

Underwater Examination
ELR: GSW
Contract Mileage: 106 m 1481 yds 67.32 ch
Struc. Ref
161/343

| | | |
|--|-----------------|------------------------|
| Examination Type: Underwater Exam | NR ID: 11007068 | Exam Date: 14-Sep-2020 |
| Area: Scotland West | BRS: 0 | OS Ref: NY1863366475 |
| Structure Name: ANNAN VIADUCT | Type: BV | Exam ID: 3090230 |
| Route: Gretna - Glasgow Central (via Kilmarnock) | | Complete Exam: No |

Section A: To Be Completed By The Examining Organisation

| HIDDEN PARTS NOT EXAMINED (EXCLUDING FOUNDATIONS) | | Part | | | Reason | | | | | Works Category |
|--|---|--|---------------------------|-----------------|----------|----------|-------------|------------|-------------------------|----------------|
| ITEM | DESCRIPTION | LOCATION | Est. Cost £ +/- 20% | Priority Within | Quantity | Severity | Probability | Risk Score | | |
| 1 | Consider reviewing mitigation for previously reported defects which are out with the remit of this examination. | | | | | 3 | 2 | E6 | Other | |
| 2 | Carry out repairs to damaged gabions with loss of material. | Piers 1, 2 and 3 | | | | 2 | 4 | E8 | Other | |
| 3 | Re-nstate area of bank erosion and install protection | HM bank, downstream | | | | 2 | 4 | E8 | Other | |
| 4 | Carry out hand pointing and date tabbing repairs to fractures | Pier 3 - Downside, HM and LM face | | | | 2 | 4 | S8 | Hand Pointing | |
| 5 | Carry out repairs to areas of spalling and voiding | LM up and downstream retaining walls | | | | 2 | 5 | E10 | Brickwork/Stone Repairs | |
| 6 | Carry out immediate repairs to damaged gabion baskets ensuring no further scour is located. | Pier 3 LM face at the upstream end from 0m to 4m | | | | 4 | 3 | E12 | Other | |

History of Live Significant Defects

| No | Description | Location | Exam Date | Access Gained | Exam Type | Rec Raised | Risk Score | Access Req'd | Deterioration | Repaired | Flagged for Closure | Engineer Comments |
|----|----------------|------------------------------|-----------|---------------|-----------|------------|------------|--------------|---------------|----------|---------------------|---|
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 07/02/10 | N | D | NV | 10 | N/A | Baseline | N | N | |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 16/02/12 | N | UWAT | NV | 10 | N/A | NV | N | N | Not viewed at UW Exam |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 09/03/12 | N | V | NV | 10 | N/A | NV | N | N | No access to inspect |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 10/02/13 | Y | D | Y | 12 | N | Y | N | N | Repair |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 23/04/13 | Y | UWAT | NV | 12 | N | NV | N | N | Not viewed at UW exam |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 10/01/14 | Y | V | Y | 12 | N | NV | N | N | Masonry Repairs |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 23/10/14 | N | V | Y | 8 | Y | NV | N | N | Unable to view |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 27/03/15 | N | UWAT | N | 8 | Y | NV | N/A | N | Outwith U Wat remit |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 27/09/15 | Y | D | Y | 12 | Y | N | N | N | |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 15/08/16 | N/A | UWAT | Y | 12 | Y | N/A | N/A | N | Out with U Wat remit |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 23/09/16 | N | V | Y | 12 | Y | NV | N | N | Unable to view |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 09/05/17 | N/A | UWAT | Y | 12 | Y | N/A | N/A | N | Out with remit of U Wat |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 01/12/17 | Y | V | Y | 12 | Y | N | N | N | Secure |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 10/10/18 | Y | D | Y | 6 | Y | N | N | N | Dropped stones have been pointed up Continue to monitor for any future movement |



BRIDGE & STRUCTURE EXAMINATION REPORT



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History of Live Significant Defects

| No | Description | Location | Exam Date | Access Gained | Exam Type | Rec Raised | Risk Score | Access Req'd | Deter - ioration | Repaired | Flagged for Closure | Engineer Comments |
|----|----------------------|------------------------------|-----------|---------------|-----------|------------|------------|--------------|------------------|----------|---------------------|--|
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 07/06/19 | N/A | U W A T | Y | 6 | Y | N/A | N/A | N | Defect out with U Wat remit |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 23/10/19 | Y | V | Y | 6 | Y | N | N/A | N | Dropped stones have been pointed up Continue to monitor for any future movement |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 23/10/19 | Y | V | Y | 6 | Y | N | N | N | Dropped stones have been pointed up Continue to monitor for any future movement |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 25/10/19 | Y | V | Y | 6 | Y | Cannot Determine | N/A | N | Consider mitigation for previously reported defects which are unseen during this exam |
| 1 | Dropped stones | Spans 1 2 and 4 arch barrels | 14/09/20 | N/A | U W A T | Y | 6 | Y | N/A | N/A | N | Defect out with UWE remit |
| 5 | Defective weep pipes | Throughout spandrels piers | 10/02/13 | Y | D | Y | 10 | N | Baseline | N | N | Extend or renew to deflect water away from structure |
| 5 | Defective weep pipes | Throughout spandrels piers | 23/04/13 | Y | U W A T | NV | 10 | N | NV | N | N | Not viewed at UW exam |
| 5 | Defective weep pipes | Throughout spandrels piers | 10/01/14 | Y | V | Y | 10 | Y | Y | N | N | Water Controlk |
| 5 | Defective weep pipes | Throughout spandrels piers | 23/10/14 | Y | V | Y | 10 | Y | NV | N | N | Unable to view |
| 5 | Defective weep pipes | Throughout spandrels piers | 27/03/15 | N | U W A T | N | 10 | Y | NV | N/A | N | Outwith U Wat remit |
| 5 | Defective weep pipes | Throughout spandrels piers | 27/09/15 | Y | D | N | 4 | Y | N | N | N | Defects are not considered significant enough to make any recommendations or instigate repairs before next examination |
| 5 | Defective weep pipes | Throughout spandrels piers | 15/08/16 | N/A | U W A T | N | 4 | Y | N/A | N/A | N | Out with U Wat remit |
| 5 | Defective weep pipes | Throughout spandrels piers | 23/09/16 | Y | V | N | 4 | Y | N | N | N | Defects are not considered significant enough to make any recommendations or instigate repairs before next examination |
| 5 | Defective weep pipes | Throughout spandrels piers | 09/05/17 | N/A | U W A T | N | 4 | Y | N/A | N/A | N | Out with remit of U Wat |
| 5 | Defective weep pipes | Throughout spandrels piers | 01/12/17 | Y | V | N | 4 | Y | N | N | N | Defect is not considered significant at this time |
| 5 | Defective weep pipes | Throughout spandrels piers | 10/10/18 | Y | D | N | 4 | Y | N | N | N | Defect is not considered significant at this time |
| 5 | Defective weep pipes | Throughout spandrels piers | 07/06/19 | N/A | U W A T | N | 4 | Y | N/A | N/A | N | Defect out with U Wat remit |
| 5 | Defective weep pipes | Throughout spandrels piers | 23/10/19 | Y | V | N | 4 | Y | Y | N/A | N | Defect is not considered significant at this time |
| 5 | Defective weep pipes | Throughout spandrels piers | 23/10/19 | Y | V | N | 4 | Y | Y | N | N | Defect is not considered significant at this time |
| 5 | Defective weep pipes | Throughout spandrels piers | 25/10/19 | Y | V | N | 4 | Y | Y | N/A | N | Defect shows little deterioration therefore not considered significant enough to warrant repair work prior to next examination |
| 5 | Defective weep pipes | Throughout spandrels piers | 14/09/20 | N/A | U W A T | N | 4 | Y | N/A | N/A | N | Defect out with UWE remit |

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|----|---|-----------------------------------|-----------|---------------|-----------|------------|------------|--------------|------------------|----------|---------------------|---|
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 09/05/17 | Y | U W A T | Y | 8 | N | Baseline | N/A | N | Repair |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 01/12/17 | N | V | Y | 8 | N | NV | N/A | N | Outwith the remit of a visual exam |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 03/10/18 | Y | U W A T | Y | 8 | Y | N | N | N | NFD 3m3 loss to piers 2 and 3 Repair/replenish |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 10/10/18 | Y | D | Y | 8 | Y | N | N | N | Outwith remit of detailed exam |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 07/06/19 | Y | U W A T | Y | 8 | Y | N | N | N | NFD noted |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 23/10/19 | Y | V | Y | 8 | Y | Y | N | N | Repair |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 23/10/19 | Y | V | Y | 8 | Y | Y | N | N | Repair |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 25/10/19 | Y | V | Y | 8 | Y | Cannot Determine | N | N | Consider mitigation for previously reported defects which are unseen during this exam |
| 7 | Damaged gabions/reno mattress with loss of infill | Surrounding Piers 1 2 3 | 14/09/20 | Y | U W A T | Y | 8 | Y | Y | N | N | SSD |
| 8 | Bank erosion (15mL x 2 0mD) | HM bank US (DStr) | 03/10/18 | Y | U W A T | Y | 8 | N | Baseline | N | N | Consider protecting |
| 8 | Bank erosion (15mL x 2 0mD) | HM bank US (DStr) | 10/10/18 | Y | D | Y | 8 | N | N | N | N | Outwith remit of detailed exam |
| 8 | Bank erosion (15mL x 2 0mD) | HM bank US (DStr) | 07/06/19 | Y | U W A T | N | 4 | N | N | N | N | NFD noted |
| 8 | Bank erosion (15mL x 2 0mD) | HM bank US (DStr) | 23/10/19 | Y | V | N | 8 | N | Y | N | N | monitor at future exams |
| 8 | Bank erosion (15mL x 2 0mD) | HM bank US (DStr) | 23/10/19 | Y | V | Y | 8 | N | Y | N | N | monitor at future exams |
| 8 | Bank erosion (15mL x 2 0mD) | HM bank US (DStr) | 25/10/19 | Y | V | Y | 8 | N | Y | N | N | Contonue to monitor |
| 8 | Bank erosion (15mL x 2 0mD) | HM bank US (DStr) | 14/09/20 | Y | U W A T | Y | 8 | N | Y | N | N | Now 15m x 2m |
| 9 | Fractures to bullnose | Pier 3 Downside HM and LM face | 10/10/18 | Y | D | Y | 8 | N | Baseline | N | N | Point up Consider introduced strengthening |
| 9 | Fractures to bullnose | Pier 3 Downside HM and LM face | 07/06/19 | Y | U W A T | Y | 8 | N | N | N | N | NFD noted |
| 9 | Fractures to bullnose | Pier 3 Downside HM and LM face | 23/10/19 | Y | V | Y | 8 | N | Y | N | N | Stitch and grout |
| 9 | Fractures to bullnose | Pier 3 Downside HM and LM face | 25/10/19 | Y | V | Y | 8 | N | Y | N | N | Stitch and grout |
| 9 | Fractures to bullnose | Pier 3 Downside HM and LM face | 14/09/20 | Y | U W A T | Y | 8 | N | N | N | N | NFD noted |
| 10 | Faded LC plates | Trackside Downside H/M Upside L/M | 10/10/18 | Y | D | Y | 5 | N | Baseline | N | N | Replace |
| 10 | Faded LC plates | Trackside Downside H/M Upside L/M | 07/06/19 | N/A | U W A T | Y | 5 | N | N/A | N/A | N | Defect out with U Wat remit |

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|----|--|--|-----------|---------------|-----------|------------|------------|--------------|------------------|----------|---------------------|---|
| 10 | Faded LC plates | Trackside Downside H/M Upside L/M | 23/10/19 | Y | V | Y | 1 | N | Y | N/A | N | Defect not deemed significant enough to warrant repair |
| 10 | Faded LC plates | Trackside Downside H/M Upside L/M | 25/10/19 | Y | V | N | 1 | N | Y | N/A | N | Defect not deemed significant enough to warrant repair |
| 10 | Faded LC plates | Trackside Downside H/M Upside L/M | 14/09/20 | N/A | U W A T | N | 1 | N | N/A | N/A | N | Defect out with UWE remit |
| 11 | Parapet out of plumb Coping level dropped | Span 5 Downside Parapet | 10/10/18 | Y | D | Y | 6 | N | Baseline | N | N | Consider monitoring |
| 11 | Parapet out of plumb Coping level dropped | Span 5 Downside Parapet | 07/06/19 | N/A | U W A T | Y | 6 | N | N/A | N/A | N | Defect out with U Wat remit |
| 11 | Parapet out of plumb Coping level dropped | Span 5 Downside Parapet | 23/10/19 | Y | V | Y | 6 | N | Y | N/A | N | Monitor |
| 11 | Parapet out of plumb Coping level dropped | Span 5 Downside Parapet | 25/10/19 | Y | V | Y | 6 | N | Cannot Determine | N/A | N | Consider mitigation for previously reported defects which are unseen during this exam |
| 11 | Parapet out of plumb Coping level dropped | Span 5 Downside Parapet | 14/09/20 | N/A | U W A T | Y | 6 | N | N/A | N/A | N | Defect out with UWE remit |
| 12 | Spalling and voiding | LM up and downstream retaining walls | 07/06/19 | Y | U W A T | Y | 8 | N | Baseline | N/A | N | Masonry repairs |
| 12 | Spalling and voiding | LM up and downstream retaining walls | 23/10/19 | Y | V | Y | 8 | N | N/A | N/A | N | Added at subsequent exam Score maintained |
| 12 | Spalling and voiding | LM up and downstream retaining walls | 25/10/19 | Y | V | Y | 8 | N | N/A | N/A | N | Added at subsequent exam Score maintained |
| 12 | Spalling and voiding | LM up and downstream retaining walls | 14/09/20 | Y | U W A T | Y | 10 | N | Y | N | N | Repair |
| 13 | Damaged gabion basket with loss of infill approx 3m3 with associated scour | Pier 3 LM face at the upstream end from 0m to 4m | 25/10/19 | Y | V | Y | 12 | N | N/A | N/A | N | Added at subsequent exam Score maintained UD/1717 |
| 13 | Damaged gabion basket with loss of infill approx 3m3 with associated scour | Pier 3 LM face at the upstream end from 0m to 4m | 14/09/20 | Y | U W A T | Y | 12 | N | N/A | N/A | N | Raised at this exam |
| 13 | Damaged gabion basket with loss of infill approx 3m3 with associated scour | Pier 3 LM face at the upstream end from 0m to 4m | 14/09/20 | Y | P A N | Y | 12 | N | Baseline | N/A | N | Repair or renew U/D1717 |

Engineers Notes

Previously rejected report resubmitted.

Rejection: GMcgreg6 'P2 - Rejected. Cross section plots do not show locations (all say 30m upstream). 20/21 Scour WI - Recs 1,4&6 awaiting MS Licence. 21/22 Masonry WI in for Rec4. Invert mattress spans 1-4. Yearly UW, monthly additional sorted for UW. Scour risk score - 10 for all ABT & Piers.'

| | | |
|---|-------------------------------|-------------------------|
| Signed <i>Redacted</i> For Employe | Name Stephen Heathcote | Date 25-Nov-2020 |
|---|-------------------------------|-------------------------|



BRIDGE & STRUCTURE EXAMINATION REPORT



Underwater Examination

ELR: GSW

Contract Mileage: 106 m 1481 yds 67.32 ch

Struc. Ref

161/343

Structure Type BV

Network Rail ID 11007068

Rpt ID

5066

Exam ID 3090230

OS Ref: NY1863366475

BRS:

Name: ANNAN VIADUCT

Exam Date

Line: Gretna - Glasgow Central (via Kilmarnock)

14/9/2020

Last UW Exam date 7/6/2019

The examiner should record any deterioration in condition or development of defects or other factors, which might place at risk the rail traffic, customers, staff or the public at large. Special reference should be made to those structures or parts of structures whose condition may require action before the next examination.

Examiner General Comments

See corresponding underwater report

See Appended Underwater Examination Report

Has the NR Scour Database been updated? N/A

(If no, state reasons be ow)

Redacted

SIGNED

EXAMINERS NAME Antony Peckston

DATE 15 Nov 2020

Amey Comments & Recommendations

Notes for attention

Previously rejected report resubmitted.

Rejection: GMcgreg6 'P2 - Rejected. Cross section plots do not show locations (all say 30m upstream). 20/21 Scour WI - Recs1,4&6 awaiting MS Licence. 21/22 Masonry WI in for Rec4. Invert mattress spans 1-4. Yearly UW, monthly additional sorted for UW. Scour risk score - 10 for all ABT & Piers.'

See attached Summary Sheet

Further action required / query

No action required at present

Redacted

Signe

Engineer Stephen Heathcote

Date 25-Nov-2020

Network Rail Comments & Actions

Signed _____

SME _____

Date _____



BRIDGE & STRUCTURE EXAMINATION REPORT



Underwater Examination

ELR: GSW

Contract Mileage: 106 m 1481 yds 67.32 ch

Struc. Ref

161/343



NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION
REPORT



| | | | | | | | |
|-------------|-----|--------------------------|---------|----------|----------|-----------------------|---------|
| ELR: | GSW | Contract Mileage: | 106 mls | 1481 yds | 67.32 ch | Structure No.: | 161/343 |
|-------------|-----|--------------------------|---------|----------|----------|-----------------------|---------|

| | | | | | |
|-----------------------------------|--|--------------------------------------|-------------|-----------------|--|
| Examination Type: | Underwater Examination | Examination Date: | 14/09/20 | | |
| Previous Examination Date: | 07/06/19 | Penultimate Examination Date: | 03/10/18 | | |
| Area: | SCOTLAND | OS Ref: | NY1870 6632 | | |
| Structure Name: | Annan Viaduct | Group: | BU | Exam ID: | |
| Route: | Gretna - Glasgow Central (Via Beatock) | Complete Examination: | Yes | | |

| | | | |
|------------------------|-----------------|-----------------------------|----------|
| Examiners Name: | Antony Peckston | Examiners Signature: | Redacted |
|------------------------|-----------------|-----------------------------|----------|

| Section A: To Be Completed By The Examining Organisation | | |
|--|------|--------|
| | Part | Reason |
| HIDDEN PARTS NOT EXAMINED (EXCLUDING FOUNDATIONS) | Nil | |
| | | |
| | | |

| Element | No. | Element | No. | Element | No. | Element | No. | Spans | No. |
|------------------|-----|---------|-----|---|-----|---|-----|-------------|-----|
| Abutments / Bank | | Piers | | Deck <i>(If within 2.0m of normal water level)</i> | 0 | Retaining wall <i>(Per 10m length)</i> | | Total Spans | 7 |

| | | | | | | | |
|------------------|----|--------------------|----|----------------|----|-----------------------|----|
| Dive Team | No | Safety Boat | No | Pontoon | No | Confined Space | No |
|------------------|----|--------------------|----|----------------|----|-----------------------|----|

| Parameter | YES/NO | With Reference to Last Report: (07/06/19) |
|-------------------------|--------|---|
| Changes in bed profile | YES | See conclusions |
| Changes in bed material | NO | No change from previous report |
| Evidence of scour | YES | See conclusions |
| Change of construction | NO | No change from previous report |
| Works since last exam | NO | No change from previous report |

