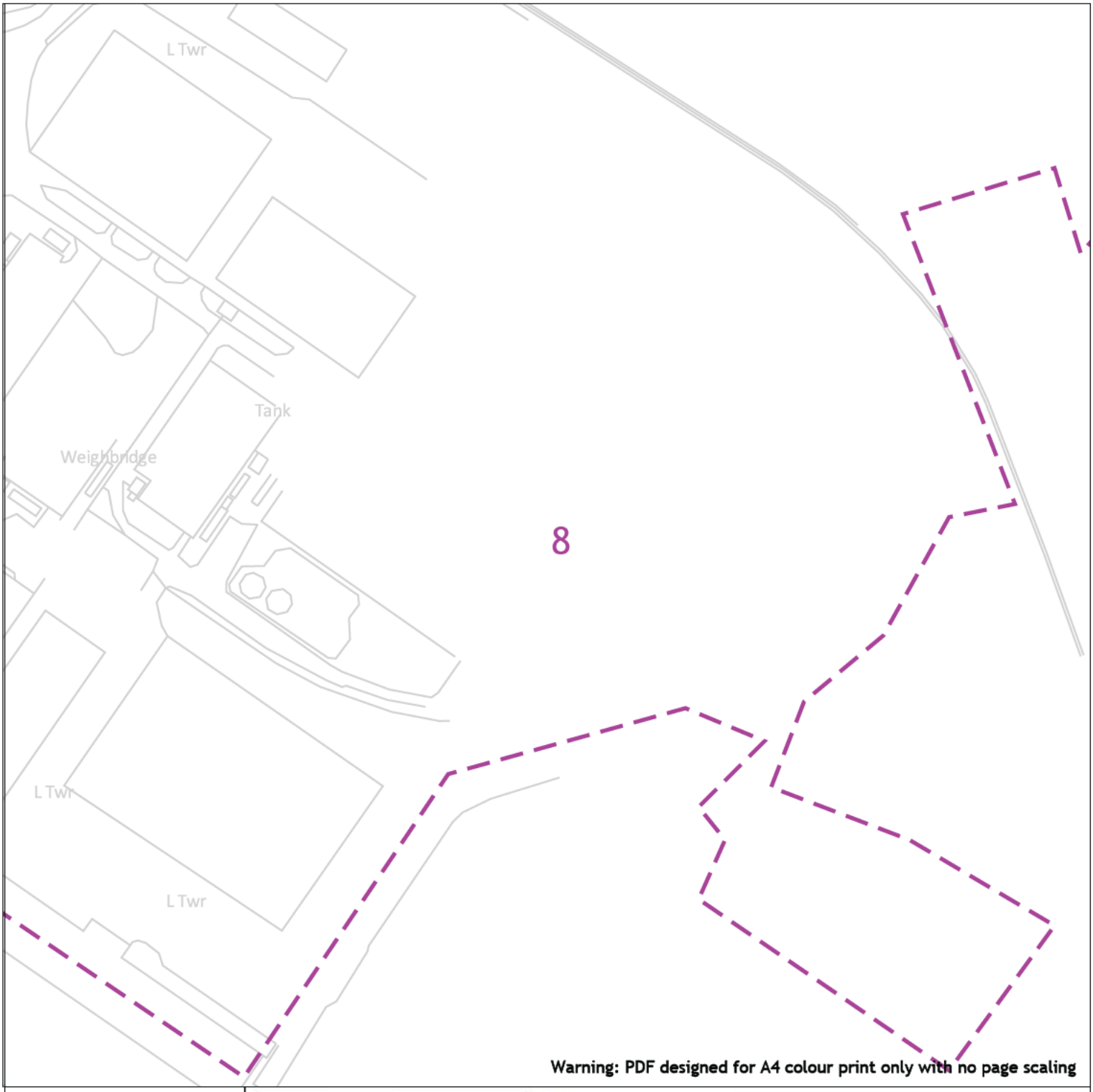

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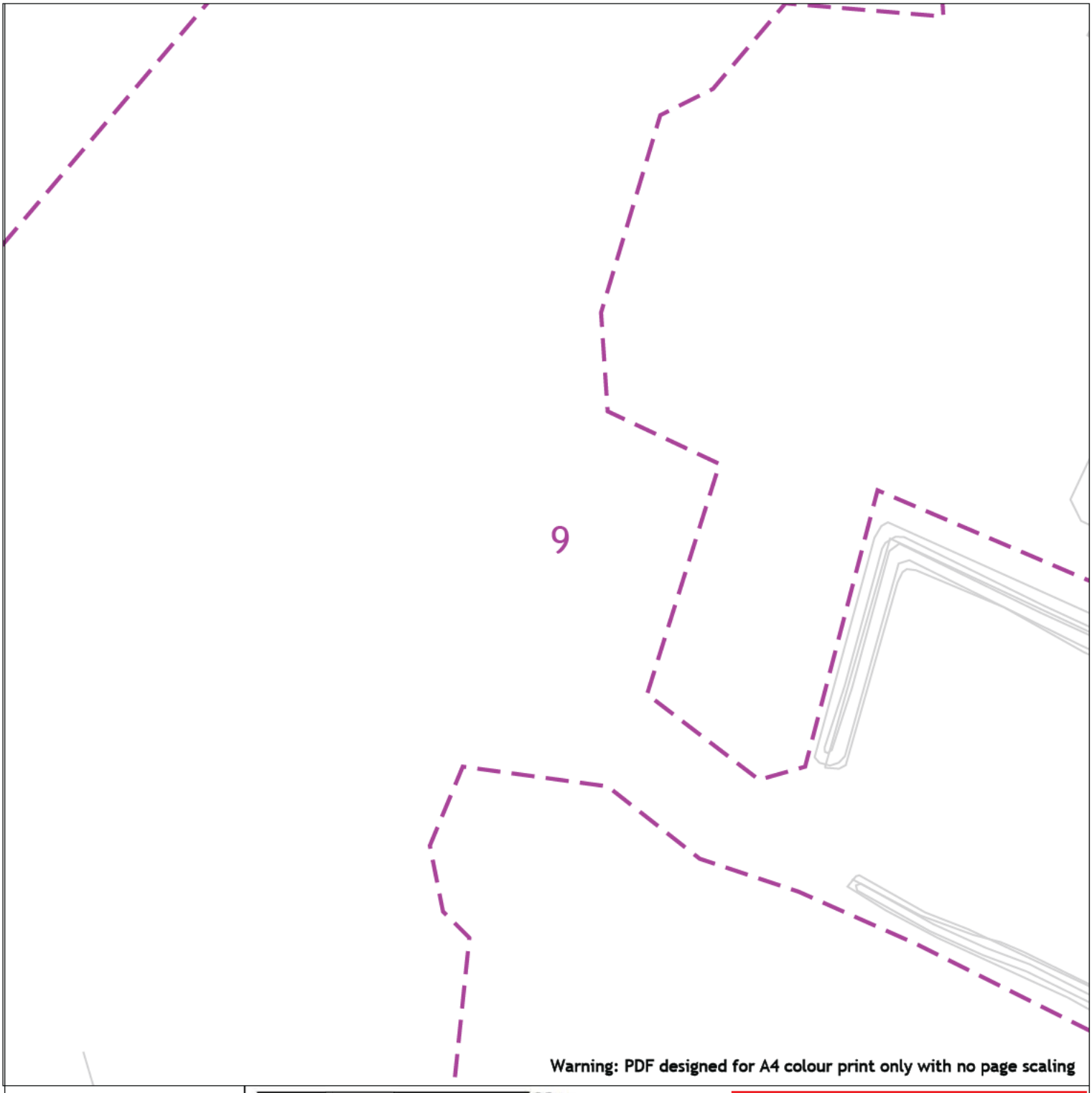

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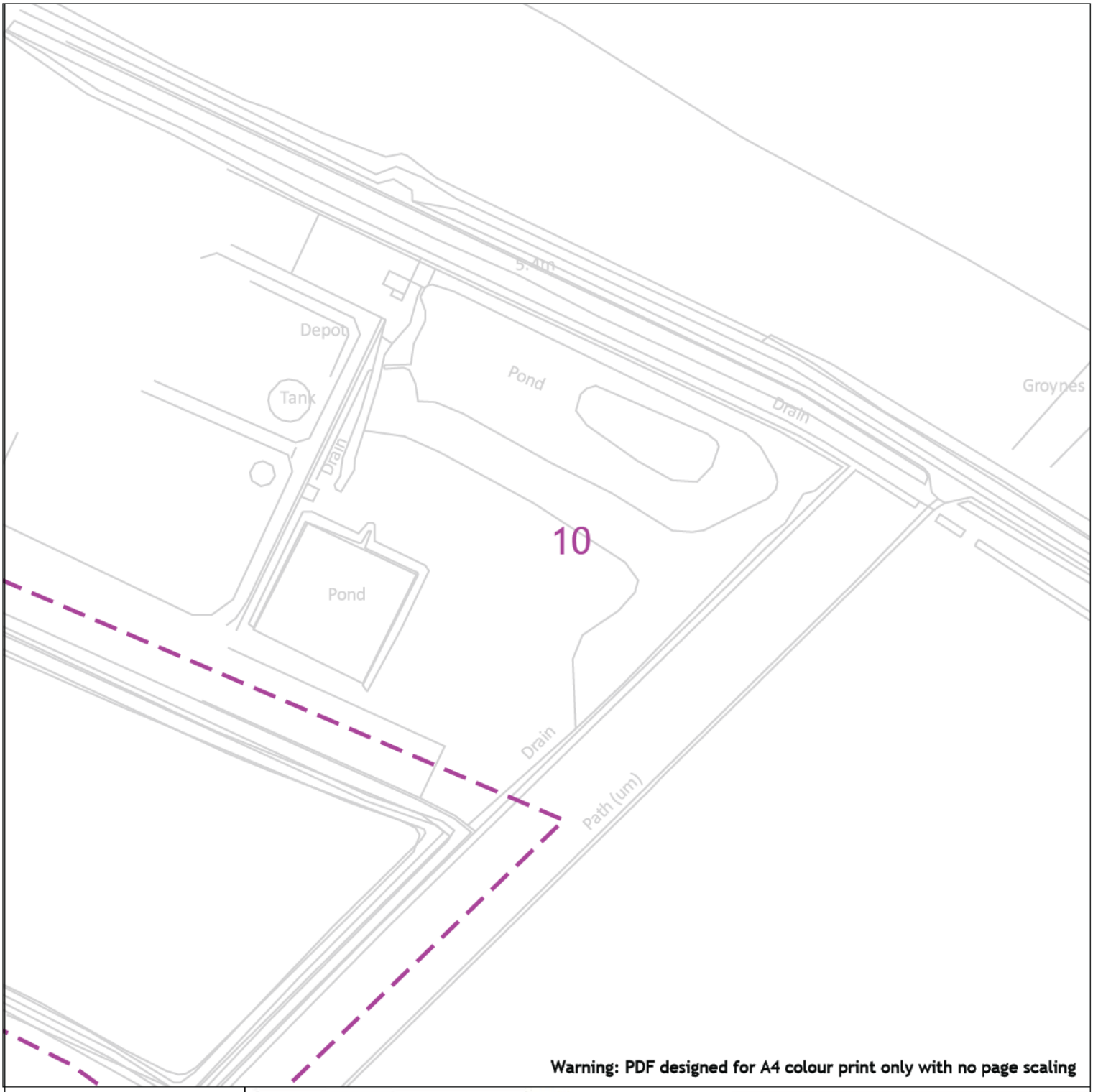

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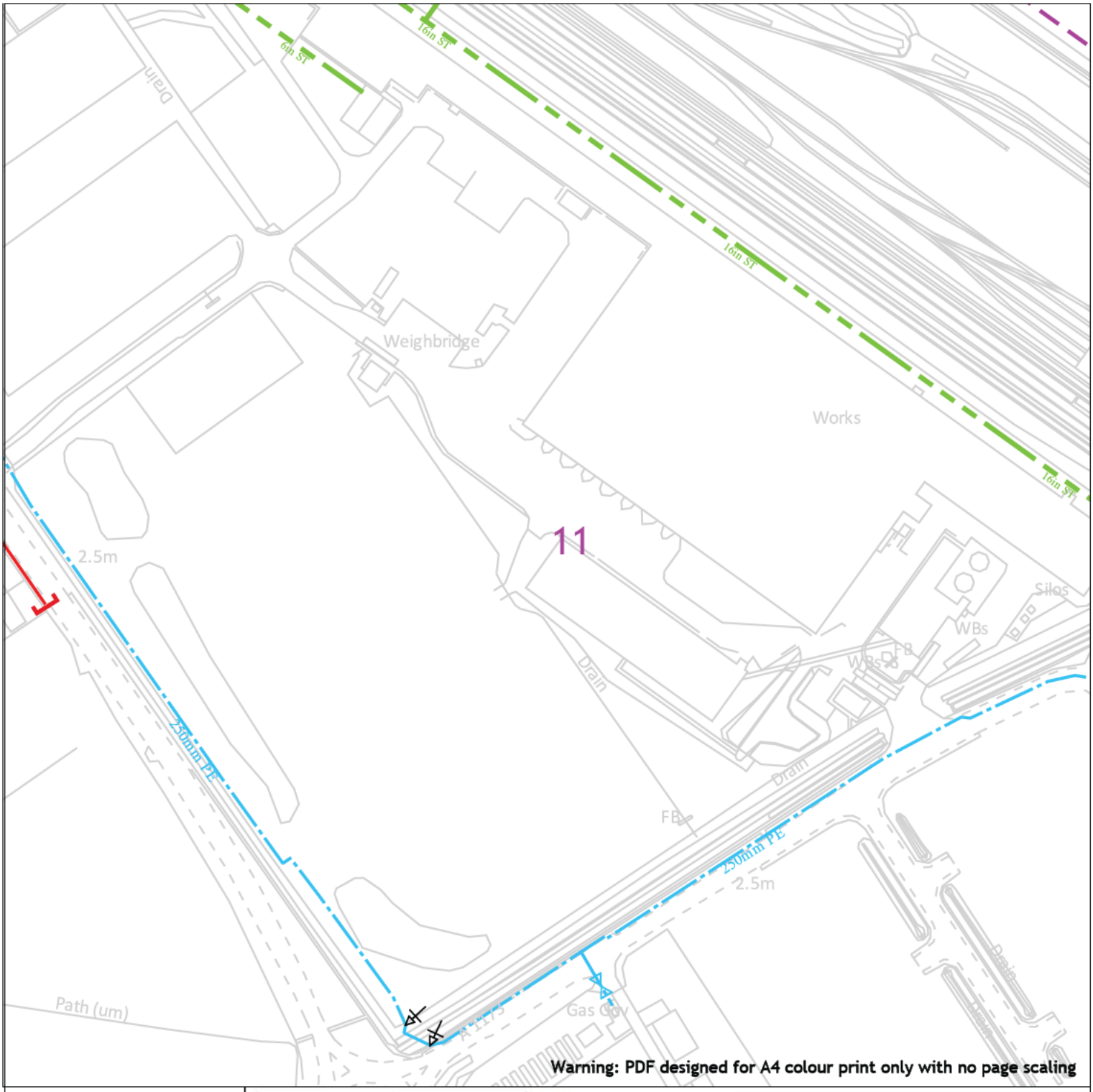

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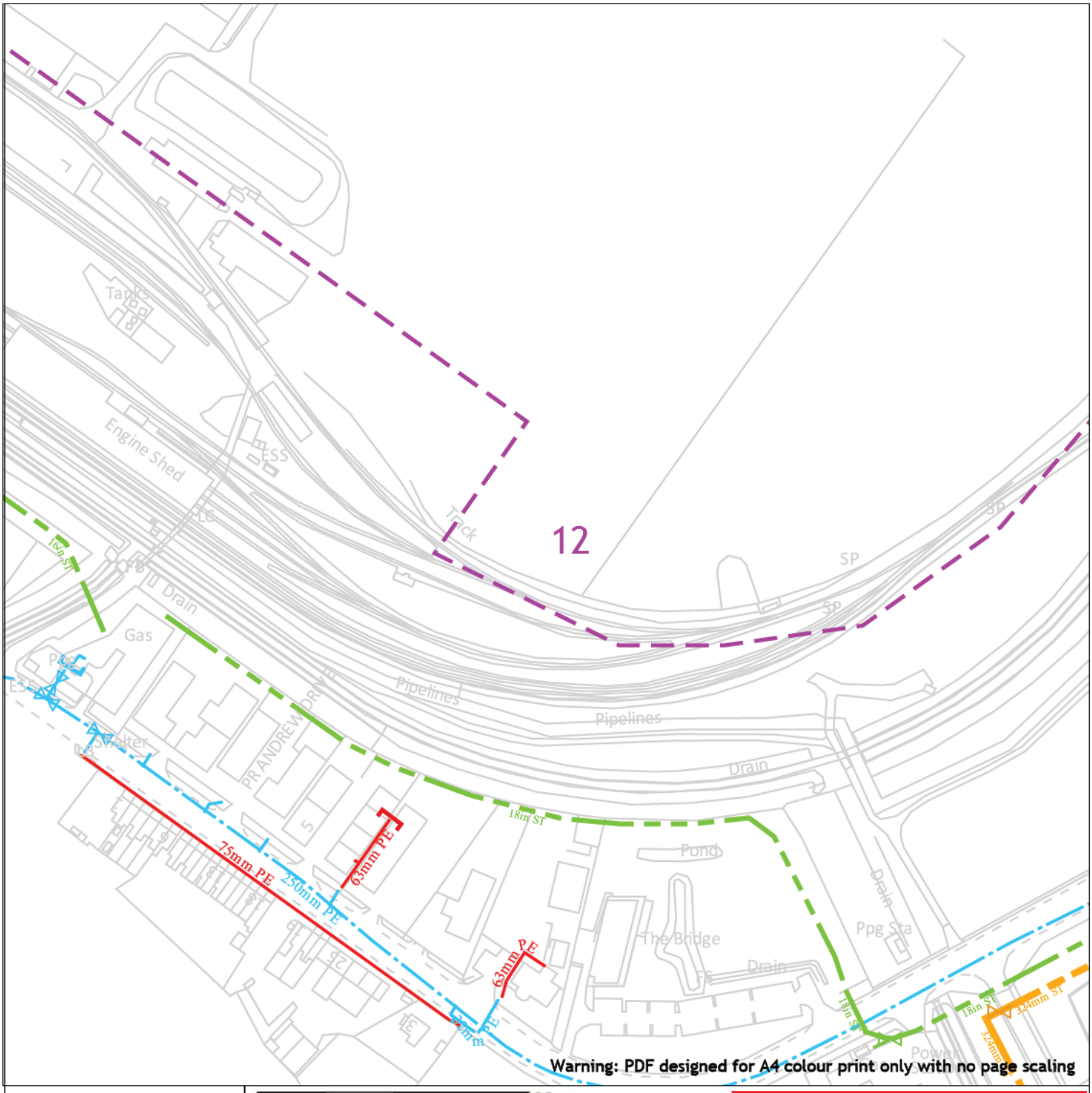

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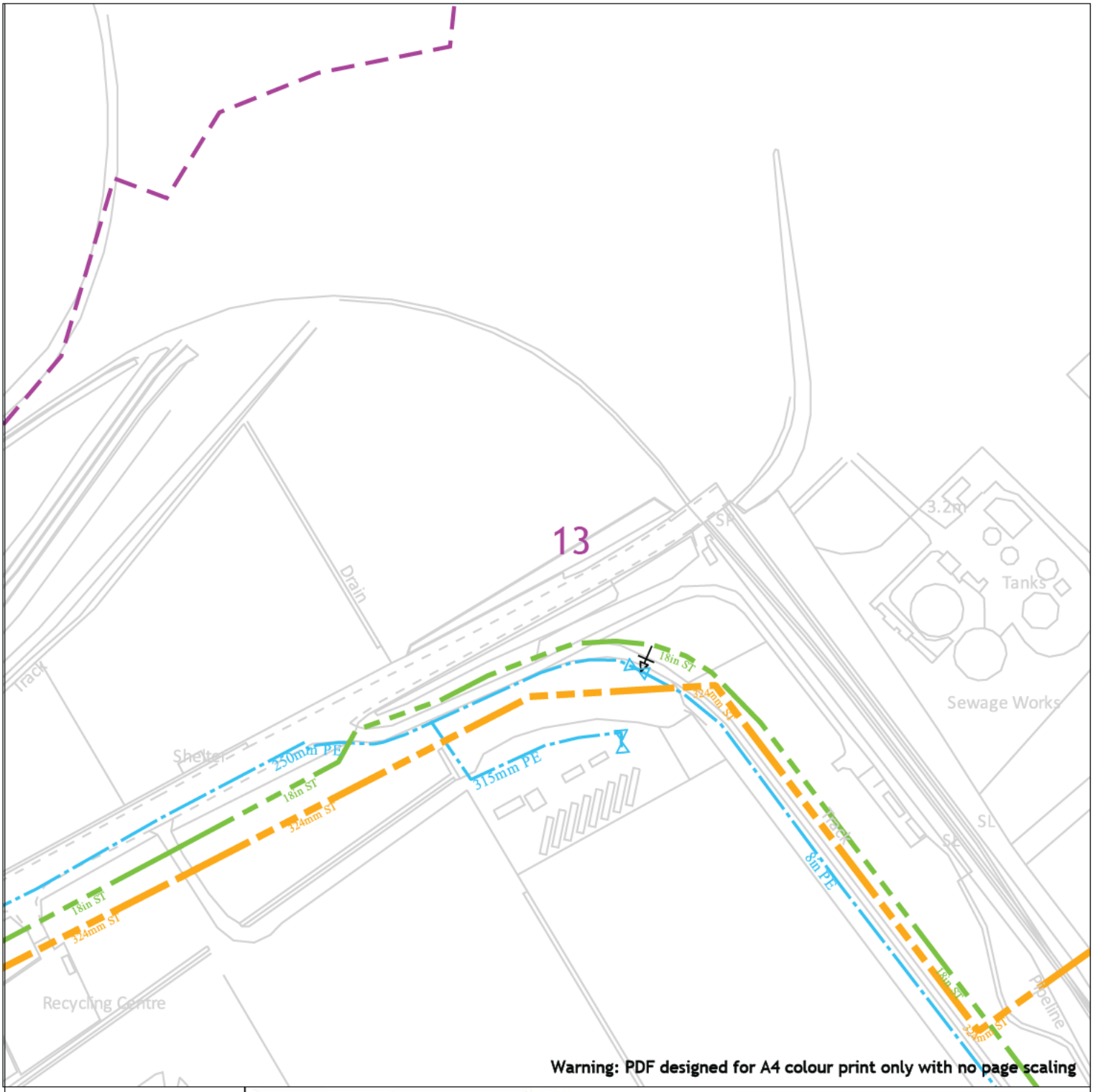

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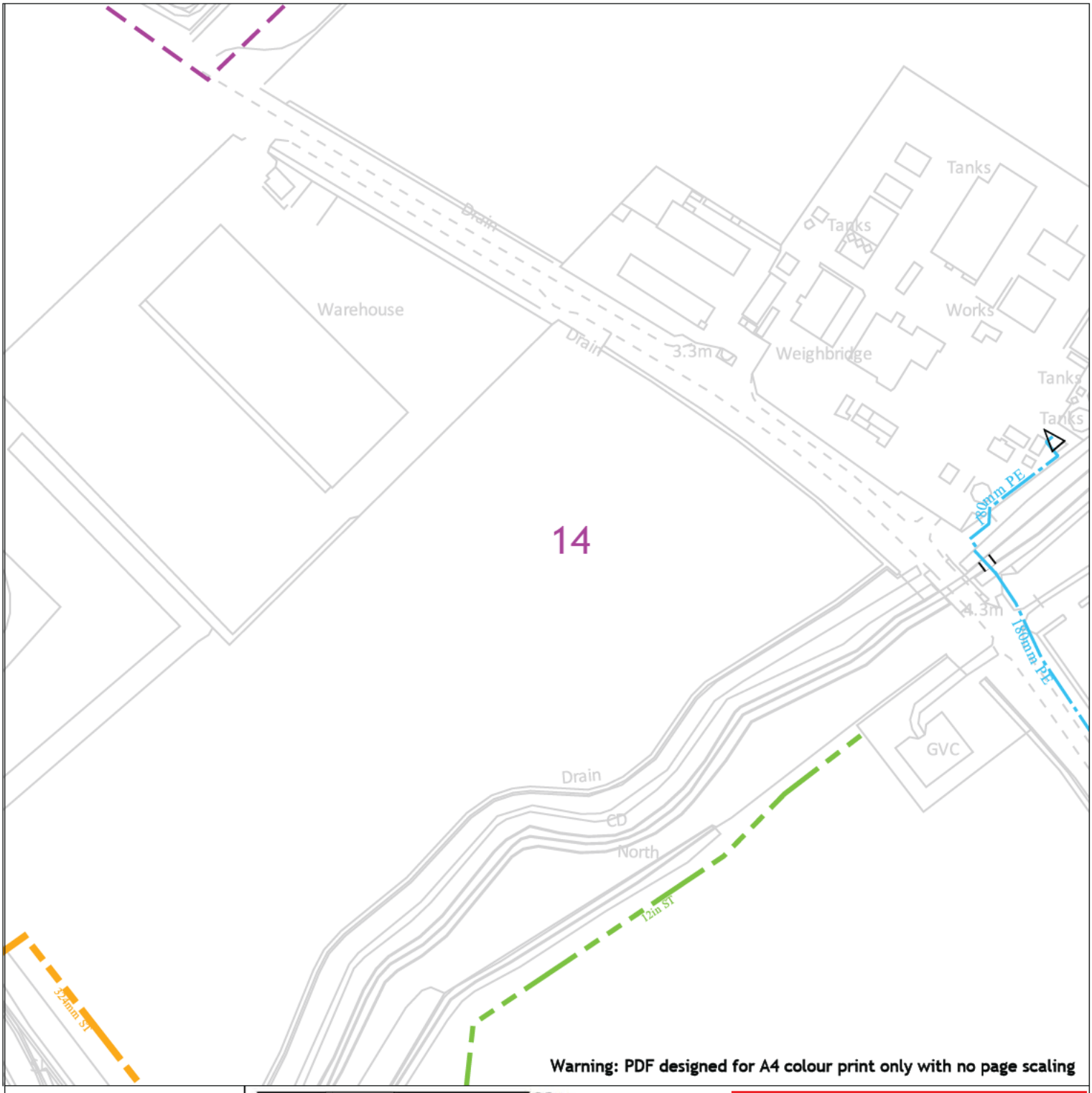

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Cadent
Your Gas Network

Specification for
Safe Working in the Vicinity of Cadent Assets

CAD/SP/SSW/22
August 2021



Cadent
Your Gas Network

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Cadent
Your Gas Network

Cadent contact details



Central admin team
Address: Cadent, Brick Kiln Street, Hinckley, Leicestershire, LE10 0NA
Phone: 0800 688 588
Email: [redacted]

East of England Operations Plant Protection
Address: Cadent Gas Limited, Vicarage Farm Road, Peterborough, PE1 5TP
Email: [redacted]

East Midlands Operations Plant Protection
Address: Cadent Gas Limited, Effingham Street, Sheffield, S4 7YP
Email: [redacted]

North London Operations Plant Protection
Address: Cadent Gas Limited, Uxbridge Road, Slough, SL2 5NA
Email: [redacted]

North West Operations Plant Protection
Address: Cadent Gas Limited, Plant Protection (Block C), Mersey Road North, Failsworth, Greater Manchester, M35 9FF
Email: [redacted]

West Midlands Operations Plant Protection
Address: Cadent Gas Limited, Windsor Street, Birmingham, B7 4DN
Email: [redacted]

Step by Step Process

Register with LinesearchbeforeUdig (LSBUD)

LSBUD provide a free online enquiry service giving results within minutes from a grid reference, postcode or street name. This allows you to submit enquiries about activities and work that you are planning which may have an impact on the gas network.

[redacted]

Submit an enquiry

Within LSBUD there are 3 enquiry types, initial enquiry, planned works and emergency works. Initial enquires are for information only purposes and will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry. If your works are of a genuine emergency nature (e.g. burst water main etc.) then you should submit an emergency enquiry.

Review the response, asset location and enclosed guidance

LSBUD will auto-generate a response based on your enquiry details and our assets in the area. The assessment will be based on the selected Work Category and Work Type, if your planned works propose activities to be undertaken within the distances specified within this booklet you must obtain site specific advice from our specialist operational plant protection team.

If your response says that we need to assess your enquiry further, you must not start any work until we confirm it is safe to do so.

If you are advised to proceed with caution, then you must ensure that you utilise the provided asset plans and follow the guidance in this document.

Observe restrictions

In addition to the guidance contained in this booklet, you must ensure that you observe any site-specific advice provided by our specialist operational plant protection teams.

If in doubt contact Cadent using the details in this booklet

Keeping you, your workers and the public safe when working near our pipelines



Disclaimer

This document is provided for use by third parties for safe working in the vicinity of Cadent assets. Where this document is used by any other party it is the responsibility of that party to ensure that this document is correctly applied.

Users should ensure that they are in possession of the latest edition of this document by referring to the Digging Safely webpage on the Cadent website.

[redacted]

Mandatory and non-mandatory requirements

In this document:

- Shall: indicates a mandatory requirement
- Should: indicates best practice and is the preferred option

If an alternative method is used then a suitable and sufficient risk assessment shall be completed to show that the alternative method delivers the same, or better, level of protection.

Introduction

Safe Working in the Vicinity of Cadent Assets: Requirements for Third Parties

This specification is for issue to third parties carrying out work in the vicinity of Cadent gas assets and associated installations. It is provided to ensure that individuals planning and undertaking work take appropriate measures to prevent damage.

Any damage to a gas asset, or its coating, can affect its integrity and can result in failure leading to potentially serious hazardous consequences for individuals located in the vicinity.

It is therefore essential that the safety advice outlined in this document, along with any site-specific advice given by our operatives, is complied with when working near to our assets. If Cadent consider any work to be in breach of the requirements stipulated in this document, then the Cadent Plant Protection Officer will request that work is suspended until the non-compliances have been rectified.

Every reasonable precaution shall be undertaken to avoid personal injury or damage to our apparatus. If we incur any direct or indirect costs as a consequence of your works and we are required to repair or divert any gas apparatus, you'll be recharged in full.

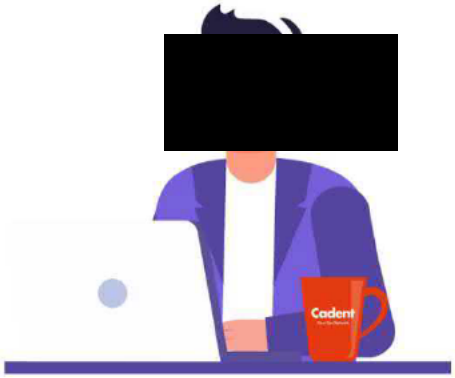
Any damage to our apparatus will be subject to legislative reporting responsibilities to the HSE under Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013, Gas Safety Management Regulations 1996 and the Pipelines Safety Regulations 1996.

The requirements in this document are in line with the Institution of Gas Engineers and Managers (IGEM) recommendations IGEM/SR/18 Edition 3 - Safe Working Practices to Ensure the Integrity of Gas Assets and Associated Installations and the HSE's guidance document HS(G)47 Avoiding Danger from Underground Services.

It is the responsibility of the third party to ensure that any work carried out also conforms with the requirements of the Construction and Design Management (CDM) Regulations 2015 and all other relevant health and safety legislation. Reference shall be made to our apparatus within your site Health and Safety file.

1. Scope

This specification sets out the safety precautions and other conditions associated with working in the vicinity of Cadent assets, located in negotiated easements (see Section 13) and public highways.

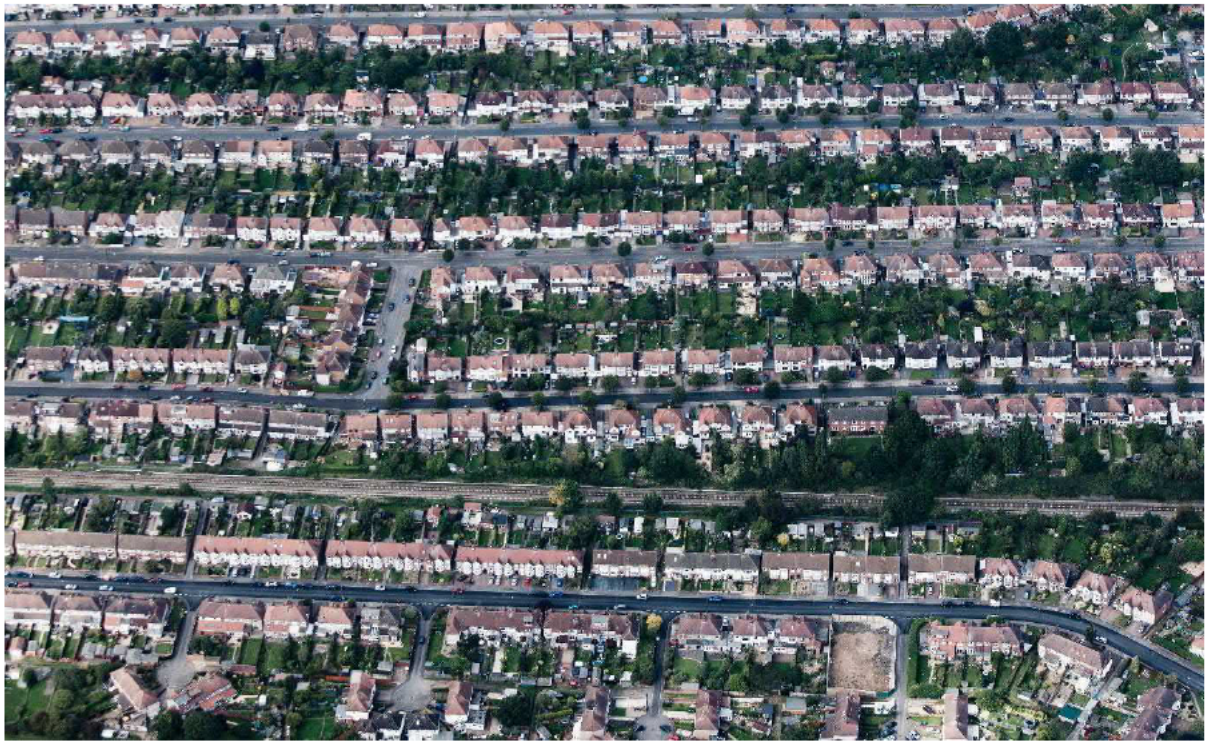


Where the guidance in this document cannot be adhered to, then the diversions process shall be followed.