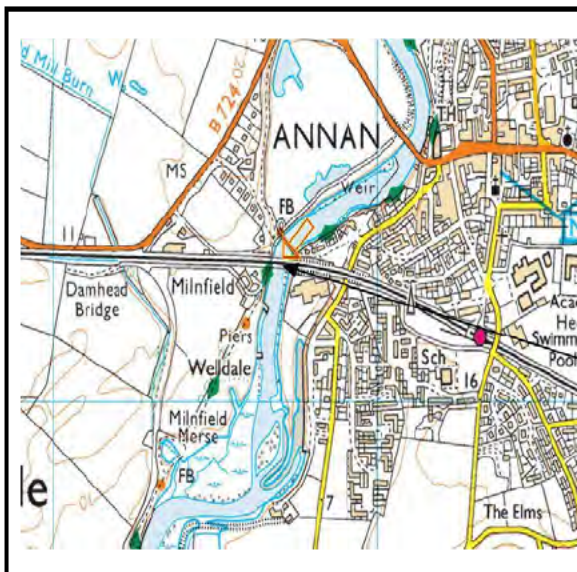
| | |
|------------------------------|---------------|
| SCOUR ASSESSMENT DATA | Not requested |
|------------------------------|---------------|

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | |
|-----------------|---------------|-----------------------|--|--------------|----------|
| ELR: | GSW | Structure No. 161/343 | Mileage: 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | Route: | Gretna - Glasgow Central (Via Beatoek) | | |
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 |
| Structure Name: | Annan Viaduct | | | | |



ELEVATION OF STRUCTURE



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OS map Ref.: NY1870 6632

OS MAP – LOCATION OF STRUCTURE

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | | | |
|------|-----|---------------|---------|----------|-------|----------|----------|
| ELR: | GSW | Structure No. | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
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| | | | |
|------------|----------|--------|--|
| Exam Date: | 14/09/20 | Route: | Gretna - Glasgow Central (Via Beatock) |
|------------|----------|--------|--|

| | | | | | |
|--------|----|---------|-------------|--------------|---|
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 |
|--------|----|---------|-------------|--------------|---|

| | |
|-----------------|---------------|
| Structure Name: | Annan Viaduct |
|-----------------|---------------|

| Name of part: | G – Good F – Fair P – Poor | Remarks (Refer to parts by name) |
|---------------------------------|----------------------------------|---|
| WEATHER | - | Overcast |
| WATERCOURSE | - | River – River Annan (Photos 2 & 4) |
| SALT OR FRESH | - | Fresh |
| FLOW/TIDAL | - | Tidal – Moderate |
| BED MATERIAL | - | Sand / Gravel / Pebbles |
| INVERT | - | Natural Bed |
| BED PITCHING | - | - |
| APRONS | P | Gabion baskets to piers 01, 02, 03 & 04 |
| PILING | - | - |
| BANKING | F | Stable |
| FOUNDATIONS | N/E | No information supplied by client |
| ABUTMENTS | - | - |
| PIERS | F | Masonry |
| WINGWALLS | - | - |
| RETAINING WALLS/ TRAINING WALLS | P | Masonry retaining walls to pier 01 US & DS |
| COLUMNS/CYLINDERS | - | - |
| FENDERS | - | - |
| HEADWALLS | - | - |
| POINTING | F | Isolated loss |
| PAINTING | - | - |
| VEGETATION | F | Light |
| DEBRIS | - | - |
| NUMBER PLATES | P | None Found |
| NAVIGATION | - | - |
| DATUM USED | 10M | Arbitrary Value – Datum Location: Underside of cap on upstream nose of pier 02, Water Level – 8.5m (Photo 36) |

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
|-----------------|---------------|---------------|-------------|--|-------|----------|----------|
| ELR: | GSW | Structure No. | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beatock) | | | |
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |

| Name of part: | G – Good F – Fair P – Poor | Remarks <i>(Refer to parts by name)</i> |
|----------------------------|----------------------------------|--|
| INACCESSIBLE PARTS | - | - |
| MORTAR TABS OR AVONGUARDS | - | - |
| MONITORING OR PLUMB POINTS | - | - |
| CHANGE TO HIGH WATER MARK | - | - |
| WORKS DONE WITH EXAM | - | - |
| TRESTLES/CROSSHEADS | - | - |
| BEDSTONES/CILLS | - | - |
| SOFFIT/DECKING | - | - |
| MAIN GIRDERS | - | - |
| CROSS GIRDERS | - | - |
| RAIL BEARERS | - | - |
| BEARINGS | - | - |
| HANDRAILS | - | - |
| WATERPROOFING | N/E | No signs of failure |
| OBSERVED UNDER LIVE LOAD | - | Yes |

Access route:

From the B721 High Street through Annan.
Turn left onto Port Street, after 300m turn left again onto Riverside Walk.
Park at the end of the road and follow the footpath towards the structure.
The examination should be carried out at low tide.

Nearest Post Code - DG12 6BW

Description:

The structure is a 7no span masonry viaduct which carries 2no running lines over the River Annan between Dumfries station (Low Mileage) and Annan Station (High Mileage).

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
|-----------------|---------------|---------------|-------------|--|-------|----------|----------|
| ELR: | GSW | Structure No. | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beatock) | | | |
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |

Condition:

The examination of this structure was undertaken during daylight hours & following Inspire Structures Ltd. Detailed Underwater Examination procedures. The examination includes all elements of the structure from 2m above normal water level, extending down to the river bed. The examination excludes any part of the structure beyond 2m above normal water level & buried foundation elements.

Personnel: Examiner; Antony Peckston **Assistant;** Anthony Green

Live Significant Defects – Within remit of underwater exam

DEFECT NUMBER 7: Originally identified at an Underwater Examination on 03/10/18

Defect Location: Surrounding Piers 1 2 3.

Defect Description: Damaged gabions/reno mattress with loss of infill

Dimensions Not Provided

Urgent: No

Status: SSD – See UDR 1717

See Existing (Open) Significant

Defect Photo: 7-10

DEFECT NUMBER 8: Originally identified at an Underwater Examination on 03/10/18

Defect Location: HM bank (DStr).

Defect Description: Bank erosion (10.0mL x 3.0mD).

Dimensions Not Provided

Urgent: No

Status: SSD now 15m long

See Existing (Open) Significant

Defect Photo: 11

DEFECT NUMBER 9: Originally identified at a Visual Examination on 10/10/18

Defect Location: Pier 3 – Downside, HM and LM face

Defect Description: Fractures to bullnose.

Dimensions Not Provided

Urgent: No

Status: NFD

See Existing (Open) Significant

Defect Photo: 26 - 30

General Photos

P1 – View from Upstream

P2 – View looking upstream from structure

P3 – View from downstream

P4 – View looking downstream from structure

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | | | |
|-----------------|---------------|---------------|-------------|--|-------|----------|----------|
| ELR: | GSW | Structure No. | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beatock) | | | |
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |

Watercourse (Photos 2 & 4)

The River Annan is a tidal river which runs from North to South through spans 2, 3, 4 & 5.

- NEW; Pier 3 low mileage face. Upstream end. Scour 2m long x 1m wide x 0.5m deep. (caused by defective gabion baskets)

An urgent defect report (UDR 1717) was completed due to:

- Pier 3 LM face there are Gabion Basket aprons, between 0m and 4m at the upstream end the top of the baskets are open and approx 3sqm of fill has been lost. This has allowed the metal basket to deform and push up diverting the water into the pier face. (Photos 7-10)

Bed Material

The bed material consists of sand, gravel and pebbles.

Aprons

Fair condition.

Gabion baskets and Reno mattress are situated around the base of piers 01, 02, 03 & 04.

Pier 01

Gabion baskets front pier 01 and extend 5m upstream and 3m downstream.

O/S 1no tear 200mm H x 100mm W to the upstream corner NFD

Pier 02

Gabion baskets situated around the base of the pier on all sides.

Below water level at the time of the examination.

- O/S 5no tears and complete loss of material measuring 3m³ to the LM side 0.5m from the upstream face. NFD (Photo 5)

Pier 03

Gabion baskets situated around the base of the pier on all sides.

Below water level at the time of the examination.

- O/S 0m and 4m at the upstream end the top of the baskets are open and approx 3sqm of fill has been lost. This has allowed the metal basket to deform and push up diverting the water into the pier face. SSD the bags have deformed since the last exam (Photo 7-10)
- O/S 0.5m³ loss throughout the baskets fronting the upstream nose NFD

Pier 04

Gabion baskets situated around the base of the pier on all sides.

Banking

- O/S Erosion downstream high mileage 15m length x 2m. SSD (previously 10m length x 3m) (Photo 11)
- NEW Erosion upstream low mileage after the gabion baskets. Erosion is above water level, a public footpath is above the erosion. (Photo 12)

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

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| Structure Name: | Annan Viaduct | | | | | | |

Foundations

Not examined.
No foundation information was supplied by the client.

Retaining Walls

Dumfries Station (low mileage)

Downside (Downstream) (Photo 13)

Masonry Construction.
Poor condition

- O/S Numerous areas of voiding and spalling located throughout the wall 10m² x 400mm typical depth NFD (Photo 13)
- O/S Joint loss located throughout the lower 3 courses measuring 30 linear metres x 100mm max depth. NFD
- O/S 1no void 1.3m L x 500mm H x 700mm D located 8m from the abutment at 2m above bed level with associated displacement +20mm NFD (Photo 14)
- O/S Sapling and moss growth located sporadically throughout the wall. NFD
- O/S Intermittent areas of bulging and slumping throughout the lower three courses of the retaining wall. NFD

Upside (Upstream) (Photo 15)

Masonry construction.
Poor condition.

- O/S 2no down pipes located adjacent to the abutment with one broken at mid height, associated wetness to the surrounding area now repaired intact. (Photo 16)
- O/S 4m² area of re-casing located 2.5m – 10m from the abutment, spalling to the base 2m² x 40mm depth. NFD
- O/S 2no spalled stones each 700mm L x 300mm H x 350mm D located 1.2m from the abutment at 1.7m above water level. NFD
- O/S At 8m from the abutment 4m² spalling x 150mm depth located at water level with 10m² wetness throughout the surrounding area NFD (Photo 17)
- O/S At 9m from the abutment isolated spalling x 1.5m L x 300mm H x 100mm D located 1.5m above water level NFD
- O/S At 9m from the abutment 1m L x 1m H x 200mm deep spalling at water level, NFD (Photo 18)
- O/S At 10m from the abutment water ingress from the top of the wall NFD.
- O/S At 11m from the abutment spalling 1m² x 200mm depth located 500mm above bed level NFD
- O/S At 12m from the abutment isolated spalling 900mm L x 400mm H x 150mm D located 0.8m above water level. NFD
- O/S At 18m from the abutment isolated spalling 600mm L x 400mm H x 150mm D located 750mm above water level. NFD
- INS band added top coping 5m long
- Upstream gabion baskets 7m long added protected by pitching stone (Photo 19)

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

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| Structure Name: | Annan Viaduct | | | | | | |

Piers

Pier 1

Annan Station (high mileage) Face (Photo 20)

Masonry construction.
Fair condition.

- O/S 1m² spalling x 200mm typical depth located sporadically throughout the lower 1m of the pier face. NFD
- O/S 2m² joint loss x 30mm max depth located sporadically throughout the pier face. NFD
- O/S 1no vertical fracture 1m L x 2-3mm W with associated spalling to 40mm depth located to the DS return. NFD (Photo 21)

Pier 2

Fair condition.
Masonry construction.
Corbelled course below water level.

Downside (Downstream) Nose (Photo 22)

- O/S 1no Y shaped fracture 900mm long x HL-2mm W located to the HM side at water level. NFD
- O/S 1.5m² joint loss x 200mm depth located throughout the nose. NFD
- O/S Spalling 200mm H x 200mm W x40mm D located at water level. NFD
- O/S Undercutting / joint loss to 80mm depth between the pier and corbel course. NFD

Upside (Upstream) Nose (Photo 23)

- O/S Spalling 700mm L x 150mm H x 200mm D located 500mm above water level to the HM side. NFD
- O/S 1.5m² joint loss x 200mm depth located throughout the nose. NFD
- O/S Undercutting / joint loss to 150mm depth between the pier and corbel course, the corbel course is displaced and fractured to 5mm. NFD

Dumfries Station (low mileage) Face (Photo 24)

- O/S 2.5m² joint loss x 60mm depth located throughout the face. NFD
- O/S 1m² spalling x 50mm depth located throughout the upstream half at and below water level. NFD
- O/S Isolated spalling to 1no stone x 60mm D at the centreline. NFD

Annan Station (high mileage) Face (Photo 25)

- O/S 2.5m² joint loss x 60mm depth located throughout the face. NFD
- O/S 0.5m² spalling x 50mm depth located throughout the face below water level. NFD

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
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| Structure Name: | Annan Viaduct | | | | | | |

Pier 3

Fair condition.

Masonry construction.

Corbelled course below water level.

Downside (Downstream) Nose (Photo 26)

- O/S 2no vertical fractures each 2.5m L x 1-3mm W located to the LM side with associated spalling. NFD
- O/S Isolated spalling 0.3m² x 80mm D to the HM side. NFD

Upside (Upstream) Nose (Photo 27)

- O/S Isolated spalling 500mm L x 200mm H x 300mm D to the nose. Not seen at this exam.
- O/S 1m² joint loss x 100mm D located throughout the nose. NFD
- O/S Gabions at nose lifting 10-20mm, Not seen at this exam

Dumfries Station (low mileage) Face (Photo 28)

- O/S 2no vertical fractures totalling 4.5m L x 2-10mm W located to the downstream end of the face NFD (Photo 29)
- O/S 1no vertical fracture 300mm L x 2mm W located 1.5m from the downstream nose, below water level at the time of the examination. NFD
- O/S 2no through block fractures each 800mm L x 2-10mm W located 2.2-2.5m from the downstream nose, below water level at the time of examination. NFD
- O/S 1no through block fracture 400mm L x 3-5mm W to the centre of the pier face, below water level at the time of the examination. NFD
- O/S 4m² joint loss x 200mm D located throughout the pier face NFD.
- O/S 1.5m² spalling x 60mm typical D located throughout the pier face, typically worse at and below water level to the upstream half NFD.

Annan Station (high mileage) Face (Photo 30)

- O/S 2.5m² joint loss x 200mm D located throughout the pier face. NFD
- O/S 2no vertical fractures totalling 2.5m L x 2-5mm W located to the downstream end of the face, with associated spalling 1.5m H x 400mm W x 60mm D. NFD

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | | | |
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| Structure Name: | Annan Viaduct | | | | | | |

Pier 4

Fair condition.
Masonry construction.

Downside (Downstream) Nose (Photo 31)

- O/S 1m² joint loss x 60mm D located throughout the nose. NFD

Upside (Upstream) Nose (Photo 32)

- O/S 1m² joint loss x 60mm D located throughout the nose. NFD
- O/S Isolated spalling 500mm H x 400mm W x 40mm D to the HM side located below water level at the time of examination. NFD
- Flood markers to upstream nose in good condition.

Dumfries Station (low mileage) Face (Photo 33)

2.5m² joint loss x 50mm D located throughout the nose. NFD
0.5m² spalling x 80mm D to the upstream half. NFD
1no through block fracture x 2mm W located 1m above water level 4m from the upstream nose. NFD

Annan Station (high mileage) Face (Photo 34)

Stands dry at low tide water at the time of exam.

- O/S 1m² joint loss x 60mm D located throughout the face. NFD
- O/S Isolated spalling 1.3m L x 400mm W x 50mm D located 3m from the downstream nose. NFD

Pier 5 (Photo 35)

Stands clear of the watercourse.
Not examined.

Pointing

See Piers

Vegetation

Numerous trees and vegetation located above the retaining walls.

Number Plates

None found at water / ground level of the structure.

Waterproofing

Waterproofing was not examined.

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
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| Structure Name: | Annan Viaduct | | | | | | |

Conclusions and Recommendations

The structure is in an overall fair condition

Cross sections and Radials

Cross sections and radials were applicable at this structure and are displayed on the following pages.

Evidence of Scour:

- NEW; Pier 3 low mileage face. Upstream end. Scour 2m long x 1m wide x 0.5m deep. (caused by defective gabion baskets)

Changes in Bed Profile:

30m Upstream

- Changes +/- upto 300mm

30m Downstream

- Changes +/- upto 500mm

Upstream face

- Decreases of upto 500mm

Centreline

- Decreases of upto 1m

Downstream face.

- Decreases of upto 1m
-

Foundation details:

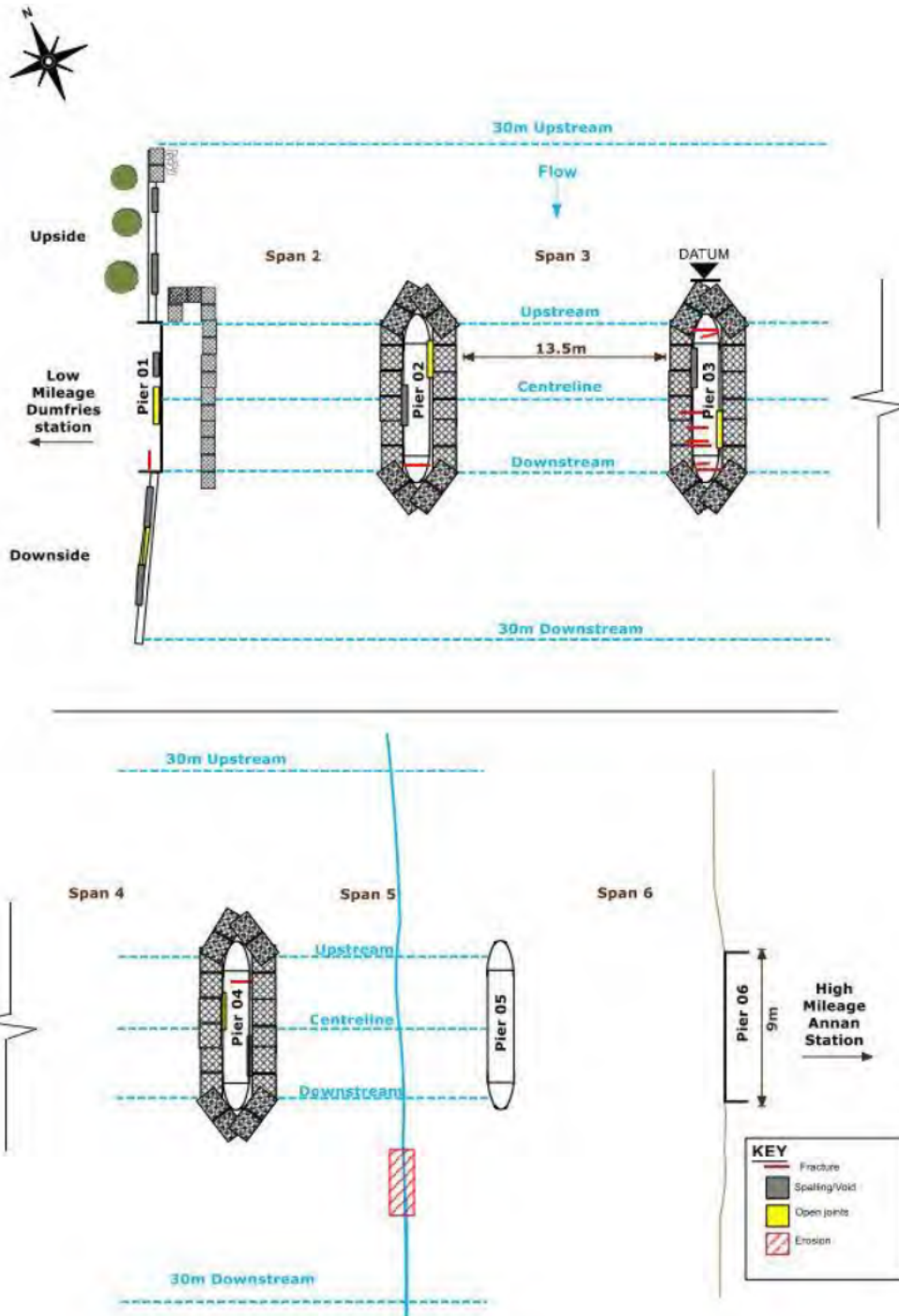
None supplied.