Before contacting our diversions team, you'll need to have your site information and any design proposals available.

Once you have this information, please contact our diversions team [redacted] on 0330 678 1034.

Visit [redacted] for more information.



2. Formal Consent

Cadent's assets are either located in an easement agreed with the landowner at the time of installation, or within the highway. As the required arrangements for working in an easement and working in the highway differ, this section describes the specific requirements for these two areas.

Any documents handed to contractors or other individuals undertaking work (e.g. farmers, local authorities etc.), on site by Cadent, shall be signed for and adhered to by the site. All personnel working on site shall be made aware of the potential hazards of working near gas assets and the actions they should follow in case of an emergency.

2.1 Within an easement

The promoter of any works (see Section 13) within an easement shall provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. Work shall not commence in an easement strip until formal written consent has been provided by Cadent. This will include details of Cadent's protection requirements, contact telephone numbers and the emergency telephone number. On acceptance of Cadent's requirements, the promoter of the works shall give Cadent at least 14 days' notice before commencing work on site.

Where clearance to proceed has been granted directly from the system, for example, if your works only affect low pressure assets (operating at less than 75 mbar), but the asset concerned is within an easement, the promoter of the works shall contact the network Plant Protection Office for formal written consent.

In addition to formal written consent, an easement crossing agreement (deed of indemnity) may be required. This shall be discussed with the Cadent Plant Protection Officer prior to the commencement of the works.

The width of an easement is dependent on a number of factors and is mainly dependent on the operating pressure, pipeline material and diameter as these factors influence safe working requirements and building proximity distances. Easement details should be registered at Land Registry however if you are unsure please liaise with your network Plant Protection Officer.

Below is a list of our standard easement widths, however, some easements may vary:

Pressure tier/ Material	Diameter	Easement Width (total)
HP Steel	900mm, 1060mm, 1200mm (36", 42", 48")	24.4m (80')
HP Steel	750mm and 600mm (30" & 24")	18.3m (60')
HP Steel	Up to and including 450mm (18")	12.2m (40')
HP RTP	Determined on a case by case basis	
IP Steel	All sizes	6m plus pipe diameter
IP PE > 5.5 bar	Above 500mm (19") 356mm to 500mm 126mm to 365mm Up to and including 125mm	30m plus pipe diameter 16m plus pipe diameter 12m plus pipe diameter 12m plus pipe diameter
IP PE <5.5 bar	Above 500mm (19") 356mm to 500mm 126mm to 365mm Up to and including 125mm	26m plus pipe diameter 8m plus pipe diameter 8m plus pipe diameter 8m plus pipe diameter
AGI's	All sites	3m restrictive width around the installation
MP PE	Above 500mm (19") 356mm to 500mm 126mm to 355mm Up to and including 125mm	12m plus pipe diameter 6m plus pipe diameter 5m plus pipe diameter 4.5m plus pipe diameter
MP Steel	All sizes	6m plus pipe diameter
MP Iron*	All sizes	6m plus pipe diameter
LP	Above 125mm Up to and including 125mm	3m plus pipe diameter 1m plus pipe diameter

2.2 Within a highway

Work shall be notified to Cadent in accordance with the requirements of the New Roads and Street Works Act (NRSWA) and HS(G)47. The promoter of any works within the highway should provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. This shall be submitted at least 14 days before the planned work is to be carried out. If similar works are being carried out at several locations in close proximity, a single risk assessment and method statement should be adequate depending on the nature of the works. Work should not go ahead until formal written consent has been given by Cadent. This will include details of Cadent's protection requirements, contact telephone numbers and the emergency telephone number.



3. Location of Gas Assets

A copy of our plans with your marked-out site is provided in our LSBUD response. Cadent asset records shall be consulted to establish the indicative location of the gas assets in relation to the promoter's work area.

If the marked-out area is incorrect you MUST resubmit your enquiry with the correct area marked out.



Prior to work commencing on site, the gas assets should be located to verify the indicative location from plans.

This should initially be carried out through non-intrusive methods utilising pipe locators where possible. The indicative location should be verified through trial holes. Once located, the gas assets should be marked out at regular intervals using asset location markers with triangular flags (see Appendix A) or other suitable methods.

For assets exceeding 2 bar, the excavation of all trial holes shall be monitored by Cadent. For assets not exceeding 2 bar, monitoring will be at the discretion of the Cadent Plant Protection Officer.

Safe digging practices, in accordance with HSE publication HS(G)47, shall be followed. Direct and consequential damage to gas plant can be dangerous both to employees and to the general public.

We utilise marker posts and surface boxes to denote the location of our apparatus providing access to key parts of our network. Free access shall be maintained to such apparatus during and after your works and these shall not be moved, covered or damaged during the works.



Low Pressure

Medium Pressure

Intermediate Pressure

High Pressure

4. Temporary and Permanent Protective Measures

No temporary or permanent protective measures, including the installation of concrete slab protection, shall be installed over or near to a Cadent asset without the prior written consent of Cadent. Cadent will need to approve the material, dimensions and method of installation for the proposed protective measure.

The method of installation shall be confirmed through the submission of a formal written method statement from the contractor to Cadent. Where permanent protection is to be installed over an asset, Cadent will normally carry out a coating survey of metallic assets to check that there is no existing damage to the coating, prior to the slab protection being installed. Cadent shall, therefore, be given at least 14 days' notice prior to the laying of any slab protection to arrange for this survey to be carried out.

Generally, due to the need for future access to below 2 bar gas assets, permanent protection is not permitted, however, can be approved at Cadent's discretion.

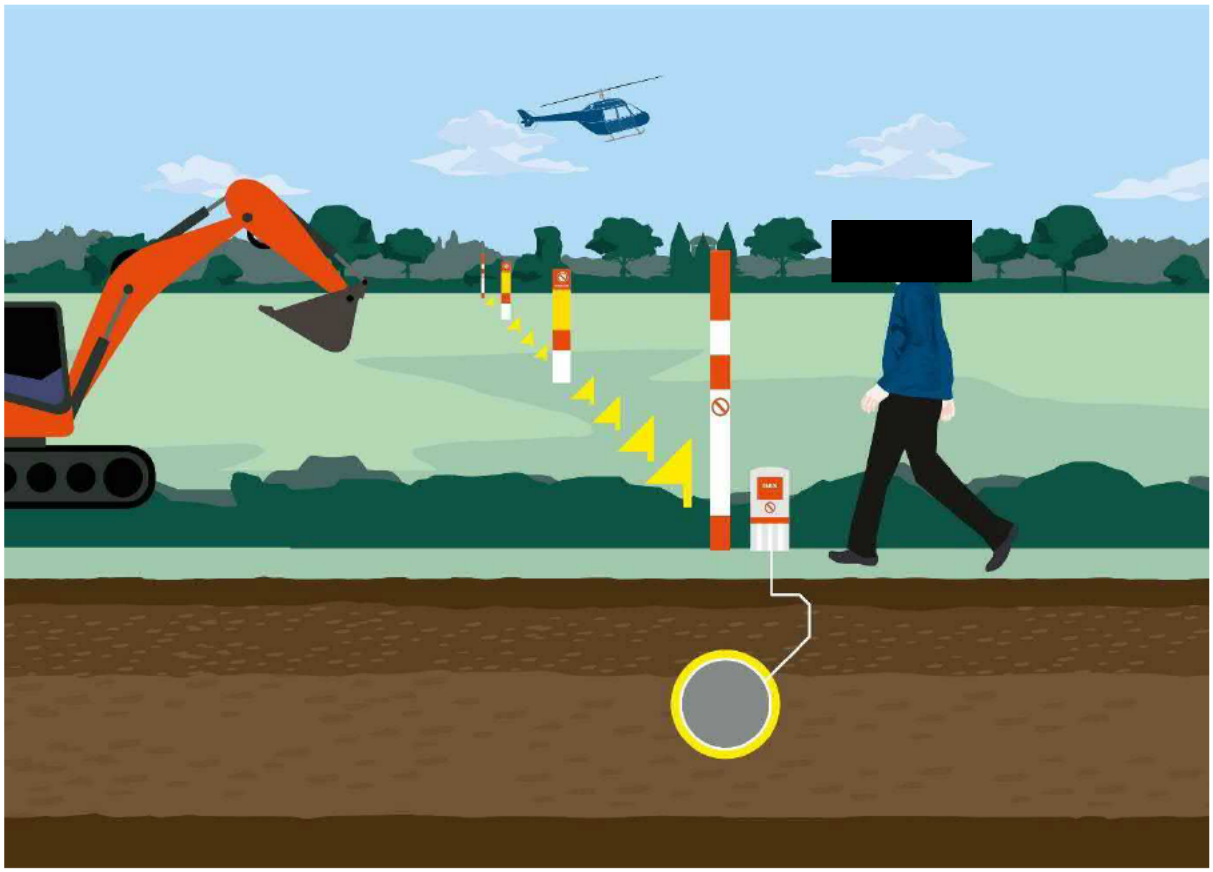
The safety precautions detailed in Sections 5, 6, 7 or 8 of this document should also be observed during the installation of the asset protection.



5. Working in the Vicinity of a High or Intermediate Pressure Gas Asset (Operating at Pressures Greater than 2 bar)

The below information shall only be used as guidance, for all works in the vicinity of High and Intermediate Pressure Pipelines the auto-response from the system will advise not to carry out any works until we have undertaken a technical review of the planned works and provided site specific safe working advice.

Initial enquires are for information only purposes and will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.



5.1 Excavation

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators, and any other powered mechanical plant, shall not dig on one side of the asset with the cab of the excavator positioned on the other side.

All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

5.1.1 In proximity to an asset in an easement

Following location and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3m (see Figure 1). The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Consideration may be given to a relaxation of these limits or lower risk excavation methods by agreement with the Cadent Plant Protection Officer on site.

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.) and following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm, using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or close to above ground gas installations.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing, unless otherwise agreed by Cadent.

No new service shall be laid parallel to an asset within the easement. In special circumstances, and only with formal written agreement from Cadent, this may be relaxed for short excursions where the service shall be laid no closer than 600mm.

Where work is being carried out parallel to an asset, within or just alongside the easement, suitable barriers shall be erected for protection between the works and the asset to prevent encroachment.

5.1.2 In proximity to an asset in the highway

Following locating and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3 meters (see Figure 1).

The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

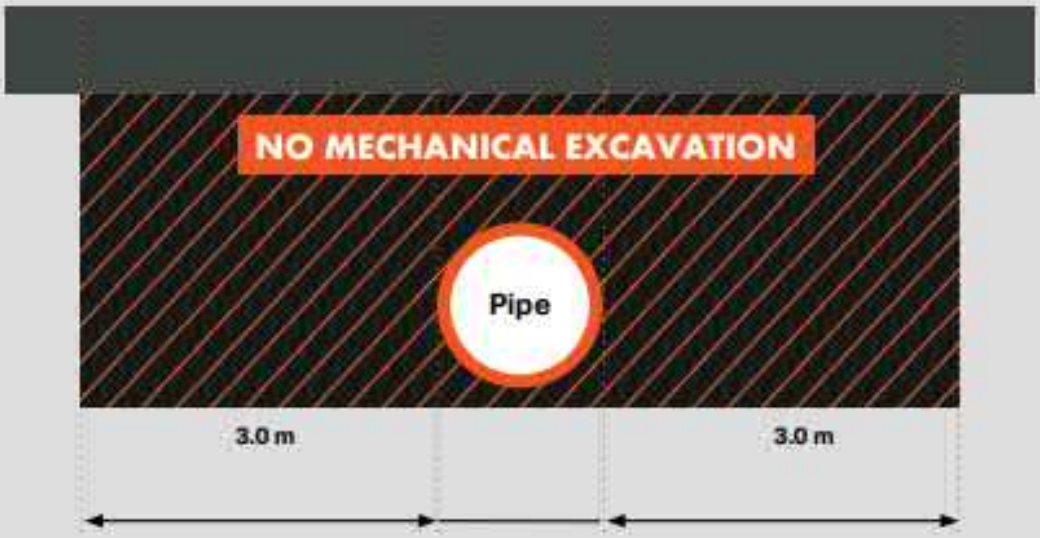
Any fitting, attachment or connecting pipework shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm, unless any attachments or projections are present on an asset (e.g. valve spindles, pressure points etc.). The use of chain trenchers is not permitted within 3m of an asset. The Cadent Plant Protection Officer may need to be present to monitor this work. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools under the observation of Cadent.

In special circumstances, consideration may be given to a relaxation of these rules by agreement with the Cadent Plant Protection Officer and only whilst they remain on site.

Figure 1. Excavation restrictions



5.1.3 Crossing over an asset (Open cut)

Where a new service is to cross over an asset, a clearance distance of 600mm between the crown of the asset and underside of the service should be maintained. If this cannot be achieved, the service shall cross below the asset (see Section 5.1.4).

In special circumstances, this distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

5.1.4 Crossing below an asset (Open cut)

Where a service is to cross below an asset, a clearance distance of 600mm between the crown of the new service and underside of the asset shall be maintained. Where lengths of pipe greater than one metre are to be exposed, the Cadent Plant Protection Officer shall be consulted. Exposed assets should be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.

In special circumstances, this clearance distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

5.1.5 Cathodic protection

Cathodic protection (CP) is applied to Cadent's buried steel pipe and is a method of protecting assets from corrosion by maintaining an electrical potential between the pipe and anodes placed at strategic points along the asset.

Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of Cadent assets.

Should any cathodic protection posts or associated apparatus need to be moved to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

5.1.6 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment and method statement shall be submitted to Cadent for approval, prior to the works commencing.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of the cathodic protection system. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the promoter of the works.

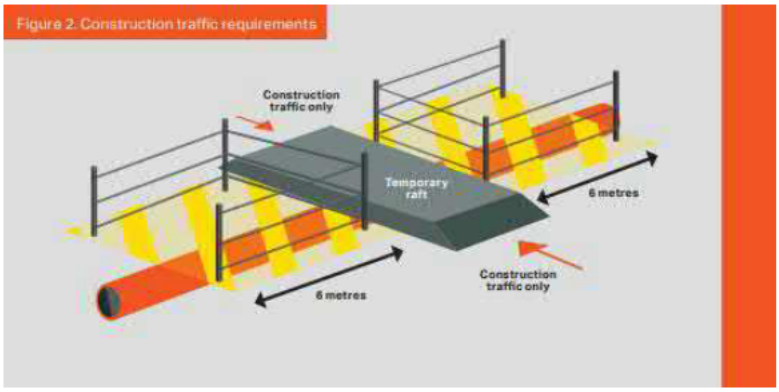
5.2 Construction traffic

Where existing roads cannot be used, construction traffic shall only cross an asset at locations agreed with the Cadent Plant Protection Officer. Notices shall be placed directing traffic to the crossing points. Post and wire fencing shall be erected at all crossing points, and the fence should cover the width of the easement and extend a further 6 metres along the length of the easement on both sides (see Figure 2).

Assets shall be protected at all crossing points by a suitable method agreed with the Cadent Plant Protection Officer prior to installation. The promoter of the works shall review ground conditions, vehicle types and crossing frequencies to determine the type and construction of the protection required.

For larger scale projects or permanent solutions, a protection slab may be required.

Figure 2. Construction traffic requirements



5.3 Specific activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of an asset. The promoter of works is required to consult Cadent when intending to undertake one of the listed activities and/or further advice is required on whether the work has the potential to affect the asset. The table below shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

Activity	Distance within which Cadent advice shall be sought
Piling	15m
Surface mineral extraction	100m
Landfilling	100m
Demolition	150m or 400m for structure mass > 10,000 tonnes
Blasting	500m if the MIC is > 200kg 250m if the MIC is > 10kg but ⩽ 200kg 100m if the MIC is ⩽ 10kg
Deep mining	1000m
Wind turbine	1.5 times mast height

5.3.1 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced. This risk assessment and method statement shall be formally agreed with Cadent prior to the commencement of the work. Please provide Cadent with at least 14 days' notice as the Cadent Plant Protection Officer may wish to be present to monitor this work.

5.3.2 Changes to depth of cover

The depth of cover over Cadent's asset shall not be altered. Cadent shall be consulted for any activity proposed that will lead to a change in cover over the asset. Expert advice may need to be sought, which will be determined by the Cadent Plant Protection Officer.

5.3.3 Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec. The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

5.3.4 Demolition

No demolition should be allowed within 150m of an asset, or 400m for a structure mass greater than 10,000t without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

5.3.5 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance.

The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

5.3.6 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100 metres of an asset. Consideration should also be given to extraction around other plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined by Cadent. The easement strip should be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability. This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, Cadent shall assess whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of Section 5.3.5 apply.

5.3.7 Deep mining

Assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

5.3.8 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of an asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which an asset is routed.

5.3.9 Pressure testing

Hydrostatic testing of a third-party asset should not be permitted within 8 metres either side of a Cadent asset, to provide protection against the effects of a burst. Where this cannot be achieved, typically where the third-party asset needs to cross a Cadent asset, one of the following precautions would need to be adopted:

- limiting of the design factor of the third-party pipeline to 0.3 at the asset's nominated maximum operating pressure (MOP), and the use of pre-tested pipe
- the use of sleeving
- Cadent conduct risk analysis of pipe failure

In either case, the third party shall submit their site-specific risk assessment and safe system of works for consideration by Cadent.

5.3.10 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of an asset that will result in peak particle velocities in excess of 75mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

5.3.11 Hot work

Where a Cadent metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions has been agreed with Cadent.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, should not take place within 500mm of the gas asset. This may be reduced if suitable protection and precautions have been agreed with the Cadent Plant Protection Officer to prevent against the effects of sparks, radiant heat transfer etc.

The Cadent Plant Protection Officer shall be present to monitor all welding, burning or other 'hot work' that takes place.

5.3.12 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of a gas asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

5.3.13 Solar farms

Solar Farms can be built adjacent to gas assets but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

5.4 Backfilling

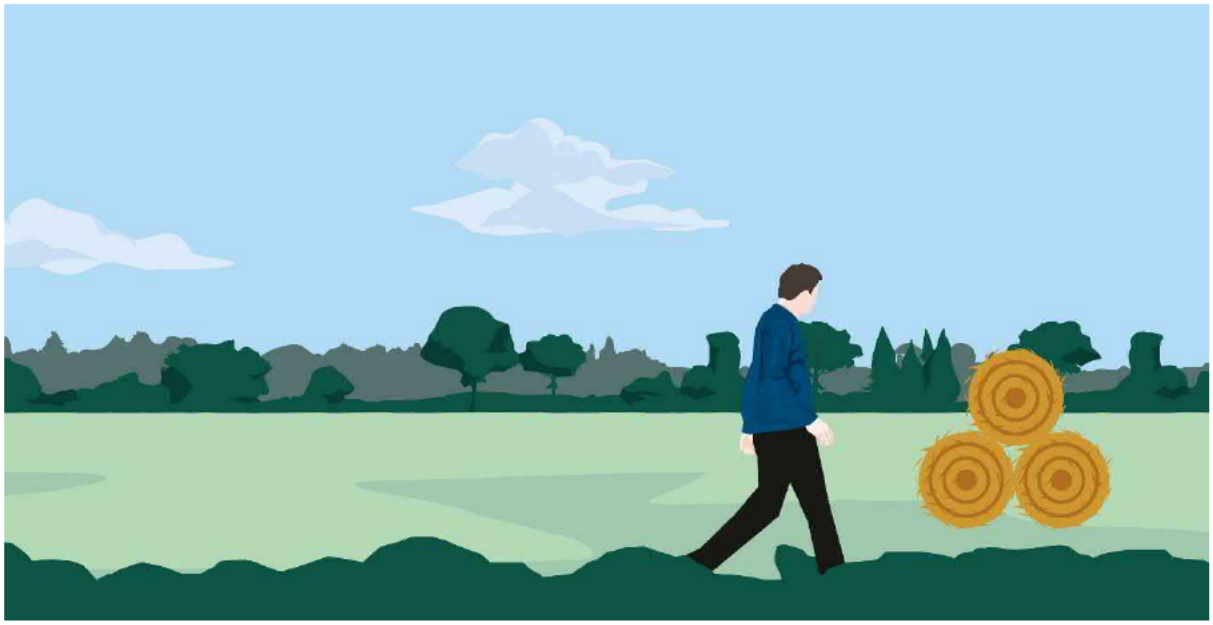
No backfilling should be undertaken without Cadent's agreement to proceed and the Cadent Plant Protection Officer will stipulate the necessary requirements. Some equipment may not be suitable for use over or around an asset due to the adverse effects of excessive compaction and vibration levels. The Cadent Plant Protection Officer will be able to advise on suitable equipment. Third parties undertaking work shall provide Cadent with 48 hours' notice, or shorter only if agreed with Cadent, of the intent to backfill over, under or alongside the asset.

This requirement should also apply to any backfilling operations that:

- are within 3 metres of an asset
- could influence the ground stability

Any damage to an asset or its coating shall be reported to Cadent in order that damage can be assessed, and repairs carried out.

Minor damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If an asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party shall re-excavate to enable the condition of the asset coating to be assessed.



6. Working in the Vicinity of a Medium Pressure Gas Asset (Operating at Pressures Greater than 75 mbar but not Exceeding 2 bar)

The below information shall only be used as guidance, and where appropriate, will be supplemented by site specific safe working advice from the network Plant Protection Officer.

Initial enquires are for information only purposes and will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.

6.1 Temporary and permanent structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for medium pressure assets is as follows:

Material	Minimum proximity to premises
Cast/Spun Iron	3m
Ductile Iron	30m
Steel	1m
PE (inserted)	1m
PE (non-inserted)	2m for diameters ⩽ 500mm 5m for diameters > 500mm

Please note that the easement distance may be greater than the building proximity distance. For any proposed structures in the easement, please consult with the Cadent network Plant Protection Officer.

6.2 Excavation

6.2.1 General

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of the asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until the asset has been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of a gas asset. Any mechanical excavation should utilise a banksman. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

Where concrete is exposed around gas apparatus, it shall not be removed without first consulting with a Cadent Plant Protection Officer as it could be providing protection or anchorage to live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with an asset.

The use of chain trenchers is not permitted within 3m of the confirmed location of an asset.

6.2.2 Working in vicinity of iron pipework

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered and, where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works, including basement conversions, underground carparks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered, care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework, any corrosion identified on the pipeline shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.

6.2.3 In proximity to an asset in an easement

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over the asset should be the same as that prior to work commencing.

No new service shall be laid parallel to the asset within the easement.

Where work is being carried out parallel to the asset, within or alongside the easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

6.2.4 In proximity to an asset in the highway

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

6.2.5 Crossing over an asset (Open cut)

Where a new service is to cross over a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, shall be maintained. If this cannot be achieved, the service shall cross below the asset, see Section 6.2.6.

6.2.6 Crossing below an asset (Open cut)

Where a service is to cross below a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.



6.2.7 Cathodic protection

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall liaise with the Cadent Plant Protection Officer and undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

6.2.8 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party, a risk assessment carried out and this shall be provided to the Cadent Plant Protection Officer for inspection. Equipment shall not be installed if the integrity of Cadent's assets is compromised. In this case, diversion of the affected assets is required.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to work with the Cadent Plant Protection Officer to ensure that pre and post energisation potential surveys of Cadent's assets are undertaken. The costs for any stray current mitigation systems required will be borne by the third-party promoter.

6.3 Construction traffic

The promoter of the works shall review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs should be allowed over gas assets.

Iron pipes, or pipes that are not already within an existing road (such as those within footways or verges), shall not be crossed by construction vehicles without suitable protection and the consent of the Cadent Plant Protection Officer.

Where existing roads cannot be used, construction traffic should only cross Cadent assets at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 2).
- Have signs attached to the fence denoting the asset that the crossing point is located over

- Be regularly inspected and maintained in good condition

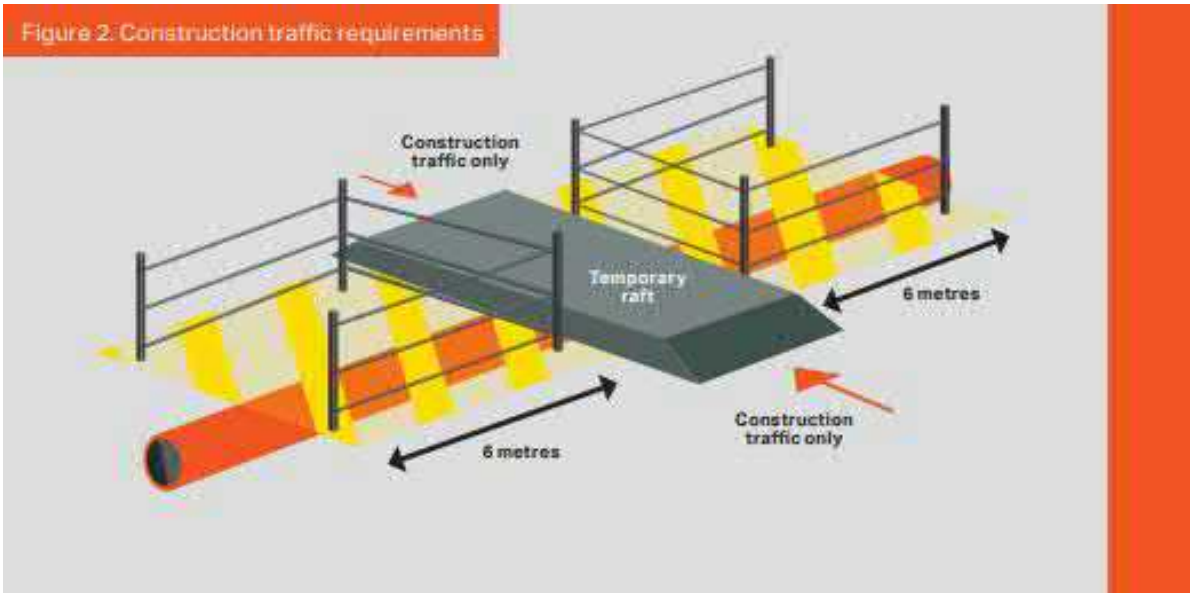
Note: A 5mph speed restriction should be enforced at all crossing points.

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)

For larger scale projects or permanent crossings, diversion of the asset may be required.

Figure 2: Construction traffic requirements



6.4 Specific activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below to obtain further site-specific advice on whether the work has the potential to affect the asset. The table below shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

Activity	Distance within which Cadent advice shall be sought
Piling	15m
Surface mineral extraction	100m
Landfilling	100m
Demolition	150m or 400m for structure mass > 10,000 tonnes
Blasting	500m if the MIC is > 200kg 250m if the MIC is > 10kg but ⩽ 200kg 100m if the MIC is ⩽ 10kg
Deep mining	1000m
Wind turbine	1.5 times mast height

6.4.1 Carriageway construction (including widening & bell mouth construction)

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

6.4.2 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced and submitted to the Cadent Plant Protection Officer for review prior to commencing work. Please provide Cadent with at least 14 days' notice as we may wish to be present to monitor the work.

6.4.2.1 Tunnelling

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.

For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets, an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**. An expert on Soil/Pipe Interaction Analysis should be consulted when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works, due to the likely impact on our assets.

6.4.3 Changes to depth of cover

The depth of cover over Cadent's asset shall not be altered. Where a change in cover is required, contact your network Plant Protection Officer.

6.4.4 Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.



6.4.5 Demolition

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

6.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

6.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of a gas asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined. Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability. This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of Section 6.4.6 apply.

6.4.8 Deep mining

Gas assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

6.4.9 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.

6.4.10 Pressure testing

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.

6.4.11 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

6.4.12 Hot work

Where the Cadent's metallic gas assets have been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions have been agreed with Cadent.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset. For further advice contact your network Plant Protection Officer.

Protection measures shall be agreed with the Cadent Plant Protection Officer prior to installation to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

The Cadent Plant Protection Officer will determine the need to remain on site to monitor all welding, burning or other 'hot work' that takes place.

6.4.13 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

6.4.14 Solar farms

Solar Farms can be built adjacent to gas assets, but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.

Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

6.4.15 Lifting operations

Where lifting operations are planned to be carried out in the vicinity of medium pressure apparatus a site-specific risk assessment and lift plan is required to be reviewed by the Cadent Plant Protection Officer.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus. Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

6.5 Backfilling and reinstatement

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset, or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset.

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe.

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the asset shall not exceed 1.5t/m^2 and vibratory compaction shall not be used.

Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 13242:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks

- Foamed concrete shall not be used

We will require marker tape to be installed at least 250mm above the crown of the main.

Prior to backfilling, if the asset is coated, Cadent require the opportunity to inspect its condition in order assess and to carry out any repairs as necessary. Please contact your network Plant Protection office to arrange this. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Officer so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.



7. Working in the Vicinity of a Low Pressure Gas Asset (Operating at Pressures up to 75 mbar)

For planned and emergency works in the vicinity of Low Pressure gas assets, the promoter will be advised proceed with caution. The guidance contained within this section must be followed. If it cannot, contact shall be made with the network Plant Protection office for advice.

7.1 Temporary and permanent structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for low pressure assets is as follows:

Material	Minimum proximity to premises
All materials	1m

Please note that the easement distance may be greater than the building proximity distance, for any proposed structures in the easement please consult with the Cadent network Plant Protection Officer.

7.2 Excavation

7.2.1 General

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of an asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until gas assets have been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of gas assets. Any mechanical excavation should utilise a banksman. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on the asset shall be exposed by hand.

Where concrete is exposed around gas apparatus this shall not be removed as it could be providing protection or anchorage to the live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with the asset.

The use of chain trenchers to do this is not permitted within 3m of the confirmed location of the asset.

7.2.2 Working in vicinity of iron pipework

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered, and where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works including basement conversions, underground carparks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and is protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework should any corrosion be identified on the pipeline this shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.

7.2.3 In proximity to an asset in an easement

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing.

No new service shall be laid parallel to an asset within an easement.

Where work is being carried out parallel to an asset, within or alongside an easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

7.2.4 In proximity to an asset in the highway

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by

mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

7.2.5 Crossing over an asset (Open cut)

Where a new service is to cross over an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater shall be maintained. If this cannot be achieved, the service shall cross below the asset, see Section 7.2.6.

7.2.6 Crossing below an asset (Open cut)

Where a service is to cross below an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.

7.2.7 Cathodic protection

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, appropriate notice, shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

7.2.8 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment carried out. Equipment shall not be installed if the integrity of Cadent's assets is compromised. In this case, diversion of the affected assets will be required.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the third-party promoter.

7.3 Construction traffic

The promoter of the works should review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs shall be allowed over gas assets.

Iron pipes, or pipes that are not already within an existing road such as those within footways or verges shall not be crossed by construction vehicles without suitable protection being designed and installed. Consideration shall be given to the requirement for access to low pressure apparatus therefore for large scale, long duration projects, or permanent crossings, the diversions process shall be followed to determine whether the asset requires diversion/replacement in advance of the works taking place.

Where existing roads cannot be used, construction traffic should only cross Cadent assets with a minimum depth of cover of 750mm (post crossing construction) at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

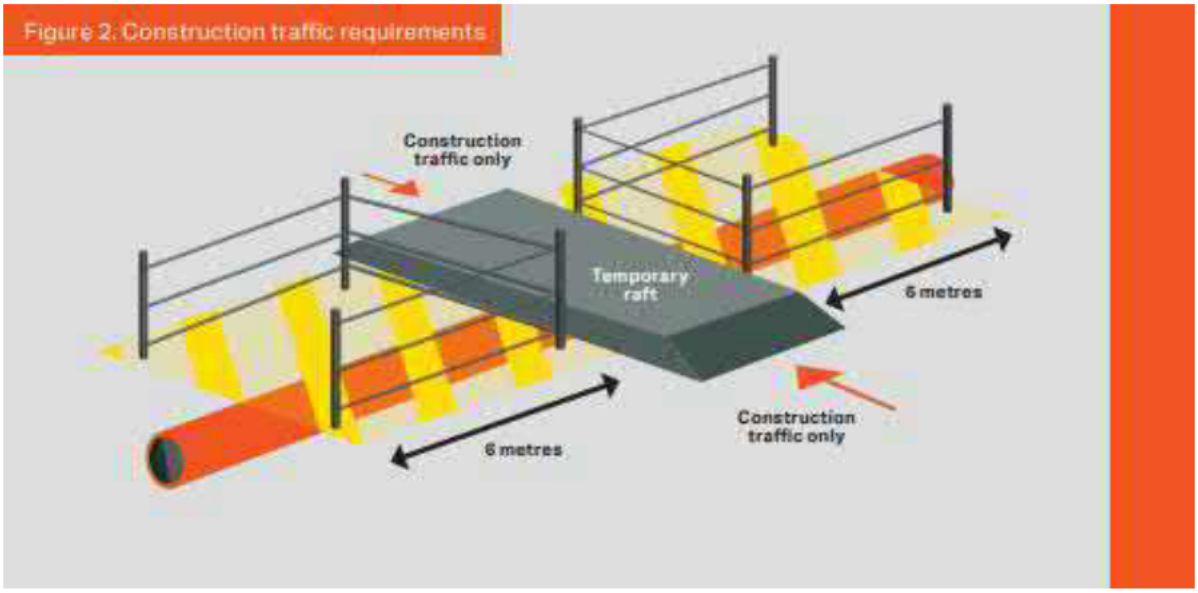
- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 2).
- Have signs attached to the fence denoting the asset that the crossing point is located over
- Be regularly inspected and maintained in good condition

Note: A 5mph speed restriction should be enforced at all crossing points.

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)

Figure 2: Construction traffic requirements



7.4 Specific activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below and further advice is required on whether the work has the potential to affect the asset.

7.4.1 Carriageway construction (including widening & bell mouth construction)

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

7.4.2 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced prior to commencing work.

Trial holes shall be undertaken to ensure that sufficient clearance exists between gas assets and the proposed third-party asset (or the pipe to be split if a pipe splitting technique is being used) prior to the works.

If an asset is to be replaced using pipe splitting techniques in the vicinity of iron mains, in addition to the below clauses, an integrity assessment shall be undertaken.

When running parallel to gas assets, the minimum clearance shall be:

- 1m

When crossing gas assets, the minimum clearance shall be:

- 500mm or 1.5 times the diameter of the asset, whichever is greater.

Clearances may need to be increased due to the following factors:

- Ground conditions
- Largest reamer diameter
- Type of reamer used, e.g. hollow, finned, etc.
- Accuracy of equipment being used
- Construction of adjacent services and structures
- Configuration of other underground services crossing or running parallel to the drill path
- Consequences of damage
- Pipe stress increase from potential ground movement

The exposed asset should be suitably supported and be protected by matting and suitable timber cladding to reduce the risk of damage from any broken pipe fragments (if pipe splitting is used). Supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

All lateral crossings shall be exposed around their full circumference with an additional 250mm clearance below. The width of the excavation shall be three times the diameter of the largest reamer or 500mm either side of the largest reamer, whichever is the greatest. These clearances shall be measured from the drill path centre. Each crossing should be manned during the drilling/splitting operation to watch the reamer/splitter pass.

For pipe splitting running parallel to a buried gas asset, trial holes should be undertaken at suitable and frequent locations along the proposed route to confirm sufficient clearance distances exist, and the pipe route is confirmed.

The line of the pipe to be installed/split should be monitored along its length to ensure no variance from its path.

Consideration should be given for a leakage survey to be undertaken before work starts, during the works if safe to do so and following completion. If there is any likelihood of damage to the asset, the operation shall be stopped immediately.

7.4.2.1 Tunnelling

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.

For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**. An expert on Soil/Pipe Interaction Analysis should be sought when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, due to the likely impact on our assets you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

7.4.3 Changes to depth of cover

The depth of cover over or around Cadent's iron assets shall not be altered. If a change in the depth of cover is required, you must contact the diversions team to arrange for diversion or replacement of the asset before commencement of your works.

For PE and steel pipes, reductions in depth of cover are only permitted if the below minimum depths of cover can be maintained (following investigation across the affected length):

- In fields and agricultural land 1.1m
- In roads and verges 750mm
- In footpaths 600mm
- In private property 600mm

Substantial increases in depth of cover shall not be permitted.

Where a change in the depth of cover affects attachments and projections such as services and valves, liaison with our diversions team is required to ensure these are appropriately protected or altered.

7.4.4 Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.

7.4.5 Demolition

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

Where demolition is proposed you must ensure that the gas supply to the premises has been isolated in a suitable, identified location.

7.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

7.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of an asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined. Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability.

This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of Section 7.4.6 apply.

7.4.8 Deep mining

Assets routed within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance.

7.4.9 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. An assessment shall be carried out by the promoter of the works to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.

7.4.10 Pressure testing

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.

7.4.11 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

7.4.12 Hot work

Where the Cadent's metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset.

Protection measures shall be installed to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset shall require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

7.4.13 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

7.4.14 Solar farms

Solar Farms can be built adjacent to assets but never within an easement.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.

Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

7.4.15 Lifting operations

Where lifting operations are planned to be carried out in the vicinity of low pressure apparatus a site-specific risk assessment and lift plan is required.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus. Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

7.5 Backfilling and reinstatement

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the pipe shall not exceed 1.5t/m^2 and vibratory compaction shall not be used.

Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 13242:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks
- Foamed concrete shall not be used

We will require marker tape to be installed at least 250mm above the crown of the pipe. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Office so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

8. Working in the Vicinity of a Pressure Reduction Installation (PRI)

Pressure reduction installations come in a variety of forms:

- Above Ground Installation (AGI) – Sites with exposed pipes surrounded by fencing
- Above Ground Installation (AGI) – District governors often found in large above ground kiosks with vent stacks attached
- Below Ground Installation – District governors with large surface governors for valves and pressure reduction equipment with an above ground control cabinet and vent stack
- Service governor Installations – Small service governors providing gas to a small number of customers in an area often identified by a small green or brick kiosk

Where excavations are to be made within 10 metres of the perimeter of a pressure reduction installation (above or below ground), with the exception of service governor installations, appropriate protection methods should be determined and recorded by the Cadent Plant Protection Officer.

These installations may have magnetic slam shut devices which could operate in the event of high vibration levels being caused by the works. Advice on whether these are present shall be sought from the Cadent Plant Protection Officer and we may need to have an operative, with the competence to reset the plant, on site whilst your works are being undertaken.

Hazardous areas may be present around these installations and no ignition sources are permitted within these zones. Information on the zonings shall be sought from the Cadent Plant Protection Officer prior to commencement of any works on site.

There may be telemetry and pressure recording lines in the vicinity of these installations therefore extreme caution must be exercised when planning and undertaking works it the vicinity of these assets.

In addition to this, the safety advice detailed in either or a combination of Sections 5, 6 or 7 shall be observed when working in the proximity of an AGI.

Access to gas assets shall be maintained at all times.

9. Tree Planting

Before any tree planting is carried out in the vicinity of a Cadent asset or its easement, written consent should be obtained. This approval should be subject to Cadent retaining the right to remove any trees which might become a danger or restrict access to the asset at any time in the future.

The only hardwood plants which can be planted directly across an asset are shallow rooting hedge plants such as Quickthorn, Blackthorn, etc., and these shall only be planted where a hedge is necessary for screening or to indicate a field boundary.

Raspberries, Gooseberries and Blackcurrants shall not be planted within 2m of the outside edge of the pipe.

Dwarf Apple Stocks shall not be planted within 3m of an asset.

Christmas trees (Picea Abies) shall not be planted within 3 metres of an asset. However, permission may be given on the strict understanding that Christmas trees are clear-felled at intervals not exceeding seven years.

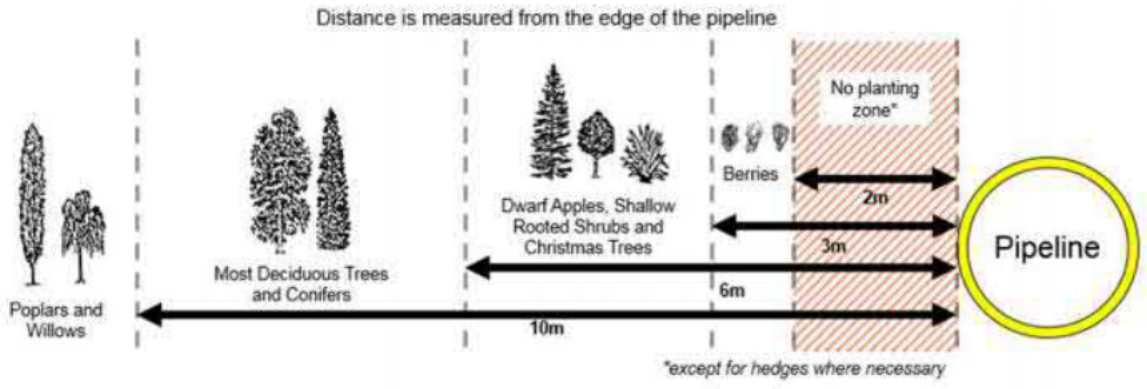
The following trees, and those of similar size which may be deciduous or evergreen, shall not be planted within 6 metres of an asset:

- Ash, Beech, Birch, most Conifers, Elm, Maple, Horse Chestnut, Oak, Sycamore, Apple, Lime and Pear trees.

Dense mass planting shall not be carried out within 10m of the outside edge of the pipe.

Poplar and Willow trees shall not be planted within 10m of the outside edge of the pipe.

For further guidance please refer to NJUG Volume 4.



10. Unidentified Exposed Pipes

An unidentified pipe is one that is not shown on any current or historical records.

Iron and steel water pipes and gas pipelines may appear very similar. If any such pipe is uncovered, it shall be treated as if it were a gas pipe.

If upon checking with all other utilities you believe an unidentified pipe to be a gas pipe, the promoter of the works shall contact [redacted] with the following information:

- LSBUD enquiry reference
- Site address (please include postcode and grid references)
- Site contact details
- Size of pipe
- Pipe material
- Confirmation that the unidentified pipe is exposed (if not, it will need to be exposed prior to our attendance)
- Confirmation that Cadent and all other asset owners plans, are available for review and inspection
- Photos of the pipe

Please be aware that it can take up to 28 days for us to confirm whether the unidentified exposed pipe is a gas asset or not.

11. Action in case of Damage to an Asset

If you hit a gas asset, whether the damage is visible or not, or in the event of an emergency, call the National Gas Emergency Service immediately on 0800 111 999*.

If the Cadent asset is damaged, even slightly, and even if no gas leak has occurred, then the following precautions shall be taken immediately:

- Shut down all plant and machinery and extinguish any potential sources of ignition.
- Evacuate all personnel from the vicinity of the asset
- Notify Cadent using the free 24-hour emergency telephone number 0800 111999
- Notify the Cadent responsible person immediately using the contact telephone number provided.
- Ensure no one approaches the asset.
- Do not try to stop any leaking gas.
- Provide assistance as requested by Cadent, or emergency services to safeguard persons and property



12. References

Document reference	Title
HASAWA	The Health and Safety at Work etc Act 1974
CDM	The Construction (Design and Management) Regulations 2015
LOLER	Lifting Operations and Lifting Equipment Regulations 1998
RIDDOR	Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013,
GS(M)R	Gas Safety (Management) Regulations 1996
PSR	Pipelines Safety Regulations 1996
NRSWA	New Roads and Street Works Act 1991
HS(G)47	Avoiding Danger from Underground Services
IGEM/SR/18	Safe Working Practices to Ensure the Integrity of Gas Pipelines and Associated Installations
IGEM/TD/12	Pipework stress analysis for gas industry plant
NJUG Volume 4	Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees
UKOPA/11/0027	Requirements for the Siting of Wind Turbines Close to HP Pipelines
UKOPA/GP/013	Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines
UKOPA/GP/014	Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines

13. Glossary of Terms

Term	Definition
Easement	Easements are negotiated legal entitlements between Cadent and landowners and allow Cadent to lay, operate and maintain assets within the easement strip. Easement strips may vary in width, typically between 6 and 25 metres depending on the diameter and pressure of the pipeline. Consult Cadent for details of the extent of the easement strip where work is intended.
Liquefaction	Liquefaction is a phenomenon in which the strength and stiffness of the soil is reduced by earthquake shaking or other rapid loading. Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water. When liquefaction occurs, the strength of the soil decreases and the ability of the soil to support assets are reduced.
Promoter of works	The person or persons, firm, company or authority for whom new services, structures or other works in the vicinity of existing Cadent assets and associated installations operating above 7 bar gauge are being undertaken.
Cadent Plant Protection Officer	The person or persons appointed by Cadent with the competencies required to act as the Cadent representative for the purpose of monitoring a particular activity.
Banksman	Another person who assists the machine operator from a position where they can safely see into the excavation and warn the driver of any services or other obstacles. This person should remain outside of the operating radius of the excavator arm and bucket.

Appendix A – Asset Location Markers



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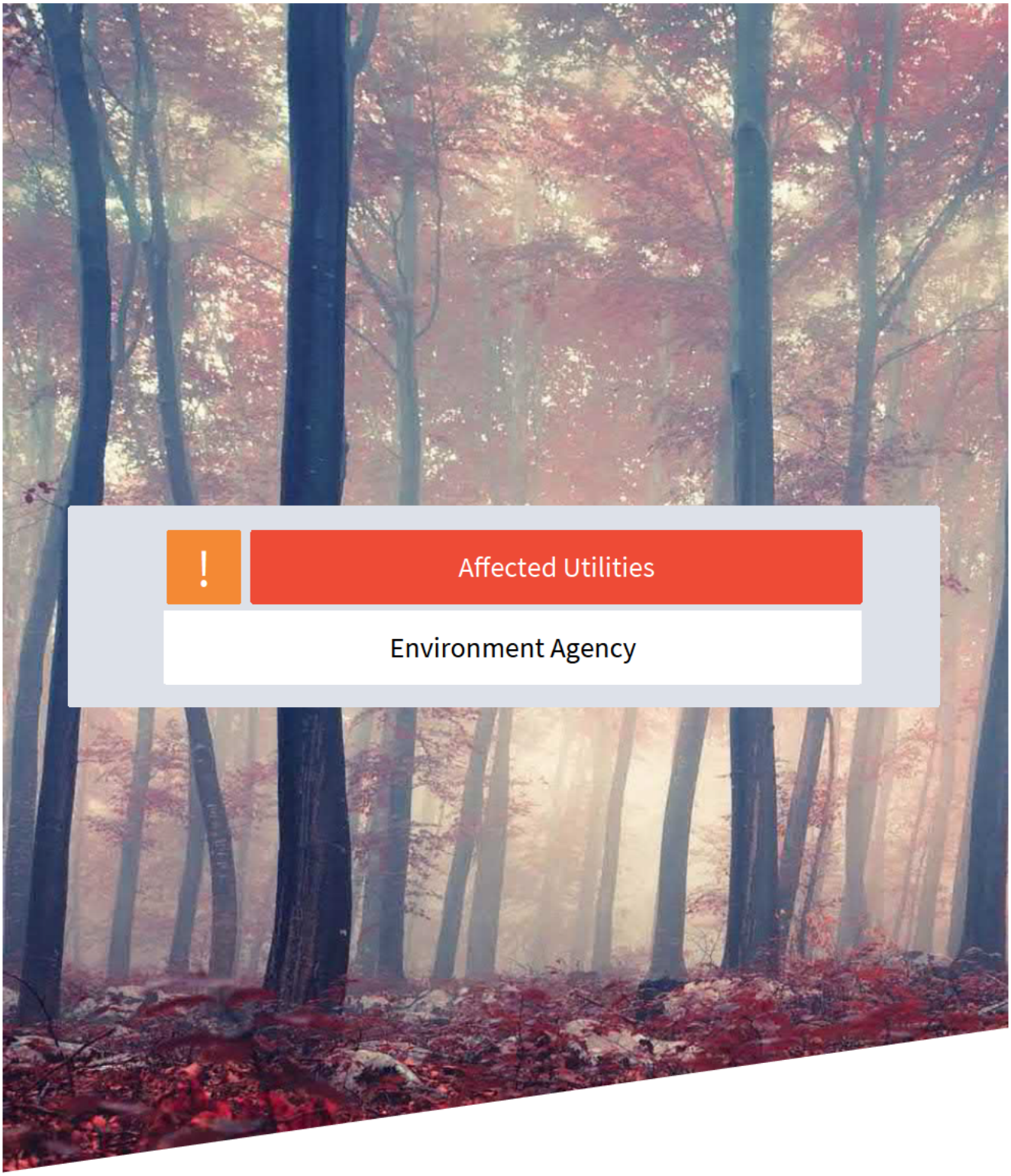

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Affected Utilities

Environment Agency

Landmark® INFORMATION

From: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Sent: 28 September 2021 18:13
To: Utility Solutions GDC Requests
Subject: Saved/RPA FW: Plant Enquiry - 100245 - Site off Queens Road, Immingham - Please respond by 13/10/2021
Attachments: 100245-Map.pdf

Dear Customer,

You may need an environmental permit if you intend to carry out work in, under, over or near to a main river flood or sea defence. You can find more information about this at:

https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

Although the Environment Agency is classed as a statutory undertaker for certain purposes, we do not generally have plant equipment or pipelines situated in the public highway.

We have drafted this reply without conducting a specific search of our records. We ask that you make the necessary checks and if you have reason to think that your proposal will affect land or equipment which we own or is close to a watercourse as defined above, please resubmit your enquiry making this clear in your reply.

Kind regards

Liam Morris
Incident Communication Service
Operations: Regulation, Monitoring and Customer
Environment Agency

☎ External number: 0800 80 70 60
Web Site: www.gov.uk/environment-agency

Click an icon to keep in touch with us:-

From: requests.utilitysolutions@atkinsglobal.com
[mailto:requests.utilitysolutions@atkinsglobal.com]
Sent: 27 September 2021 05:13
Cc: requests.utilitysolutions@atkinsglobal.com
Subject: Plant Enquiry - 100245 - Site off Queens Road, Immingham - Please respond by 13/10/2021

Our Reference: 100245
Site Name: Site off Queens Road, Immingham
Works Description: Development Appraisal
Site Grid References: 520610 415720,521083 416229,519144 415638,520805 416488,520193 414952

To whom it may concern,

Standard notice *[not for use with Special Data, Personal Data or unlicensed 3rd party rights]*

Information warning

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- ensure that you do not use the Information in a way that suggests any official status or that We endorse you or your use of the Information
- ensure that you do not mislead others or misrepresent the Information or its source or use the Information in a way that is detrimental to the environment, including the risk of reduced future enhancement
- ensure that your use of the Information does not breach the Data Protection Act 1998 or the Privacy and Electronic Communications (EC Directive) Regulations 2003

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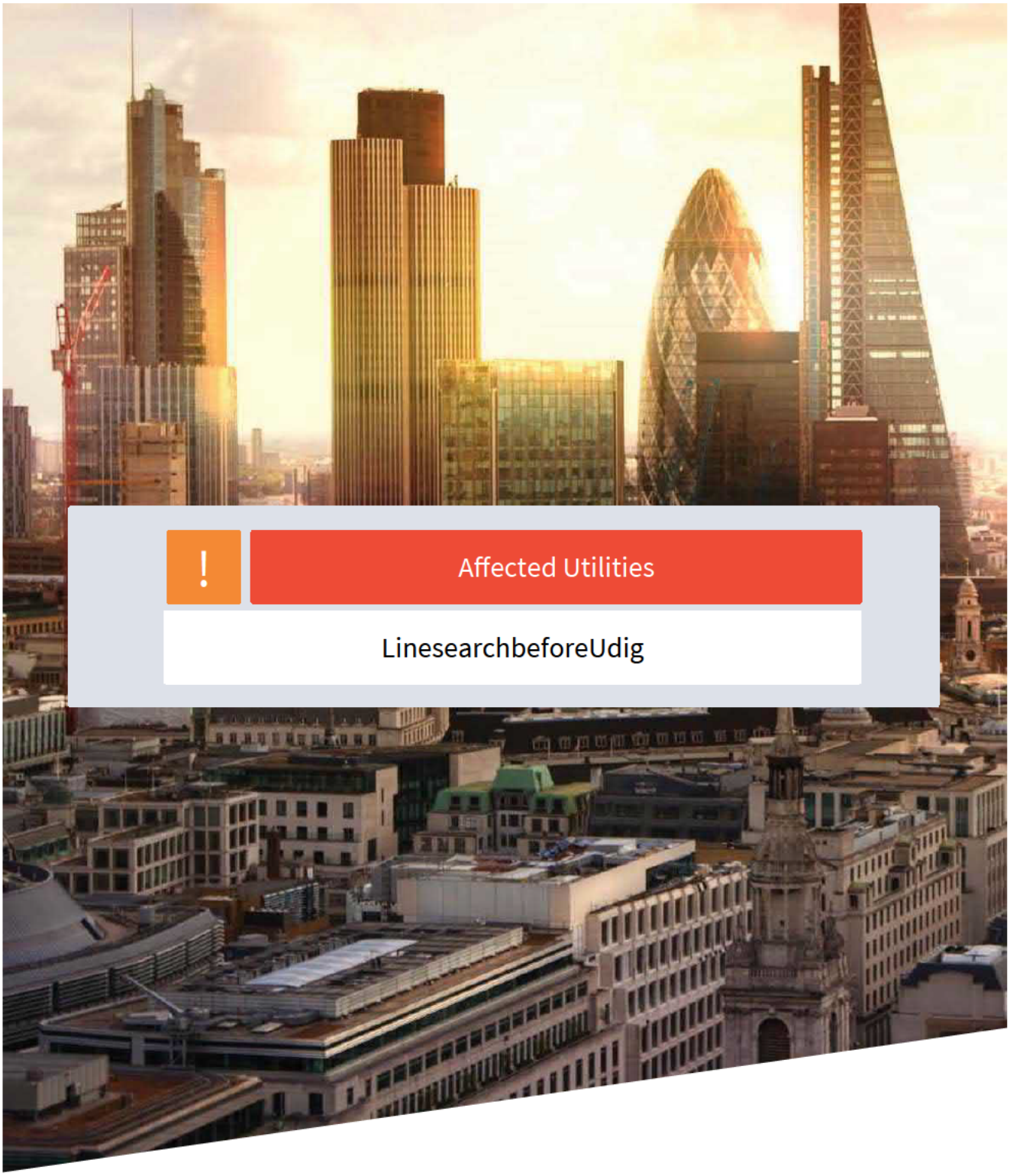
Contact: enquiries@environment-agency.gov.uk 03708 506506



Affected Utilities

LinesearchbeforeUdig

Landmark® INFORMATION

Enquiry Confirmation

LSBUD Ref: 23378509

Date of enquiry: 27/09/2021
Time of enquiry: 05:13

Enquirer

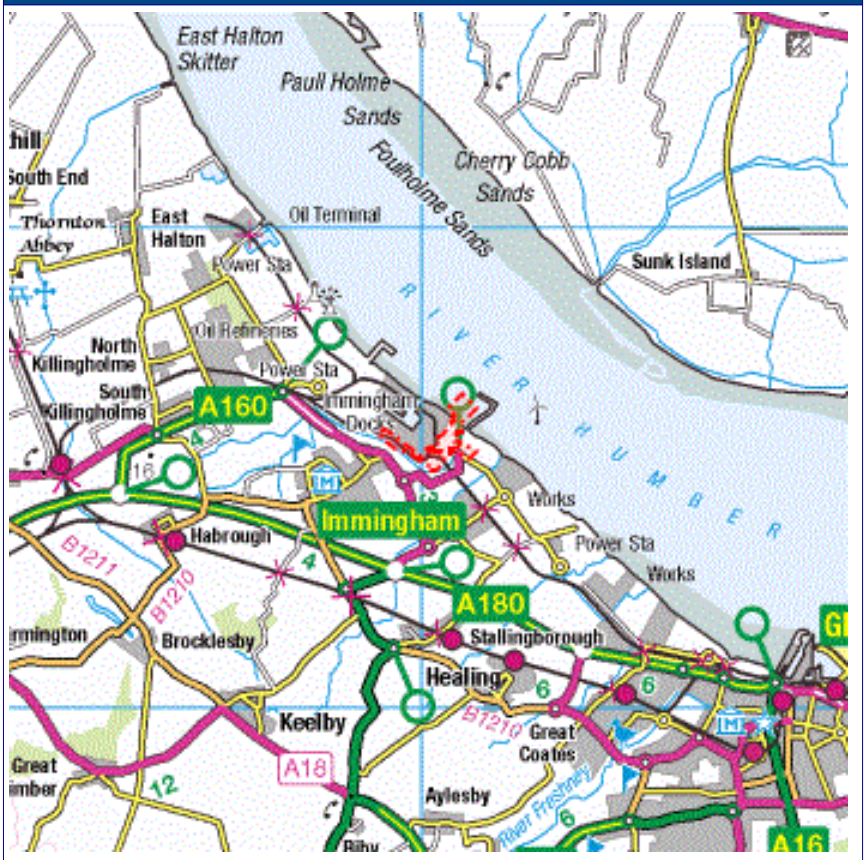
Name	Mr Ben Evans	Phone	0[redacted]
Company	Atkins - Utility Solutions	Mobile	Not Supplied
Address	[redacted]		
Email	searches.utilitysolutions@atkinsglobal.com		

Enquiry Details

Scheme/Reference	LM 100245/DoM		
Enquiry type	Initial Enquiry	Work category	Utility Works
Start date	13/10/2021	Work type	Single excavations site (deeper tha
End date	13/01/2022	Site size	747114 metres square
Searched location	XY= 520390, 415640	Work type buffer*	50 metres
Confirmed location	520645 415741		
Site Contact Name	Not Supplied	Site Phone No	Not Supplied
Description of Works			

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map



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Enquiry Confirmation

LSBUD Ref: 23378509

Date of enquiry: 27/09/2021
Time of enquiry: 05:13

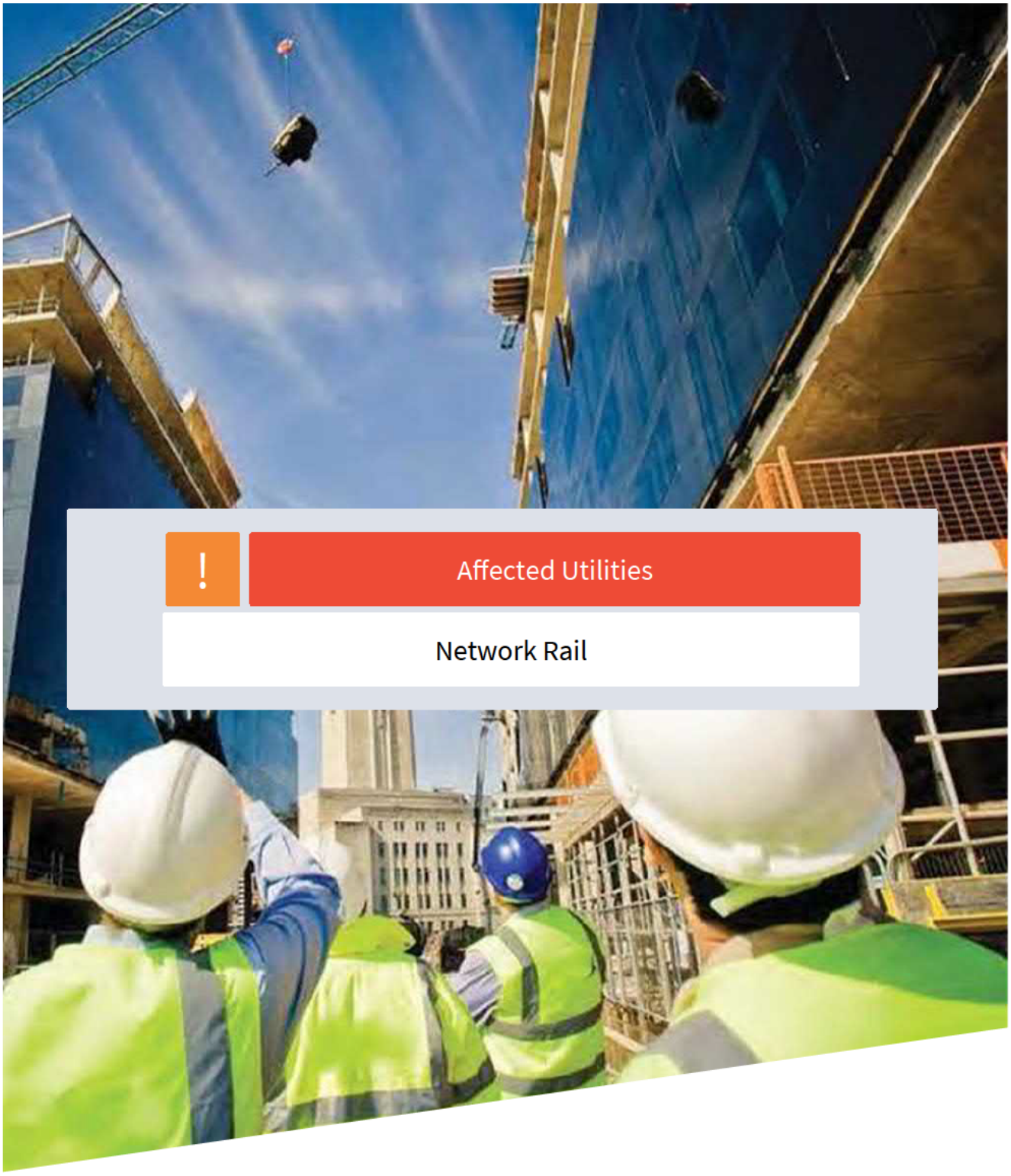
LSBUD Members who have assets registered on the LSBUD service within the vicinity of your search area.

List of affected LSBUD members			
Asset Owner	**Phone/Email**	**Emergency Only**	**Status**
Cadent Gas	0800688588	0800111999	Await response
National Grid Gas Transmission	01926654844	0800404090	Await response

LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area. Please be aware that LSBUD Members make regular changes to their assets and this list may vary for new enquiries in the same area.

List of not affected LSBUD members		
AWE Pipeline	Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)
Box Broadband	BP Exploration Operating Company Limited	BPA
Carrington Gas Pipeline	CATS Pipeline c/o Wood Group PSN	Cemex
Centrica Storage Ltd	CNG Services Ltd	Concept Solutions People Ltd
ConocoPhillips (UK) Teesside Operator Ltd	Diamond Transmission Corporation	DIO (MOD Abandoned Pipelines)
DIO (MOD Live Pipelines)	E.ON UK CHP Limited	EirGrid
Electricity North West Limited	ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited
EP Langage Limited	ESP Utilities Group	ESSAR
Esso Petroleum Company Limited	euNetworks F ber UK Ltd	Exolum Pipeline System
Fulcrum Pipelines Limited	Gamma	Gas Networks Ireland (UK)
Gateshead Energy Company	Gigaclear Ltd	Gtt
Harbour Energy	Heathrow Airport LTD	Humbly Grove Energy
IGas Energy	INEOS FPS Pipelines	INEOS Manufacturing (Scotland and TSEP)
INOVYN ChlorVinyls Limited	INOVYN Enterprises Limited	Intergen (Coryton Energy or Spalding Energy)
Jurassic Fibre Ltd	Last Mile	Mainline Pipelines Limited
Manchester Jetline Limited	Manx Cable Company	Marchwood Power Ltd (Gas Pipeline)
Melbourn Solar Limited	Murphy Utility Assets	National Grid Electricity Transmission
Neos Networks	Northumbrian Water Group	NPower CHP Pipelines
NTT Global Data Centers EMEA UK Ltd	NYnet Ltd	Oikos Storage Limited
Ørsted	Palm Paper Ltd	Perenco UK Limited (Purbeck Southampton Pipeline)
Petroineos	Phillips 66	Portsmouth Water
Premier Transmission Ltd (SNIP)	Redundant Pipelines - LPDA	RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)
RWEnpower (Little Barford and South Haven)	SABIC UK Petrochemicals	Scottish and Southern Electricity Networks
Scottish Power Generation	Seabank Power Ltd	SES Water
SGN	Shell	Shell NOP
SSE Generation Ltd	SSE Transmission	SSE Utility Solutions Limited
Tata Communications (c/o JSM Construction Ltd)	Total Colnbrook Pipelines	Total Finaline Pipelines
Transmission Capital	UK Power Networks	Uniper UK Ltd

University of Cambridge Granta Backbone Network	Vattenfall	Veolia ES SELCHP Limited
Veolia ES Sheffield Ltd	VPI Power Limited	Wales and West Utilities
West of Duddon Sands Transmission Ltd	Western Power Distr bution	Westminster City Council
Zayo Group UK Ltd c/o JSM Group Ltd		



Affected Utilities

Network Rail

Landmark® INFORMATION

Worksite Survey Team
National Records Centre
Audax Road
YORK

YO30 4US

NRSWA Asset Enquiries

Dear Sir/Madam,

Please find information available as per the checklist.

The information contained herein is based on Network Rail's records and, where appropriate, third parties such as utility companies. The search enclosed does not cover a search of local council records. Also, schematic Signal and Telecom (S&T) cables plans are not provided as part of the search results, therefore you must assume S&T cables are present until proven otherwise.

Although at the date of this letter the information is as up to date as possible, it is **NOT** a statement of validity, accuracy or completeness as to any of the enclosed search information and must not be relied on as such.

Your risk assessment **MUST** take into account:

- That the information supplied, including the services shown on the map from the Rail Infrastructure Network Model (RINM), does not provide any guarantee as to the accuracy of the actual location of services on site and **MUST** be considered as for guidance purposes only.
- That new/unrecorded services are likely to be present
- That the enclosed buried services search information has been collated only for the ELR and Mileage boundaries as stated on the original request form

Included in the buried services search is a list of ASPRO engineers & managers you **MUST** contact before any ground disturbance is carried out, to check whether further information is held locally.

Further guidance can be obtained from the Health and Safety Executive publication HSG47 "Avoiding Danger from Underground Services" and the Network Rail Publication NR/L2/INI/CP1030.

Should you become aware of any additional underground services or assets within the locality during your investigations and/or works, including redundant assets, please identify them as a matter of urgency to the site manager. Records of the location of these assets should be kept for onward transmission and entry into the Hazard Directory.

Yours sincerely

NRSWA Team

Worksite Survey

Buried Services Information Checklist

Your Ref	100245	Our Order Ref	108762

Network Rail Record Type	Category	Enclosed Yes/No	Notes (e.g. Nil Return)
Asset Protection National Map	Contact Ino	Y	
Hazard Directory	Hazard	Y	
Site Map	GIS Systems	Y	
eB - Corporate records management system	National Records Group	N	NIL RETURN
Network Rail - Drainage	GIS Systems	Y	
National Records Group - Civils Records	National Records Group	Y	

NIL RETURN: After interrogating the information made available to us, no records containing buried services information have been returned for this worksite. However, reference must be made to the guidelines supplied with this buried services search, which contain important information on safe working practices.