| | Print Name | Signature | Date |
|---------------------------|-----------------|-----------|----------|
| Prepared by: | Antony Peckston | Redacted | 24/09/20 |
| Checked by: (Examiner) | Antony Peckston | | 25/09/20 |

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

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APPENDIX A - SKETCH PLAN



All dimensions in mm

Not to scale

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
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PHOTO 1: VIEW FROM UPSTREAM 14/09/20



PHOTO 2: VIEW LOOKING UPSTREAM FROM STRUCTURE 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | | |
|-----------------|---------------|-----------------------|--|--------------|----------|--|
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| Structure Name: | Annan Viaduct | | | | | |



PHOTO 3: VIEW FROM DOWNSTREAM 14/09/20



PHOTO 4: VIEW LOOKING DOWNSTREAM FROM STRUCTURE 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | |
|-----------------|---------------|-----------------------|--|--------------|----------|
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| Structure Name: | Annan Viaduct | | | | |



PHOTO 5: P5 - DAMAGED GABIONS 14/09/20



PHOTO 6: P6- PIER 3 DAMAGED GABIONS 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | | | |
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PHOTO 7: P7- PIER 3 DAMAGED GABIONS 14/09/20



PHOTO 8: P8- PIER 3 DAMAGED GABIONS 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

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PHOTO 9: P9- PIER 3 DAMAGED GABIONS 14/09/20



PHOTO 10: P10- PIER 3 DAMAGED GABIONS 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

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PHOTO 11: P11 - EROSION DOWNSTREAM HIGH MILEAGE 14/09/20



PHOTO 12: P12 - EROSION UPSTREAM LOW MILEAGE AFTER THE GABION BASKETS 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | | |
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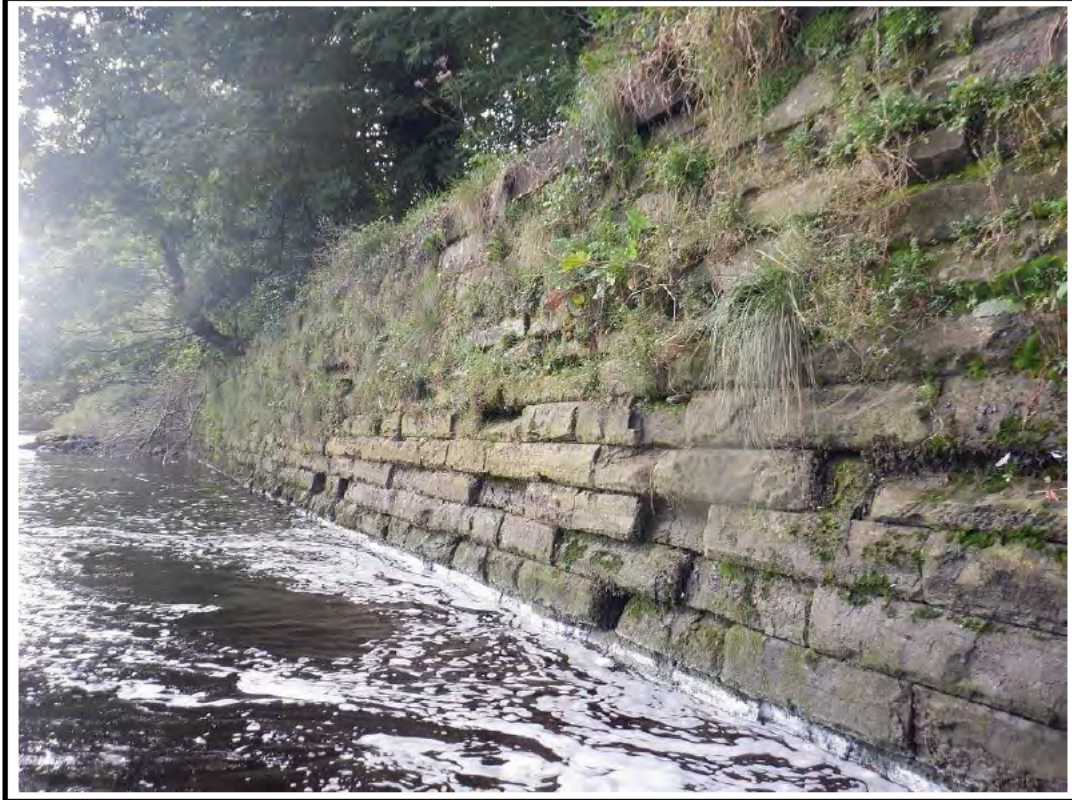


PHOTO 13: P13 - DOWNSTREAM LM RETAINING WALL 14/09/20



PHOTO 14: P14 - AREAS OF VOIDING AND SPALLING LOCATED THROUGHOUT 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
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PHOTO 15: P15 - UPSTREAM LM RETAINING WALL 14/09/20



PHOTO 16: P16 - DOWN PIPES LOCATED ADJACENT TO THE ABUTMENT 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
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PHOTO 17: P17 - 8M FROM THE ABUTMENT 4M2 SPALLING 14/09/20



PHOTO 18: P18 - AT 9M FROM THE ABUTMENT SPALLING AT WATER LEVEL, 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
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PHOTO 19: P19 - UPSTREAM GABION BASKETS PROTECTED BY PITCHING STONE 14/09/20



PHOTO 20: P20 - PIER 1 ANNAN STATION (HIGH MILEAGE) FACE 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | |
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PHOTO 21: P21 - DOWNSTREAM RETURN - FRACTURE 14/09/20



PHOTO 22: P22 - PIER 2 DOWNSTREAM NOSE 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

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PHOTO 23: P23 - PIER 2 UPSTREAM NOSE 14/09/20



PHOTO 24: P24 - PIER 2 LM FACE 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

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PHOTO 25: P25 - PIER 2 HM FACE 14/09/20



PHOTO 26: P26 - PIER 3 DOWNSTREAM NOSE 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

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PHOTO 27: P27 - PIER 3 UPSTREAM NOSE 14/09/20



PHOTO 28: P28 - PIER 3 LM FACE 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

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PHOTO 29: P29 - 2NO VERTICAL FRACTURES 14/09/20



PHOTO 30: P30 - PIER 3 HM FACE 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

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| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beatock) | | | |
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |



PHOTO 31: P31 - PIER 4 DOWNSTREAM NOSE 14/09/20



PHOTO 32: P32 - PIER 4 UPSTREAM NOSE 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
|-----------------|---------------|----------------|-------------|--|-------|----------|----------|
| ELR: | GSW | Structure No.: | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beatock) | | | |
| Group: | BU | OS Ref.: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |



PHOTO 33: P33 - PIER 4 LM FACE 14/09/20



PHOTO 34: P34 - PIER 4 HM FACE 14/09/20

**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
|-----------------|---------------|---------------|-------------|--|-------|----------|----------|
| ELR: | GSW | Structure No. | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beatock) | | | |
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |



PHOTO 35: P35 - PIER 514/09/20



PHOTO 36: P36 - DATUM - PIER 3 UPSTREAM NOSE 14/09/20

NETWORK RAIL BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT

| | | | | | | | |
|-----------------|---------------|----------------|-------------|---|-------|----------|----------|
| ELR: | GSW | Structure No.: | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beattock) | | | |
| Group: | BU | OS Ref.: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |

APPENDIX C – RIVERBED SAMPLES

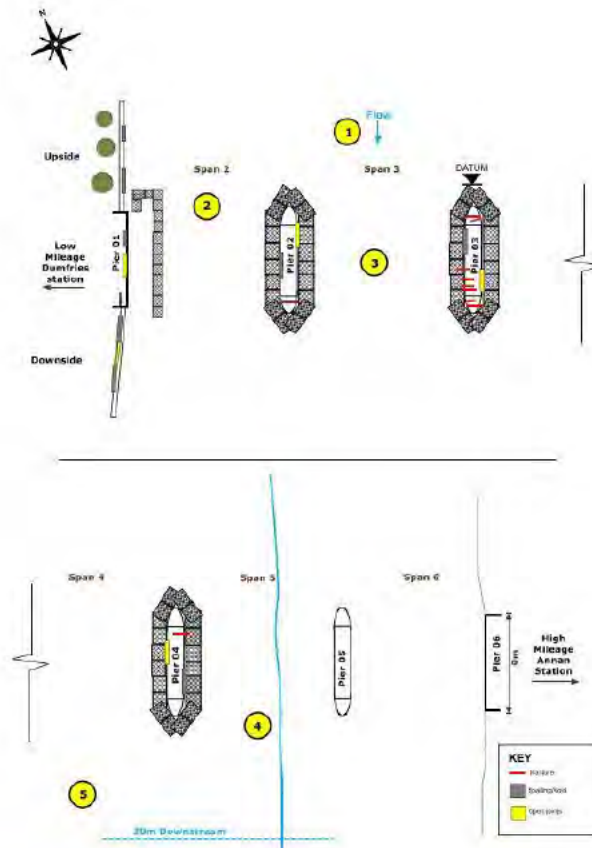
| Description | Clay | Silt | Sand | Gravel | Gravel/stone |
|------------------------|--------|--------------|------------|----------|--------------|
| Particle size (mm) | <0.002 | 0.002 – 0.06 | 0.06 – 2.0 | 2.0 - 20 | >20 |
| Sample Ref. No. | | | | | |
| 1 | | | X | X | X |
| 2 | | | X | X | X |
| 3 | | | X | X | X |
| 4 | | | X | X | X |
| 5 | | | X | X | X |

SAMPLE LOCATION TABLE

| | |
|----------|--|
| Sample 1 | 3m from upstream end edge of structure |
| Sample 2 | In line with upstream abutments |
| Sample 3 | Centre line of structure |
| Sample 4 | In line with downstream abutments |
| Sample 5 | 3m from downstream edge of structure |

SAMPLE LOCATION SKETCH

Not to scale



**NETWORK RAIL
BRIDGE & STRUCTURE UNDERWATER EXAMINATION REPORT**

| | | | | | | | |
|-----------------|---------------|---------------|-------------|--|-------|----------|----------|
| ELR: | GSW | Structure No. | 161/343 | Mileage: | 106 M | 1481 YDS | 67.32 CH |
| Exam Date: | 14/09/20 | | Route: | Gretna - Glasgow Central (Via Beatock) | | | |
| Group: | BU | OS Ref: | NY1870 6632 | N° of Spans: | 7 | | |
| Structure Name: | Annan Viaduct | | | | | | |

APPENDIX D – OPERATIONAL RECORDS

No Diving Operations Were Undertaken On The Structure.

| Distance across watercourse U/S (m) | 30m U/S Bed Profile Levels (m) | | | Water Level (m) |
|-------------------------------------|--------------------------------|----------|----------|-----------------|
| | 14/09/20 | 07/06/19 | 03/10/18 | |
| LM Bank | 9.5 | 9.7 | 10 | 8.5 |
| 3 | 9 | 9.2 | 9.3 | 8.5 |
| 6 | 8.4 | 8.6 | 8.7 | 8.5 |
| 9 | 8.4 | 8.6 | 8.6 | 8.5 |
| 12 | 8.4 | 8.5 | 8.5 | 8.5 |
| 15 | 8.4 | 8.5 | 8.5 | 8.5 |
| 18 | 8.4 | 8.5 | 8.5 | 8.5 |
| 21 | 8.4 | 8.3 | 8.3 | 8.5 |
| 24 | 8.2 | 8.3 | 8.4 | 8.5 |
| 27 | 8.3 | 8.2 | 8.4 | 8.5 |
| 30 | 8.4 | 8.2 | 8.4 | 8.5 |
| 33 | 8.3 | 8.2 | 8.3 | 8.5 |
| 36 | 8.2 | 8 | 8.2 | 8.5 |
| 39 | 8.2 | 8 | 8.2 | 8.5 |
| 42 | 8.3 | 8.3 | 8.2 | 8.5 |
| 45 | 8.3 | 8.3 | 8.5 | 8.5 |
| 48 | 8.3 | 8.3 | 8.5 | 8.5 |
| 51 | 8.3 | 8.3 | 8.5 | 8.5 |
| 54 | 8.3 | 8.3 | 8.5 | 8.5 |
| 57 | 8.4 | 8.4 | 8.6 | 8.5 |
| 60 | 8.4 | 8.5 | 8.6 | 8.5 |
| 63 | 8.4 | 8.5 | 8.8 | 8.5 |
| 66 | 8.6 | 8.8 | 9.2 | 8.5 |
| 69 | 9.1 | 9.3 | 9.2 | 8.5 |
| HM Bank | 9.1 | 9.3 | 9.3 | 8.5 |

| General Data | | ELR GSW 106mIs 1481yds Br131/343 | |
|----------------------|-----------------------|----------------------------------|----------|
| Datum Level | 10 m | Exam Date | 14/09/20 |
| Datum Position | Underside of cap upst | Prev Date | 07/06/19 |
| Datum to Water Level | 1.5 m | Pen Date | 03/10/18 |
| Previous Datum | 1.3 m | | |
| Penultimate Datum | 1.6 m | | |

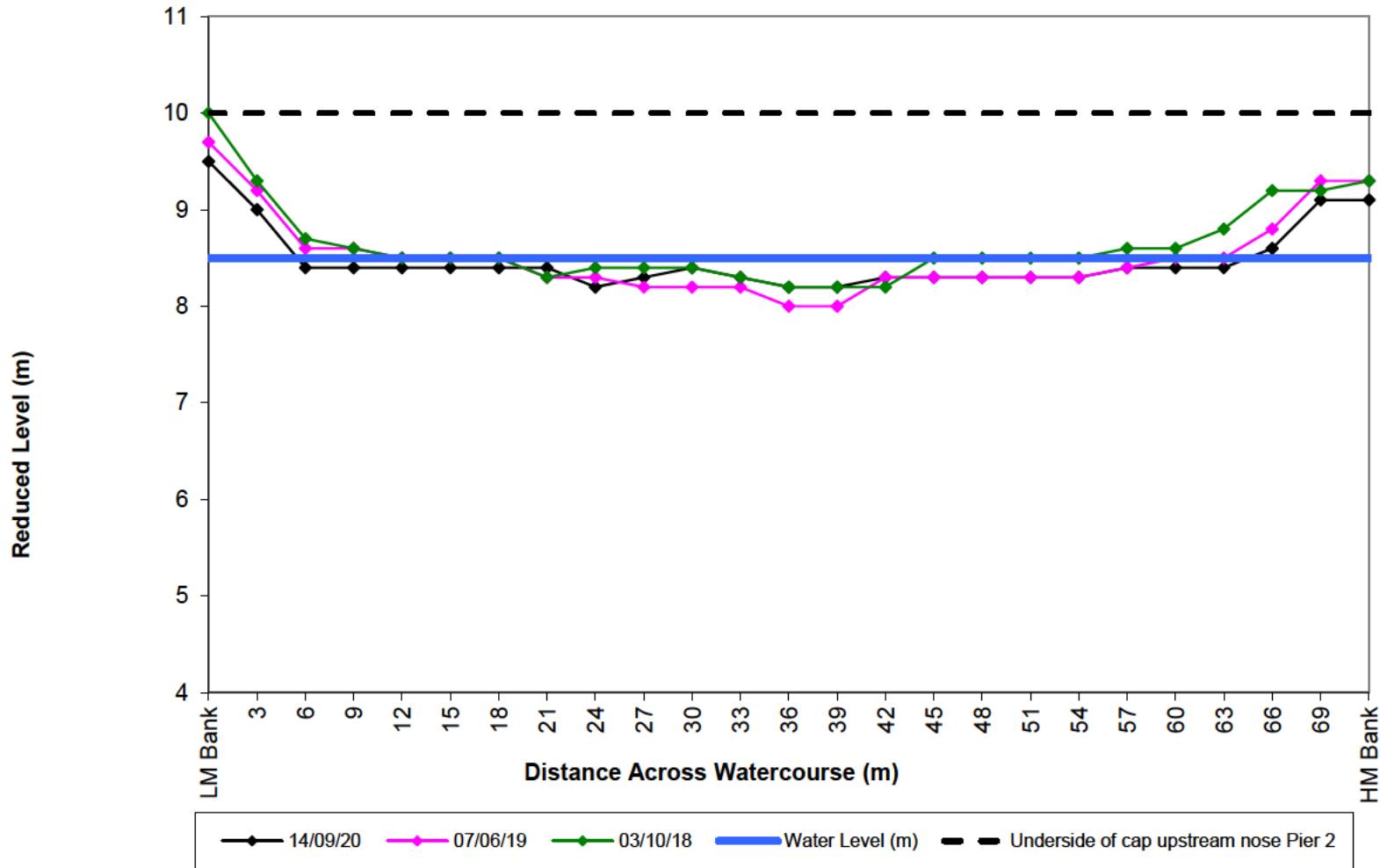
| Distance across watercourse D/S (m) | 30m D/S Bed Profile Levels (m) | | | Water Level (m) |
|-------------------------------------|--------------------------------|----------|----------|-----------------|
| | 14/09/20 | 07/06/19 | 03/10/18 | |
| LM Bank | 8.3 | 8 | 8.3 | 8.5 |
| 3 | 8.2 | 7.8 | 8.2 | 8.5 |
| 6 | 8.1 | 7.7 | 8 | 8.5 |
| 9 | 7.3 | 7.6 | 7 | 8.5 |
| 12 | 7 | 6.6 | 7 | 8.5 |
| 15 | 6.7 | 6.5 | 7 | 8.5 |
| 18 | 6.4 | 6.5 | 6.7 | 8.5 |
| 21 | 6.5 | 6.5 | 6.7 | 8.5 |
| 24 | 6.4 | 6.5 | 6.7 | 8.5 |
| 27 | 6.3 | 6.5 | 6.8 | 8.5 |
| 30 | 6.7 | 6.5 | 6.9 | 8.5 |
| 33 | 6.9 | 6.5 | 6.9 | 8.5 |
| 36 | 7.3 | 7.2 | 8 | 8.5 |
| 39 | 7.6 | 7.7 | 8 | 8.5 |
| 42 | 8 | 7.8 | 8.1 | 8.5 |
| 45 | 8 | 8 | 8.3 | 8.5 |
| 48 | 8.5 | 8.5 | 8.6 | 8.5 |
| 51 | 8.6 | 8.6 | 8.8 | 8.5 |
| 54 | 8.7 | 8.7 | 9 | 8.5 |
| HM Bank | 9.3 | 9.3 | 9.3 | 8.5 |

| Distance across watercourse (m) | U/S Face of Structure Bed | | | Water Level (m) | Foundation Level (m) |
|---------------------------------|---------------------------|----------|----------|-----------------|----------------------|
| | 14/09/20 | 07/06/19 | 03/10/18 | | |
| Pier 01 | 7.8 | 7.7 | 8 | 8.5 | |
| 3 | 8 | 7.9 | 8.3 | 8.5 | |
| 6 | 7.6 | 7.5 | 8 | 8.5 | |
| 9 | 7.5 | 7.7 | 8 | 8.5 | |
| 12 | 8 | 7.8 | 8 | 8.5 | |
| Pier 02 | 8.5 | 0 | 0 | 8.5 | |
| 15 | 7.9 | 7.9 | 8.3 | 8.5 | |
| 18 | 7.8 | 7.8 | 7.9 | 8.5 | |
| 21 | 7.9 | 7.5 | 7.9 | 8.5 | |
| 24 | 7.5 | 7.5 | 8.3 | 8.5 | |
| Pier 03 | 8.5 | 0 | 0 | 8.5 | |
| 27 | 7.7 | 7.5 | 7.9 | 8.5 | |
| 30 | 7.4 | 7 | 7.2 | 8.5 | |
| 33 | 6.7 | 6.7 | 7.6 | 8.5 | |
| 36 | 8 | 7.9 | 8.4 | 8.5 | |
| Pier 04 | 8.5 | 0 | 0 | 8.5 | |
| 39 | 8.4 | 8 | 8.7 | 8.5 | |
| 42 | 8.4 | 8.3 | 8.7 | 8.5 | |
| 45 | 8.5 | 8.9 | 8.9 | 8.5 | |
| 48 | 8.5 | 9 | 9 | 8.5 | |
| Pier 05 | 9.3 | 9.8 | 9.5 | 8.5 | |

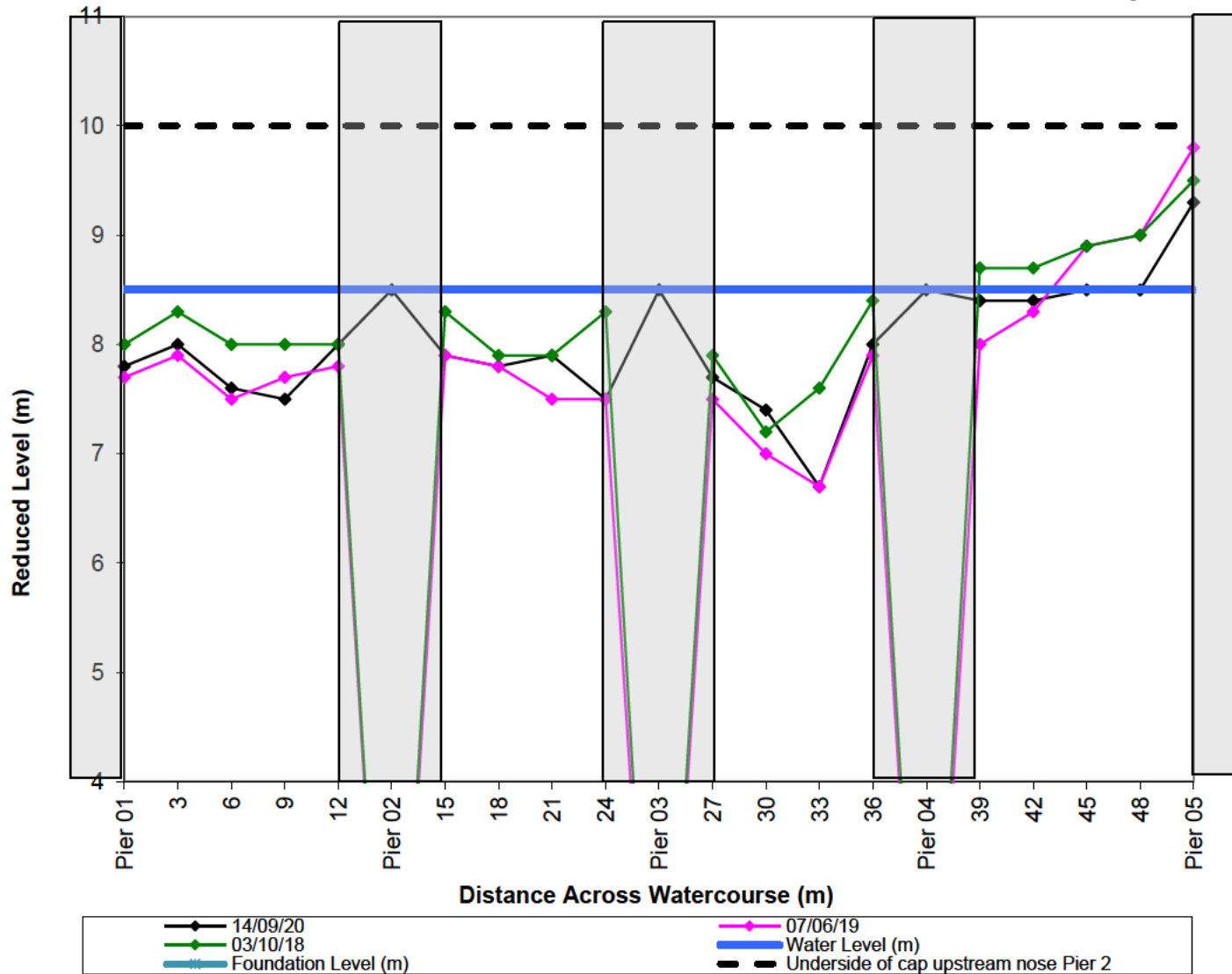
| Distance across watercourse (m) | Centreline of Structure Bed | | | Water Level (m) | Foundation Level (m) |
|---------------------------------|-----------------------------|----------|----------|-----------------|----------------------|
| | 14/09/20 | 07/06/19 | 03/10/18 | | |
| Pier 01 | 7.8 | 8 | 8.3 | 8.5 | |
| 3 | 7.7 | 7.9 | 8.3 | 8.5 | |
| 6 | 7.5 | 7.8 | 8 | 8.5 | |
| 9 | 7.5 | 8 | 8.3 | 8.5 | |
| 12 | 8 | 8.3 | 8.5 | 8.5 | |
| Pier 02 | 8.5 | 0 | 0 | 8.5 | |
| 15 | 7.5 | 8.3 | 8.5 | 8.5 | |
| 18 | 7.5 | 7.9 | 8.1 | 8.5 | |
| 21 | 7.8 | 7.5 | 7.9 | 8.5 | |
| 24 | 7.8 | 8.1 | 8.4 | 8.5 | |
| Pier 03 | 8.5 | 0 | 0 | 8.5 | |
| 27 | 7 | 7.5 | 8.2 | 8.5 | |
| 30 | 7.2 | 7.5 | 7.9 | 8.5 | |
| 33 | 6.7 | 7 | 7 | 8.5 | |
| 36 | 8 | 8.3 | 8.5 | 8.5 | |
| Pier 04 | 8.5 | 0 | 0 | 8.5 | |
| 39 | 8.4 | 8.7 | 8.8 | 8.5 | |
| 42 | 8.4 | 9 | 8.8 | 8.5 | |
| 45 | 8.5 | 9.1 | 8.9 | 8.5 | |
| 48 | 8.5 | 9.1 | 9 | 8.5 | |
| Pier 05 | 9.3 | 9.5 | 9.5 | 8.5 | |

| Distance across watercourse (m) | D/S Face of Structure Bed | | | Water Level (m) | Foundation Level (m) |
|---------------------------------|---------------------------|----------|----------|-----------------|----------------------|
| | 14/09/20 | 07/06/19 | 03/10/18 | | |
| Pier 01 | 7.8 | 8 | 8.3 | 8.5 | |
| 3 | 7.5 | 8 | 8.1 | 8.5 | |
| 6 | 7 | 7.5 | 7.8 | 8.5 | |
| 9 | 7.7 | 7.8 | 8.1 | 8.5 | |
| 12 | 8 | 8 | 8.5 | 8.5 | |
| Pier 02 | 8.5 | 0 | 0 | 8.5 | |
| 15 | 7.8 | 8.2 | 8.5 | 8.5 | |
| 18 | 7.7 | 7.8 | 8.2 | 8.5 | |
| 21 | 7 | 8 | 7.8 | 8.5 | |
| 24 | 7.8 | 8.3 | 8.5 | 8.5 | |
| Pier 03 | 8.5 | 0 | 0 | 8.5 | |
| 27 | 7.7 | 8 | 8.2 | 8.5 | |
| 30 | 7.2 | 7.5 | 7.9 | 8.5 | |
| 33 | 6.7 | 6.9 | 7.5 | 8.5 | |
| 36 | 8 | 8.3 | 8.5 | 8.5 | |
| Pier 04 | 8.5 | 0 | 0 | 8.5 | |
| 39 | 8.4 | 8.7 | 8.8 | 8.5 | |
| 42 | 8.4 | 8.8 | 8.8 | 8.5 | |
| 45 | 8.5 | 8.9 | 8.9 | 8.5 | |
| 48 | 8.5 | 9 | 9 | 8.5 | |
| Pier 05 | 9.3 | 9.5 | 9.5 | 8.5 | |

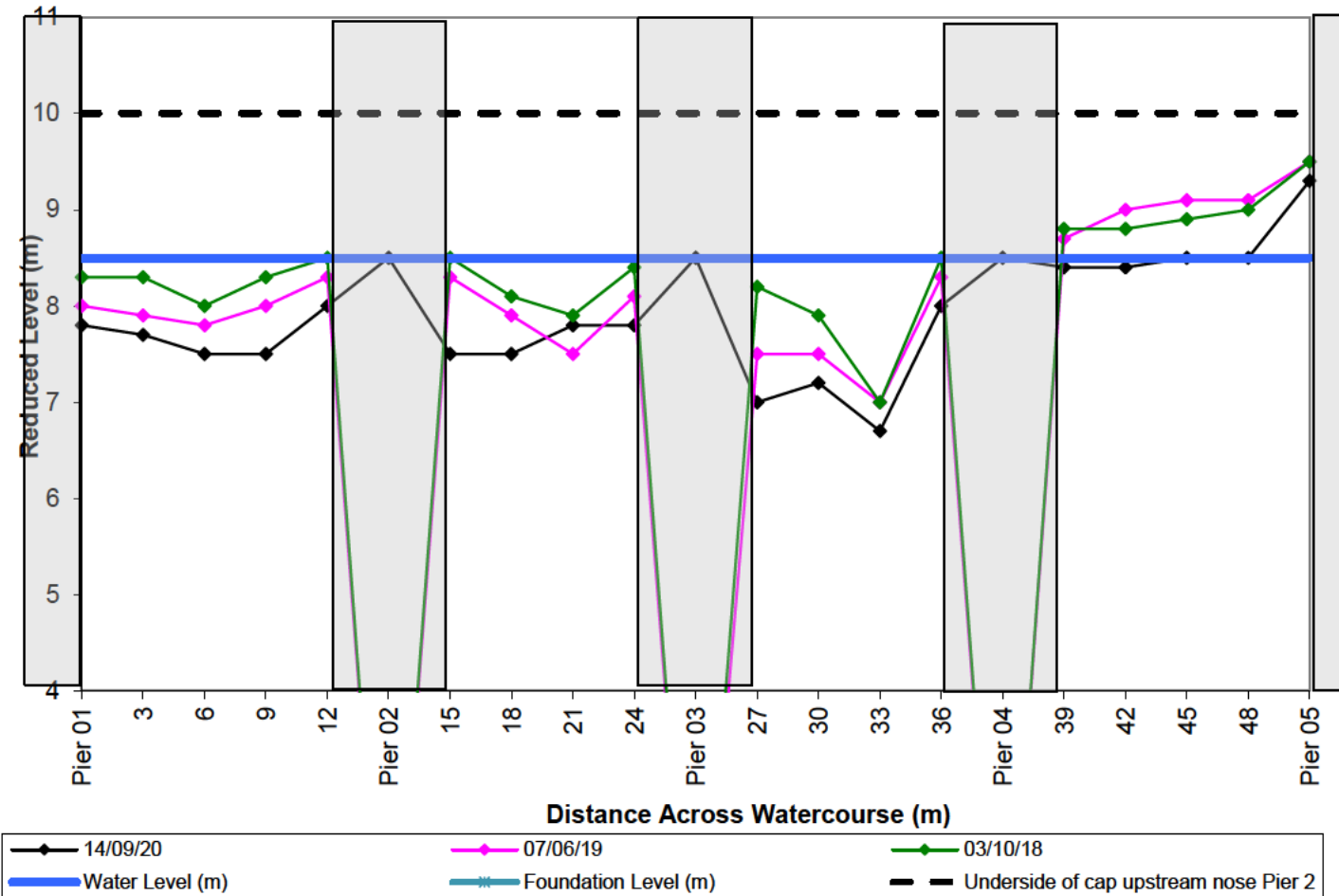
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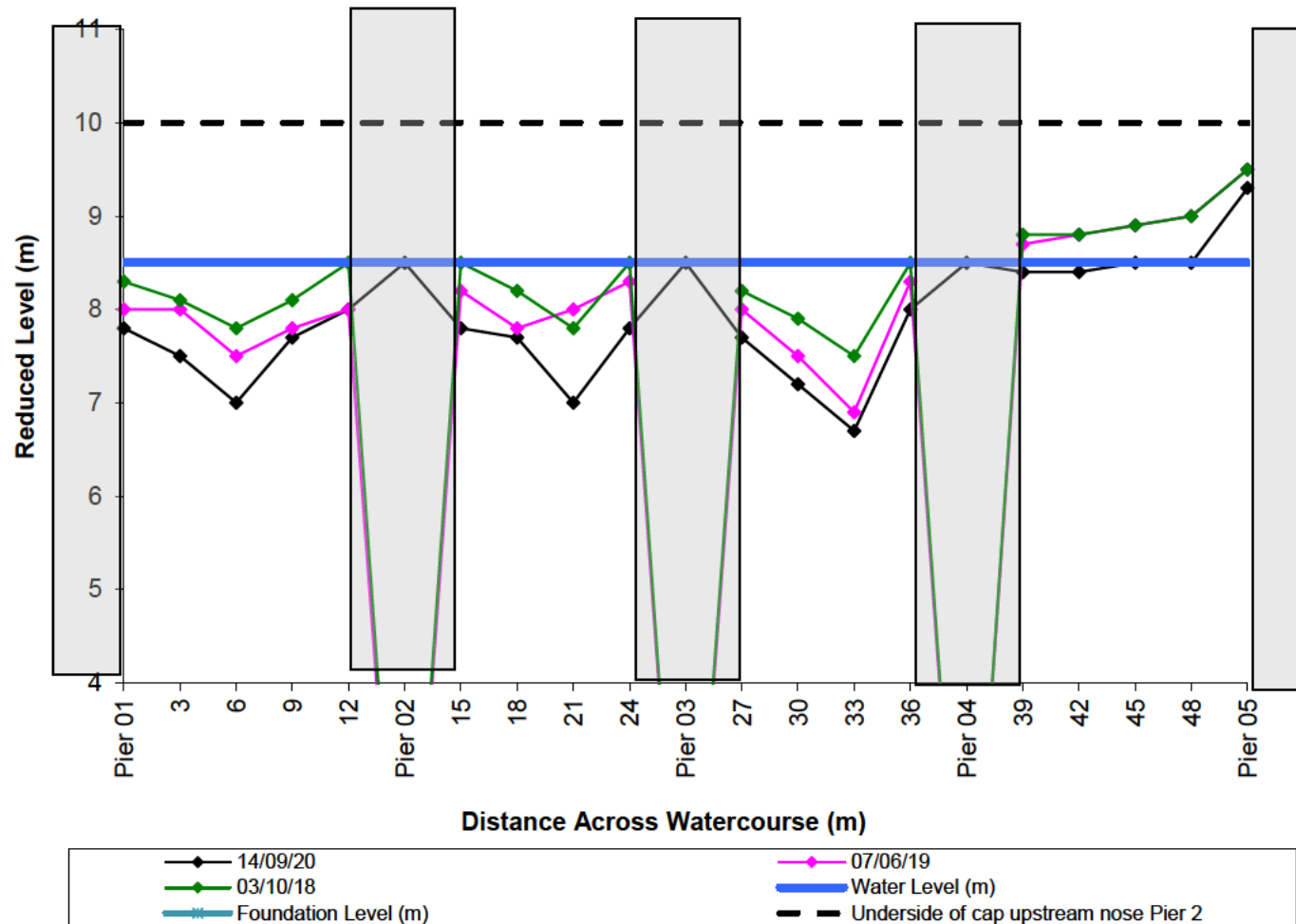
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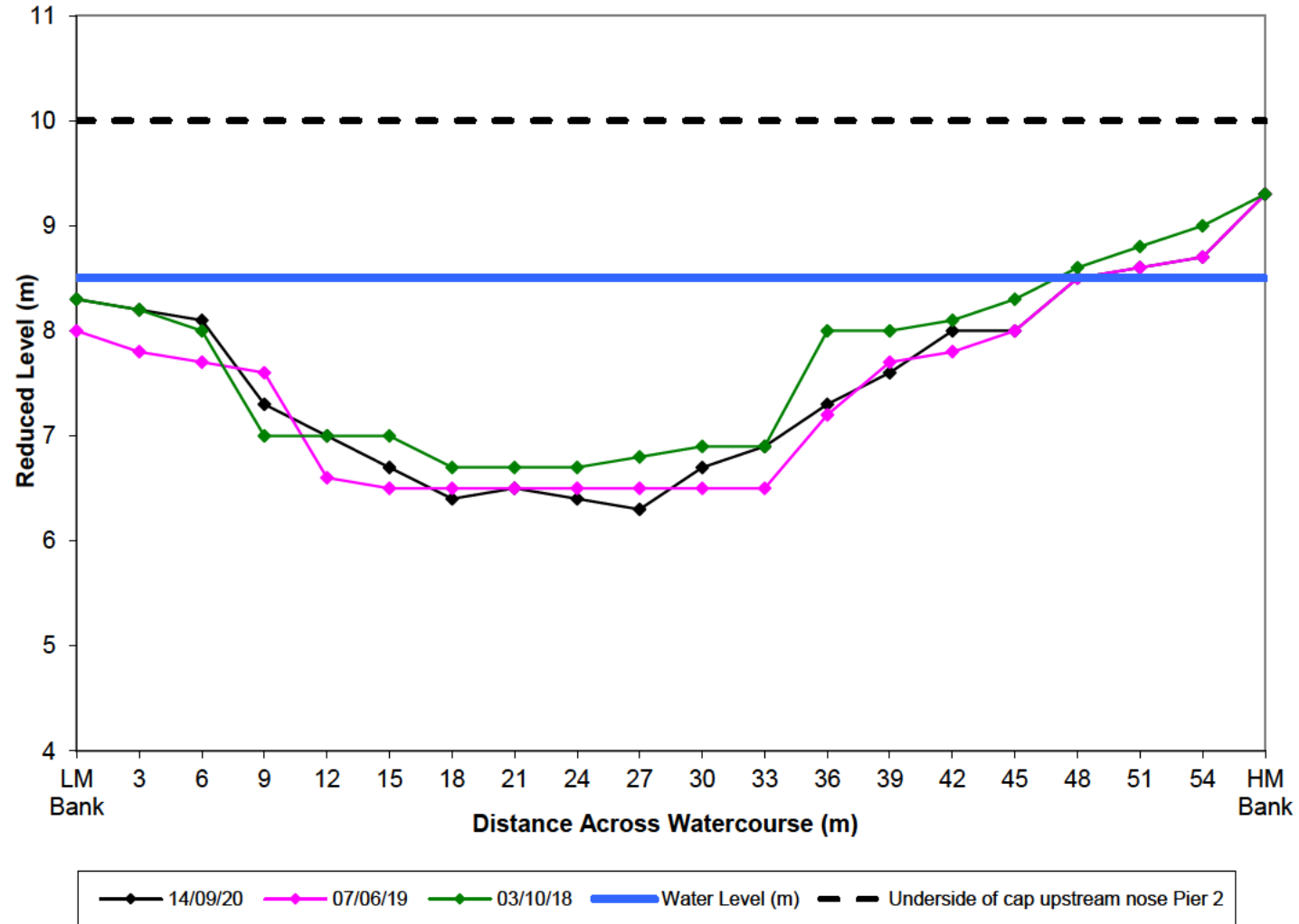
ELR:GSW 106mls 1481yds Br131/343