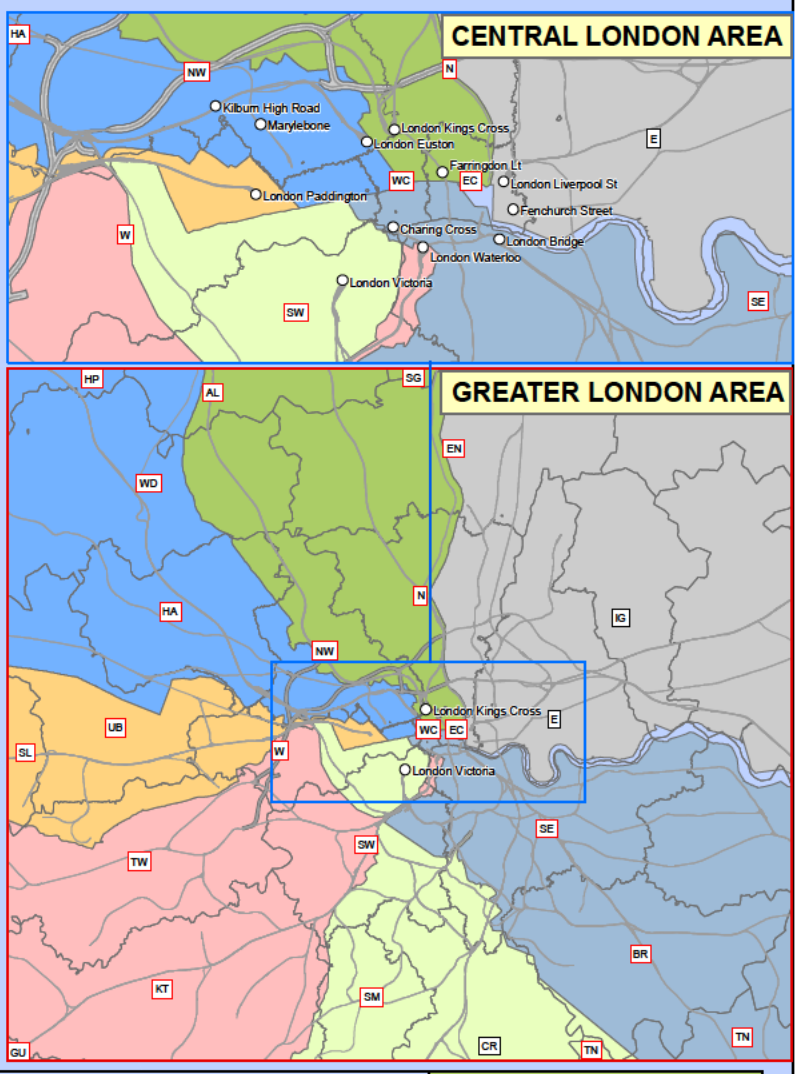
N
W E
S

Please complete a development questionnaire and submit it to the relevant route email address found on the map below

The Asset Protection Project Managers lead dedicated teams in providing advice to the public who are planning activities on or near the railway.

The teams deal with a multitude of issues including neighbouring construction sites, utility works, bridge works, domestic maintenance, new road schemes, inspection and surveying and works within the designated precautionary area of level crossings.

* It does not cover subjects such as emergencies, Town & Country Planning, property Sales or complaints.



SCOTLAND

Network Rail
Asset Protection Team
Floor 2, Buchanan House
58 Port Dundas Road
Glasgow
G4 0LQ

Tel:- 0141 555 4087

Manager: Raymond Sheridan

NEW ENQUIRIES
AssetProtectionScotland@networkrail.co.uk

EAST MIDLANDS, NORTH, EAST AND EAST COAST ROUTES

Network Rail
Asset Protection Team
George Stephenson House
Toft Green
York
YO1 6JT

Tel:- 01904 384002

Manager: Ben Brooks

NEW ENQUIRIES
AssetProtectionEastern@networkrail.co.uk

NORTH WEST

Network Rail
Asset Protection Team
Floor 1, Square One
4 Travis Street
Manchester
M1 2NY

Tel:- 0161 880 3706

Manager: Mark Stevens

NEW ENQU R ES
AssetProtectionLNWNorth@networkrail co uk

ANGLIA

Network Rail
Asset Protection Team
11th Floor, One Stratford Place
Montfichet Road
Stratford, London
E20 1EJ

Tel:- 0203 356 2510

Manager: Julie Houghton

NEW ENQUIRIES
AssetProtectionAnglia@networkrail.co.uk

WALES

Network Rail
St. Patrick's House
17 Penarth Road
Cardiff
CF10 5ZA

Tel:- 0292 092 9613

Manager: James O'Gorman

NEW ENQUIRIES
AssetProtectionWales@networkrail.co.uk

CENTRAL & WEST COAST MAINLINE SOUTH

Network Rail
Asset Protection Team
Floor 2, The Quadrant MK
Elder Gate
Milton Keynes
MK9 1EN

Tel:- 01908 783 422

Manager: Mark Stevens

NEW ENQUIRIES
AssetProtectionLNWSouth@networkrail.co.uk

WESTERN

Network Rail
Asset Protection Team
5th Floor, Western House
1 Holbrook Way
Swindon
SN1 1BD

Tel:- 01793 260 127

Manager: James O'Gorman

NEW ENQU R ES
AssetProtectionWestern@networkrail.co.uk

KENT

Network Rail
Kent Asset Protection Team
27 Great Suffolk Street
London
SE1 0NS

Tel:- 0203 357 7965

Manager: Logan Subramaniam

NEW ENQU R ES
AssetProtectionLondonSouthEast@networkrail co.uk

WESSEX

Network Rail
Wessex Asset Protection Team
4th Floor, Waterloo General Offices
Waterloo Station
London
SE1 8SW

Tel:- 0330 854 0648

Manager: Peter Barron

NEW ENQUIRIES
AssetProtectionWessex@networkrail.co.uk

SUSSEX

Network Rail
Sussex Asset Protection Team
27 Great Suffolk Street
London
SE1 0NS

Tel:- 0203 357 7968

Manager: Logan Subramaniam

NEW ENQUIRIES
AssetProtectionLondonSouthEast@networkrail.co.uk

Network Rail (High Speed)

Website location: Network Rail / Industry & Partners / Network interface - High Speed 1

NEW ENQUIRIES
AssetProtectionHighSpeed1@networkrail.co.uk

0 30 60 120 Miles

LEGEND

CH UK Postcode (within single NR Territory)

CH UK Postcode (split between NR Territories)

Rail Network

ASPRO NATIONAL MAP

CLIENT:	TECHNICAL AUTHORITY		
JOB NO.:	10519.107	USE TYPE:	[INTERNAL]
SCALE :	1:3,000,000 @ A3	DATE:	28/09/2020
VERSION:	01	PRODUCED BY: EB	QA BY: JB

NetworkRail

Asset Information Services

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GeospatialReportingAnalysis@NetworkRail.co.uk

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Order ID: 108762

ELR	Start Mileage	End Mileage
PYE1	106.0255	106.1198
BRI2	105.0648	106.0931
PYE2	-0.0210	0.0016

National Hazard Directory

Terms and Conditions

The National Hazard Directory (NHD) is issued by Network Rail to provide information on those hazards recorded as present on Network Rail's infrastructure. Its' purpose is to alert users to the typical hazards they may come across whilst working on Network Rail's Infrastructure. The National Hazard Directory is maintained by Network Rail to provide its employees and contractors with information on known hazards present on the infrastructure in order to assist in the identification of the associated risks working 'on or near the line'.

The records are updated regularly and therefore Network Rail believe that the contents are reasonably accurate at the time of issue, but some of the information can vary in age and accuracy so for that reason Network Rail will give no warranty as to the suitability of its use. It is recommended that all searches (in particular for buried services) should be conducted together with a site specific risk assessment/site visit, taking into account the requirements of the appropriate track safety rules, rule books/industry standards and so on. Network Rail will accept no liability in respect of the content or subsequent use of the National Hazard Directory or any of the information contained within.

Users of the Directory must note that when working on or near the line that the appropriate requirements of the Rule Book, especially the provisions of the track safety rules, must be applied as appropriate to the activity concerned.

OnTrac Ltd does not warrant the use of the Network Rail National Hazard Directory or any of the information contained within and no representations or warranties are made as to completeness or accuracy of the data. The data should be used for reference purposes only. Accordingly, OnTrac Ltd will accept no responsibility for loss of profit or for any indirect, incidental or consequential damages.

National Hazard Directory

Customised Report

Search Criteria: ELR(s) = PYE1; Mileage From = 106.0255; Mileage To = 106.1198; Hazard Code(s) = HB, HBA, HBC, HBCS, HBD, HBE, HBF, HBFR, HBFS, HBG, HBI, HBL, HBM, HBN, HBO, HBP, HBR, HBS, HBSW, HBT, HBU, HBW, HCT, HU, HXE
Date: 27/09/2021

5 Hazards found.

ELR	ELR Name	Mileage From	Mileage To	Hazard Code	Hazard Description	Local Name	Track ID	Free Text
PYE1	PYEWIPE (IMMINGHAM EAST DOCK JCN TO MILEAGE CHANGE)	106.0748	106.0748	HBG	Buried Gas Pipe	FORMER SIGNAL BOX	All/Multiple Tracks	High Pressure Gas Pipeline.
PYE1	PYEWIPE (IMMINGHAM EAST DOCK JCN TO MILEAGE CHANGE)	106.0748	106.0748	HBW	Buried Water Main	FORMER SIGNAL BOX	All/Multiple Tracks	High Pressure Water Pipeline.
PYE1	PYEWIPE (IMMINGHAM EAST DOCK JCN TO MILEAGE CHANGE)	106.0748	106.0748	HBF	Buried Foul Water Service	FORMER SIGNAL BOX	All/Multiple Tracks	Sewage.
PYE1	PYEWIPE (IMMINGHAM EAST DOCK JCN TO MILEAGE CHANGE)	106.0748	106.0748	HB	Buried Service	IMMINGHAM EAST SIGNAL BOX		High Tension Cable. TELECOM
PYE1	PYEWIPE (IMMINGHAM EAST DOCK JCN TO MILEAGE CHANGE)	106.0748	106.0748	HBE	Buried Electrical Cables	FORMER SIGNAL BOX	All/Multiple Tracks	Electricity Cable.

National Hazard Directory

Customised Report

Search Criteria: ELR(s) = BRI2; Mileage From = 105.0648; Mileage To = 106.0931; Hazard Code(s) = HB, HBA, HBC, HBCS, HBD, HBE, HBF, HBFR, HBFS, HBG, HBI, HBL, HBM, HBN, HBO, HBP, HBR, HBS, HBSW, HBT, HBU, HBW, HCT, HU, HXE
Date: 27/09/2021

0 Hazards found.

ELR	ELR Name	Mileage From	Mileage To	Hazard Code	Hazard Description	Local Name	Track ID	Free Text

National Hazard Directory

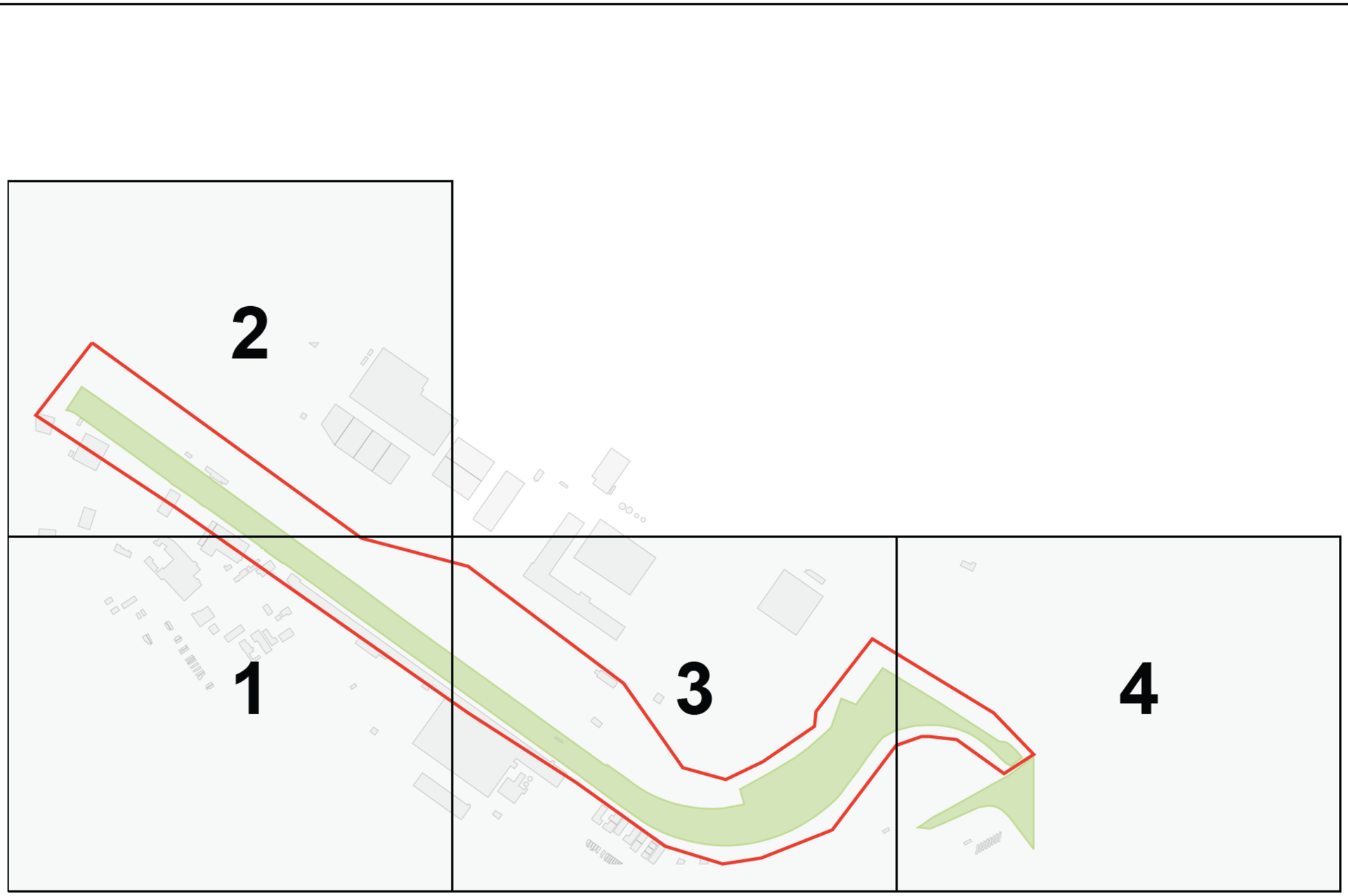
Customised Report

Search Criteria: ELR(s) = PYE2; Mileage From = -0.0210; Mileage To = 0.0016; Hazard Code(s) = HB, HBA, HBC, HBCS, HBD, HBE, HBF, HBFR, HBFS, HBG, HBI, HBL, HBM, HBN, HBO, HBP, HBR, HBS, HBSW, HBT, HBU, HBW, HCT, HU, HXE
Date: 27/09/2021

6 Hazards found.

ELR	ELR Name	Mileage From	Mileage To	Hazard Code	Hazard Description	Local Name	Track ID	Free Text
PYE2	PYEWIPE (MILEAGE CHANGE TO GRIMSBY DOCKS BRB/ABP BOUNDARY)	0.0000	0.0510	HBG	Buried Gas Pipe			High Pressure Gas Pipeline. RT Document: RTP LP NO.405. 13604/0030 RTP MENTOR REF ACROSS RAILWAY TO NORTH SIDE THEN EAST
PYE2	PYEWIPE (MILEAGE CHANGE TO GRIMSBY DOCKS BRB/ABP BOUNDARY)	0.0000	0.0510	HBG	Buried Gas Pipe			High Pressure Gas Pipeline. RT Document: RTP LP NO.405. 13604/0030 RTP MENTOR REF ACROSS RAILWAY TO NORTH THEN EAST
PYE2	PYEWIPE (MILEAGE CHANGE TO GRIMSBY DOCKS BRB/ABP BOUNDARY)	0.0000	2.0080	HB	Buried Service			High Pressure Pipleline
PYE2	PYEWIPE (MILEAGE CHANGE TO GRIMSBY DOCKS BRB/ABP BOUNDARY)	0.0000	2.0080	HBG	Buried Gas Pipe			High Pressure Gas Pipeline. RT Document: RTP LP NO.405. 13604/000? RTP MENTOR REF SOUTH SIDE OF RAILWAY ACROSS AT END
PYE2	PYEWIPE (MILEAGE CHANGE TO GRIMSBY DOCKS BRB/ABP BOUNDARY)	0.0014	0.0054	HB	Buried Service			High Tension Cable. RT Document: RTP LP NO.404. 13064/0043 RTP MENTOR REF ACROSS RAILWAY AND SIDINGS AREA
PYE2	PYEWIPE (MILEAGE CHANGE TO GRIMSBY DOCKS BRB/ABP BOUNDARY)	0.0014	0.0054	HB	Buried Service			High Tension Cable. RT Document: RTP LP NO.404. 13064/0043 RTP MENTOR REF SOUTH SIDE OF RAILWAY AND ACROSS AT END

Page Navigation Index Map (1:2500 scale maps)



Legend

Network Rail Company Ownership Boundary

Order Polygon

Order ID: 108762

Plot Date: 27/09/21

N

NetworkRail

Crown copyright and database rights 2021
Ordnance Survey 0100040692

User Drawn Polygon / Area of Interest - Order ID : 108762



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

Nearest station:
Stallingborough Stn

Order ID: 108762

Order Ref: 108762
Plot Scale: 1:2500
Page Index: 1
Centre X, Y: 519293, 415088
Plot Date: 27/09/21

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Ordnance Survey 0100040692

User Drawn Polygon / Area of Interest - Order ID : 108762



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

Nearest station:
Stallingborough Stn

Order ID: 108762

Order Ref: 108762
Plot Scale: 1:2500
Page Index: 2
Centre X, Y: 519293, 415723
Plot Date: 27/09/21

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Ordnance Survey 0100040692

User Drawn Polygon / Area of Interest - Order ID : 108762



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

Nearest station:
Stallingborough Stn

Order ID: 108762

Order Ref: 108762
Plot Scale: 1:2500
Page Index: 3
Centre X, Y: 520086, 415088
Plot Date: 27/09/21

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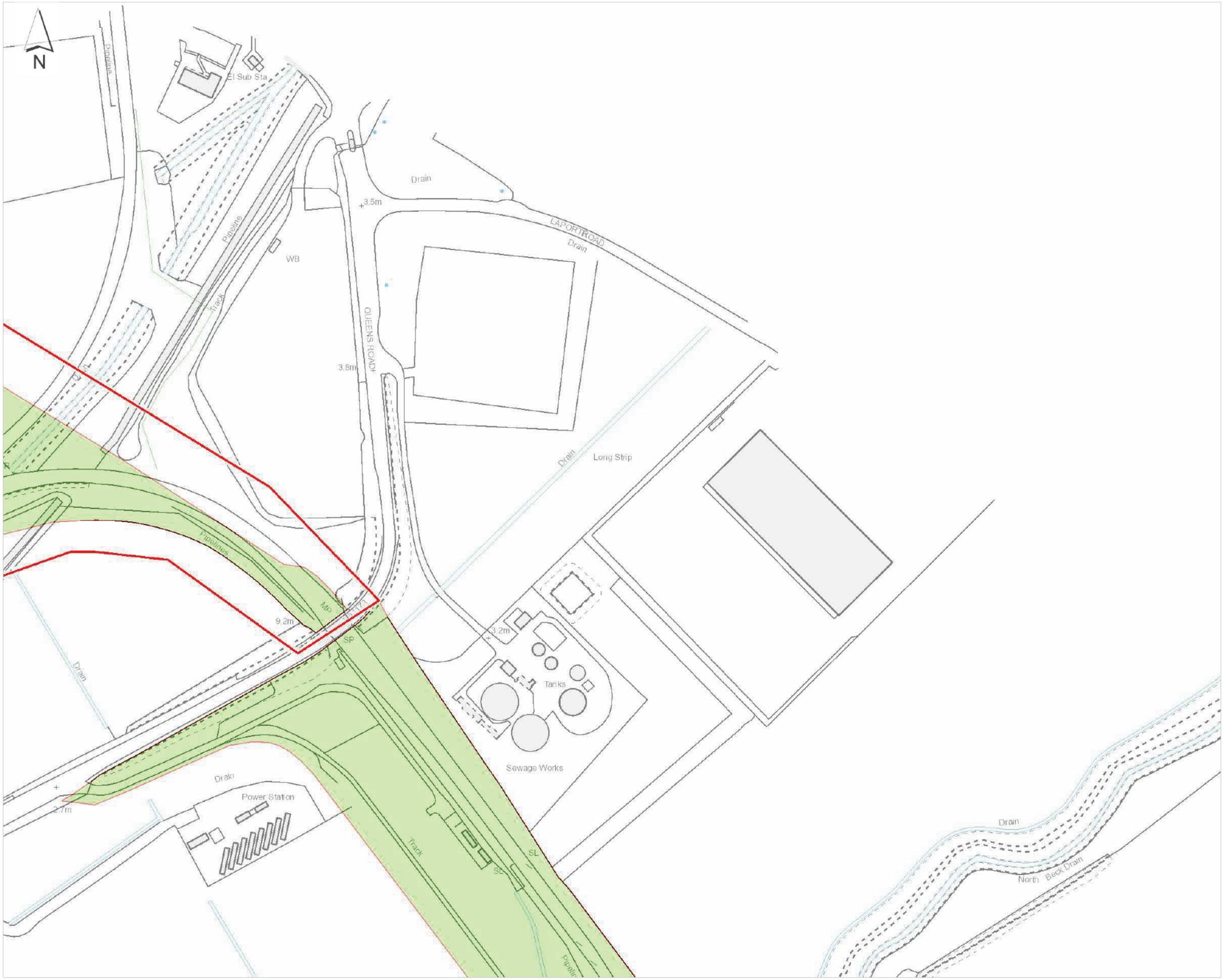
Ordnance Survey 0100040692

User Drawn Polygon / Area of Interest - Order ID : 108762



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

Nearest station:
Stallingborough Stn

Order ID: 108762

Order Ref: 108762
Plot Scale: 1:2500
Page Index: 4
Centre X, Y: 520880, 415088
Plot Date: 27/09/21

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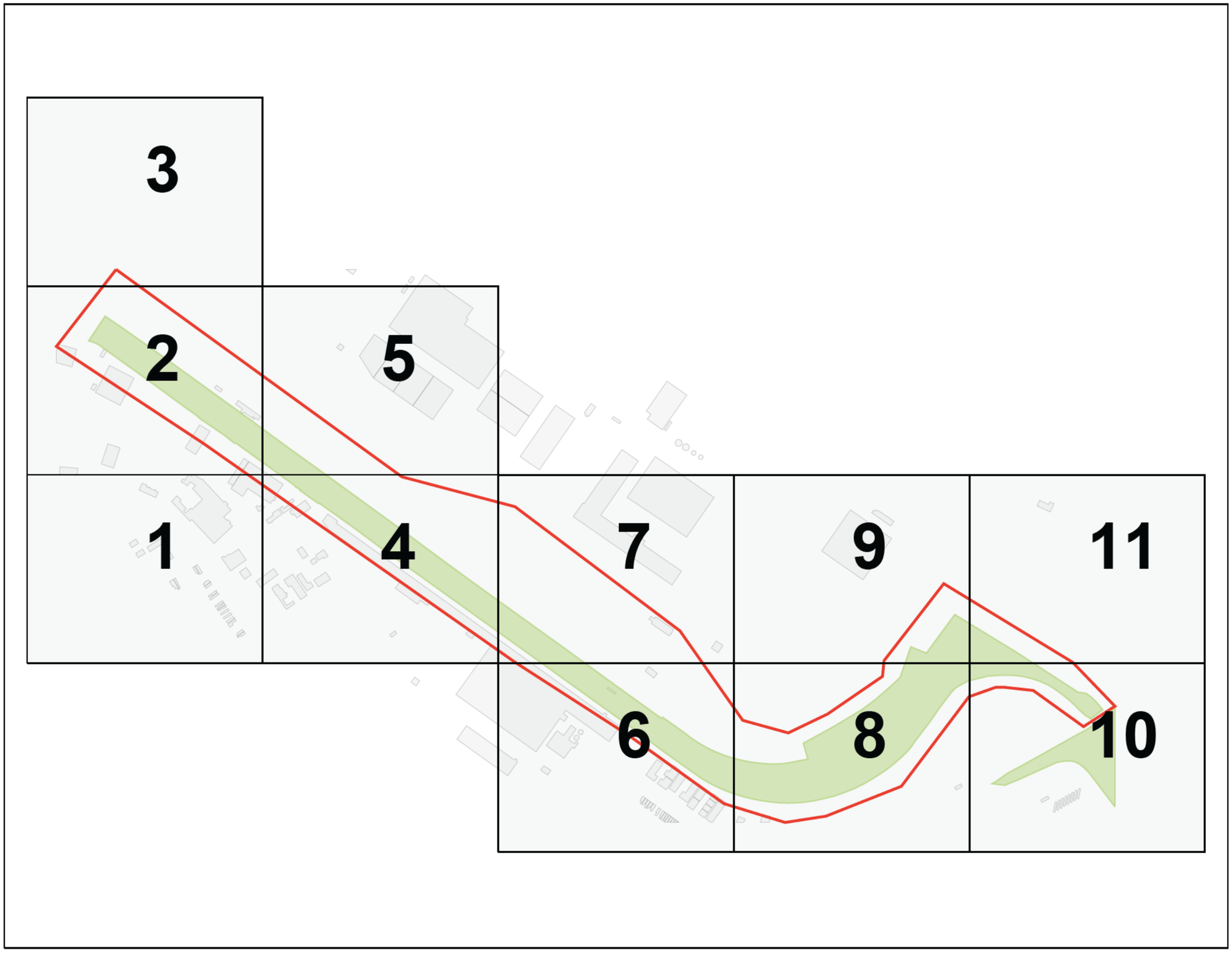
Ordnance Survey 0100040692

Page Navigation Index Map (1:1250 scale maps)



Legend

Network Rail Company Ownership Boundary

Order Polygon

Order ID: 108762

Plot Date: 27/09/21

N

NetworkRail

Crown copyright and database rights 2021
Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 1
Centre X, Y: 519094, 415246
Plot Date: 27/09/21

Crown copyright and database rights 2021
Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 2
Centre X, Y: 519094, 415564
Plot Date: 27/09/21

NetworkRail

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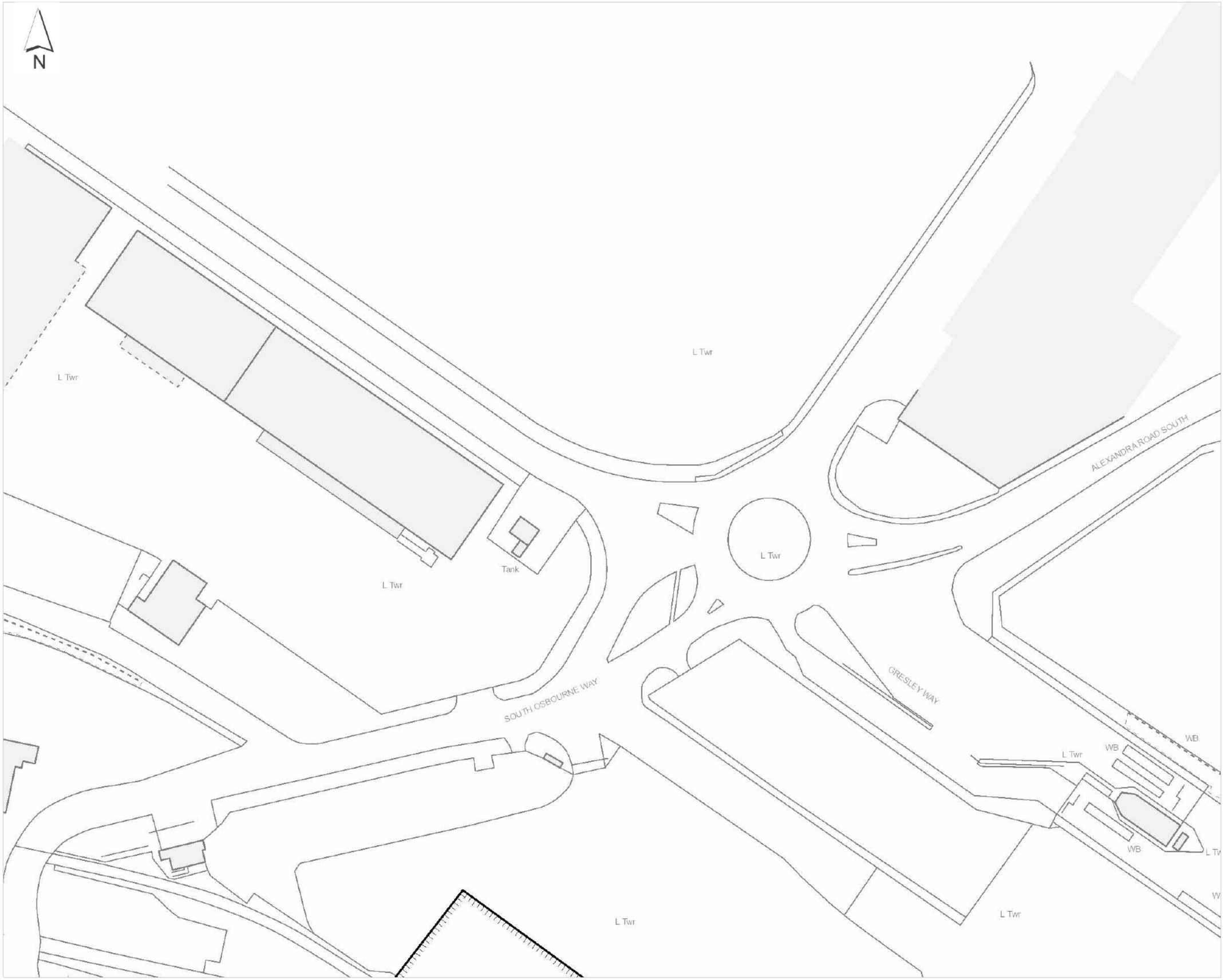
Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 3
Centre X, Y: 519094, 415881
Plot Date: 27/09/21

NetworkRail

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 4
Centre X, Y: 519491, 415246
Plot Date: 27/09/21

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 5
Centre X, Y: 519491, 415564
Plot Date: 27/09/21

NetworkRail

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 6
Centre X, Y: 519888, 414929
Plot Date: 27/09/21

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 7
Centre X, Y: 519888, 415246
Plot Date: 27/09/21

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 8
Centre X, Y: 520285, 414929
Plot Date: 27/09/21

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 9
Centre X, Y: 520285, 415246
Plot Date: 27/09/21

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 10
Centre X, Y: 520682, 414929
Plot Date: 27/09/21

NetworkRail

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Ordnance Survey 0100040692

Network Rail - Drainage



Legend

Company Ownership

- Freehold Ownership
- Leasehold Ownership
- Prohibitive Interest
- Bridge (Rail over Rail)
- Bridge (Rail over River)
- Bridge (Rail over Road)
- Bridge (Road over Rail)
- Level Crossing
- Tunnel
- Order Polygon

- DB Asset Line
- DC Asset Line

Order Ref: 108762
Plot Scale: 1:1250
Page Index: 11
Centre X, Y: 520682, 415246
Plot Date: 27/09/21

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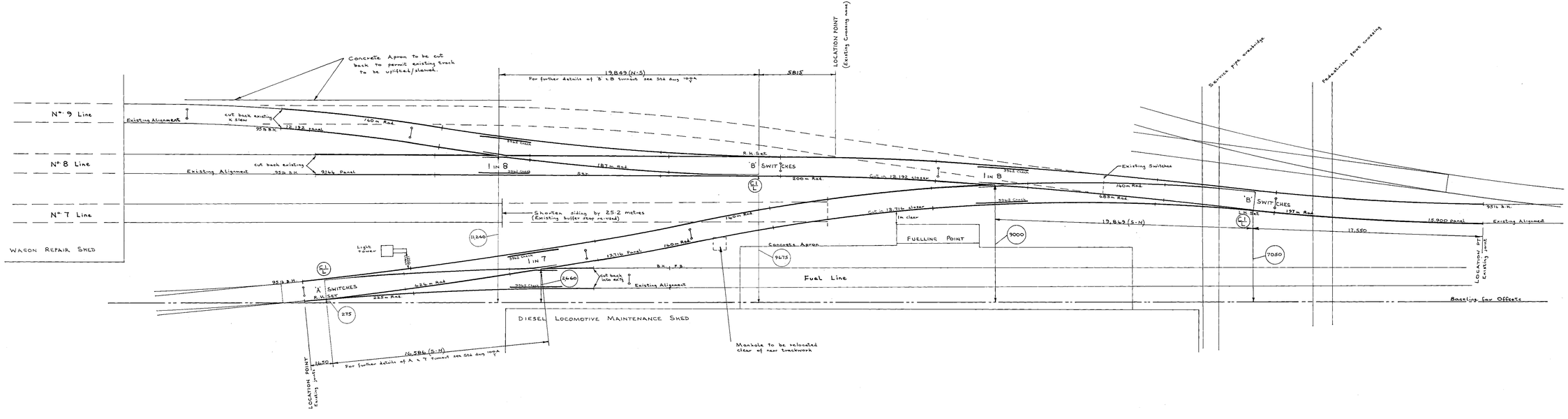
Ordnance Survey 0100040692



Notes:

1. Existing arrangement altered.
2. Works Engineer, Immingham to arrange manhole relocation and cutting back of concrete apron adjacent to No. 9 line.
3. All dimensions in millimetres unless stated.
4. Drawing to be read in conjunction with site visit report.
5. All material to be recovered serviceable 95 lb bull head, supplied by Contractor.
6. Formation to be 150mm minimum new stone ballast.
7. All switches to be hand point operation & to be fitted with 2 way travel levers.
8. 5 m.p.h. speed restriction throughout Depot.