ELR:GSW 106mls 1481yds Br131/343

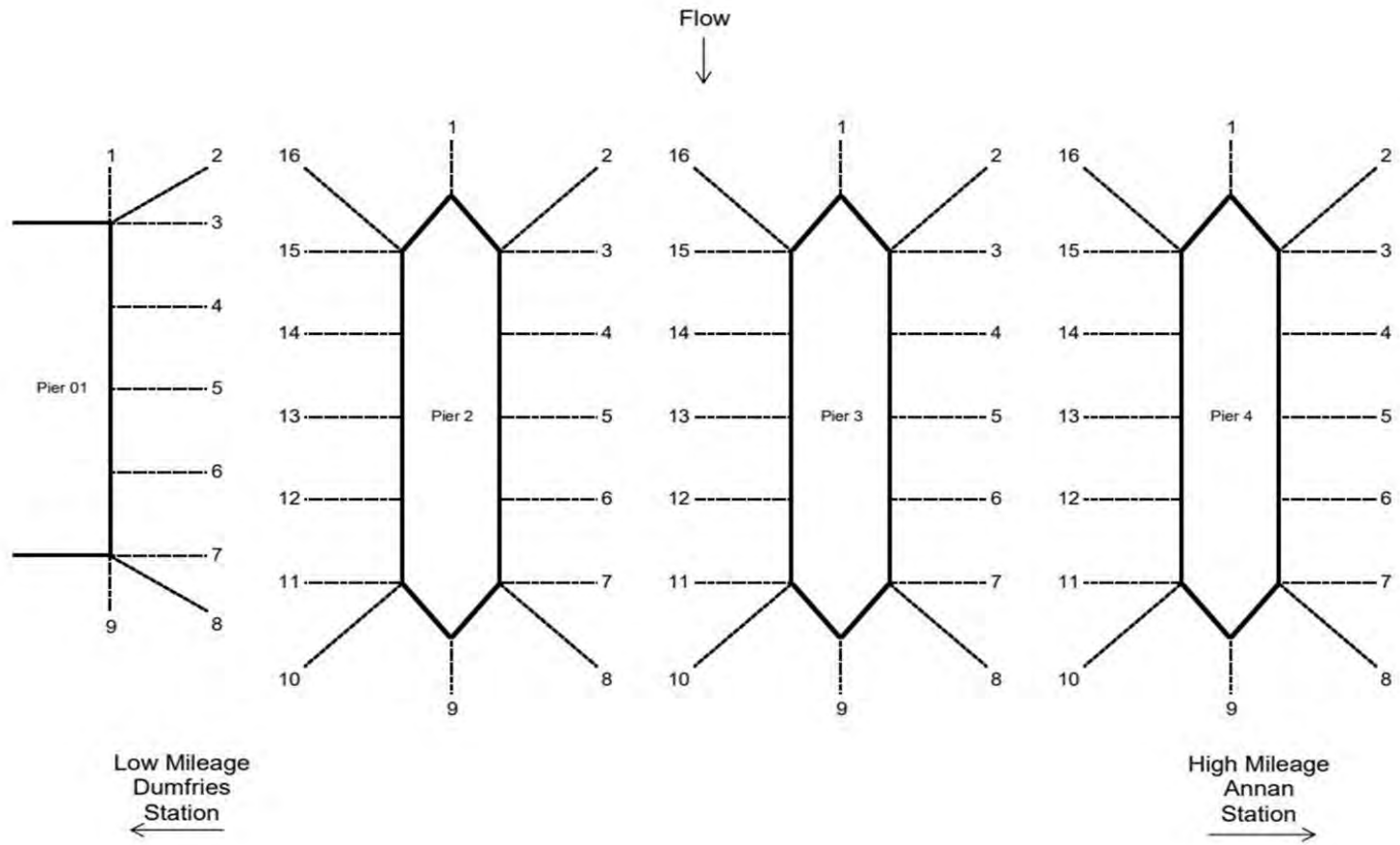


ELR:GSW 106mls 1481yds Br131/343



RADIALS SKETCH

ELR:GSW 106mls 1481yds Br131/343

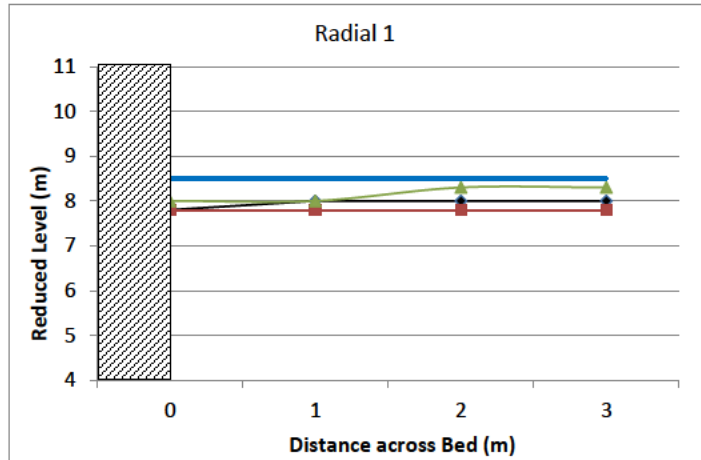


Datum: Underside of cap upstream nose Pier 2

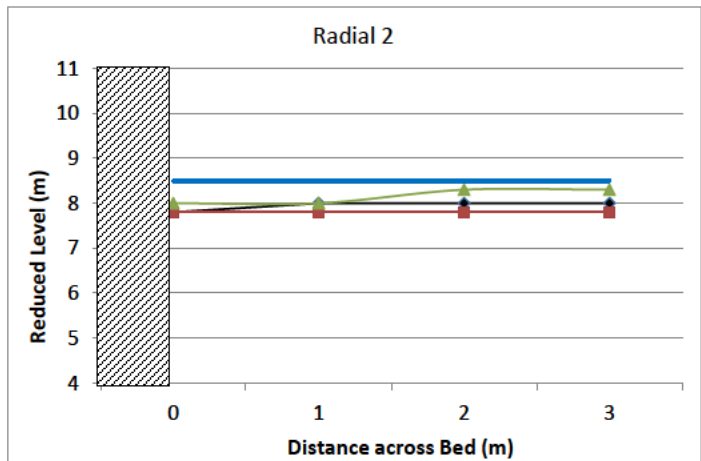
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

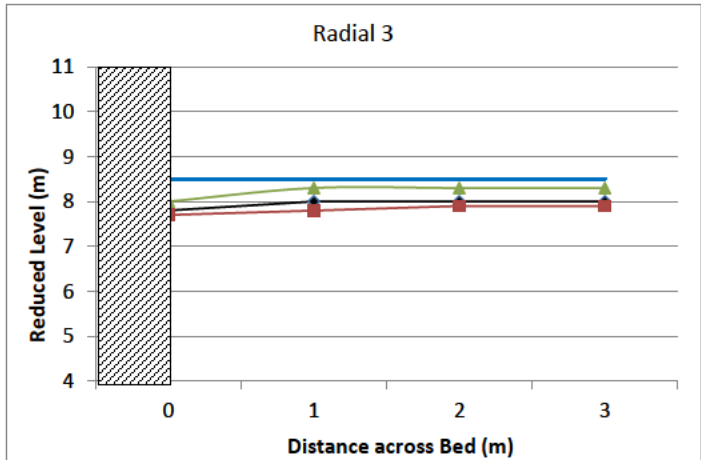
| Pier 1 | Radial 1 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.8 | 8 |
| 1 | 8 | 7.8 | 8 |
| 2 | 8 | 7.8 | 8.3 |
| 3 | 8 | 7.8 | 8.3 |



| Pier 1 | Radial 2 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.8 | 8 |
| 1 | 8 | 7.8 | 8 |
| 2 | 8 | 7.8 | 8.3 |
| 3 | 8 | 7.8 | 8.3 |



| Pier 1 | Radial 3 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.7 | 8 |
| 1 | 8 | 7.8 | 8.3 |
| 2 | 8 | 7.9 | 8.3 |
| 3 | 8 | 7.9 | 8.3 |

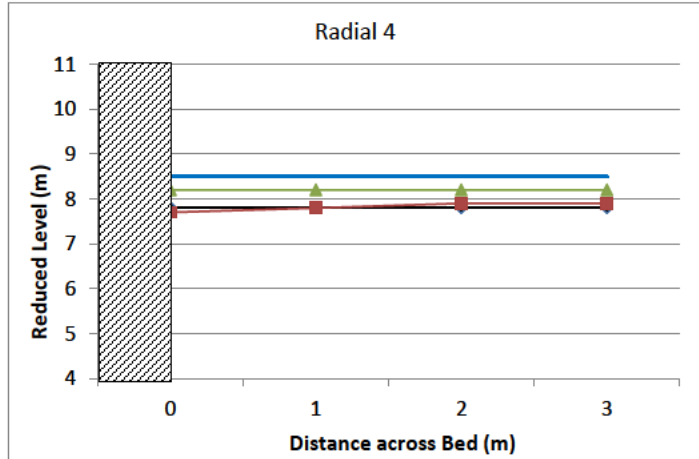


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| █ | Foundation Level |

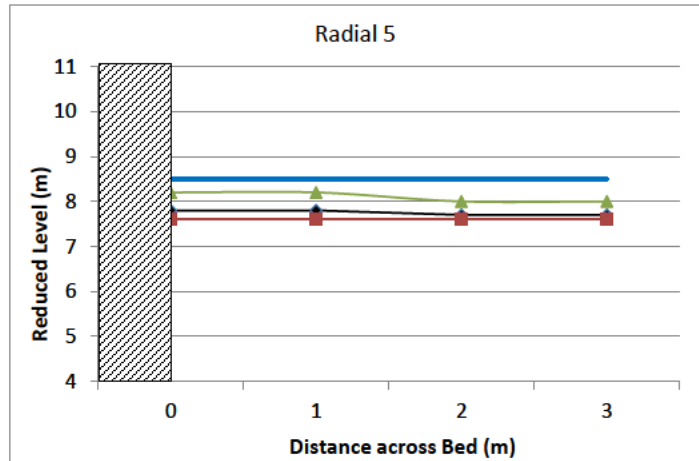
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

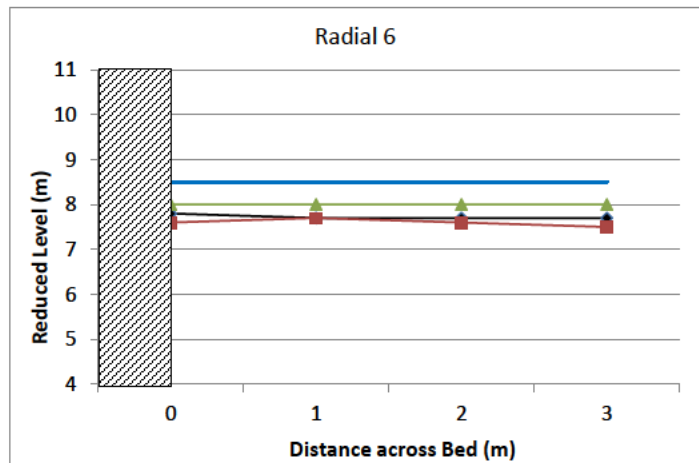
| Pier 1 | Radial 4 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.7 | 8.2 |
| 1 | 7.8 | 7.8 | 8.2 |
| 2 | 7.8 | 7.9 | 8.2 |
| 3 | 7.8 | 7.9 | 8.2 |



| Pier 1 | Radial 5 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.6 | 8.2 |
| 1 | 7.8 | 7.6 | 8.2 |
| 2 | 7.7 | 7.6 | 8 |
| 3 | 7.7 | 7.6 | 8 |



| Pier 1 | Radial 6 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.6 | 8 |
| 1 | 7.7 | 7.7 | 8 |
| 2 | 7.7 | 7.6 | 8 |
| 3 | 7.7 | 7.5 | 8 |

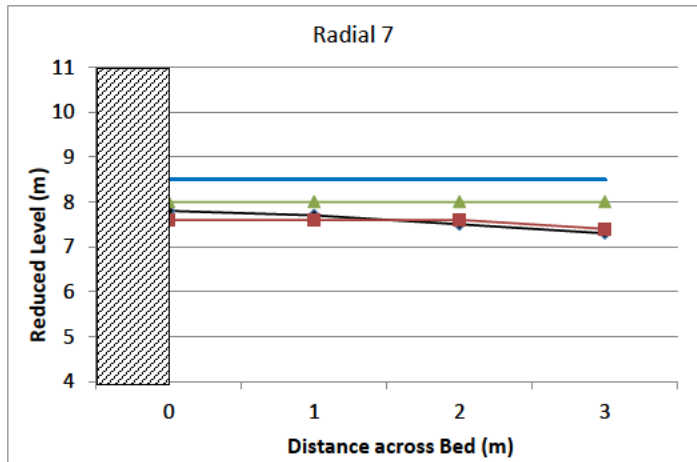


| KEY: | |
|--------------------------------------|-----------------------|
| — | Current Water Level |
| — | Bed Level |
| — | Previous Bed Level |
| — | Penultimate Bed Level |
| — | Founda ion Level |

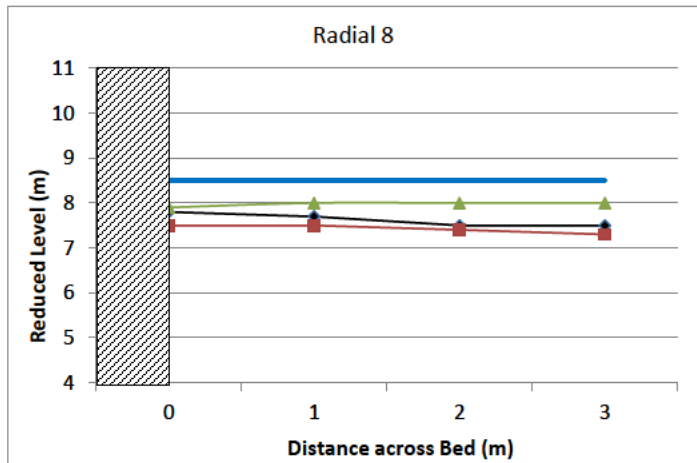
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

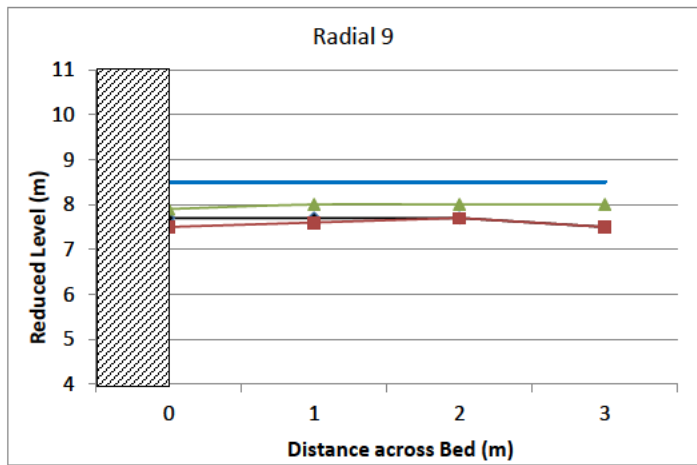
| Pier 1 | Radial 7 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.6 | 8 |
| 1 | 7.7 | 7.6 | 8 |
| 2 | 7.5 | 7.6 | 8 |
| 3 | 7.3 | 7.4 | 8 |



| Pier 1 | Radial 8 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.5 | 7.9 |
| 1 | 7.7 | 7.5 | 8 |
| 2 | 7.5 | 7.4 | 8 |
| 3 | 7.5 | 7.3 | 8 |



| Pier 1 | Radial 9 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.7 | 7.5 | 7.9 |
| 1 | 7.7 | 7.6 | 8 |
| 2 | 7.7 | 7.7 | 8 |
| 3 | 7.5 | 7.5 | 8 |



| KEY: | |
|--------------------------------------|-----------------------|
| — | Current Water Level |
| — | Bed Level |
| — | Previous Bed Level |
| — | Penultimate Bed Level |
| — | Founda ion Level |

RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

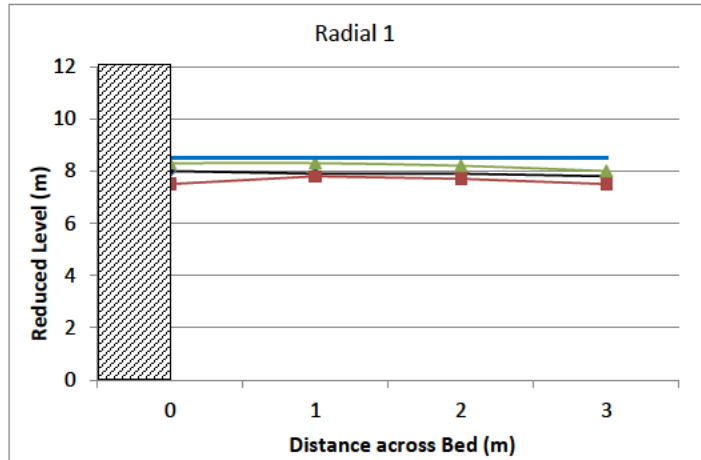
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

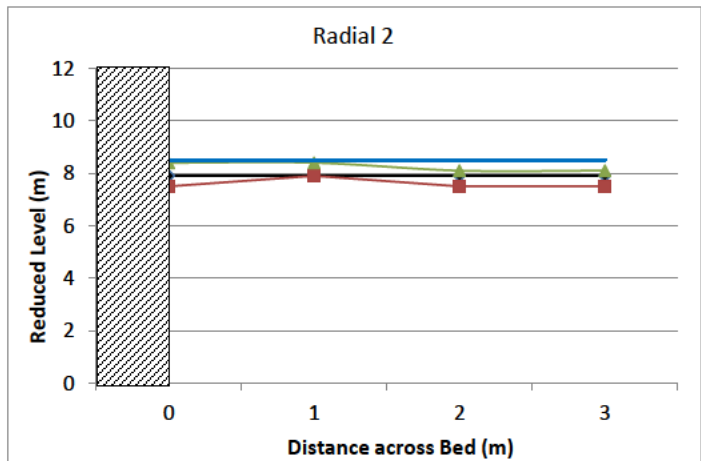
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

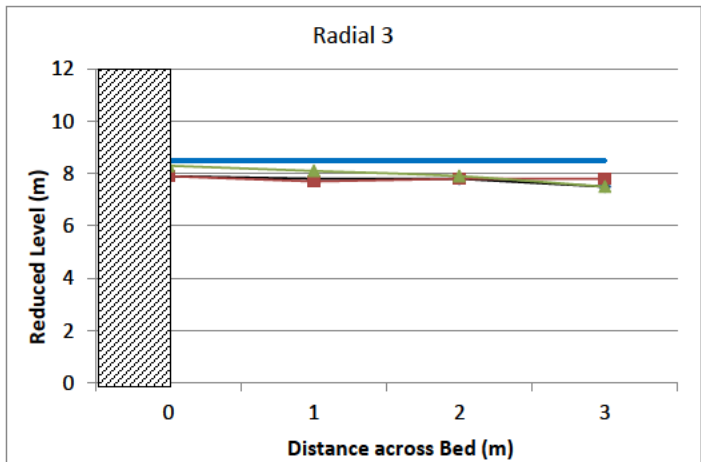
| Pier 2 | Radial 1 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.5 | 8.3 |
| 1 | 7.9 | 7.8 | 8.3 |
| 2 | 7.9 | 7.7 | 8.2 |
| 3 | 7.8 | 7.5 | 8 |



| Pier 2 | Radial 2 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.9 | 7.5 | 8.4 |
| 1 | 7.9 | 7.9 | 8.4 |
| 2 | 7.9 | 7.5 | 8.1 |
| 3 | 7.9 | 7.5 | 8.1 |



| Pier 2 | Radial 3 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.9 | 7.9 | 8.3 |
| 1 | 7.8 | 7.7 | 8.1 |
| 2 | 7.8 | 7.8 | 7.9 |
| 3 | 7.5 | 7.8 | 7.5 |



| KEY: | |
|--------------------------------------|-----------------------|
| — | Current Water Level |
| — | Bed Level |
| — | Previous Bed Level |
| — | Penultimate Bed Level |
| — | Foundation Level |

14/09/20

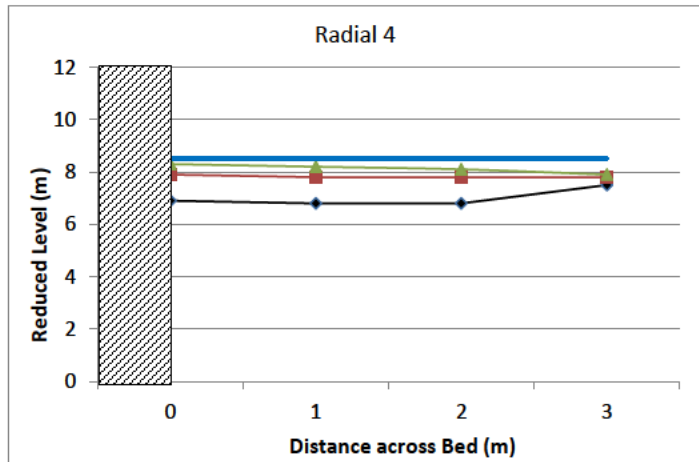
07/06/19

03/10/18

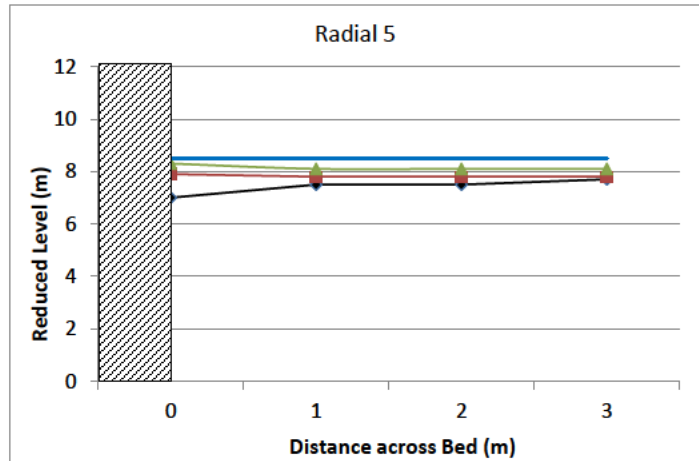
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

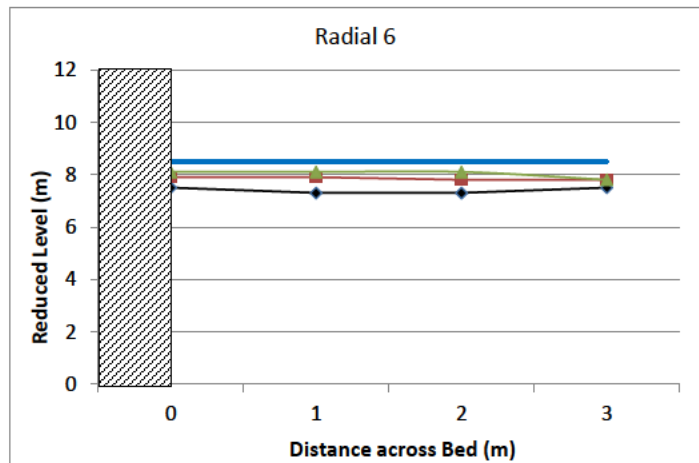
| Pier 2 | Radial 4 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 6.9 | 7.9 | 8.3 |
| 1 | 6.8 | 7.8 | 8.2 |
| 2 | 6.8 | 7.8 | 8.1 |
| 3 | 7.5 | 7.8 | 7.9 |



| Pier 2 | Radial 5 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7 | 7.9 | 8.3 |
| 1 | 7.5 | 7.8 | 8.1 |
| 2 | 7.5 | 7.8 | 8.1 |
| 3 | 7.7 | 7.8 | 8.1 |



| Pier 2 | Radial 6 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.5 | 7.9 | 8.1 |
| 1 | 7.3 | 7.9 | 8.1 |
| 2 | 7.3 | 7.8 | 8.1 |
| 3 | 7.5 | 7.8 | 7.8 |

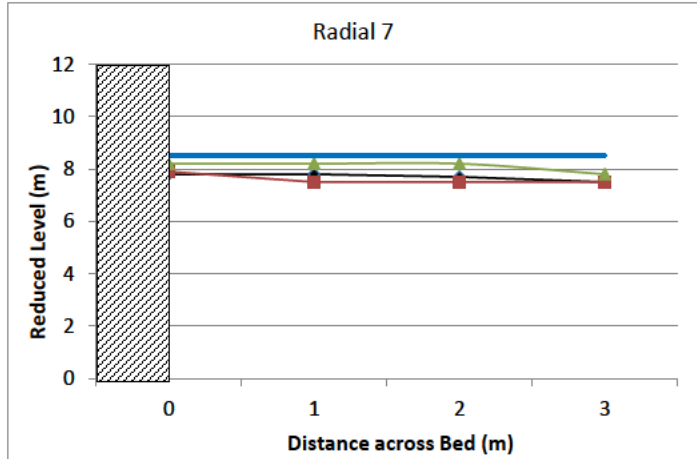


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Founda ion Level |

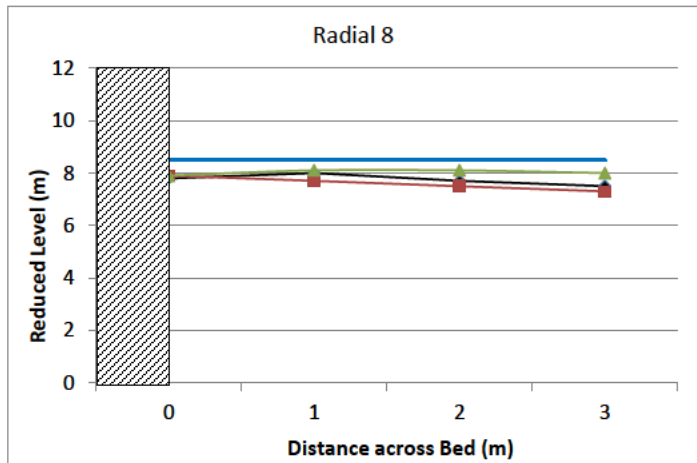
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

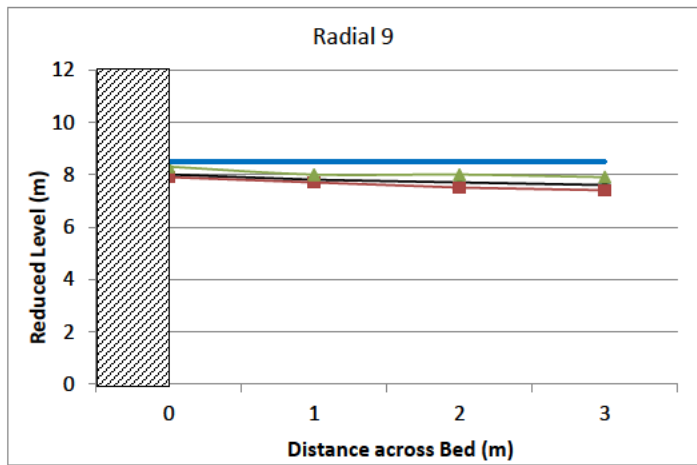
| Pier 2 | Radial 7 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.9 | 8.2 |
| 1 | 7.8 | 7.5 | 8.2 |
| 2 | 7.7 | 7.5 | 8.2 |
| 3 | 7.5 | 7.5 | 7.8 |



| Pier 2 | Radial 8 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.9 | 7.9 |
| 1 | 8 | 7.7 | 8.1 |
| 2 | 7.7 | 7.5 | 8.1 |
| 3 | 7.5 | 7.3 | 8 |



| Pier 2 | Radial 9 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.3 |
| 1 | 7.8 | 7.7 | 8 |
| 2 | 7.7 | 7.5 | 8 |
| 3 | 7.6 | 7.4 | 7.9 |

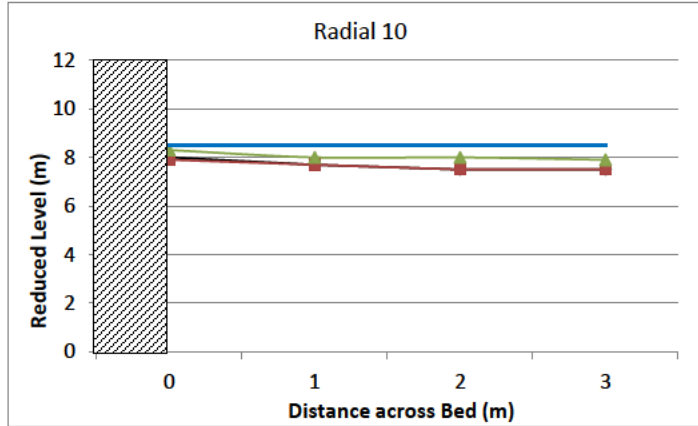


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Founda ion Level |

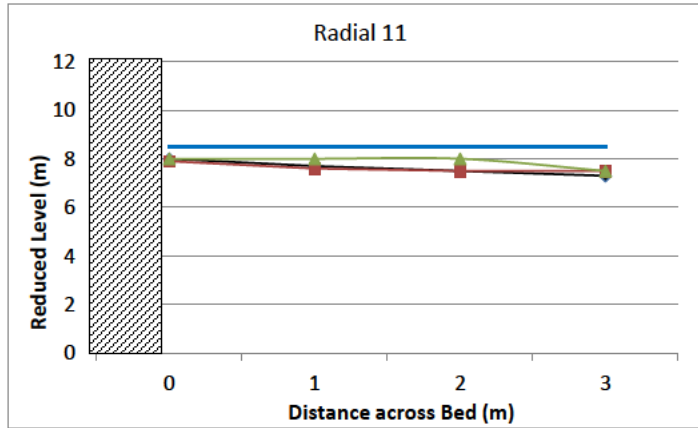
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

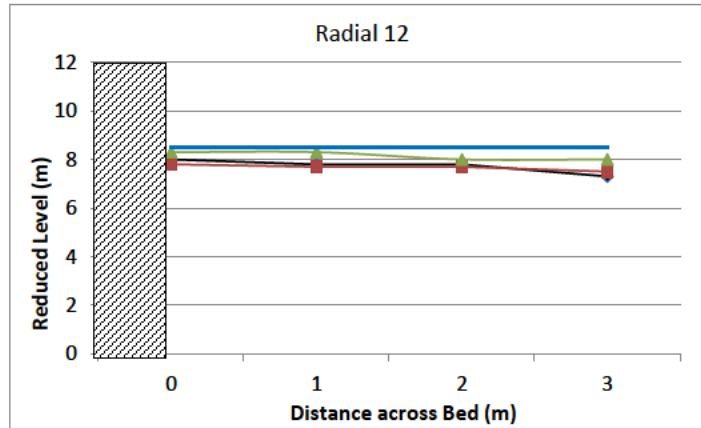
| Pier 2 | Radial 10 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.3 |
| 1 | 7.7 | 7.7 | 8 |
| 2 | 7.5 | 7.5 | 8 |
| 3 | 7.5 | 7.5 | 7.9 |



| Pier 2 | Radial 11 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8 |
| 1 | 7.7 | 7.6 | 8 |
| 2 | 7.5 | 7.5 | 8 |
| 3 | 7.3 | 7.5 | 7.5 |



| Pier 2 | Radial 12 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.8 | 8.3 |
| 1 | 7.8 | 7.7 | 8.3 |
| 2 | 7.8 | 7.7 | 8 |
| 3 | 7.3 | 7.5 | 8 |

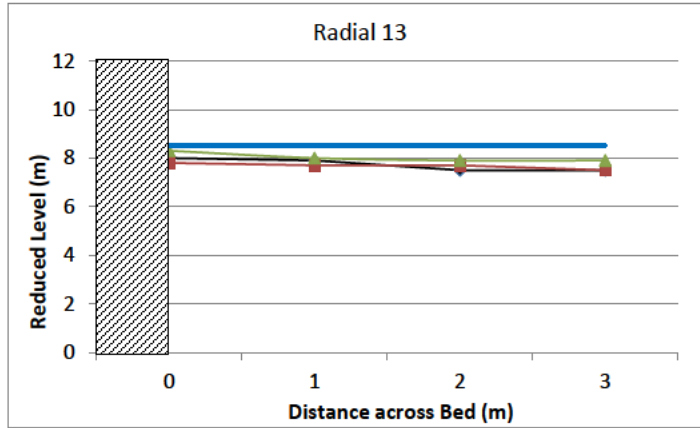


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| █ | Foundation Level |

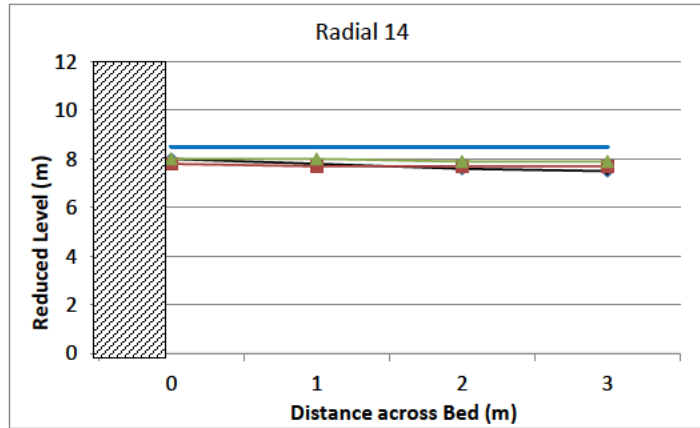
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

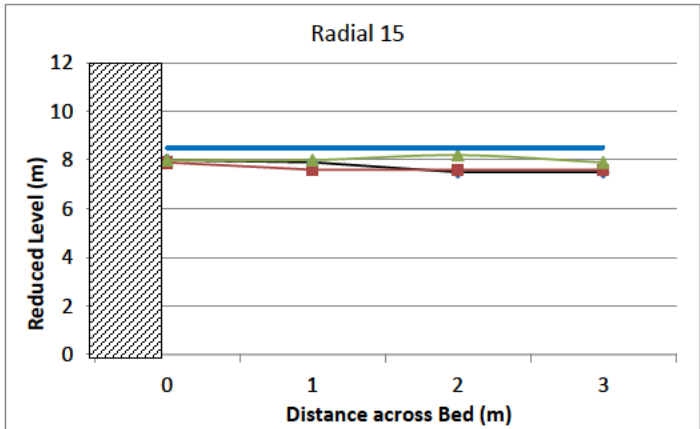
| Pier 2 | Radial 13 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.8 | 8.3 |
| 1 | 7.9 | 7.7 | 8 |
| 2 | 7.5 | 7.7 | 7.9 |
| 3 | 7.5 | 7.5 | 7.9 |



| Pier 2 | Radial 14 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.8 | 8 |
| 1 | 7.8 | 7.7 | 8 |
| 2 | 7.6 | 7.7 | 7.9 |
| 3 | 7.5 | 7.7 | 7.9 |



| Pier 2 | Radial 15 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8 |
| 1 | 7.9 | 7.6 | 8 |
| 2 | 7.5 | 7.6 | 8.2 |
| 3 | 7.5 | 7.6 | 7.9 |

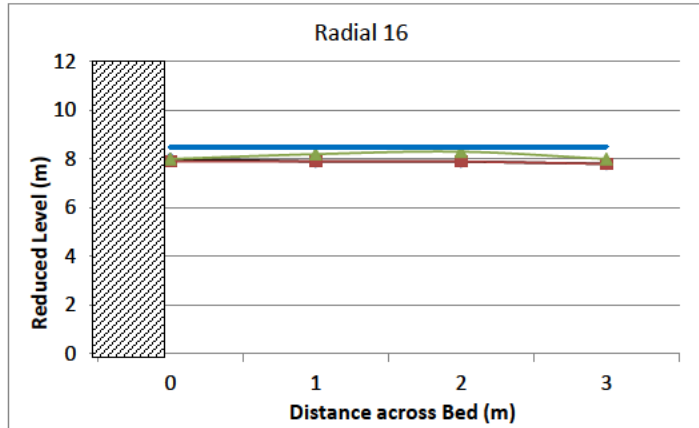


| KEY: | | | |
|--------------------------------------|-----------------------|----------|--|
| — | Current Water Level | | |
| — | Bed Level | 14/09/20 | |
| — | Previous Bed Level | 07/06/19 | |
| — | Penultimate Bed Level | 03/10/18 | |
| — | Founda ion Level | | |

RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

| Pier 2 | Radial 16 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8 |
| 1 | 7.9 | 7.9 | 8.2 |
| 2 | 7.9 | 7.9 | 8.3 |
| 3 | 7.8 | 7.8 | 8 |

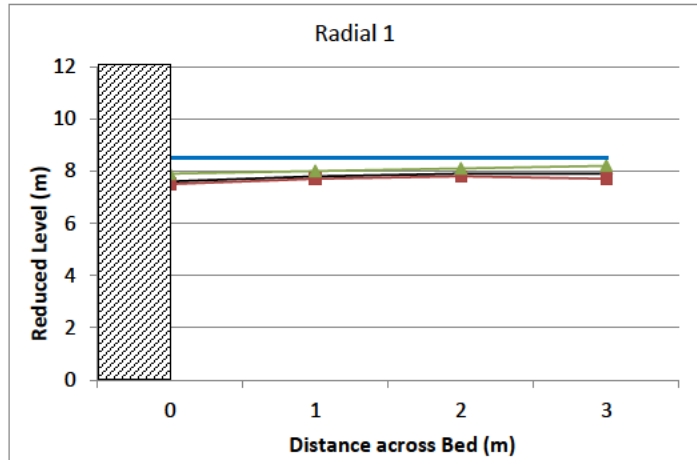


| KEY: | |
|--|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Foundation Level |

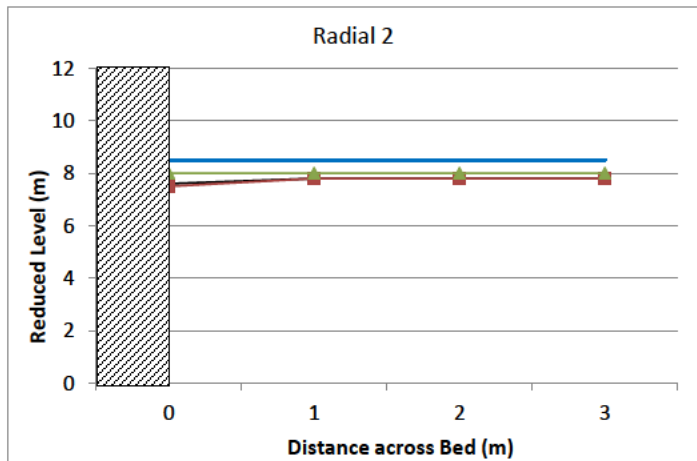
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