RAILTRACK
C09311LNE

Letter	Date	Description of revisions	By

British Railways Board

Area Civil Engineer
Arrow Rail Lesser Region
Area Street Offices
Area Street
Leeds LS1 4PY

Telephone 0532-479595 / 439257

A.J.B. A.J.B.

Area Engineer

IMMINGHAM DEPOT ALTERATIONS TO P. WAY LAYOUT

Scale	1:100
Fog Number	
Drawing Number	93·YLS·13

4·800

DOWN LINE

UP LINE

100 mm PUMPING MAIN

4·550

4·550

NEW M.H.3
I.L. 2·615

NEW P.V.C. PIPE DRAIN FALL 1 IN 30 APPROX

NEW M.H.2
I.L. 3·650

75mm VENT PIPE.

150 PIPE DRAIN

C.P.

TELEPHONE CABLE

3·476

3·515

2·810

3·315

150 NEW STEEL PIPE DRAIN FALL 1 IN 30 APPROX.

M.H.

FOR MAIN DETAILS OF MANHOLES, PIPE DRAINS Etc SEE DRG. Nº 77·YWM·72A.

LEVEL OF NEW PIPE DRAIN TO BE ADJUSTED TO CLEAR SERVICES & OTHER DRAINS AS REQUIRED.

225 PIPE DRAIN

M.H.
I.L.2·175

FOR DETAILS OF CONNECTION TO EXISTING SEWER SEE DRG Nº 77·YWM·72A.

I.L. 2·170
(APPROX)

FOOTBRIDGE

MAIN ELECTRICITY CABLE (APPROX POSITION)

150mm WATER MAIN (APPROX POSITION)

100mm GAS MAIN

DITCH.

M.H.
I.L.2·135

150 SEWER

BR 888/53

RAILTRACK

065992LNE

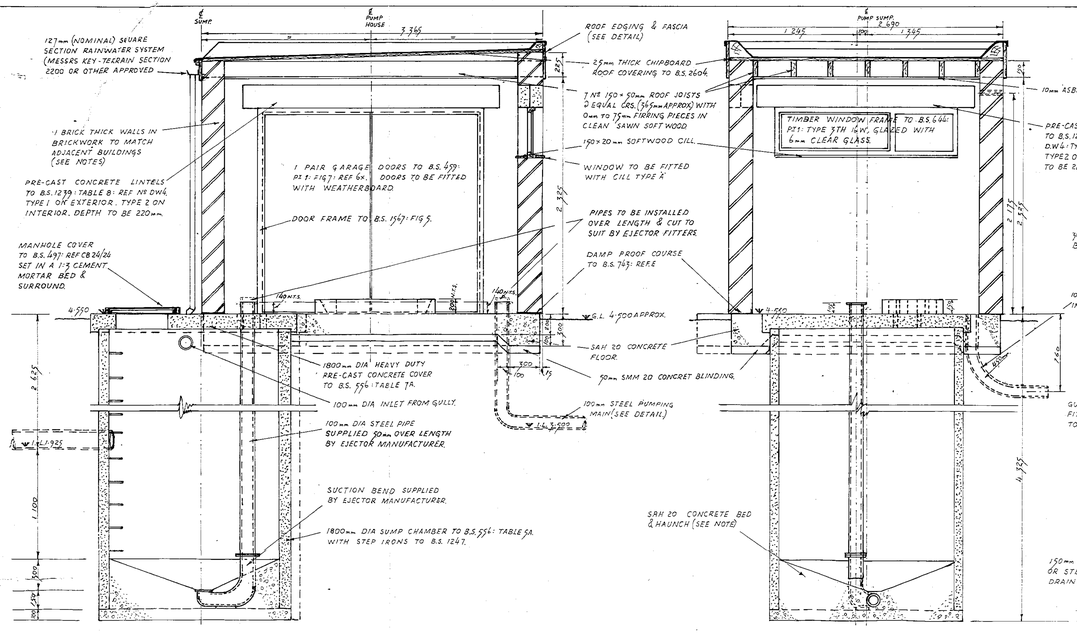
Letter	Date	Description of revisions	By

British Railways Board
Chief Civil Engineer
British Rail Eastern
Hudson House
York YO1 1HP
Telephone 0904–53022

A.J.S.	A.J.S.	for K.G.Glen Asst. Works Engineer
14.3.78		Chief Civil Engineer

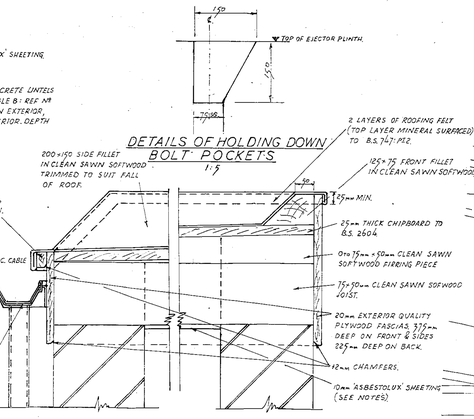
IMMINGHAM
Traction Maintenance Depot
DIVERSION OF FOUL DRAINAGE TO SEWER
Details of Revised Drain Route

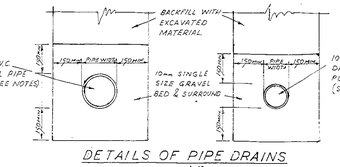
Scale	1:100
File Numbers	CE. W 38/750/31.
Drawing Number	78·YWM·16.
DCEs Nº	S78. DR·6/B.

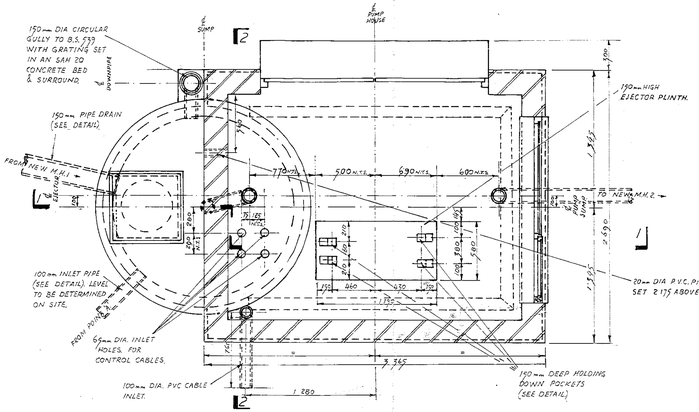


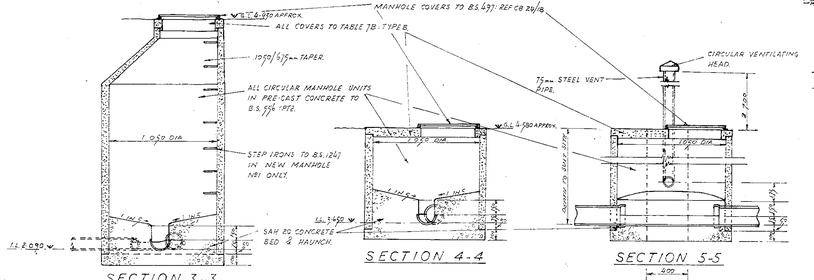
SECTION 1-1
1:20

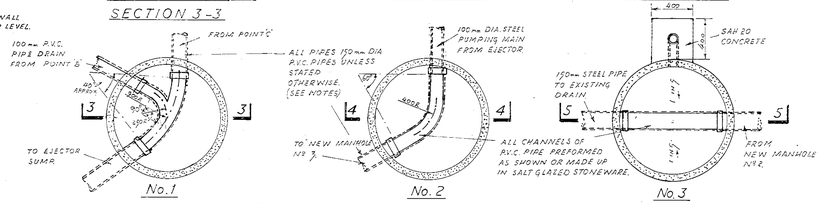
SECTION 2-2
1:20

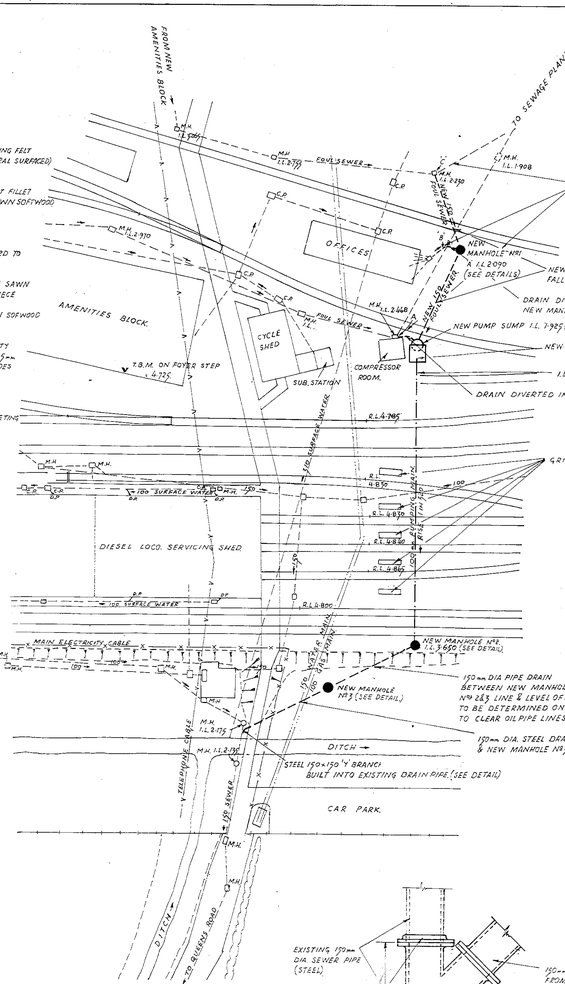




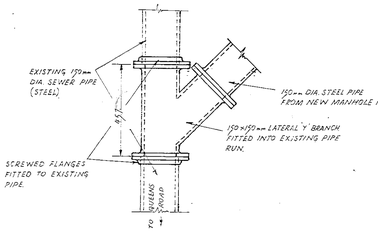








LAYOUT PLAN
1:360



DETAILS OF CONNECTION TO EXISTING SEWER
1:10

NOTES.

1. ALL CONCRETE TO CONFORM TO THE STANDARD SPECIFICATION: SECTION 7: TABLE 7/1: CONCRETE MIXES FOR MINOR WORKS: CODE REF SAH 20, SMM 20 etc BEFORE.
2. BRICKWORK TO BE CARRIED OUT IN 1:3 CEMENT MORTAR & COURSES TO 300mm INTERNAL & EXTERNAL FACES FINISHED WITH A NEAT WEATHERSTRUCK JOINT.
3. ALL TIMBER NOT PRIMED BEFORE DELIVERY TO BE TREATED WITH CLEAR CUPRINOL BEFORE FIXING INTO THE PERMANENT WORKS.
4. FLOOR & PLINTH IN PUMP HOUSE TO BE STEEL FLOAT FINISHED
5. BUILDING TO BE PAINTED IN ACCORDANCE WITH THE STANDARD PAINTING SPECIFICATIONS & COLOUR REQUIREMENTS.
6. ALL JOINTS IN PRE-CAST CONCRETE UNITS TO EJECTOR SUMP & MANHOLES TO BE SEALED WITH A 10mm (APPROX) 1:3 CEMENT MORTAR GROUT.
7. ALL STEEL PIPES FOR PUMPING MAIN ETC. TO CONFORM TO B.S.534. JOINTS MAY BE SLIP ON TYPE COUPLINGS, FIXED FLANGES, OR SCREWED & COUPLED UNLESS SHOWN OTHERWISE ON THIS DRAWING. PIPES TO WITHSTAND A 48 N/mm² TEST PRESSURE.
8. P.V.C. DRAIN PIPES TO CONFORM TO B.S. 3506: CLASS D. ALL JOINTS TO BE MADE WITH A RING SEAL PATTERN CONNECTOR OF APPROVED TYPE.
9. JOINTS IN ASBESTOLUX TO BE COVERED WITH A 25 x 10mm TIMBER BATTEN & EDGES AT WALL WITH A 75 x 25mm FILLET.

Letter	Date	Description of revisions	By
A.	7/2/78	DETAILS OF PUMP PLINTH, PIPE ENDS IN PUMP HOUSE, ETC AMENDED TO SUIT EJECTOR MANUFACTURERS REQUIREMENTS.	A.J.S.

British Railways Board
Chief Civil Engineer
British Rail Eastern
Hudson House
York YO1 1HP
Telephone 0904-53022

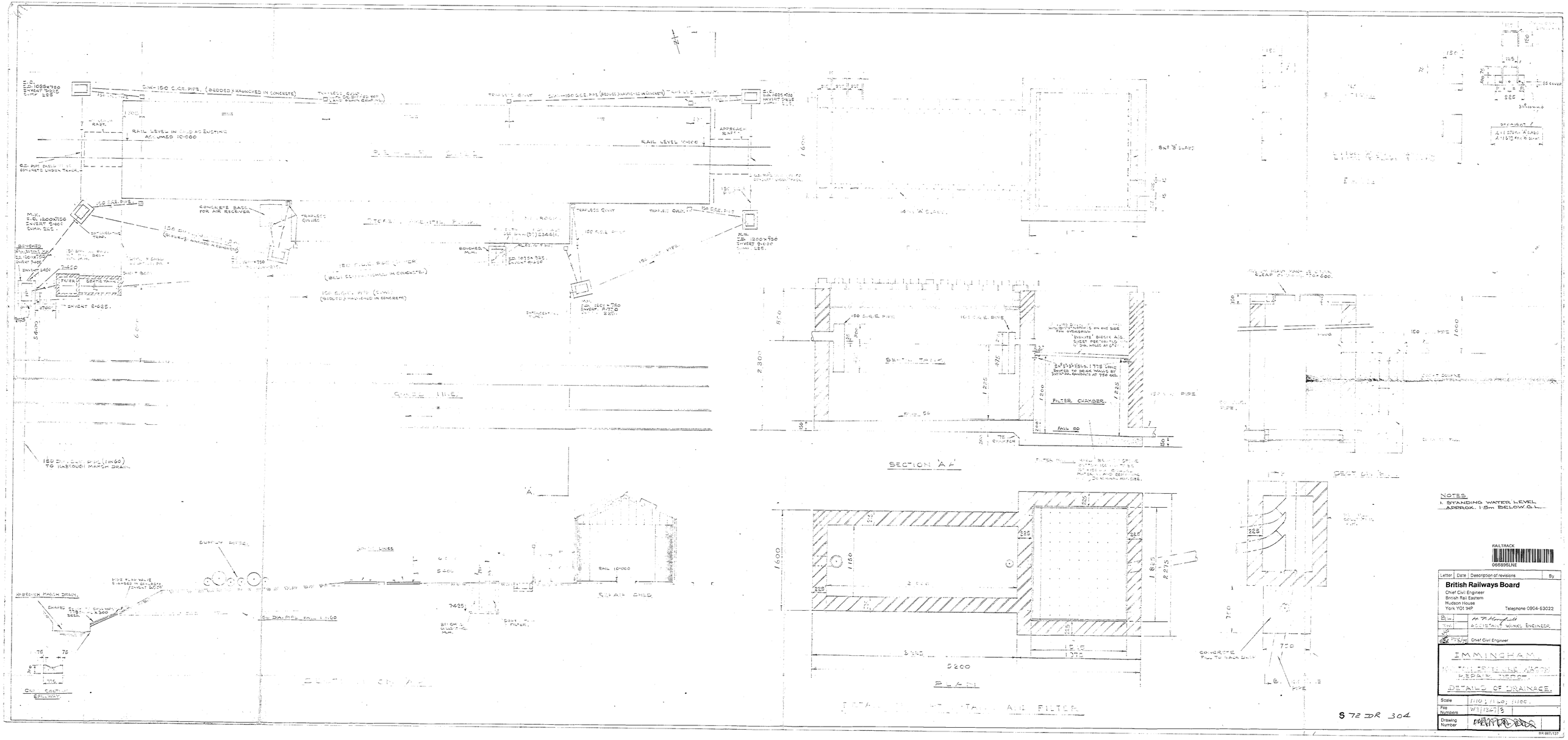
A.J.S.	A.J.S.
F.V.	Assistant Works Engineer
	13/12/77 Chief Civil Engineer

IMMINGHAM
Traction Maintenance Depot
DIVERSION OF FOUL DRAINAGE TO SEWER

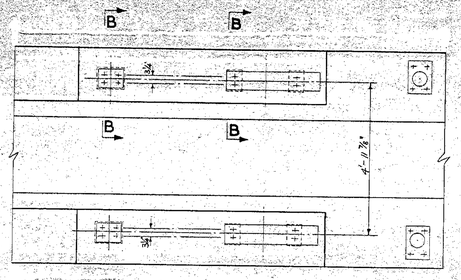
Scales	1/8, 1/4, 1/2, 1/20, 1/60, 1/10
File Numbers	CE.W. 38/350/51.
Drawing Number	77.YWM.72 A.

DCE's No. 578.DR.6/A

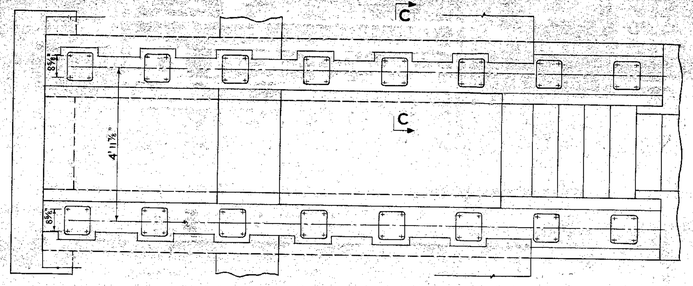
BR 888/52


SECTION 'A-A'
PLAN
NOTES
1. STANDING WATER LEVEL APPROX. 1.5m BELOW G.L.
IMMINGHAM
DETAILS OF DRAINAGE.
S 72 DR 304

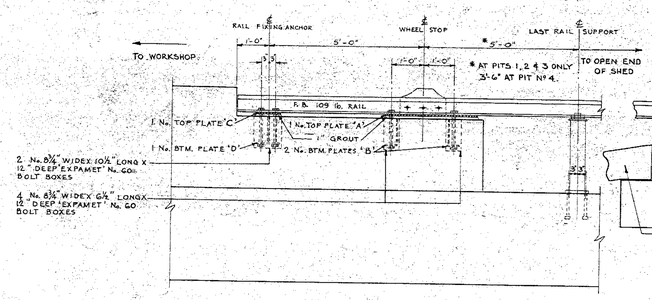
CONTRACT DRAWING No. 27



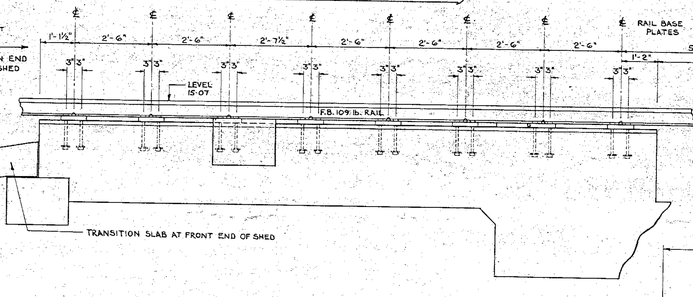
PLAN
(SHOWING POSITION OF TOP PLATES)



PLAN
(SHOWING POSITION OF TOP PLATES)



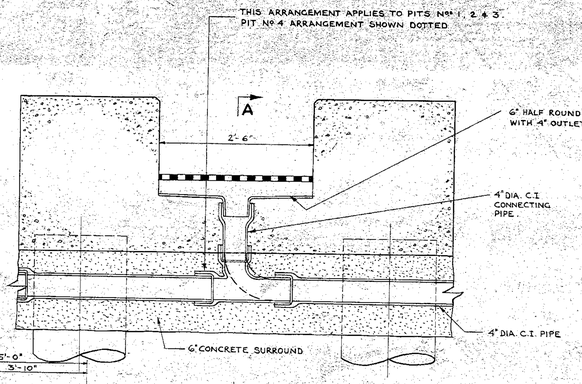
ELEVATION
(WORKSHOP END OF PIT)



ELEVATION
(STEPPED END OF PIT)

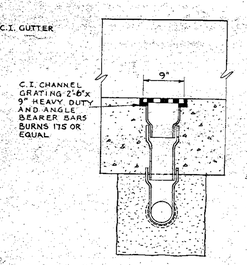
GENERAL ARRANGEMENT OF RAIL FIXINGS

½" TO 1 FT.

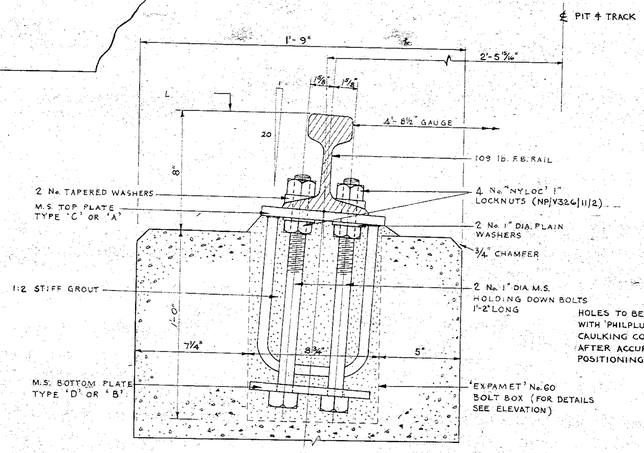


DETAIL OF 4" C.I. DRAIN

1" TO 1 FT.

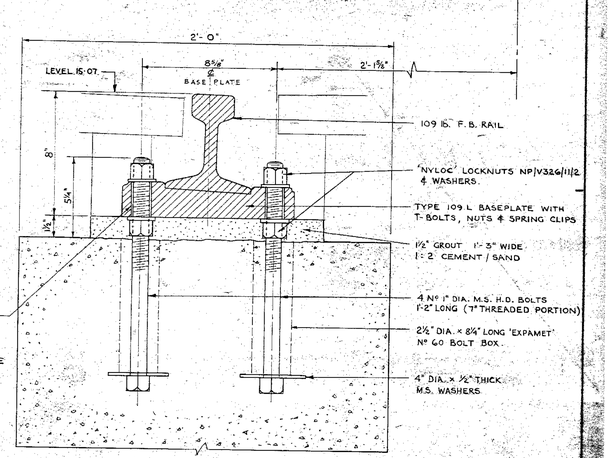


A-A



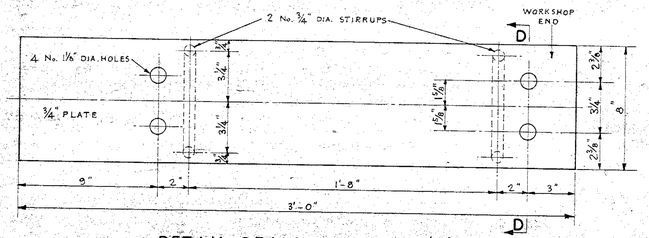
B-B

3" TO 1 FT.

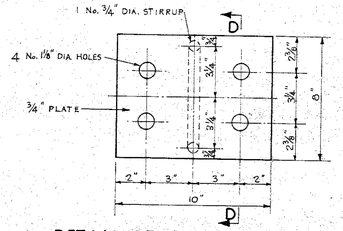


C-C

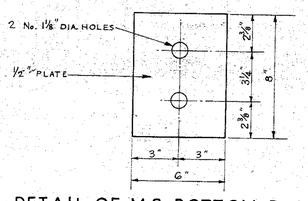
3" TO 1 FT.



DETAIL OF M.S. TOP PLATE 'A'

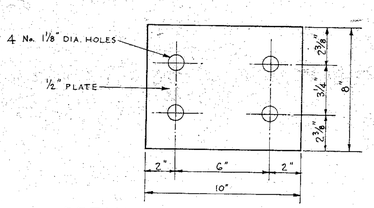


DETAIL OF M.S. TOP PLATE 'C'

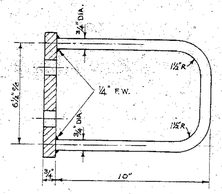


DETAIL OF M.S. BOTTOM PLATE 'B'

3" TO 1 FT.

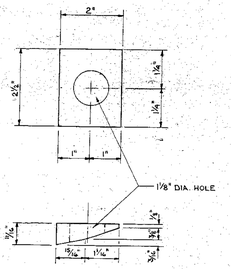


DETAIL OF M.S. BOTTOM PLATE 'D'



D-D

3" TO 1 FT.



DETAIL OF TAPERED WASHER

ASSOCIATED DRAWINGS		
CONTRACT DRG. No	TITLE	OFFICE No
13	MAINT. SHED DETAILS OF ENGINE PITS Nos 1 TO 3	65 NW/65
14	MAINT. SHED DETAILS OF ENGINE PIT No 4	65 NW/66
43	DRAINAGE LAYOUT	65 NW/48

RAILTRACK
067274LNE

BRITISH RAILWAYS BOARD
CIVIL ENGINEER'S DEPT.

EASTERN REGION
KING'S CROSS STATION

REVISED

IMMINGHAM
DIESEL MAINTENANCE DEPOT
MAINTENANCE SHED
INSPECTION PITS - DRAINAGE & RAIL FIXING DETAILS

D.E.	CORRES.	C.E.
	NW 17668	
K·G·M		
E.W.H.		

APPROVED 11·5·65

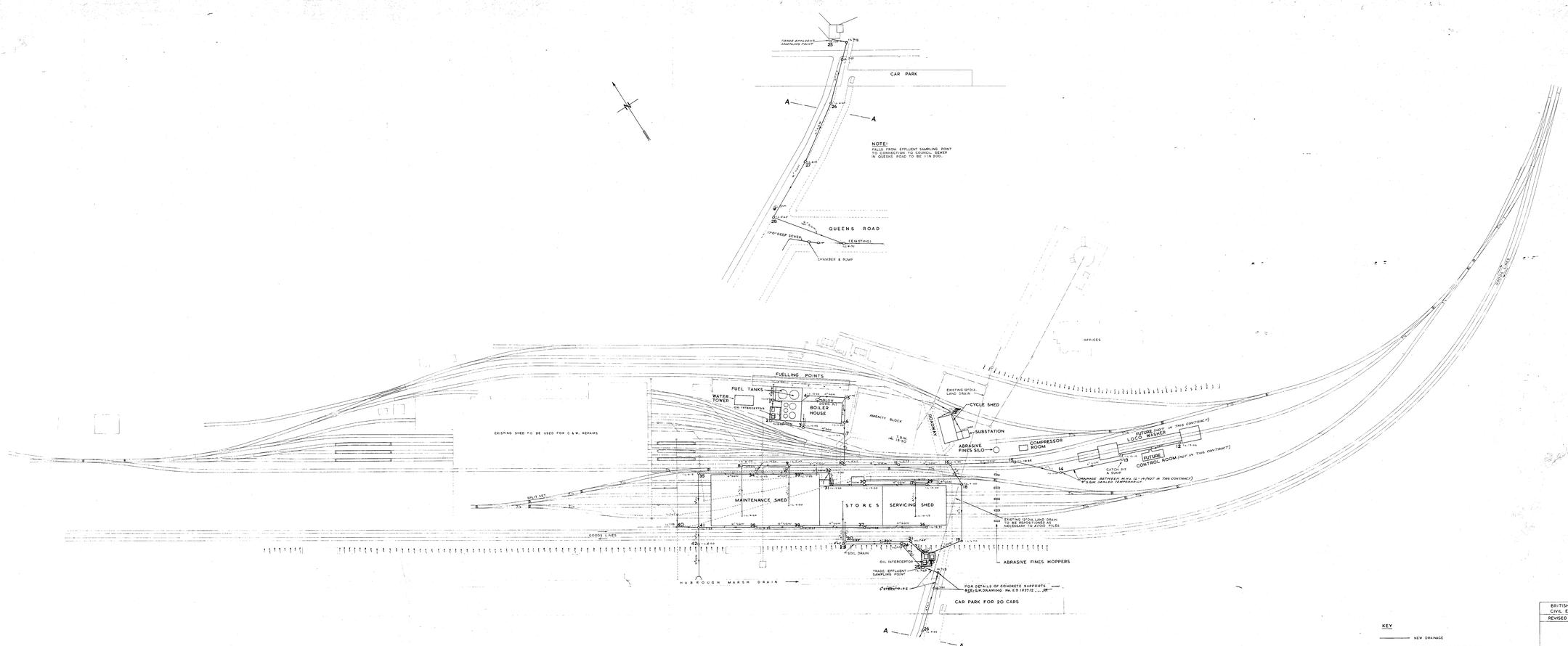
J.D. WEST A.C.E.(M) CIVIL ENGINEER

SCALES— ½", 1" & 3" TO 1 FT.

D.E's No.

C.E's No. 65 NW/103

CONTRAC
DRAWING



NOTES:

1. ALL PIPES TO BE CASED IN CONCRETE 6" THICK.
2. CONCRETE TO BE 1:2:4 (3/4) MIX
3. ALL FALLS ARE 1 IN 100 UNLESS OTHERWISE SPECIFIED
4. INVERT LEVELS SHOWN THUS 11.91 AND INDICATE THE LEVEL OF OUTLET PIPE.
5. ALL LEVELS REFER TO ORDNANCE DATUM NEWLYN
6. T.B.M. 19.90 ON STEP OF AMENITY BLOCK FOYER.
7. ALL PIPES PASSING UNDER TRACKS TO BE C.I. AND HAVE INVERT LEVELS 4'0" MIN. BELOW RAIL LEVEL.
8. ALL EXPOSED PIPES TO HAVE FIBRE GLASS LAGGING 2" THICK WRAPPED IN LASSO.
9. FOR DETAILS OF OIL INTERCEPTORS SEE DRGN. No. [illegible]
10. FOR DETAILS OF OIL INTERCEPTOR LAYOUTS SEE M.&E.W. E.D. 183/2 & 13.
11. WHERE NEW DRAINS CONNECT TO AND BYE-PASS EXISTING DRAINS THE NEW DRAINS TO BE AT THE DIAMETER OF THE EXISTING DRAINS.

KEY

——— NEW DRAINAGE

- - - - - - EXISTING DRAINAGE TO BE RETAINED

· · · · · · · EXISTING DRAINAGE TO BE ABANDONED

RAILTRACK
DO NOT REMOVE

BRITISH RAILWAYS BOARD
CIVIL ENGINEER'S DEPT.

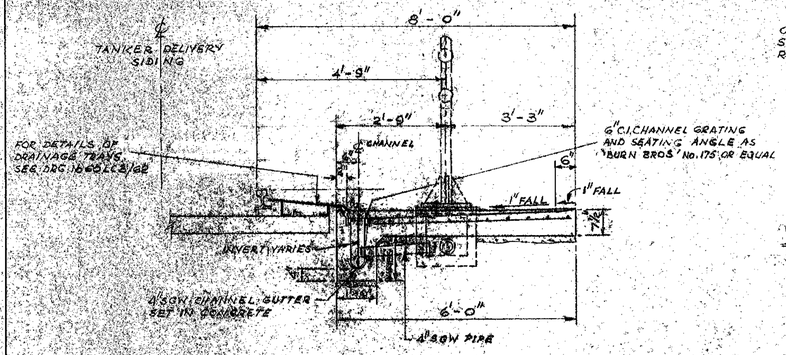
EASTERN &
KING'S CROSS S

REVISED

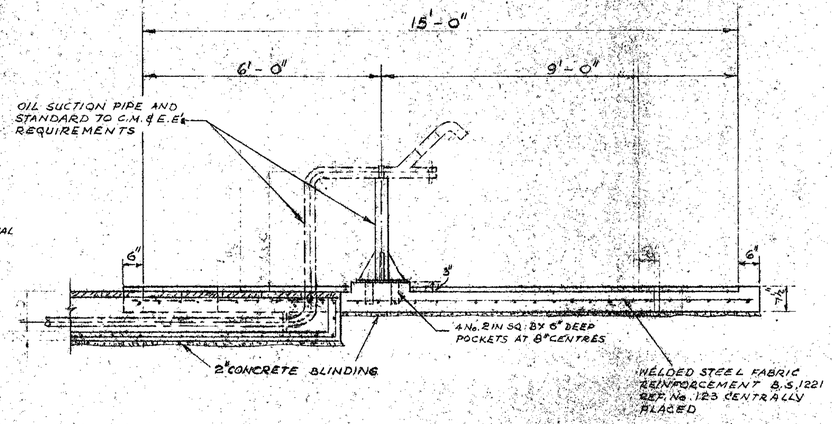
IMMINGHAM
DIESEL MAINTENANCE AND SERVICING DEPOT
DRAINAGE LAYOUT

D.E.	COMPILED	C.E.	APPROVED	20 4 65	SCALES 40 FEET T
					20 FT TO AN INCH
A.B.			J.D. WEST C.E. (W.S.)		
R.A.H.B.			CHIEF CIVIL ENGINEER	C.E.'S No.	65/NE/41

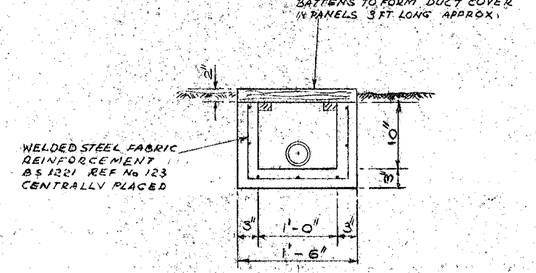
CONTRACT
DRAWING No. 146.