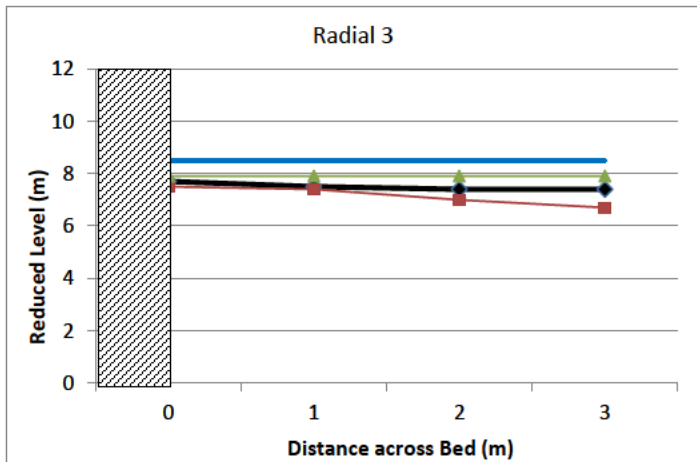
| Pier 3 | Radial 1 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.6 | 7.5 | 7.9 |
| 1 | 7.8 | 7.7 | 8 |
| 2 | 7.9 | 7.8 | 8.1 |
| 3 | 7.9 | 7.7 | 8.2 |



| Pier 3 | Radial 2 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.6 | 7.5 | 8 |
| 1 | 7.8 | 7.8 | 8 |
| 2 | 7.8 | 7.8 | 8 |
| 3 | 7.8 | 7.8 | 8 |



| Pier 3 | Radial 3 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.7 | 7.5 | 7.9 |
| 1 | 7.5 | 7.4 | 7.9 |
| 2 | 7.4 | 7 | 7.9 |
| 3 | 7.4 | 6.7 | 7.9 |

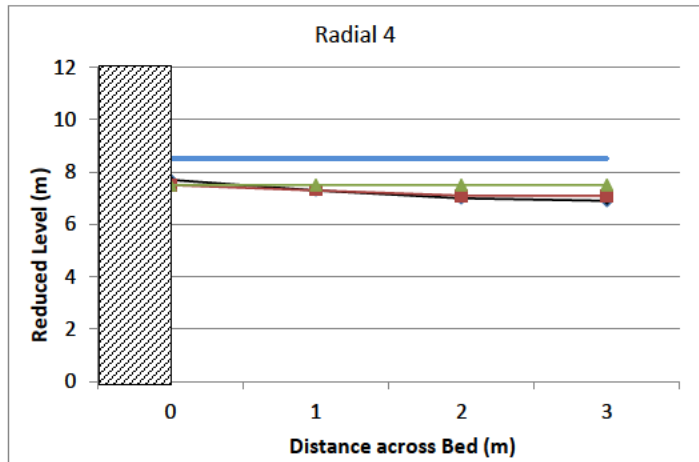


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| █ | Foundation Level |

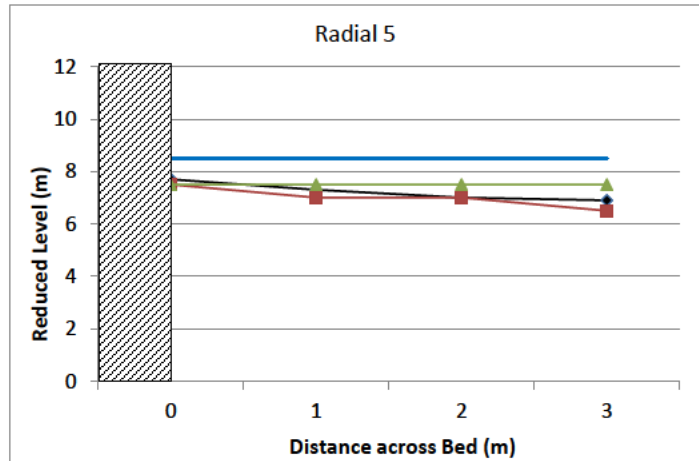
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

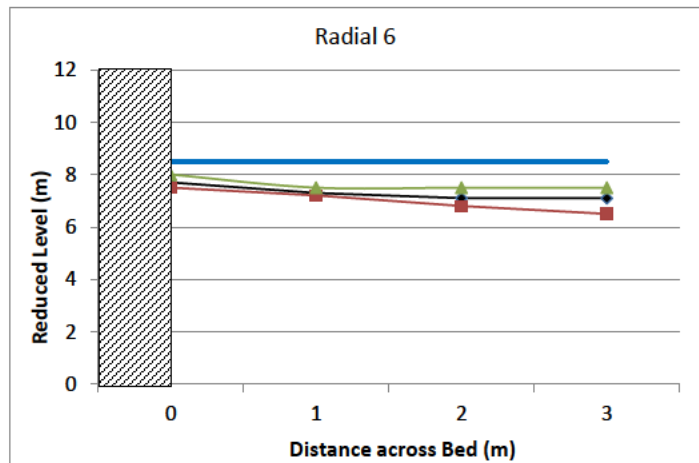
| Pier 3 | Radial 4 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.7 | 7.5 | 7.5 |
| 1 | 7.3 | 7.3 | 7.5 |
| 2 | 7 | 7.1 | 7.5 |
| 3 | 6.9 | 7.1 | 7.5 |



| Pier 3 | Radial 5 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.7 | 7.5 | 7.5 |
| 1 | 7.3 | 7 | 7.5 |
| 2 | 7 | 7 | 7.5 |
| 3 | 6.9 | 6.5 | 7.5 |



| Pier 3 | Radial 6 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.7 | 7.5 | 8 |
| 1 | 7.3 | 7.2 | 7.5 |
| 2 | 7.1 | 6.8 | 7.5 |
| 3 | 7.1 | 6.5 | 7.5 |

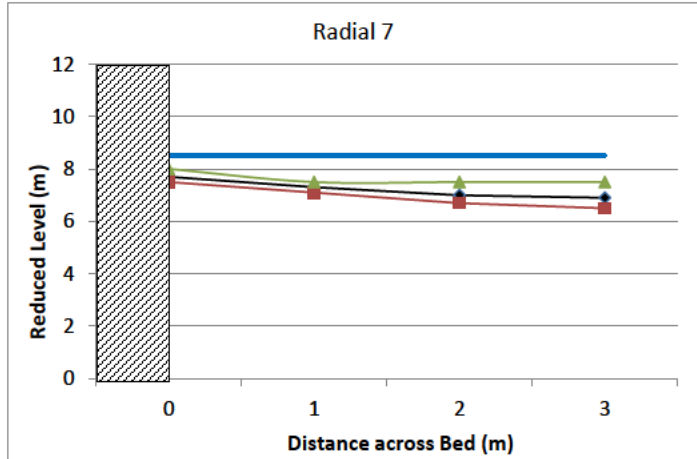


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Founda ion Level |

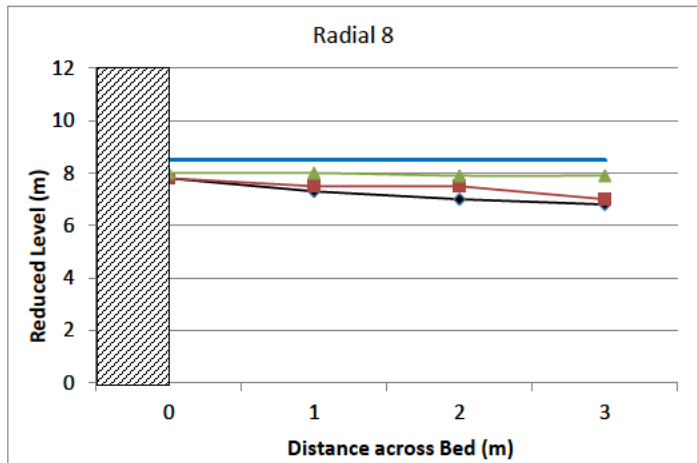
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

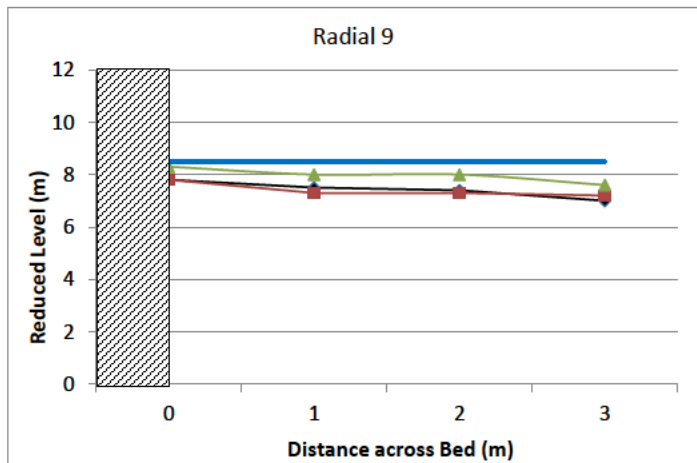
| Pier 3 | Radial 7 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.7 | 7.5 | 8 |
| 1 | 7.3 | 7.1 | 7.5 |
| 2 | 7 | 6.7 | 7.5 |
| 3 | 6.9 | 6.5 | 7.5 |



| Pier 3 | Radial 8 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.8 | 8 |
| 1 | 7.3 | 7.5 | 8 |
| 2 | 7 | 7.5 | 7.9 |
| 3 | 6.8 | 7 | 7.9 |



| Pier 3 | Radial 9 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.8 | 8.3 |
| 1 | 7.5 | 7.3 | 8 |
| 2 | 7.4 | 7.3 | 8 |
| 3 | 7 | 7.2 | 7.6 |

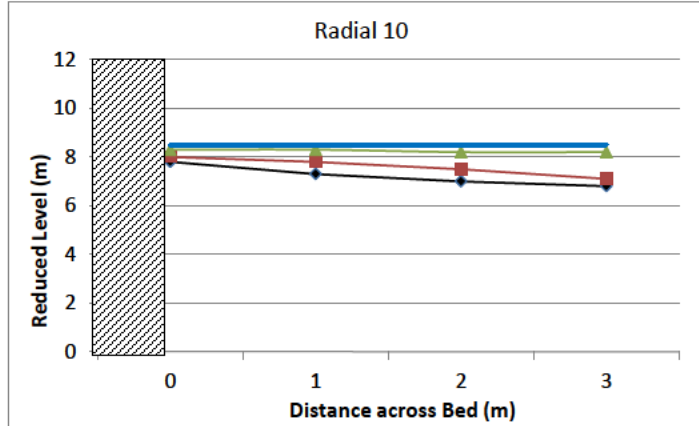


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Foundation Level |

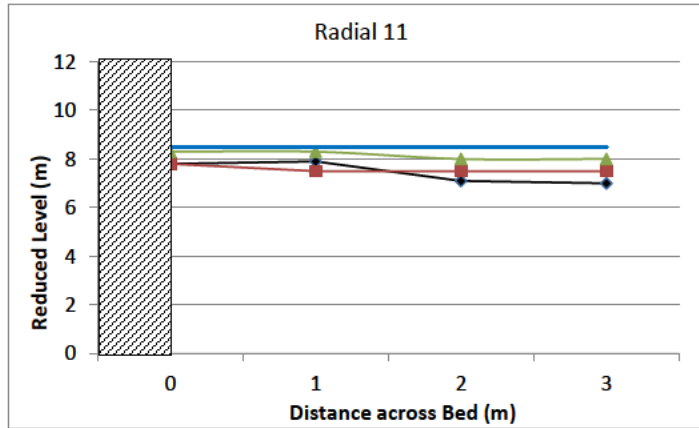
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

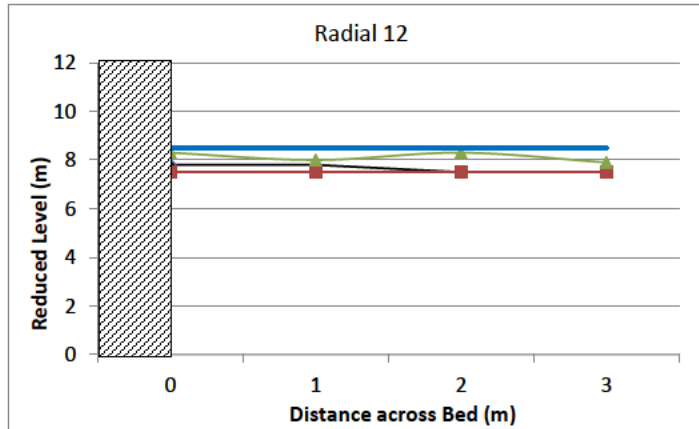
| Pier 3 | Radial 10 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 8 | 8.3 |
| 1 | 7.3 | 7.8 | 8.3 |
| 2 | 7 | 7.5 | 8.2 |
| 3 | 6.8 | 7.1 | 8.2 |



| Pier 3 | Radial 11 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.8 | 8.3 |
| 1 | 7.9 | 7.5 | 8.3 |
| 2 | 7.1 | 7.5 | 8 |
| 3 | 7 | 7.5 | 8 |



| Pier 3 | Radial 12 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.5 | 8.3 |
| 1 | 7.8 | 7.5 | 8 |
| 2 | 7.5 | 7.5 | 8.3 |
| 3 | 7.5 | 7.5 | 7.9 |

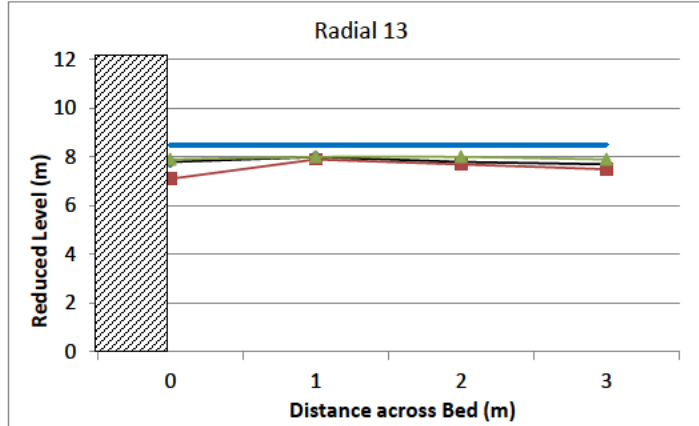


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Founda ion Level |

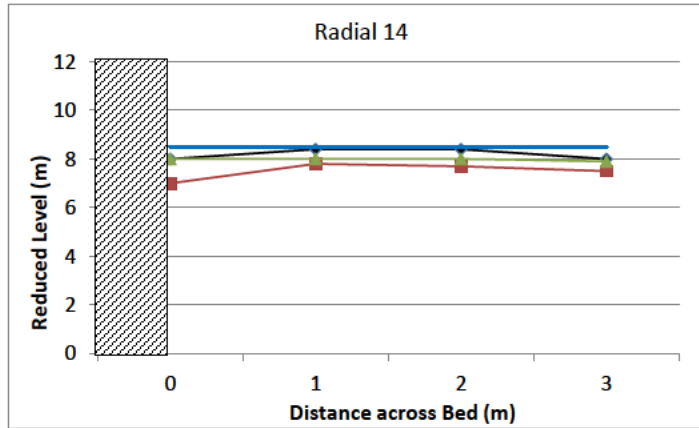
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

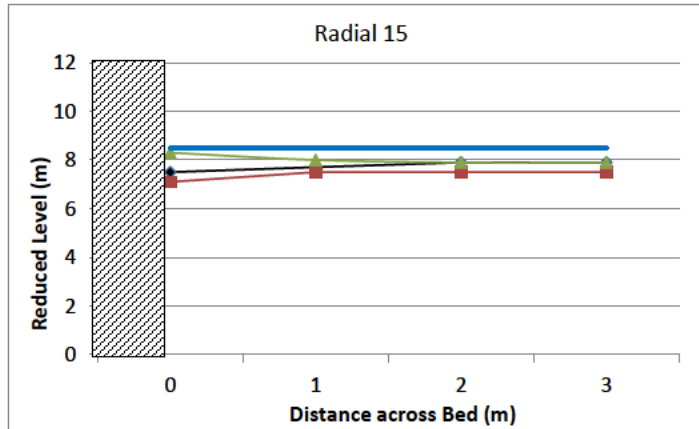
| Pier 3 | Radial 13 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.8 | 7.1 | 7.9 |
| 1 | 8 | 7.9 | 8 |
| 2 | 7.8 | 7.7 | 8 |
| 3 | 7.7 | 7.5 | 7.9 |



| Pier 3 | Radial 14 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7 | 8 |
| 1 | 8.4 | 7.8 | 8 |
| 2 | 8.4 | 7.7 | 8 |
| 3 | 8 | 7.5 | 7.9 |



| Pier 3 | Radial 15 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.5 | 7.1 | 8.3 |
| 1 | 7.7 | 7.5 | 8 |
| 2 | 7.9 | 7.5 | 7.9 |
| 3 | 7.9 | 7.5 | 7.9 |

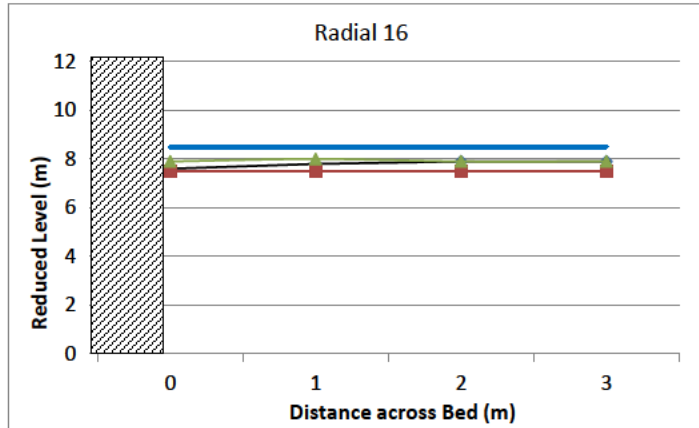


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Foundation Level |

RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

| Pier 3 | Radial 16 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 7.6 | 7.5 | 7.9 |
| 1 | 7.8 | 7.5 | 8 |
| 2 | 7.9 | 7.5 | 7.9 |
| 3 | 7.9 | 7.5 | 7.9 |

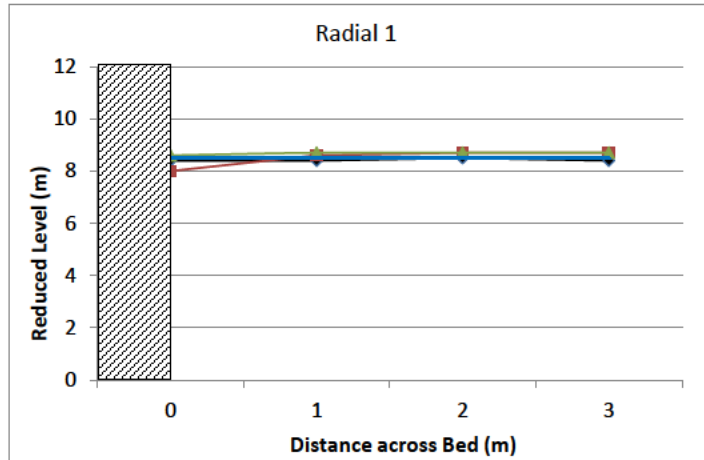


| KEY: | |
|----------------|-----------------------|
| — (Blue) | Current Water Level |
| — (Black) | Bed Level |
| — (Red) | Previous Bed Level |
| — (Green) | Penultimate Bed Level |
| — (Light Blue) | Foundation Level |
| | 14/09/20 |
| | 07/06/19 |
| | 03/10/18 |

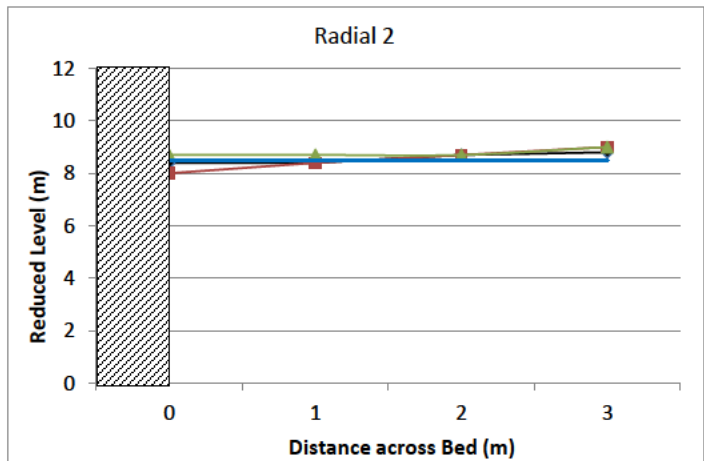
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

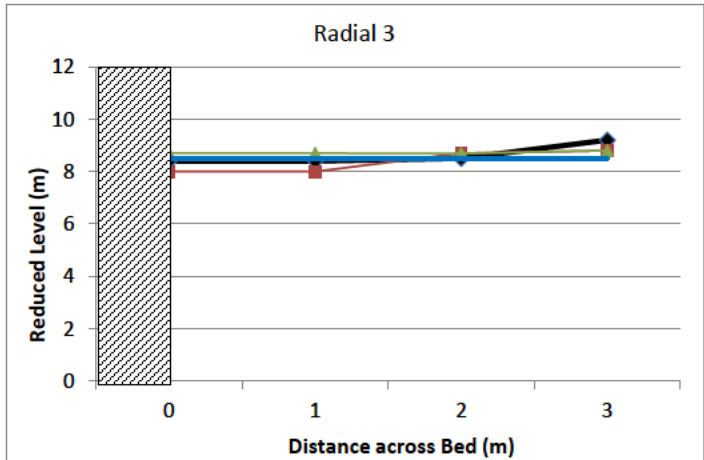
| Pier4 | Radial 1 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.6 |
| 1 | 8.4 | 8.6 | 8.7 |
| 2 | 8.5 | 8.7 | 8.7 |
| 3 | 8.4 | 8.7 | 8.7 |



| Pier4 | Radial 2 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.7 |
| 1 | 8.4 | 8.4 | 8.7 |
| 2 | 8.7 | 8.7 | 8.7 |
| 3 | 8.8 | 9 | 9 |



| Pier4 | Radial 3 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.7 |
| 1 | 8.4 | 8 | 8.7 |
| 2 | 8.5 | 8.7 | 8.7 |
| 3 | 9.2 | 8.8 | 8.8 |

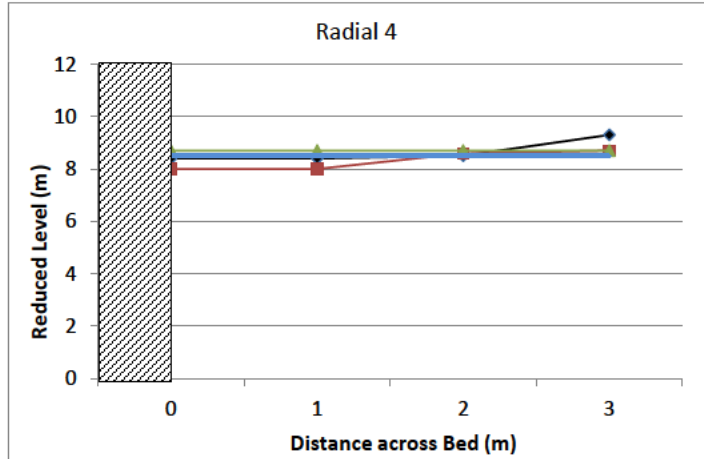


| KEY: | |
|--------------------------------------|-----------------------|
| — | Current Water Level |
| — | Bed Level |
| — | Previous Bed Level |
| — | Penultimate Bed Level |
| — | Founda ion Level |

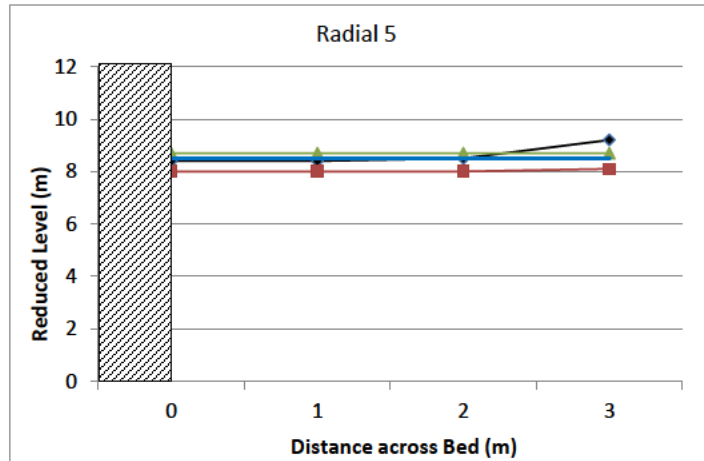
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

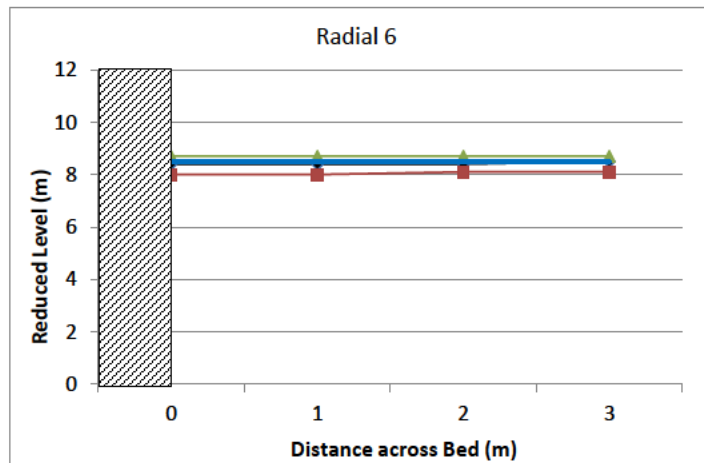
| Pier4 | Radial 4 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.7 |
| 1 | 8.4 | 8 | 8.7 |
| 2 | 8.5 | 8.6 | 8.7 |
| 3 | 9.3 | 8.7 | 8.7 |



| Pier4 | Radial 5 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.7 |
| 1 | 8.4 | 8 | 8.7 |
| 2 | 8.5 | 8 | 8.7 |
| 3 | 9.2 | 8.1 | 8.7 |



| Pier4 | Radial 6 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.7 |
| 1 | 8.4 | 8 | 8.7 |
| 2 | 8.4 | 8.1 | 8.7 |
| 3 | 8.5 | 8.1 | 8.7 |

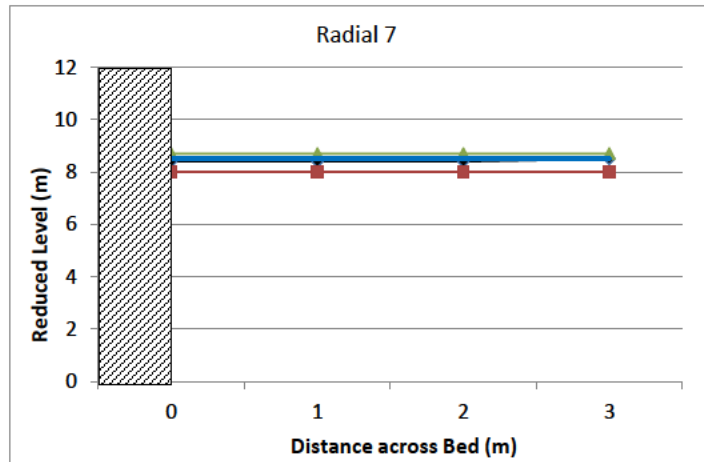


| KEY: | |
|--|--------------------------------|
| —●— | Current Water Level |
| —●— | Bed Level 14/09/20 |
| —■— | Previous Bed Level 07/06/19 |
| —▲— | Penultimate Bed Level 03/10/18 |
| —■— | Founda ion Level |

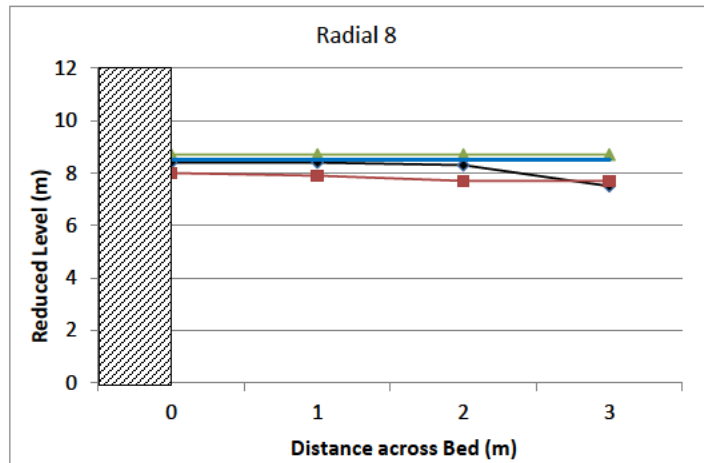
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

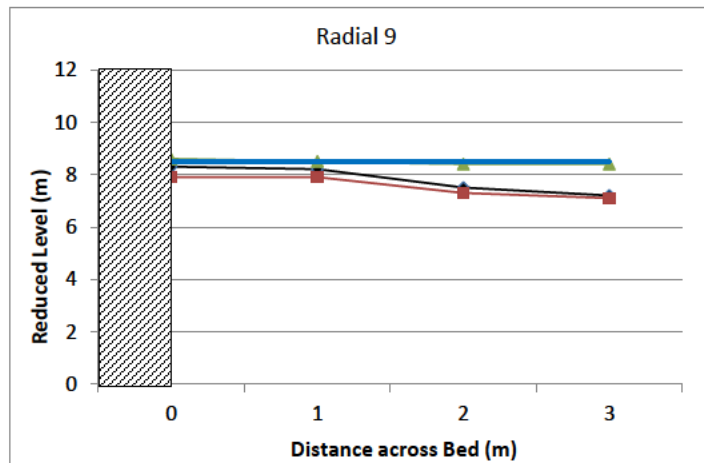
| Pier4 | Radial 7 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.7 |
| 1 | 8.4 | 8 | 8.7 |
| 2 | 8.4 | 8 | 8.7 |
| 3 | 8.5 | 8 | 8.7 |



| Pier4 | Radial 8 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.4 | 8 | 8.7 |
| 1 | 8.4 | 7.9 | 8.7 |
| 2 | 8.3 | 7.7 | 8.7 |
| 3 | 7.5 | 7.7 | 8.7 |



| Pier4 | Radial 9 | | |
|-----------------------------|----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8.3 | 7.9 | 8.6 |
| 1 | 8.2 | 7.9 | 8.5 |
| 2 | 7.5 | 7.3 | 8.4 |
| 3 | 7.2 | 7.1 | 8.4 |

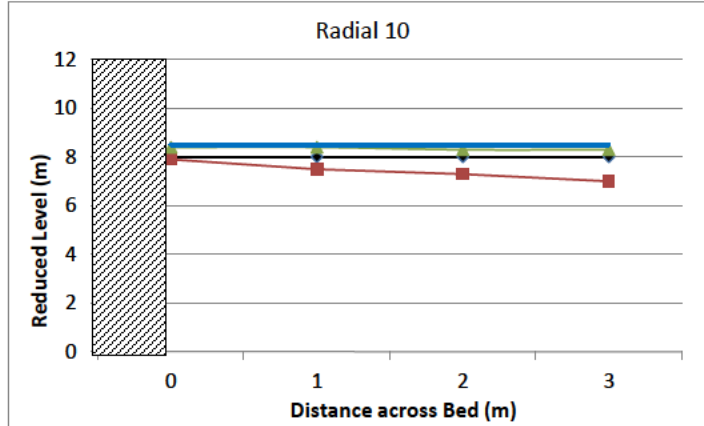


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Founda ion Level |

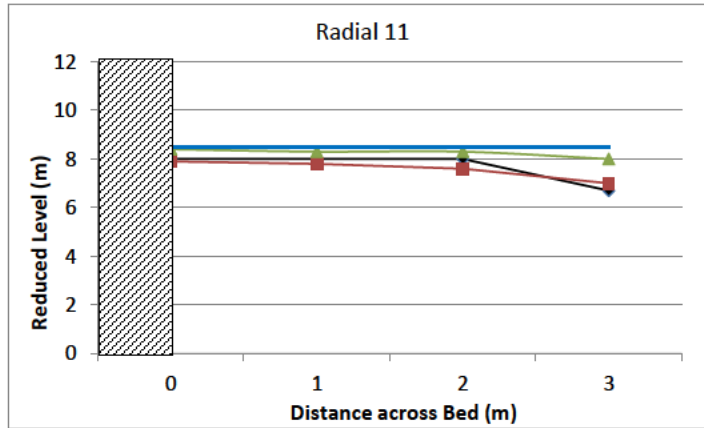
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

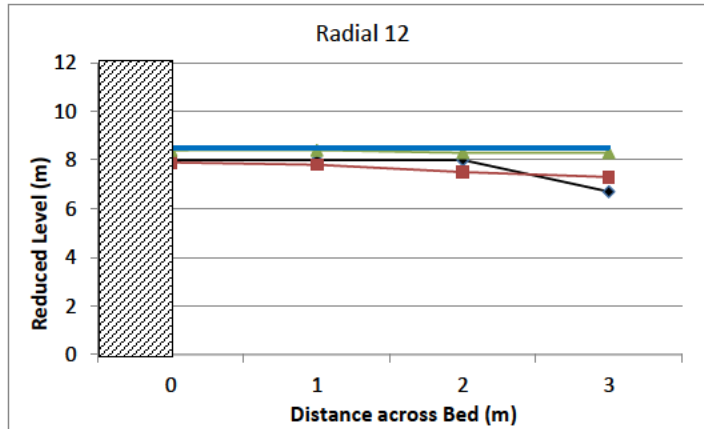
| Pier4 | Radial 10 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.4 |
| 1 | 8 | 7.5 | 8.4 |
| 2 | 8 | 7.3 | 8.3 |
| 3 | 8 | 7 | 8.3 |



| Pier4 | Radial 11 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.4 |
| 1 | 8 | 7.8 | 8.3 |
| 2 | 8 | 7.6 | 8.3 |
| 3 | 6.7 | 7 | 8 |



| Pier4 | Radial 12 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.4 |
| 1 | 8 | 7.8 | 8.4 |
| 2 | 8 | 7.5 | 8.3 |
| 3 | 6.7 | 7.3 | 8.3 |

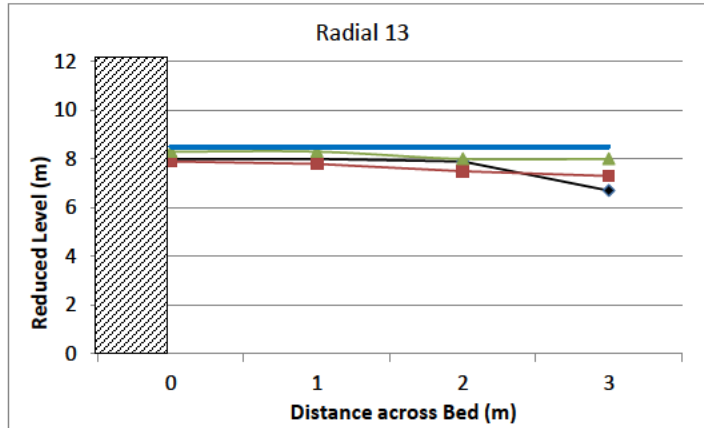


| KEY: | |
|--|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Founda ion Level |

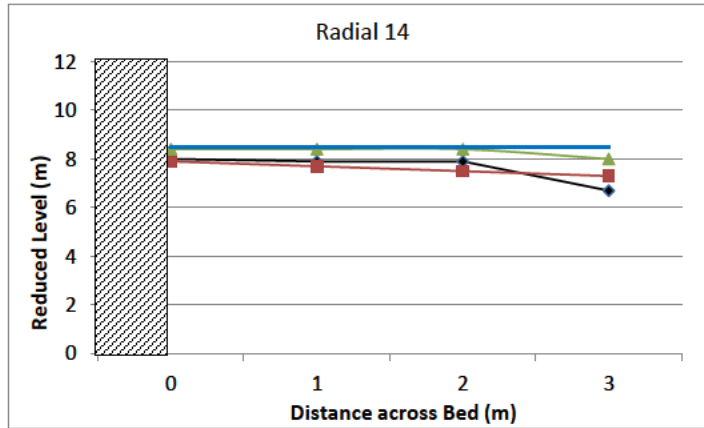
RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

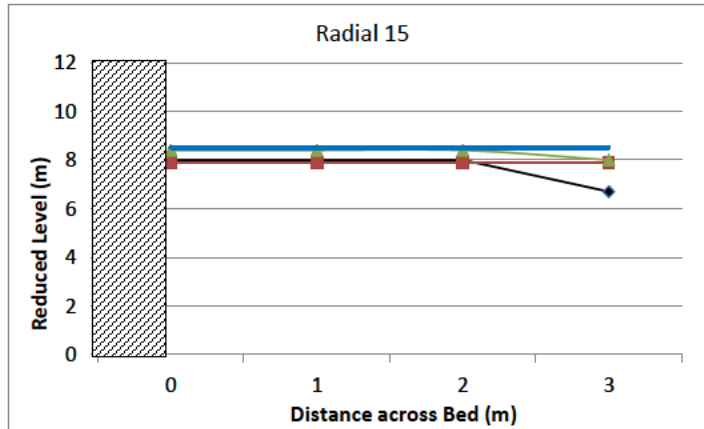
| Pier4 | Radial 13 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.3 |
| 1 | 8 | 7.8 | 8.3 |
| 2 | 7.9 | 7.5 | 8 |
| 3 | 6.7 | 7.3 | 8 |



| Pier4 | Radial 14 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.4 |
| 1 | 7.9 | 7.7 | 8.4 |
| 2 | 7.9 | 7.5 | 8.4 |
| 3 | 6.7 | 7.3 | 8 |



| Pier4 | Radial 15 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.4 |
| 1 | 8 | 7.9 | 8.4 |
| 2 | 8 | 7.9 | 8.4 |
| 3 | 6.7 | 7.9 | 8 |

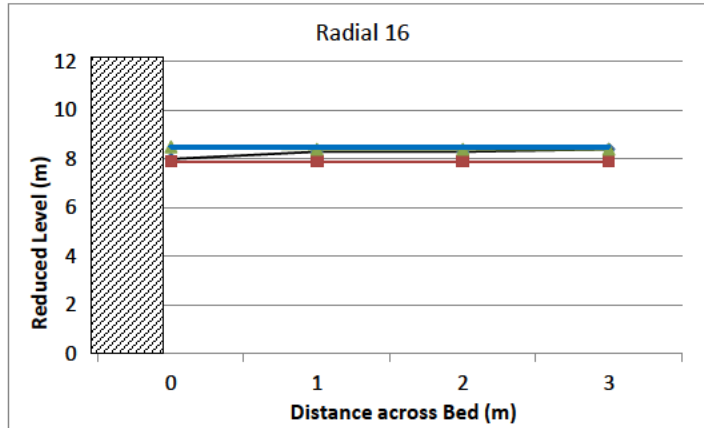


| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Foundation Level |

RADIAL SOUNDINGS

ELR:GSW 106mls 1481yds Br131/343

| Pier4 | Radial 16 | | |
|-----------------------------|-----------|----------|----------|
| Distance from Structure (m) | 14/09/20 | 07/06/19 | 03/10/18 |
| 0 | 8 | 7.9 | 8.5 |
| 1 | 8.3 | 7.9 | 8.4 |
| 2 | 8.3 | 7.9 | 8.4 |
| 3 | 8.4 | 7.9 | 8.4 |



| KEY: | |
|--------------------------------------|--------------------------------|
| — | Current Water Level |
| — | Bed Level 14/09/20 |
| — | Previous Bed Level 07/06/19 |
| — | Penultimate Bed Level 03/10/18 |
| — | Founda ion Level |