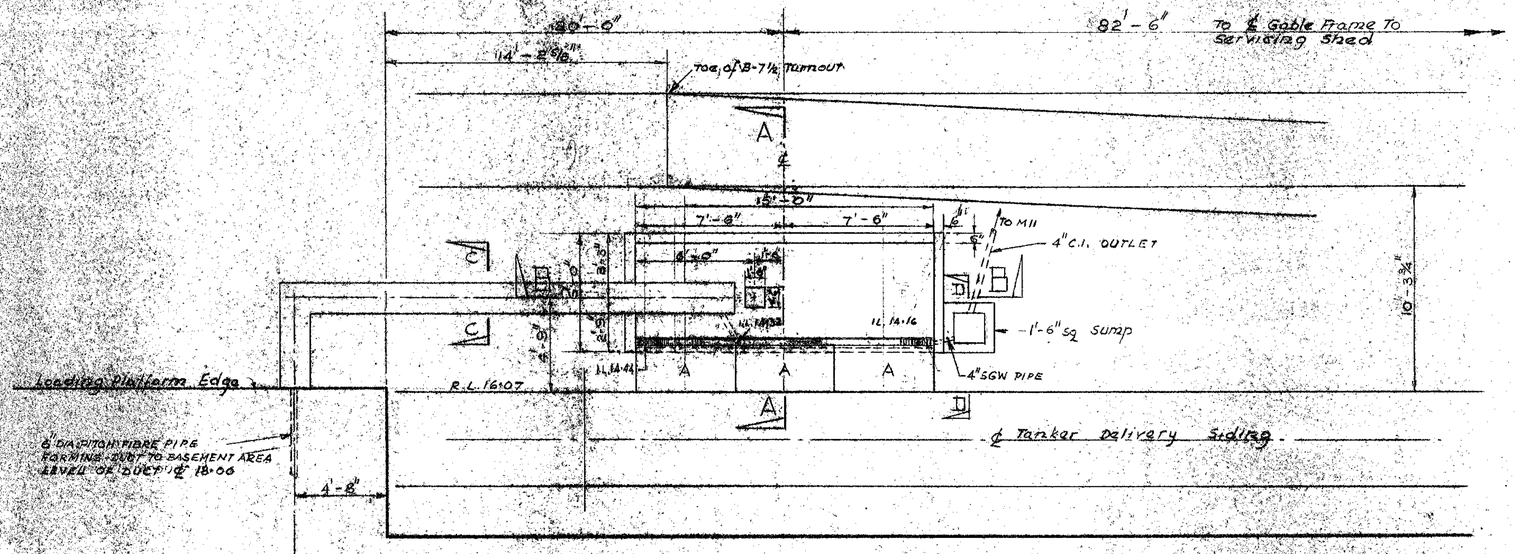
A — A



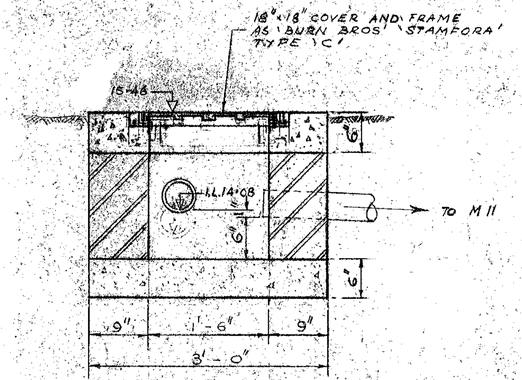
B — B



C — C



PLAN



D — D

RAILTRACK
067292LNE

BRITISH RAILWAYS BOARD CHIEF CIVIL ENGINEER'S DEPT.			EASTERN REGION KINGS CROSS STATION		
REVISED	IMMINGHAM DIESEL MAINTENANCE AND SERVICING DEPOT LUBRICATING OIL OFF-LOADING POINT				
D.E.	CORRES	C.C.E.	APPROVED	4·10·65	SCALES 1/4", 1/2" & 1" - 1 FT.
	NW/27868		N.J.N.		
A.I.			J.D.WEST	A.C.E.(MOD.)	
M.L.					
SHEET OF			CHIEF CIVIL ENGINEER		C.C.E's No. 65NW/307

BR 8871/4

(FOR DETAILS SEE PLAN No. 60LC3/62E)

SCHEDULE OF COMPONENTS

CONTRACT DRAWING No.40.

LOCATION	TRAY TYPE												STRAP TYPE			GUTTER – LENGTH 'L'				½" DIA. × 1" LONG PARKER-KALON TYPE Z SCREWS	REMARKS
	A	B	C_1	C_2 No.	C_2 'X'	C_3	C_4 No.	C_4 'X'	C_5	C_6 No.	C_6 'X'		A	B	C	G_1 L= 9'-6"	G_2 L=12'-5"	G_3 L= 5'-6"	G_4 L=17'-1"		
IMMINGHAM DIESEL MAINTENANCE AND SERVICING DEPOT																					
TANKER DELIVERY SIDING	30	60	22	6	2-6	1	—	—	1	—	—		29	58	29	6	12	—	—	1,392	
FUELLING POINT	14	14	—	—	—	—	—	—	—	—	—		12	12	—	—	—	2	2	288	
TOTAL	44	74	22	6	—	1	—	—	1	—	—		41	70	29	6	12	2	2	1,680	

RAILTRACK
067318LNE

BRITISH RAILWAYS BOARD
EASTERN REGION KING'S CROSS
CHIEF CIVIL ENGINEER'S DEPT.

STEEL DRAINAGE TRAYS FOR FUELLING POINTS

APPROVED

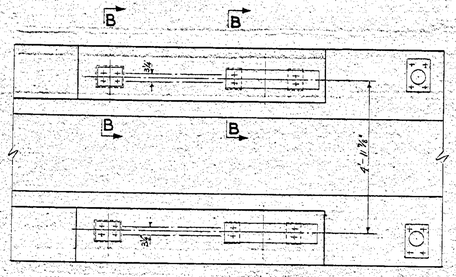
DATE

CORRES. REF

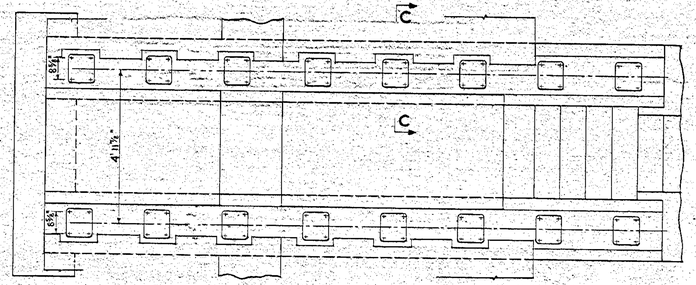
PLAN No. 65NW/85

GS · DR · 140/24

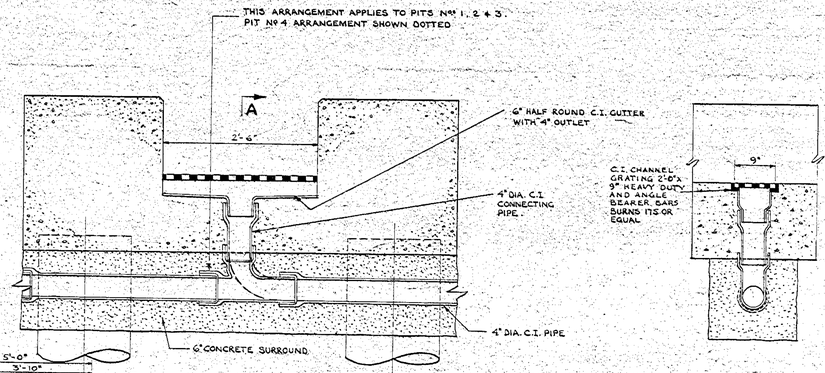
CONTRACT DRAWING No. 27



PLAN
(SHOWING POSITION OF TOP PLATES)

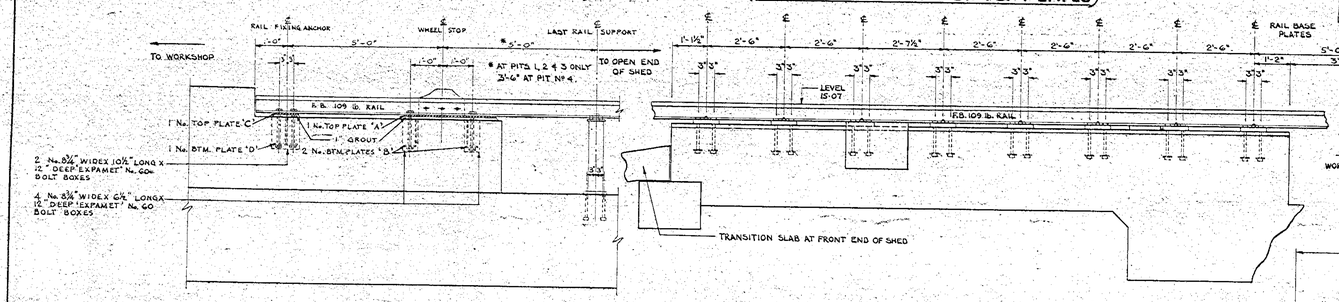


PLAN
(SHOWING POSITION OF TOP PLATES)



A-A

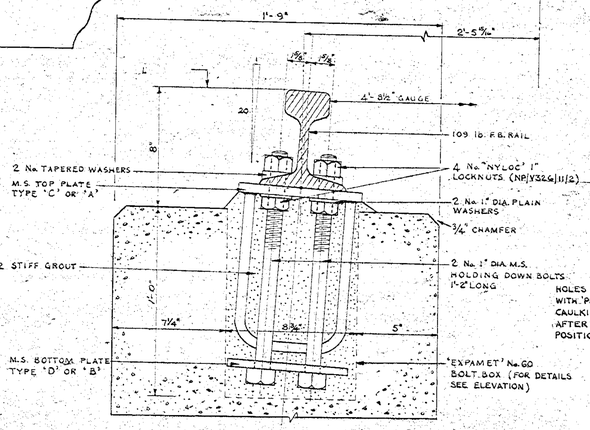
DETAIL OF 4" C.I. DRAIN
1" TO 1 FT.



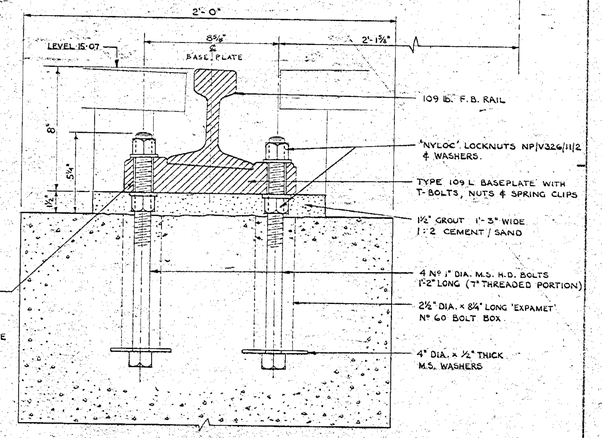
ELEVATION
(WORKSHOP END OF PIT)

ELEVATION
(STEPPED END OF PIT)

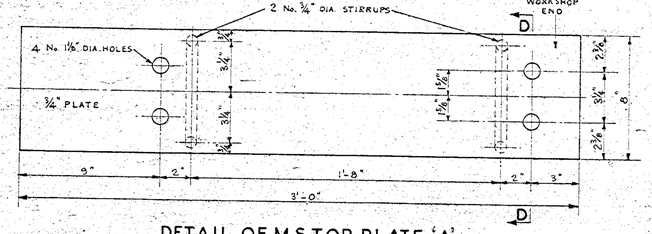
GENERAL ARRANGEMENT OF RAIL FIXINGS
½" TO 1 FT.



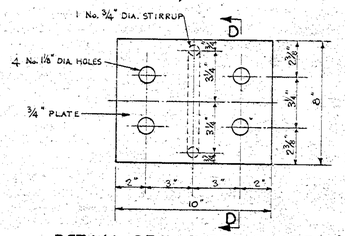
B-B
3" TO 1 FT.



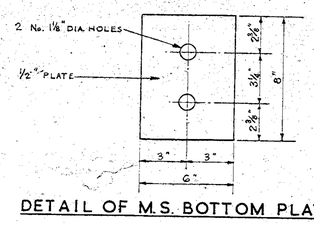
C-C
3" TO 1 FT.



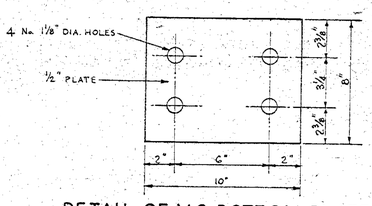
DETAIL OF M.S. TOP PLATE 'A'



DETAIL OF M.S. TOP PLATE 'C'

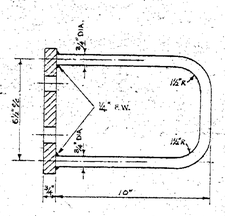


DETAIL OF M.S. BOTTOM PLATE 'B'

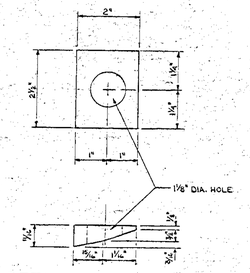


DETAIL OF M.S. BOTTOM PLATE 'D'

9" TO 1 FT.



D-D
3" TO 1 FT.



DETAIL OF TAPERED WASHER

ASSOCIATED DRAWINGS		
CONTRACT DRG. No.	TITLE	OFFICE No
13	MAINT. SHED DETAILS OF ENGINE PITS Nos 1 TO 3	65 NW/65
14	MAINT. SHED DETAILS OF ENGINE PIT No 4	65 NW/66
43	DRAINAGE LAYOUT	65 NW/48

RAILTRACK
067320LNE

BRITISH RAILWAYS BOARD
CIVIL ENGINEER'S DEPT.

EASTERN REGION
KING'S CROSS STATION

REVISED

IMMINGHAM DIESEL MAINTENANCE DEPOT
MAINTENANCE SHED
INSPECTION PITS - DRAINAGE & RAIL FIXING DETAILS

D.E.	CORRES.	C.E.
	NW 17648	
K·C·M		
E.W.H.		

APPROVED 11·5·65.

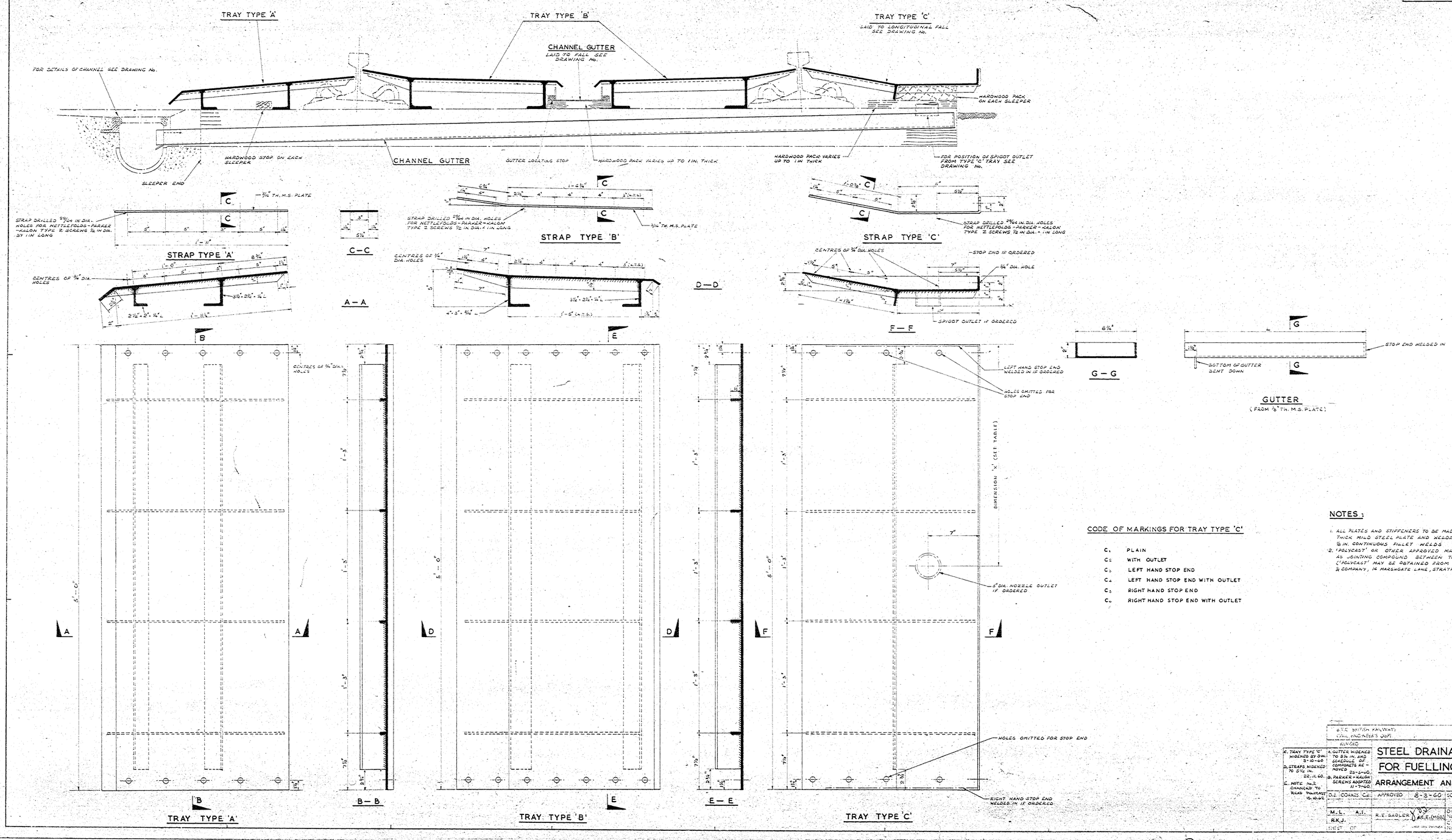
J.D. WEST A.C.E.(M) CIVIL ENGINEER

SCALES— ½", 1" & 3" TO 1 FT.

D.E's No. 66 DR 140/20

C.E's No. 65 NW/103

CONTRACT DRAWING No. 39.



CODE OF MARKINGS FOR TRAY TYPE 'C'

C_1	PLAIN
C_2	WITH OUTLET
C_3	LEFT HAND STOP END
C_4	LEFT HAND STOP END WITH OUTLET
C_5	RIGHT HAND STOP END
C_6	RIGHT HAND STOP END WITH OUTLET

NOTES:

1. ALL PLATES AND STIFFENERS TO BE MADE FROM 3/16 IN. THICK MILD STEEL PLATE AND WELDED TOGETHER WITH 1/8 IN. CONTINUOUS FILLET WELDS
2. 'POLYCAST' OR OTHER APPROVED MATERIAL TO BE USED AS JOINTING COMPOUND BETWEEN TRAY SECTIONS ('POLYCAST' MAY BE OBTAINED FROM ALFRED JEFFERY & COMPANY, 14 MARSHGATE LANE, STRATFORD, LONDON, E.15.)

RAILTRACK 067326LNE

G.T.C. BRITISH RAILWAYS CIVIL ENGINEER'S DEPT. — EASTERN REGION KING'S CROSS STATION

REVISED

C. TRAY TYPE 'C' WIDENED BY 3 IN. 3-10-60
D. STRAPS WIDENED TO 5 1/2 IN. 22.11.60.
E. NOTE No. 2 CHANGED TO READ POLYCAST 15.10.62

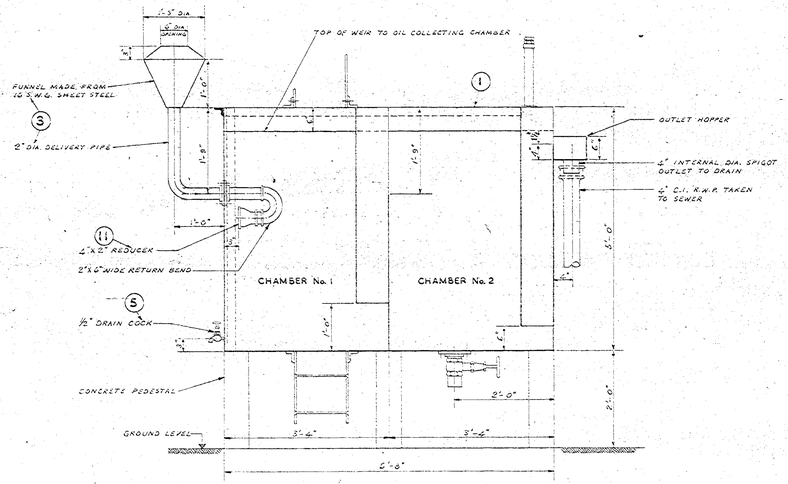
A. GUTTER WIDENED TO 8 1/4 IN. AND SCHEDULE OF COMPONETS RE-MOVED 23-3-60.
B. PARKER-KALON SCREWS ADOPTED 11-7-60.

STEEL DRAINAGE TRAY FOR FUELLING POINTS

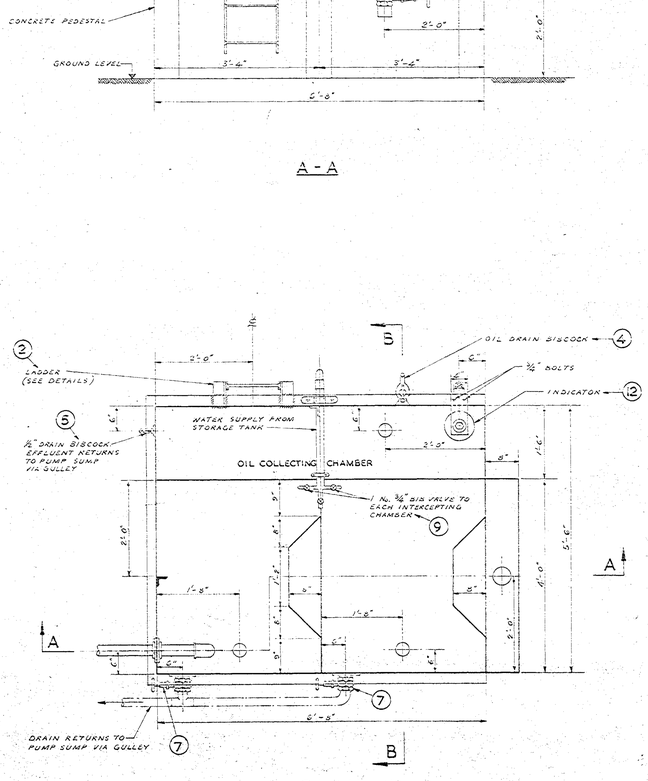
ARRANGEMENT AND DETAILS

D.E. CORNES C.E.	APPROVED 8-3-60	SCALES 3" TO 1 FT.	
M.L. A.I. R.K.J.	R.E. SADLER C.E.(MOD)	DES. No. GS DR 140/34	
SHEET OF		CODE No. 60LC3/62	A B C D E

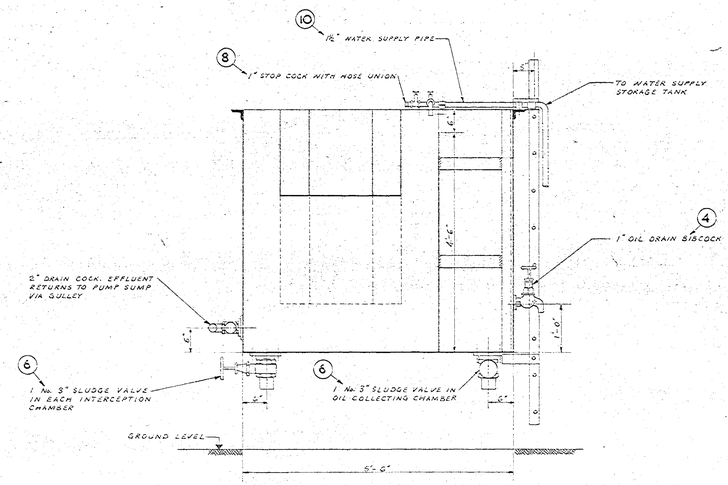
CONTRACT
DRAWING No. 45.



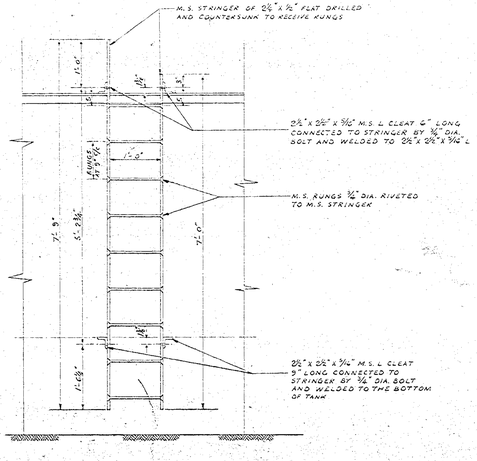
A - A



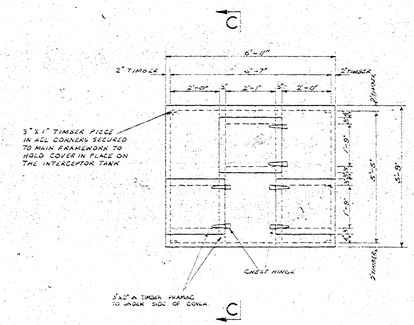
PLAN



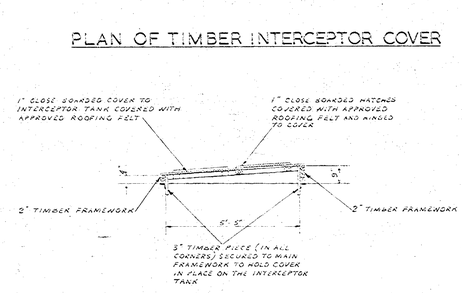
B - B



DETAILS OF LADDER

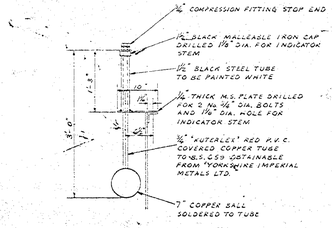


PLAN OF TIMBER INTERCEPTOR COVER



C - C
½" TO 1 FT.

SCHEDULE OF COMPONENTS		
ITEM No.	DESCRIPTION	No. OFF
1.	TANK WITH BAFFLES, OUTSIDE HOPPER AND LADDER BRACKETS	1
THE FOLLOWING ITEMS TO BE SUPPLIED, PREPARED FOR SITE FITTING AND COMPLETE WITH ALL NUTS, BOLTS, GASKETS ETC.		
2.	LADDER	1
3.	FUNNEL AND 2 IN. PIPE WITH FLANGE	1
4	BIBCOCK 1 IN. ~ OIL	1
5.	BIBCOCK ½ IN ~ OIL	1
6.	SLUDGE VALVE 3 IN WITH FLANGED BOSS	3
7.	DRAINCOCK 2 IN. WITH FLANGED BOSS	2
8.	STOP COCK WITH HOSE UNION 1 IN.	1
9.	BIB VALVE ½ IN.	2
10.	2 FT. LENGTH OF 1¼ IN DIA. GALVANISED STEEL TUBE COMPLETE WITH REDUCING CROSS UNION & CLIPS	1
11.	4"x 2" REDUCER, 2'-0" ~ WIDE RETURN BEND AND 2 No. 2 IN. DIA. FLANGED BOSSES AND 3 No. BARREL NIPPLES	1
12.	OIL COLLECTING CHAMBER INDICATOR COMPLETE	1



⑫
OIL COLLECTING CHAMBER INDICATOR

NOTES

1. ⅛" M.S. PLATE 2½" x 2½" x ⅜" M.S. ANGLE AND CONTINUOUS WELDS TO BE USED THROUGHOUT.
2. WORK INDICATED BY LINES THUS ——— TO BE SUPPLIED AND/OR CONSTRUCTED BY ERECTOR.
3. A TIMBER COVER AS DETAILED, TO BE SUPPLIED BY THE ERECTOR.

F. RETRACED, SECTION ON CHAMBER No. 1 & TIMBER COVER ADDED. 1.9.64.
G. OUTLET CHAMBER No. 2 CHANGED TO 1¼" DIA. 20.10.64.
H. TIMBER COVER ALTERED 21.2.66.

RAILTRACK
067317LNE

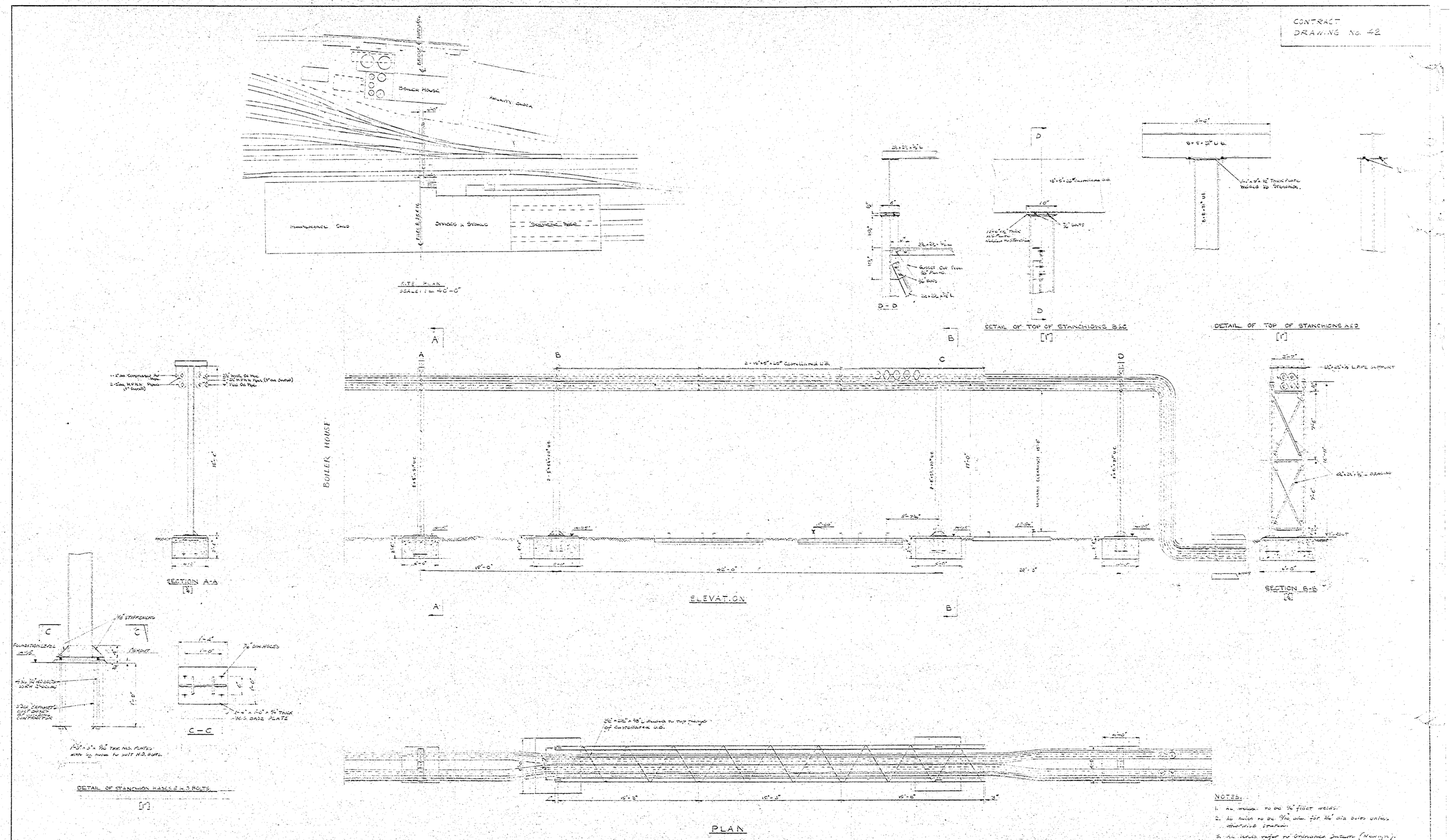
BRITISH RAILWAYS BOARD
CIVIL ENGINEER'S DEPT.
EASTERN REGION
KING'S CROSS STATION

REVISED

AUTOMATIC OIL INTERCEPTOR

D.E. CORRES. C.E.	APPROVED 2.8.63	SCALES—	½" & 1" TO 1 FT.
	AND/OR/TP		
A.E. E.A.K.	J. D. WEST 2/8/63 (Asst. (Mech.))	DE's No.	GS DR. 140/35
A.I.		CE's No.	60LC3/276
SHEET OF			

CONTRACT
DRAWING No. 42



NOTES.

1. All welds to be 1/4" fillet welds.
2. All holes to be 9/16" dia. for 3/4" dia bolts unless otherwise stated.
3. All levels refer to Ordnance Datum (Newlyn).

RAILTRACK
067333LNE

B.R.B. BRITISH RAILWAYS CHIEF CIVIL ENGINEER'S DEPT.	EASTERN REGION KING'S CROSS STATION
REVISED	IMMINGHAM DIESEL MAINTENANCE & SERVICING DEPOT SERVICES BRIDGE.
D.E. / CORRES. / C.C.E.	APPROVED 18.3.65 — SCALES 1/4" & 1" = 1 FT.
	N.J.N.
T.J.K. / J.W.F.	J.D. WEST — C.C.E.'s No. 65NW/37
SHEET OF	CHIEF CIVIL ENGINEER

GS·DR·140/41

(FOR DETAILS SEE PLAN No.60LC3/62)

SCHEDULE OF COMPONENTS

CONTRACT DRAWING No.149

LOCATION	TRAY TYPE A	B	C_1	C_2 No.	C_2 'X'	C_3	C_4 No.	C_4 'X'	C_5	C_6 No.	C_6 'X'	STRAP TYPE A	B	C	GUTTER – LENGTH 'L' G_1 L=	G_2 L=	G_3 L=	½" DIA. × 1" LONG PARKER-KALON TYPE Z SCREWS	REMARKS
IMMINGHAM DIESEL MAINTENANCE AND SERVICING DEPOT																			
LUBRICATING OIL OFF-LOADING POINT	3	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	20	
TOTAL	3	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	20	

RAILTRACK
067347LNE

BRITISH RAILWAYS BOARD
EASTERN REGION KING'S CROSS
CHIEF CIVIL ENGINEER'S DEPT.

STEEL DRAINAGE TRAYS FOR FUELLING POINTS

APPROVED J.D.WEST A.C.E.(MOD)

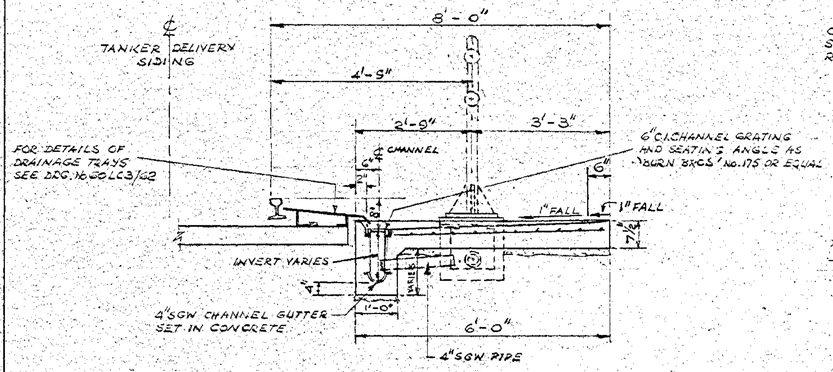
DATE 8 · 10 · 65

CORRES. REF. NW 27568

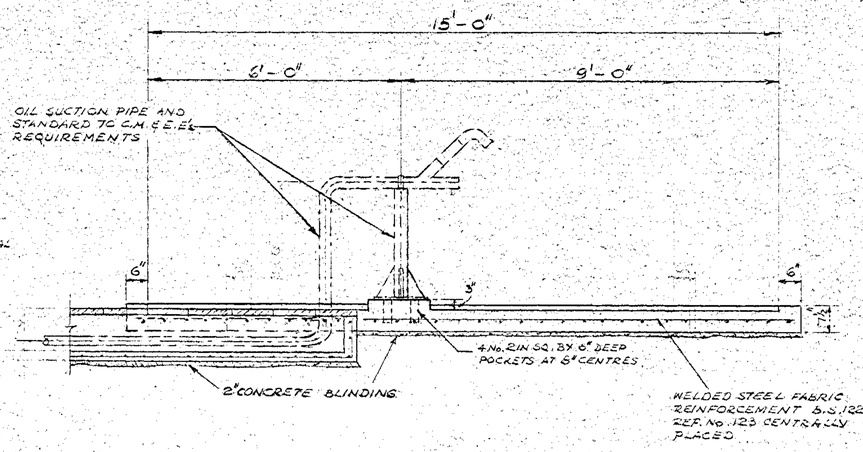
PLAN No. 65NW/309

65.DR.140/47

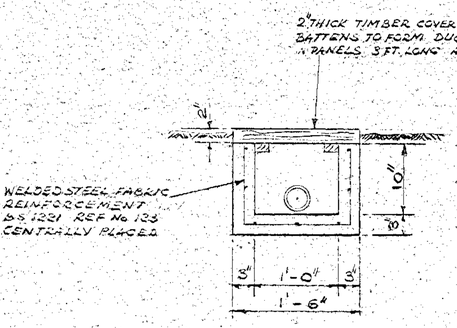
CONTRACT
DRAWING No. 146.



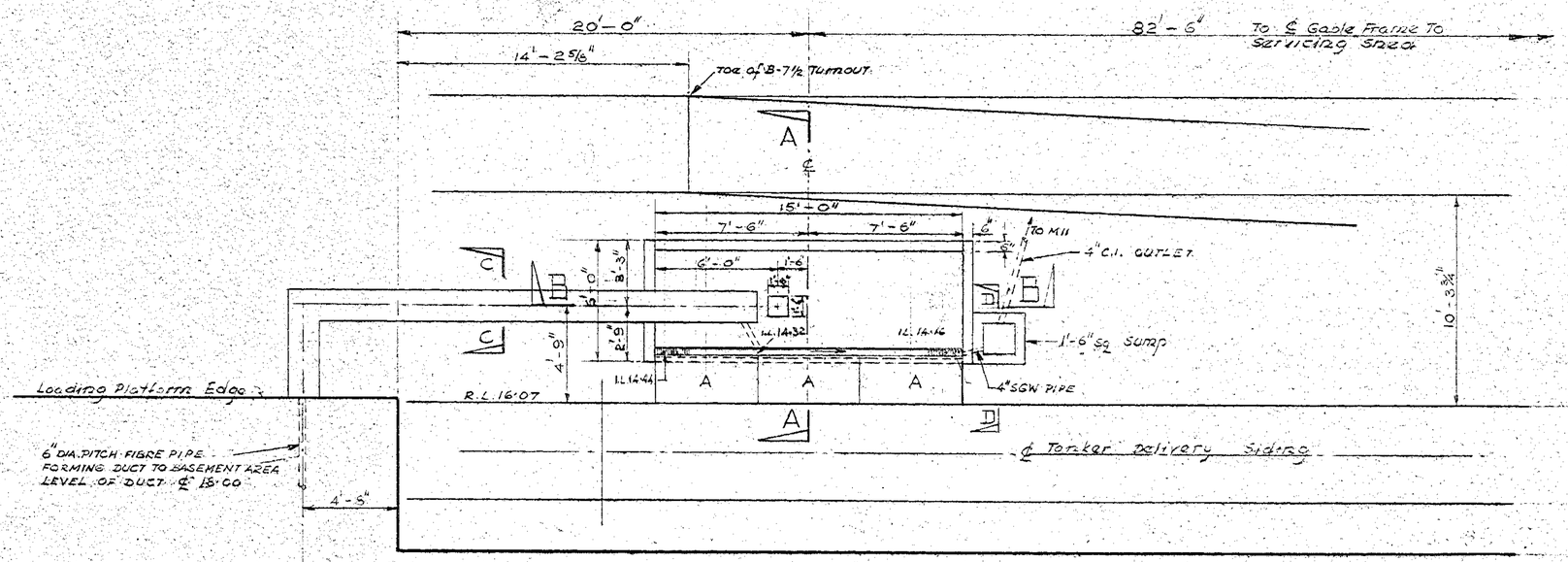
A — A



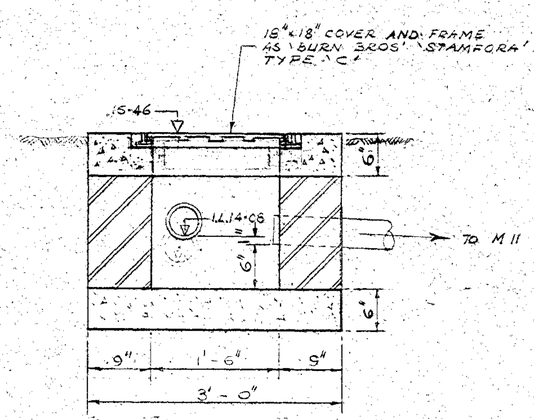
B — B



C — C



PLAN

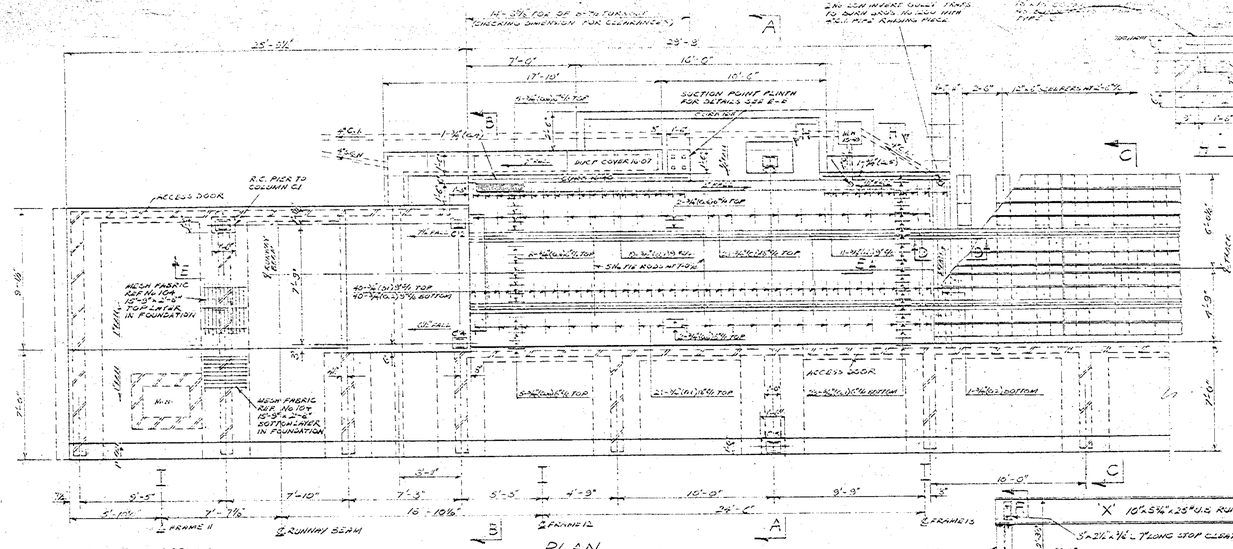


D — D

RAILTRACK
067349LNE

BRITISH RAILWAYS BOARD CHIEF CIVIL ENGINEER'S DEPT.				EASTERN REGION KINGS CROSS STATION
REVISED	IMMINGHAM DIESEL MAINTENANCE AND SERVICING DEPOT LUBRICATING OIL OFF-LOADING POINT			
D.E. CORRES. C.C.E. NW 27568	APPROVED N.J.N.	4·10·65	SCALES	1/4", 1/2" & 1" = 1 FT.
A.I. M.L.	J.D. WEST	A.C.E. (MOD.)		65.DR.140/46
SHEET OF	CHIEF CIVIL ENGINEER		C.C.E's No.	65 NW/307

BR 887\4


A
B
C
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
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C14
C15
C16
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C27
C28
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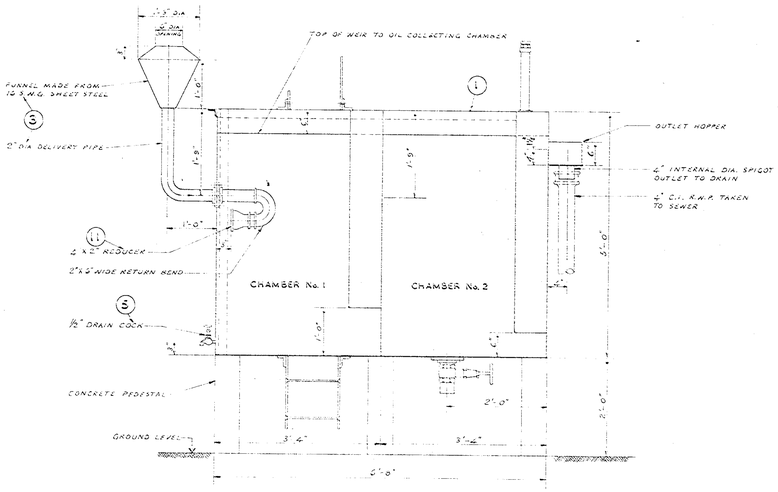
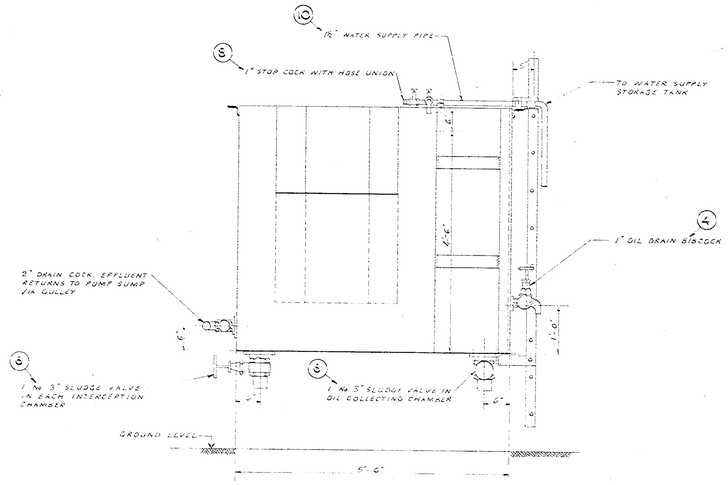
C37
C38
C39
C40

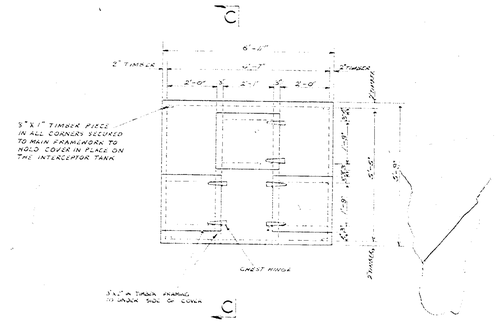
CONTRACT
DRAWING No. 45.



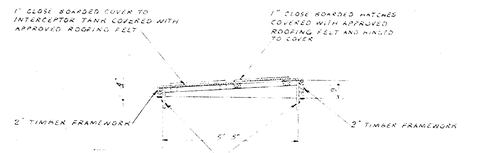
A - A



B - B



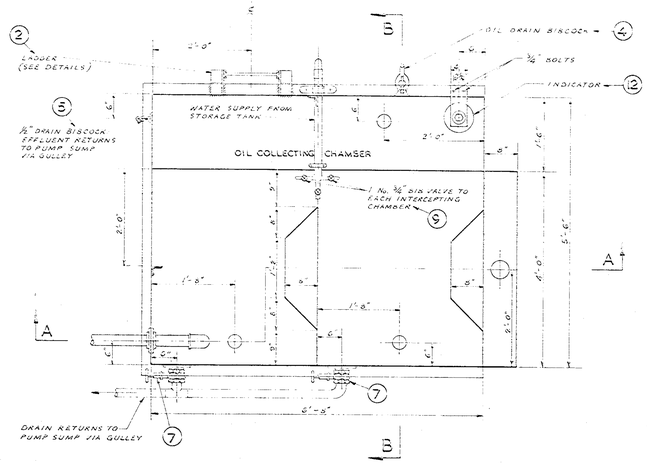
PLAN OF TIMBER INTERCEPTOR COVER



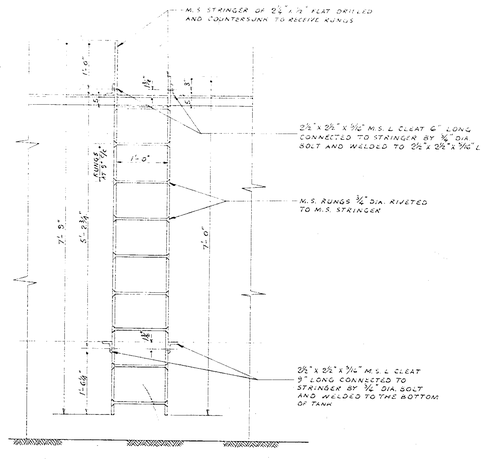
C - C
½" TO 1 FT.

1" CLOSE BOARDED COVER TO INTERCEPTOR TANK COVERED WITH APPROVED ROOFING FELT

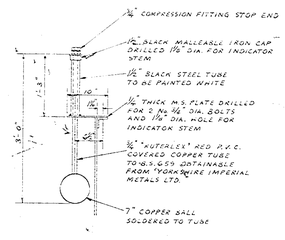
1" CLOSE BOARDED HATCHES COVERED WITH APPROVED ROOFING FELT AND HINGED TO COVER



PLAN



DETAILS OF LADDER



12
OIL COLLECTING CHAMBER INDICATOR

SCHEDULE OF COMPONENTS

ITEM	DESCRIPTION	No. OFF
1.	TANK WITH BAFFLES, OUTSIDE HOPPER AND LADDER BRACKETS	1
	THE FOLLOWING ITEMS TO BE SUPPLIED, PREPARED FOR SITE FITTING AND COMPLETE WITH ALL NUTS, BOLTS, GASKETS ETC.	
2.	LADDER	1
3.	TUNNEL AND 2" IN. PIPE WITH FLANGE	1
4.	BIBCOCK 1 IN. – OIL	1
5.	BIBCOCK ½ IN. – OIL	2
6.	SLUDGE VALVE 3 IN. WITH FLANGED BOSS	3
7.	DRAINCOCK 2 IN. WITH FLANGED BOSS	2
8.	STOP COCK WITH HOSE UNION 1 IN.	1
9.	BIB VALVE ½ IN.	2
10.	2 FT. LENGTH OF ½ IN. DIA. GALVANISED STEEL TUBE COMPLETE WITH REDUCING CROSS UNION & CLIPS	1
11.	4" x 2" REDUCER, 2½ - WIDE RETURN BEND AND 2 No. 2 IN. DIA. FLANGED BOSSES AND 3 No. BARREL NIPPLES	1
12.	OIL COLLECTING CHAMBER INDICATOR COMPLETE.	1

NOTES

1. ¼" M.S. PLATE 2½" x 2½" x ¾" M.S. ANGLE AND CONTINUOUS WELDS TO BE USED THROUGHOUT
2. WORK INDICATED BY LINES THUS ——— TO BE SUPPLIED AND/OR CONSTRUCTED BY ERECTOR.
3. A TIMBER COVER AS DETAILED, TO BE SUPPLIED BY THE ERECTOR.
4. PAINTING SPECIFICATION
   THE TANK TO BE SHOT BLASTED INSIDE AND OUT FOLLOWED BY A COAT OF ZINC RICH EPOXY RESIN SOUND PAINT. THE TANK INTERIOR IS ALSO TO BE GIVEN TWO SPRAYED COATS OF COAL TAR EPOXY RESIN SOUND PAINT ('STAG' COAL TAR EPOXY TANK LINING AS MADE BY ICI IS ACCEPTABLE).
   SITE PAINTING
   EXTERNAL SURFACES TO BE PAINTED AS SPECIFIED FOR STEELWORK

RAILTRACK
0673/57/NE

BRITISH RAILWAYS BOARD
CIVIL ENGINEER'S DEPT.

EASTERN REGION
KING'S CROSS STATION

REVISED

F. ENTRANCE PARREL (PART & TIMBER COVER ADDED) 11.9.63
G. LADDER SUPPORTING PLATE ADDED 19.9.63
H. TIMBER COVER ALTERED 21.9.63
J. PAINTING SPECIFICATION ADDED 28-7-65
A. ANGLE SIZE REVISED TO 2½"x2½"x ¾" 2.12.60
B. SCHEDULE ADDED 13.1.61
C. INDICATOR ADDED 2.2.61
D. REDUCER LONG UNION 7.12.62
E. DRAWING RE-DRAWN WITH MODIFIED INLET AND MINOR CHANGES 7.12.62

AUTOMATIC OIL INTERCEPTOR

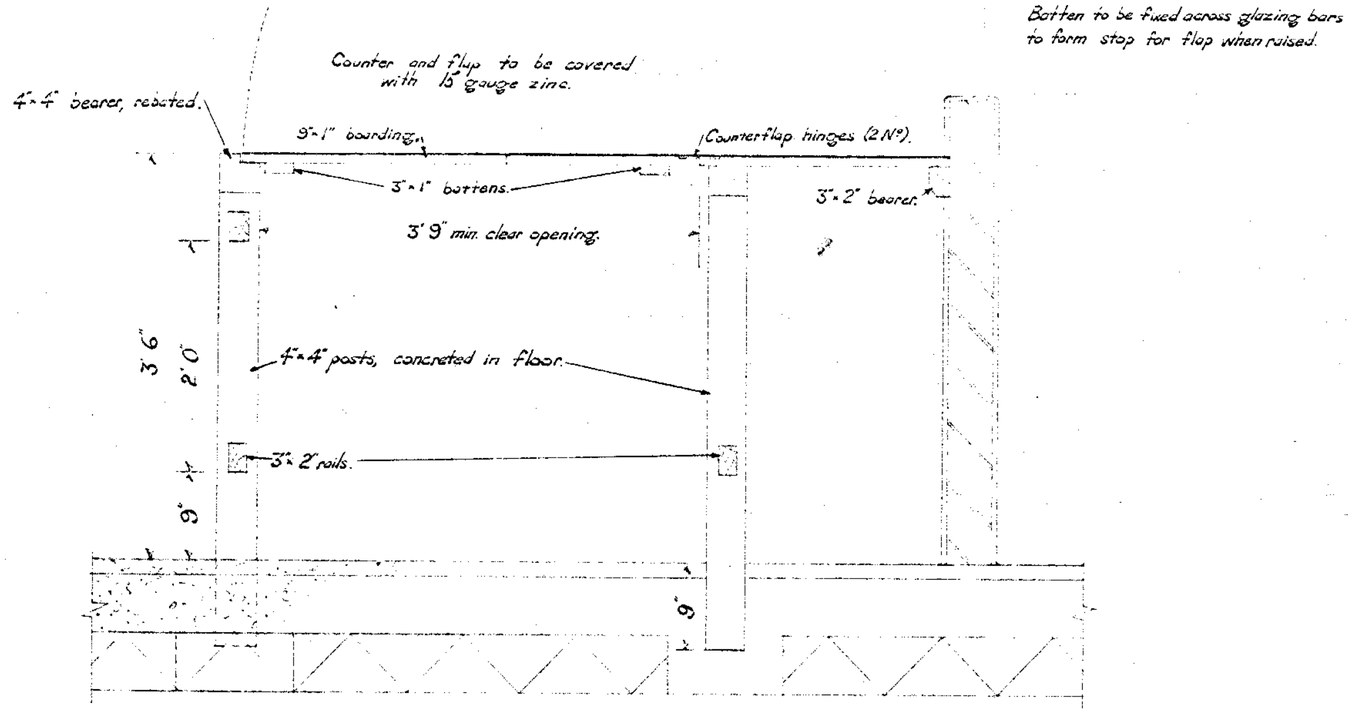
C.E. CORRES. C.E. APPROVED 2 8 63 SCALE — ½" TO 1 FT.

DRAWN/TR A.J. D.A.K. J. D. WEST DES. (Name) DET. NC

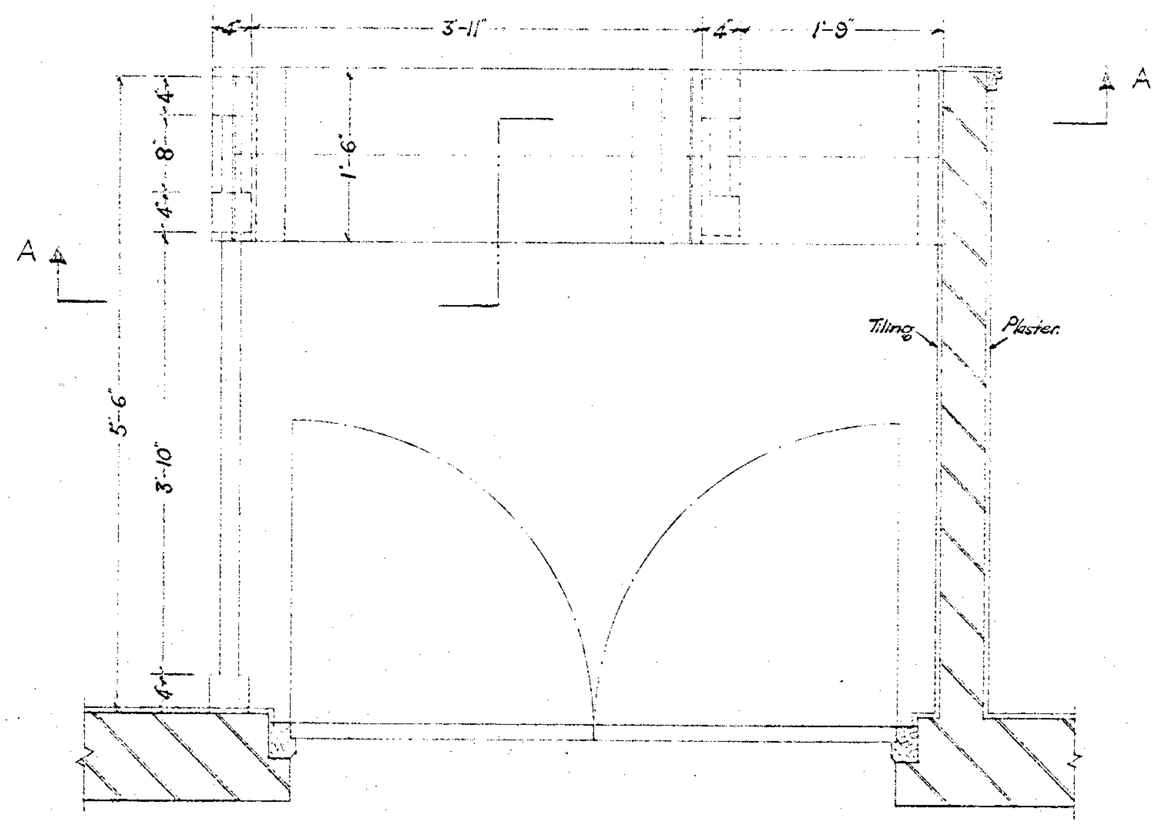
M.E. CHK. CET. No. SO.LCE.276

SHEET OF

CONTRACT Nº 4.
DRAWING Nº 3.



SECTION A–A.



PLAN.

Design to be handed to suit layout of oil store.

RAILTRACK
067377LNE

B. T. C. BRITISH RAILWAYS.
CHIEF CIVIL ENGINEER'S DEPT.

EASTERN REGION
KING'S CROSS STATION

REVISED

DIESEL MAINTENANCE DEPOTS

OIL STORES.

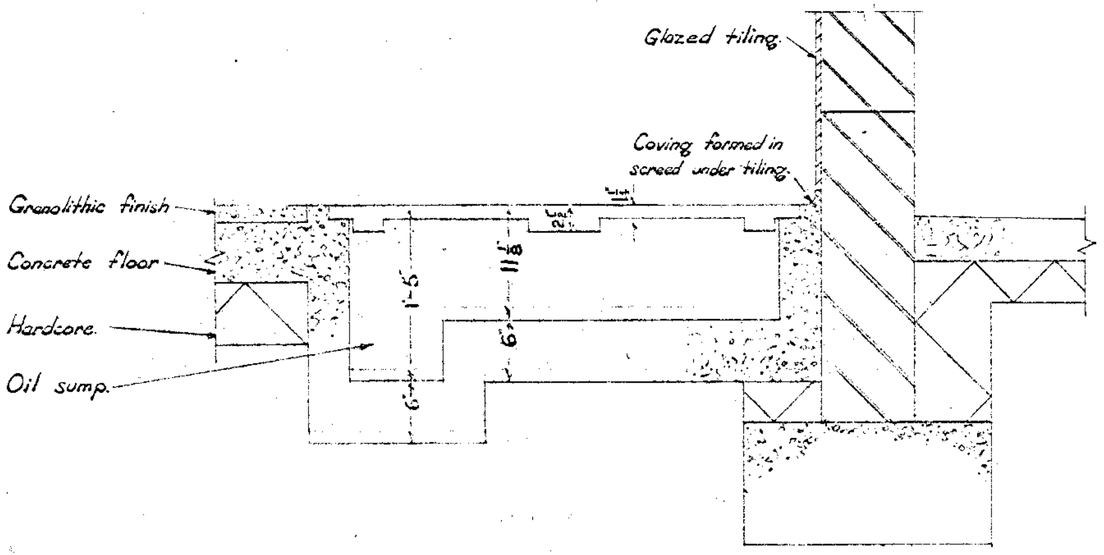
COUNTER DETAILS.

D.E.	CORRES. C.E.	APPROVED	24·5·56.	SCALES— 1 INCH TO 1 FOOT.
	NW.21642.			
JHM		R. E. SADLER. A. C.E. (M).		D.E.'s No. 23 NOV 1956
SHEET	OF	for A. K. TERRIS CHIEF CIVIL ENGINEER		C.E.'s No. 56. PUE.176

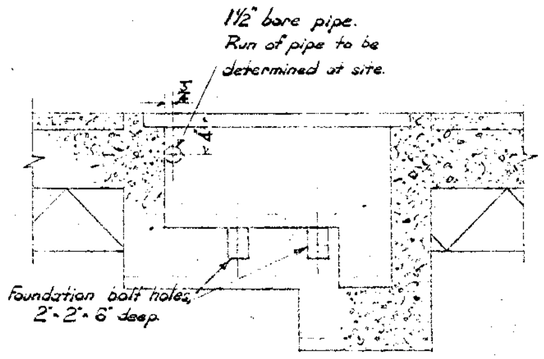
J. R. DALEMEYER

55 L. Dc 1

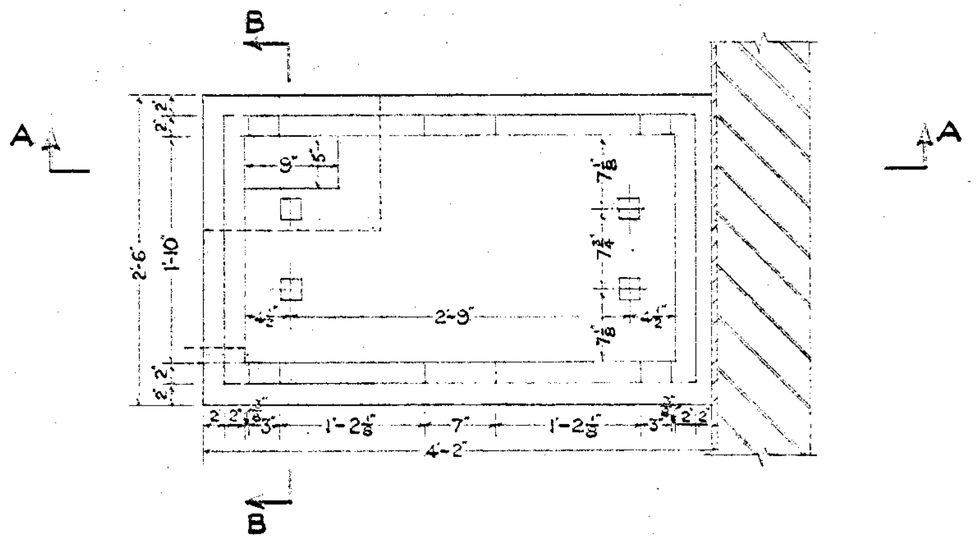
CONTRACT Nº 4.
DRAWING Nº 4.



SECTION A-A.



SECTION B-B.



PLAN.

This plan is based on L.M. Region M.& E.E. Drawing Nº 23/640, but with pit deepened to bring pads of heater down to floor level.

RAILTRACK
067378LNE

B. T. C. BRITISH RAILWAYS. CHIEF CIVIL ENGINEER'S DEPT.	EASTERN REGION KING'S CROSS STATION
REVISED	DIESEL MAINTENANCE DEPOTS
	OIL STORES.
	OIL DRUM HEATER FOUNDATIONS.
D.E. CORRES. C.E. APPROVED 21·8·56.	SCALES— 1 INCH TO 1 FOOT
NW.21642.	
J.H.M. R. E. SADLER A.C.E. (M).	D.E's. No. 23 NOV 1956
SHEET OF for A. K. TERRIS CHIEF CIVIL ENGINEER	C.E's. No. 56. PUE. 179.

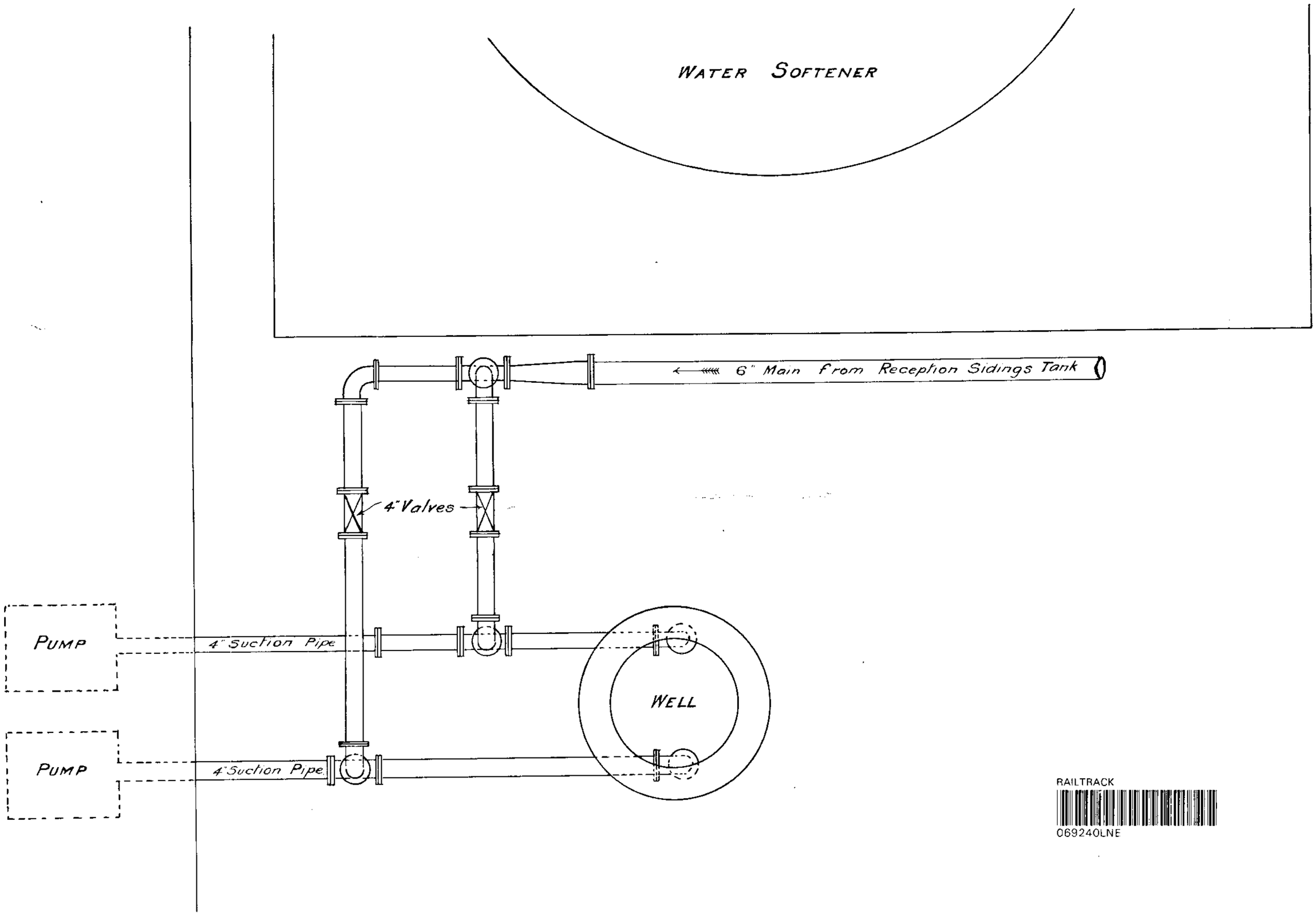
(Sgd) L. B. DALLMEYER

55 L Dr 1

IMMINGHAM DOCK.

Arrangement of Pipes connecting Reception Sidings Main to Pump Suction Pipes at Engine Shed Tank.

Scale ½" to a Foot.



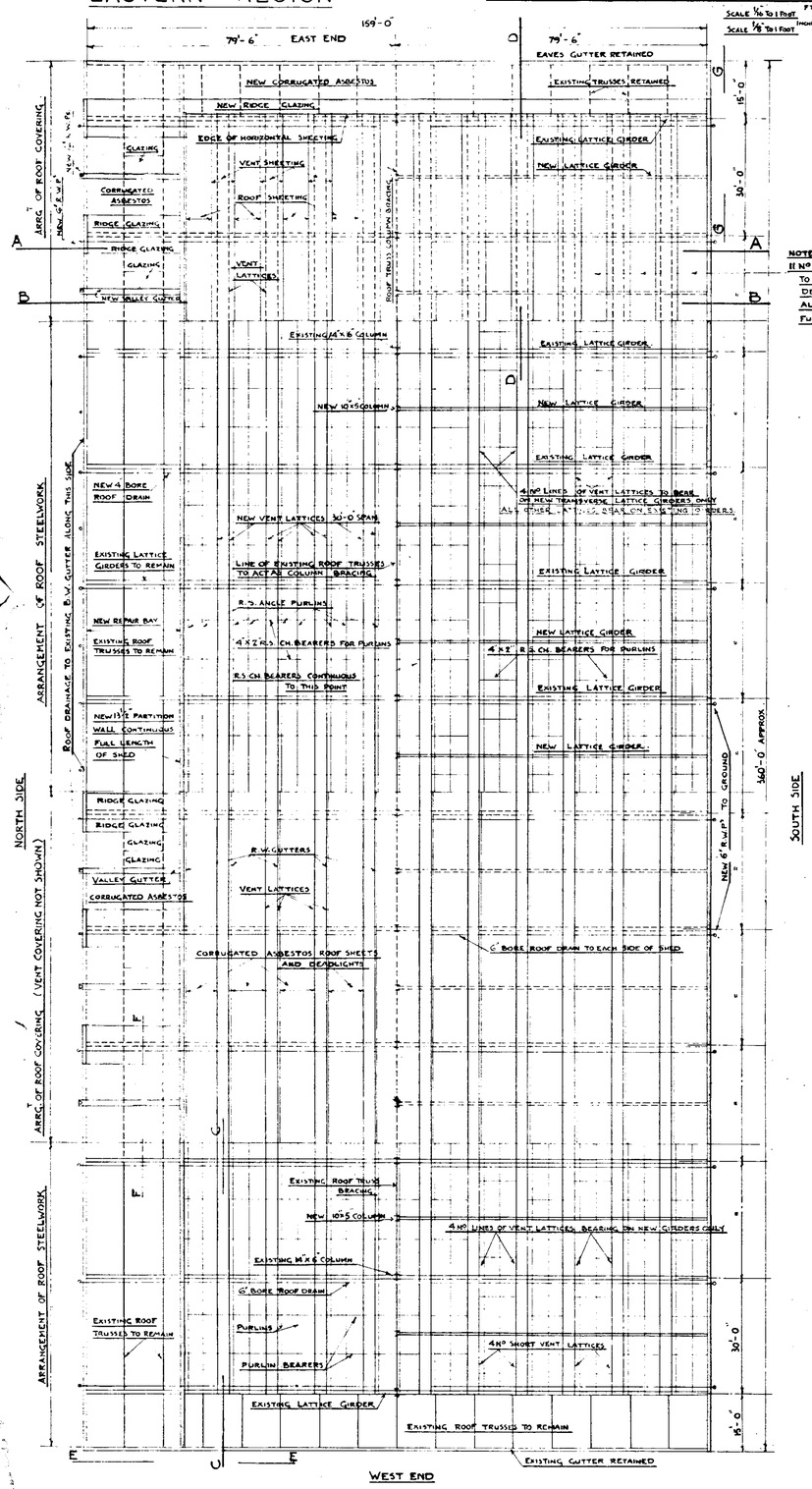
RAILTRACK
069240LNE

THE RAILWAY EXECUTIVE
EASTERN REGION

RECONSTRUCTION OF ROOF OVER LOCO SHED

GENERAL DRAWING

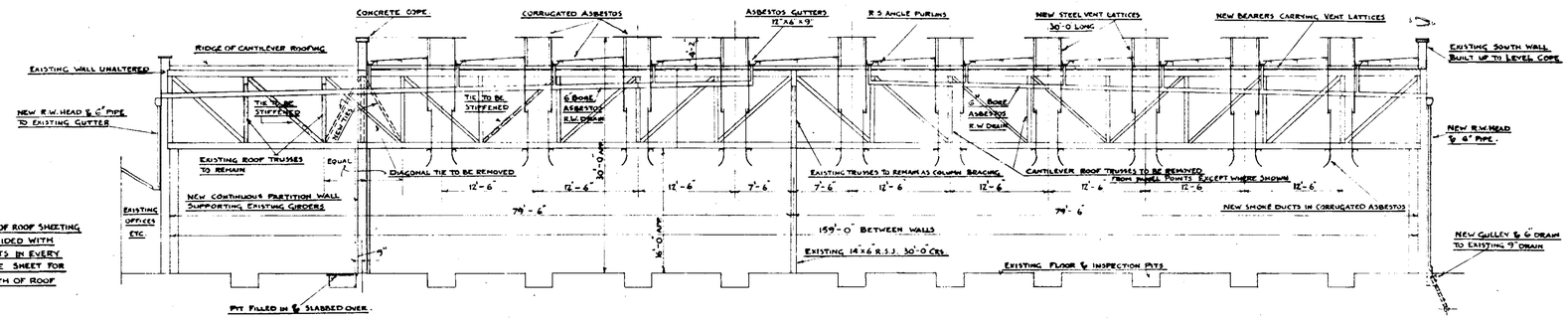
IMMINGHAM DOCK



WEST END

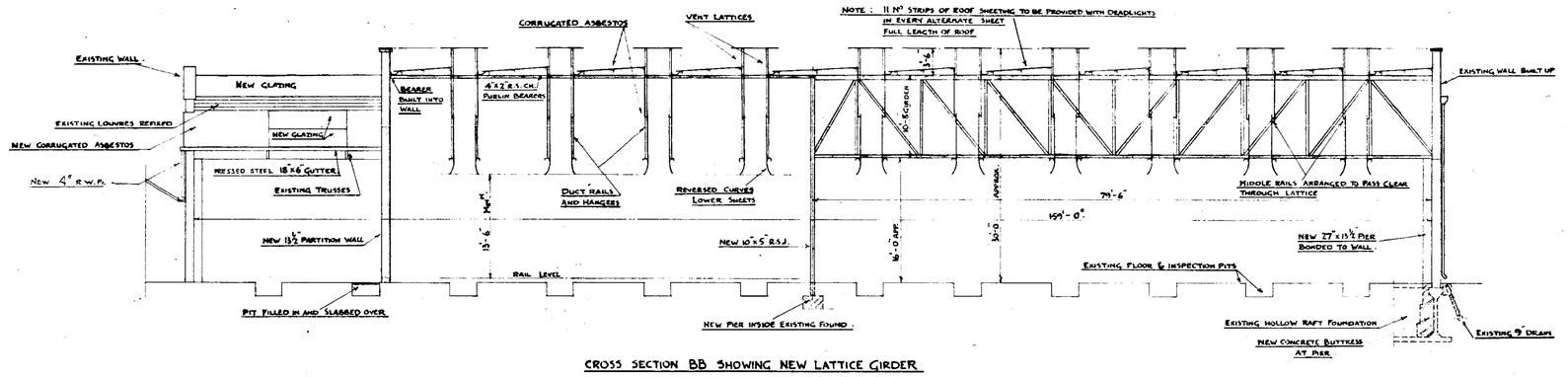
PLAN OF ROOF
SCALE 16 FEET TO 1"

Scale ½6 to 1 Foot
Scale ⅛ to 1 Foot

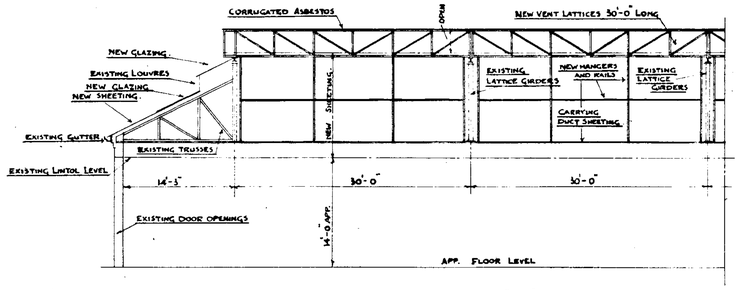


NOTE.
11 No STRIPS OF ROOF SHEETING TO BE PROVIDED WITH DEADLIGHTS IN EVERY ALTERNATE SHEET FOR FULL LENGTH OF ROOF

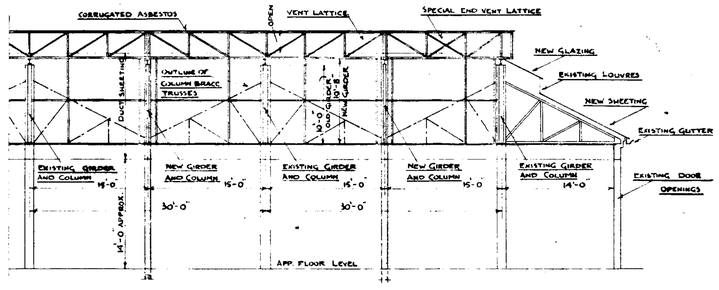
CROSS SECTION AA SHOWING EXISTING LATTICE GIRDERS



CROSS SECTION BB SHOWING NEW LATTICE GIRDER

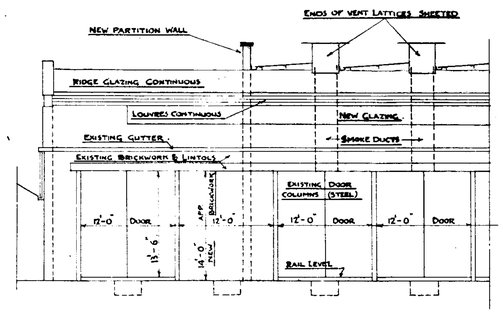


PART LONGITUDINAL SECTION CC

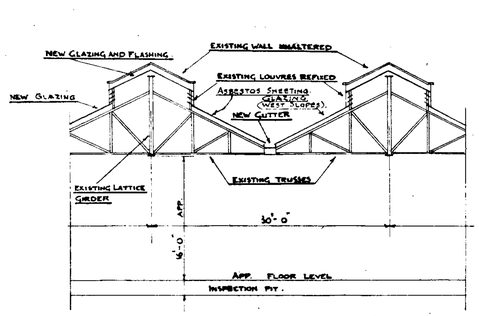


PART LONGITUDINAL SECTION DD.
(VENT LATTICES SHOWN BEARING ON NEW GIRDERS)

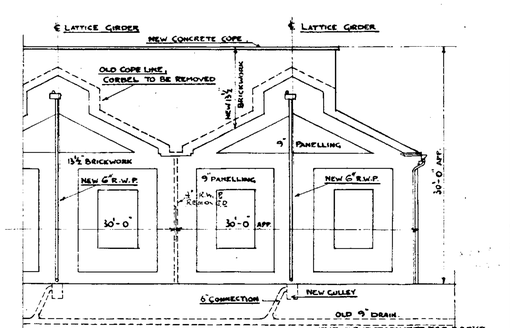
(ONLY MAIN STEELWORK IS SHOWN ON LONG SECTIONS.)



PART END ELEVATION EE.
(GENERALLY TYPICAL OF WHOLE END)



PART LONGITUDINAL SECTION FF
(TYPICAL OF WHOLE SECTION)



PART SIDE ELEVATION GG
(TYPICAL OF WHOLE SIDE)

Scale for Sections & Elevations 8 Feet to 1".

ASSISTANT ENGINEER FOR DOCKS,
THE RAILWAY EXECUTIVE,
EASTERN & NORTH EASTERN REGIONS,
HULL.

3073. O.U.

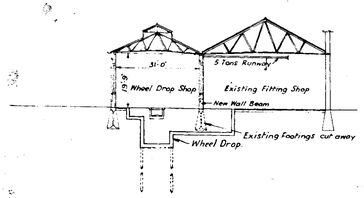
RAILTRACK
069245LNE

THE RAILWAY EXECUTIVE
EASTERN REGION

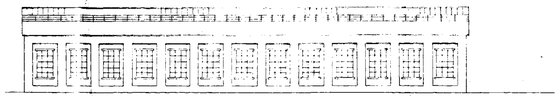
ACCOMMODATION FOR LOCOMOTIVE RUNNING DEPARTMENT.

PROPOSED IMPROVEMENTS.

IMMINGHAM DOCK.



SECTION THRO' WHEEL DROP SHOP. A.A.



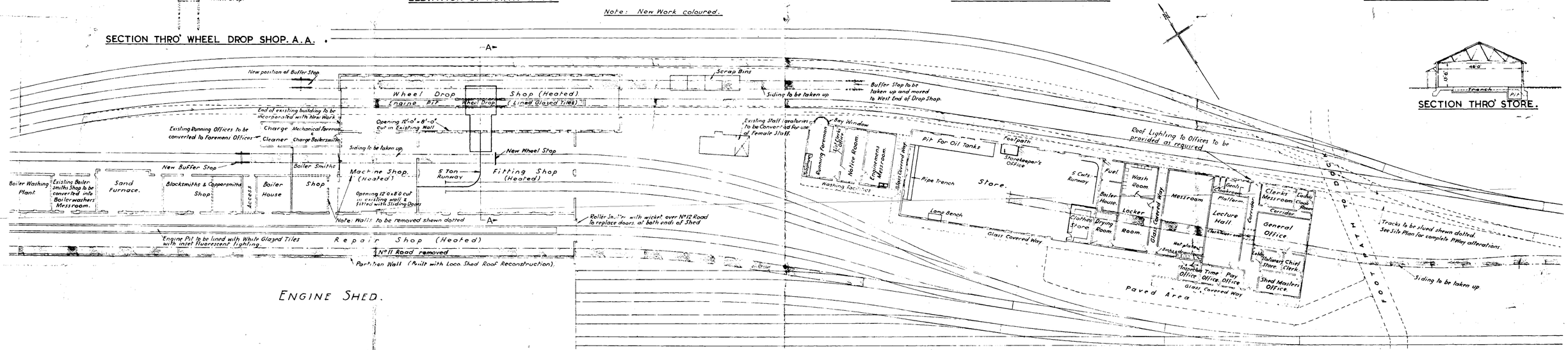
ELEVATION OF NORTH WALL.



ELEVATION OF SOUTH WALL.

SECTION THRO' OFFICES.

Note: New Work coloured.

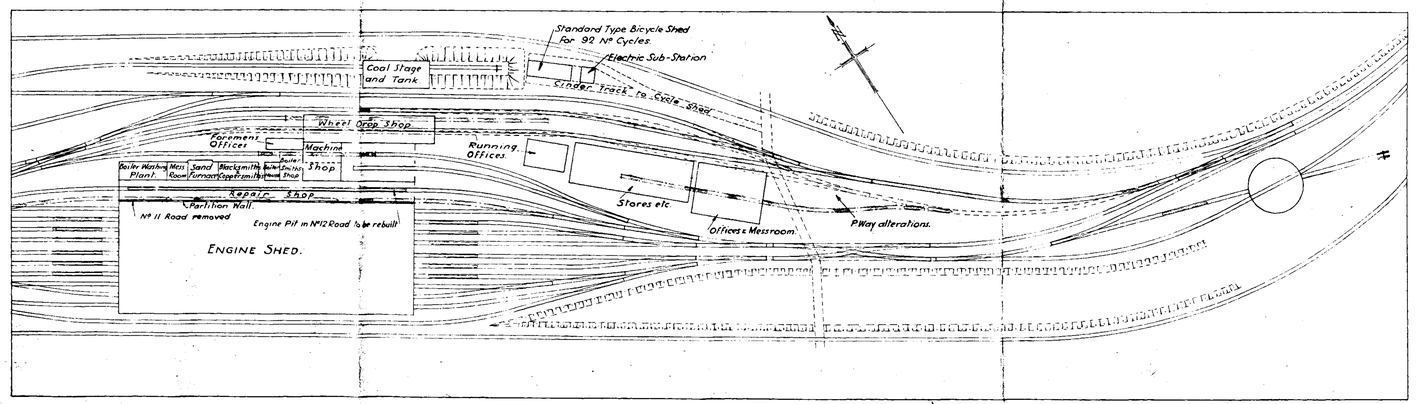


ENGINE SHED.

PLAN.

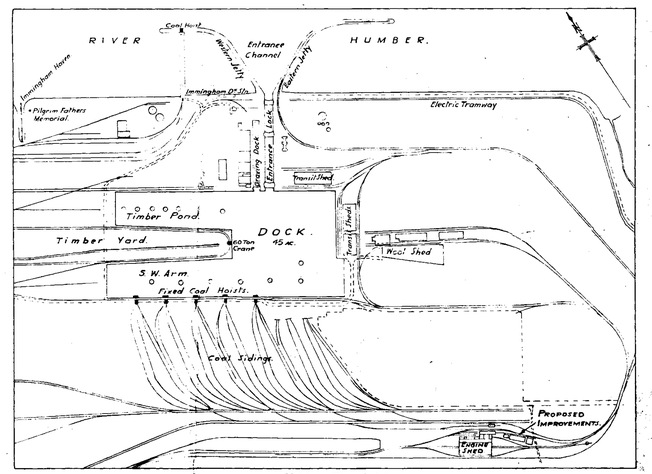
SCALE 20 FEET TO 1 INCH

SECTION THRO' STORE.



SITE PLAN.

SCALE 66 FEET TO 1 INCH



KEY PLAN.

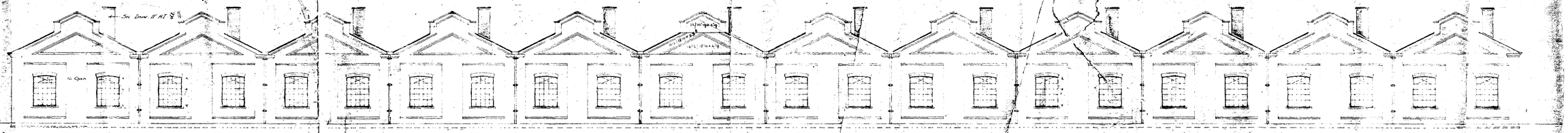
SCALE 9 INCHES TO 1 MILE

RAILTRACK
069272LNE

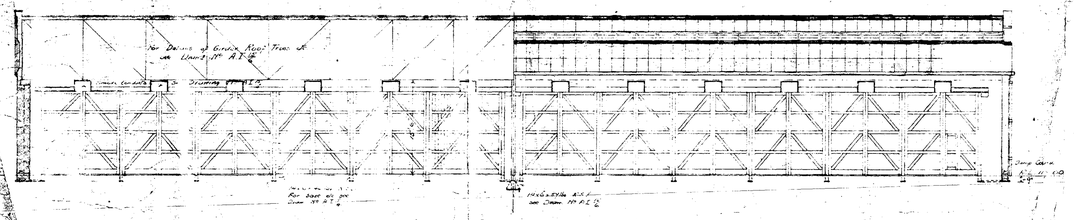
3073/6

H.C.R.Y AND DOCK, ENGINE SHED AT IMMINGHAM.

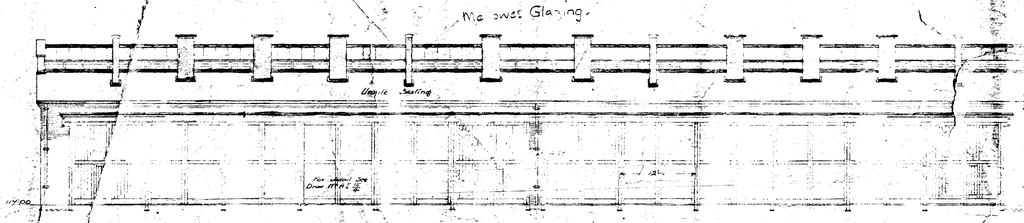
SCALE:- 8 FT. TO AN INCH.



ELEVATION.



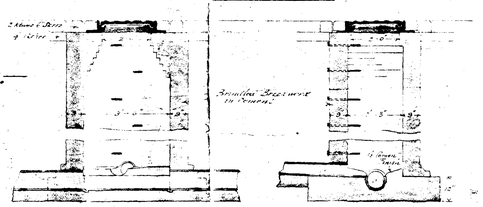
SECTION C.D.



END ELEVATION.

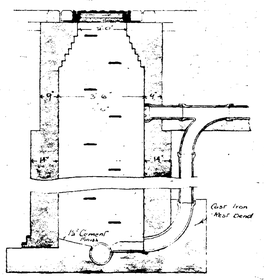
DETAIL OF MANHOLES.

SCALE: 1/2" TO A FOOT.

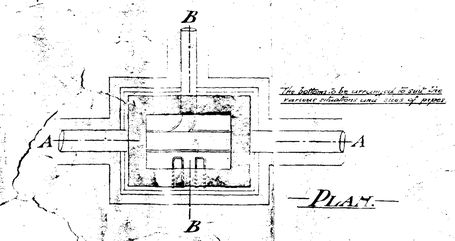


SECTION A.

SECTION B.



TYPE SECTION OF MANHOLES SHEWING JUNCTION OF DRAINS WHEN AT DIFFERENT LEVELS.



PLAN.

GREAT CENTRAL RAILWAY,
MARYLEBONE.
ENGINEER'S OFFICE.
NEW WORKS
Drawing No. AI 1/2
Date.

RAILTRACK
08277LNE

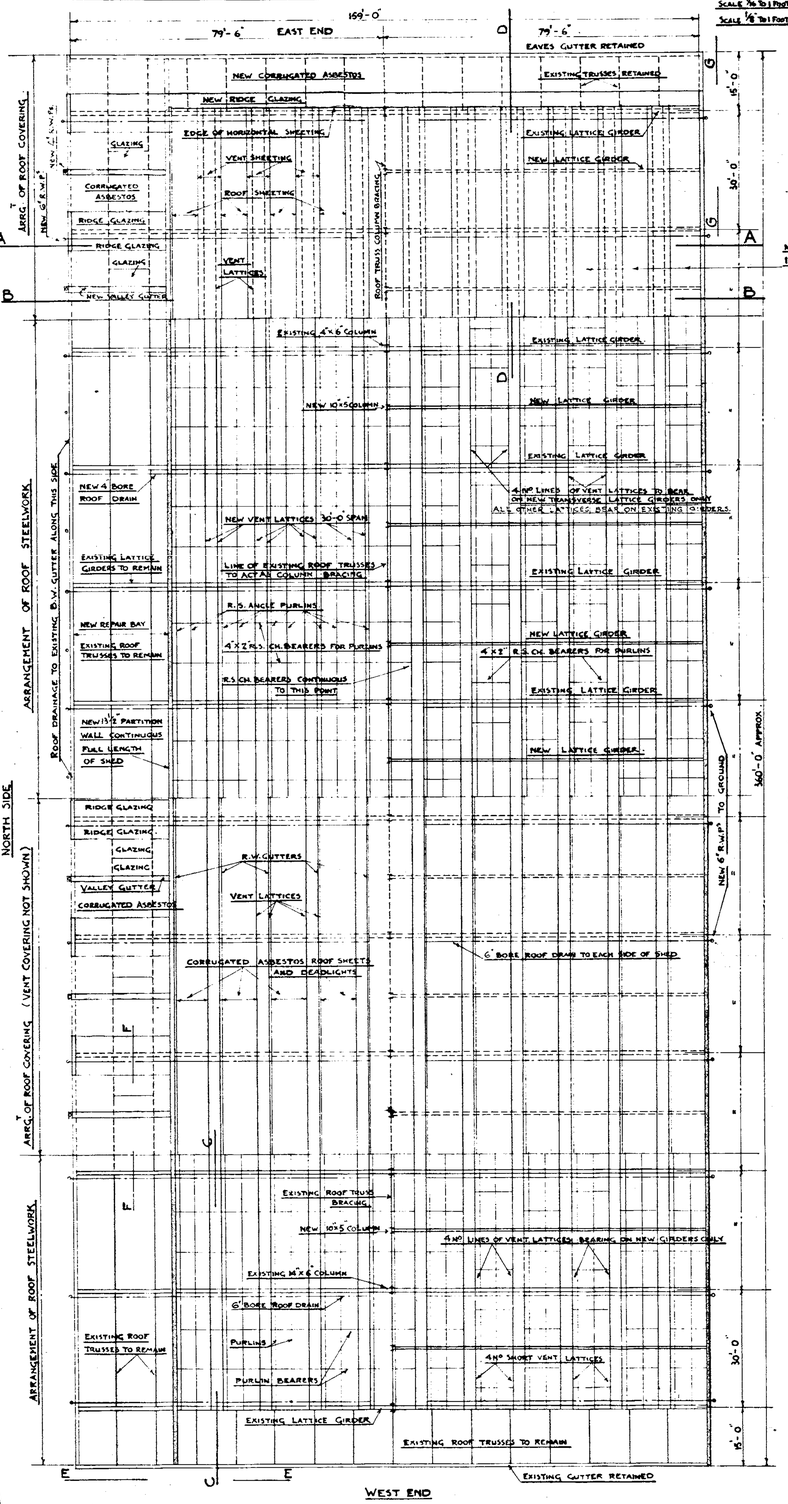
THE RAILWAY EXECUTIVE
EASTERN REGION

RECONSTRUCTION OF ROOF OVER LOCO SHED

GENERAL DRAWING

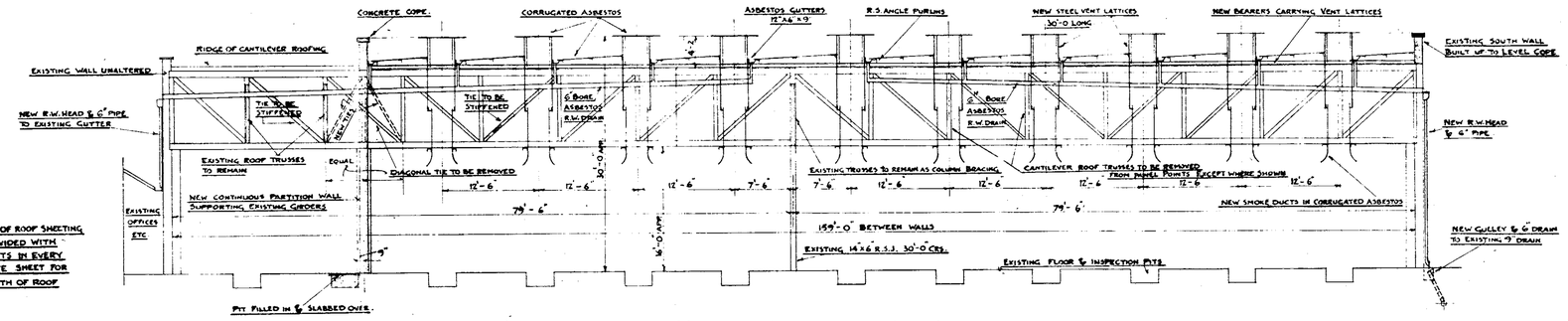
IMMINGHAM DOCK

SCALE 1/16 TO 1 FOOT
SCALE 1/8 TO 1 FOOT

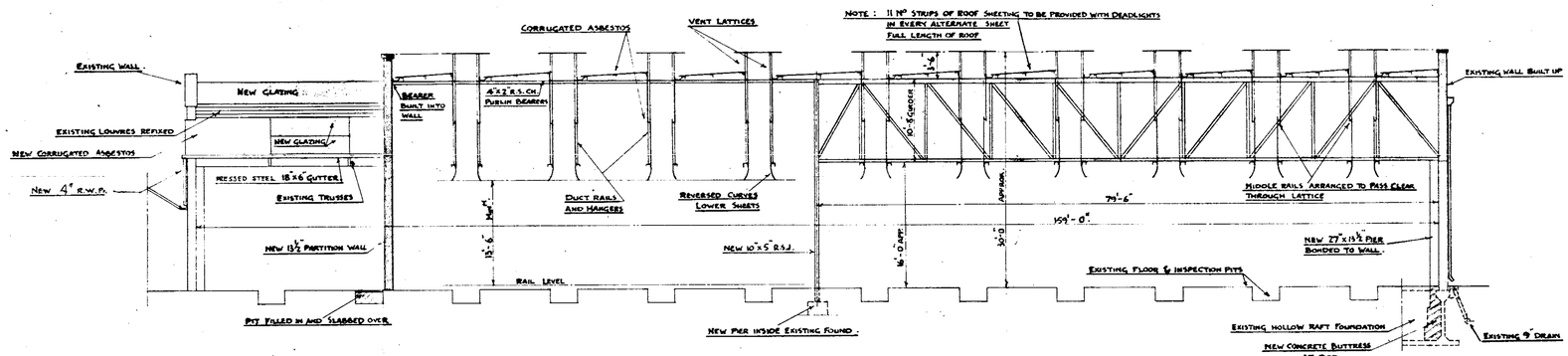


PLAN OF ROOF
SCALE 16 FEET TO 1"

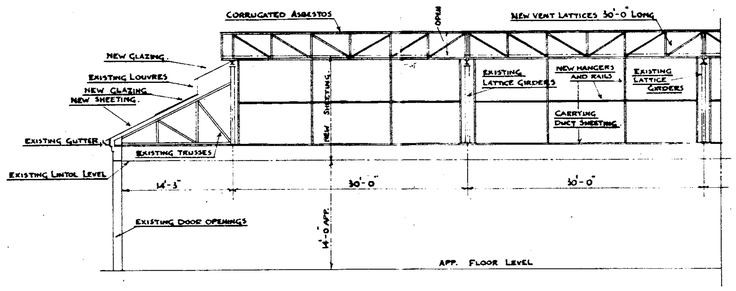
NOTE.
11 Nº STRIPS OF ROOF SHEETING TO BE PROVIDED WITH DEADLIGHTS IN EVERY ALTERNATE SHEET FOR FULL LENGTH OF ROOF



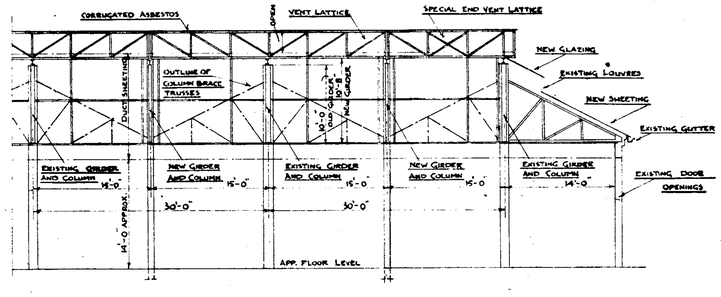
CROSS SECTION AA SHOWING EXISTING LATTICE GIRDERS



CROSS SECTION - BB SHOWING NEW LATTICE GIRDER



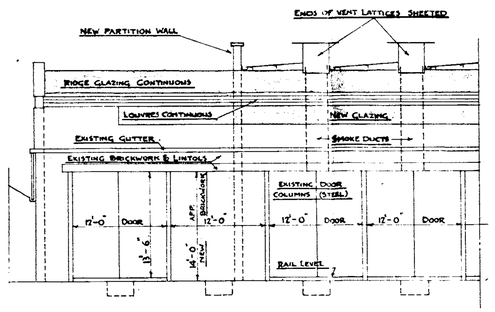
PART LONGITUDINAL SECTION CC



PART LONGITUDINAL SECTION DD.

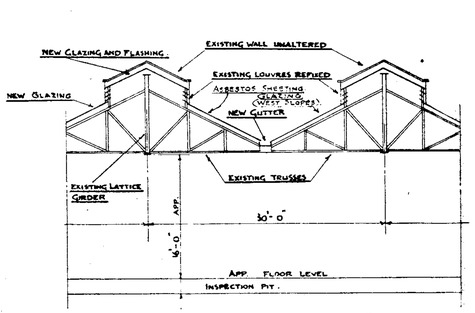
(ONLY MAIN STEELWORK IS SHOWN ON LONG SECTIONS.)

(VENT LATTICES SHOWN BEARING ON NEW GIRDERS)



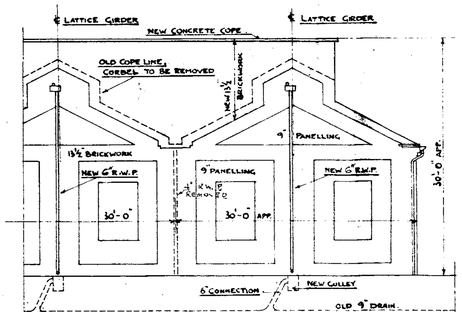
PART END ELEVATION EE.

(GENERALLY TYPICAL OF WHOLE END)



PART LONGITUDINAL SECTION FF

(TYPICAL OF WHOLE SECTION)



PART SIDE ELEVATION GG

(TYPICAL OF WHOLE SIDE)

SCALE FOR SECTIONS & ELEVATIONS 8 FEET TO 1"

RAILTRACK
069282LINE

CHIEF ENGINEER (CIVIL) (2)
THE RAILWAY EXECUTIVE
EASTERN & NORTH EASTERN REGIONS
3073.0.0.