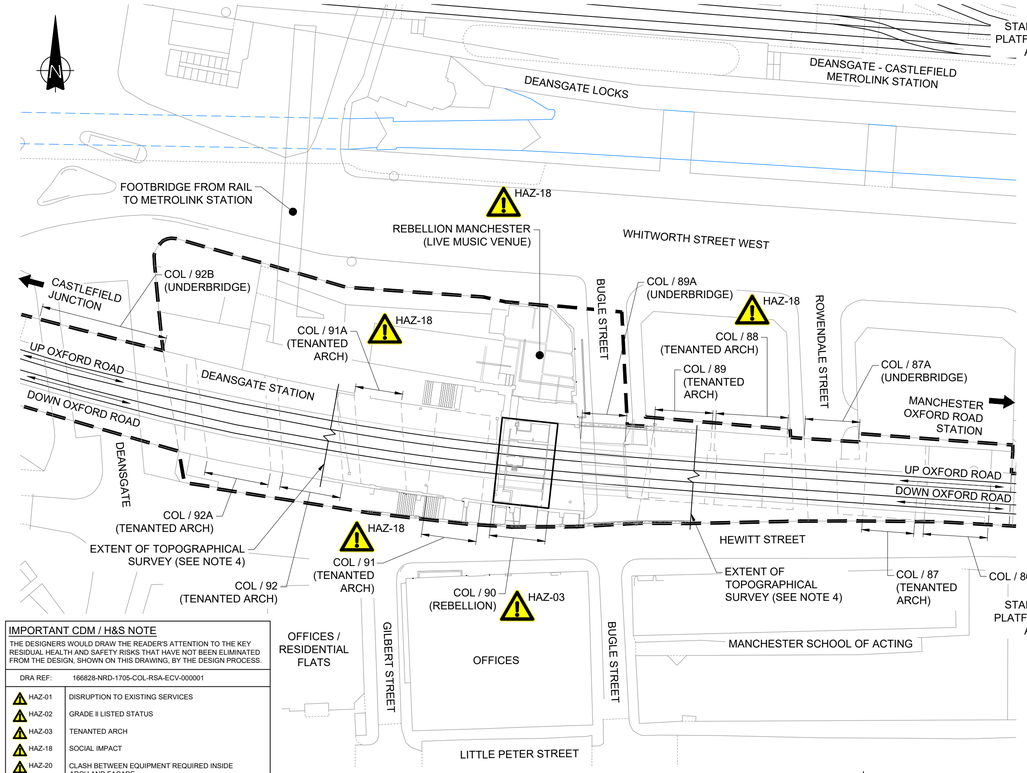
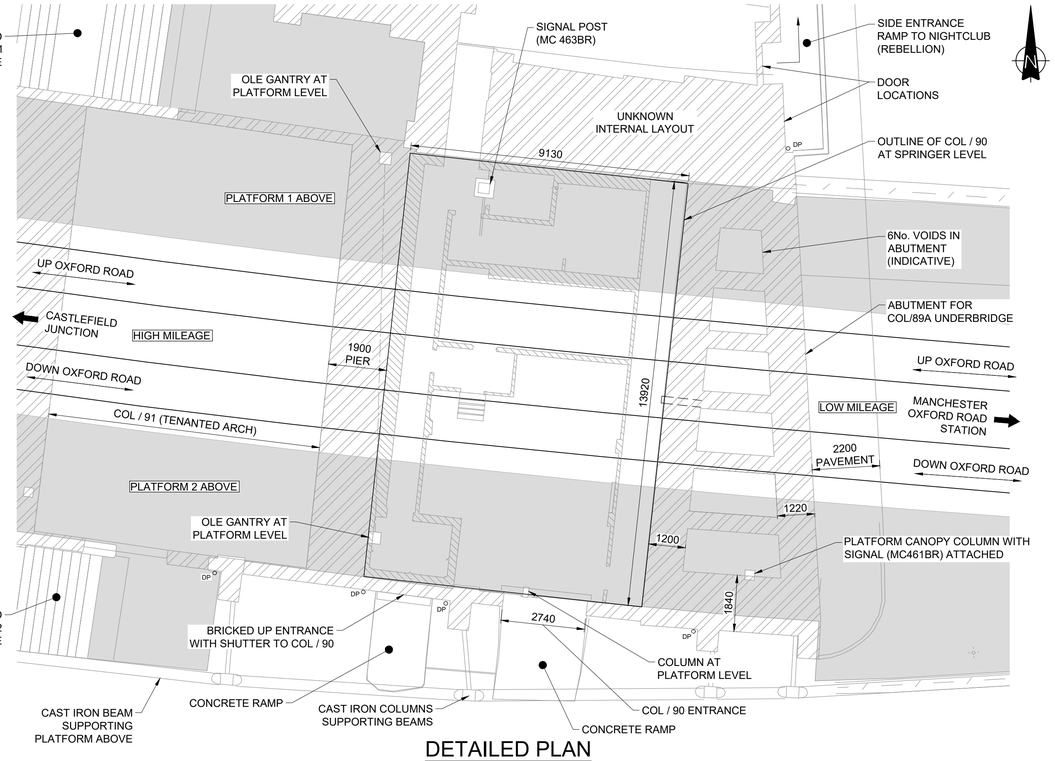


PLAN
SCALE 1:500



DETAILED PLAN
SCALE 1:100

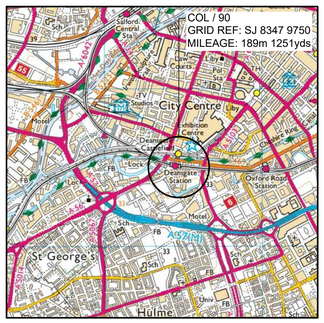
IMPORTANT CDM / H&S NOTE

THE DESIGNERS WOULD DRAW THE READER'S ATTENTION TO THE KEY RESIDUAL HEALTH AND SAFETY RISKS THAT HAVE NOT BEEN ELIMINATED FROM THE DESIGN, SHOWN ON THIS DRAWING, BY THE DESIGN PROCESS.

DRA REF: 166828-NRD-1705-COL-RSA-ECV-000001

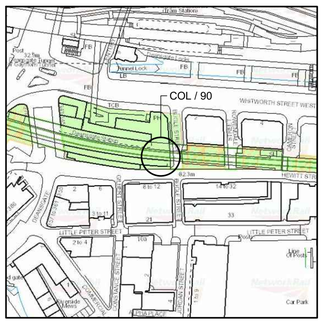
HAZ-01	DISRUPTION TO EXISTING SERVICES
HAZ-02	GRADE II LISTED STATUS
HAZ-03	TENANTED ARCH
HAZ-18	SOCIAL IMPACT
HAZ-20	CLASH BETWEEN EQUIPMENT REQUIRED INSIDE ARCH AND FACADE

FOR MORE DETAILS ON THE HIGHLIGHTED HAZARDS REFER TO THE DESIGN RISK ASSESSMENT FOR THIS PROJECT
"EVERYDAY" LOW RISK HAZARDS AND THOSE HAZARDS WHICH SHOULD BE OBVIOUS TO A COMPETENT CONTRACTOR HAVE NOT BEEN INDICATED ON THIS DRAWING. SHOULD ANY ADDITIONAL HAZARDS BE IDENTIFIED DURING THE COURSE OF THE WORKS THE CONTRACTOR SHALL NOTIFY ALL RELEVANT MEMBERS OF THE PROJECT TEAM.



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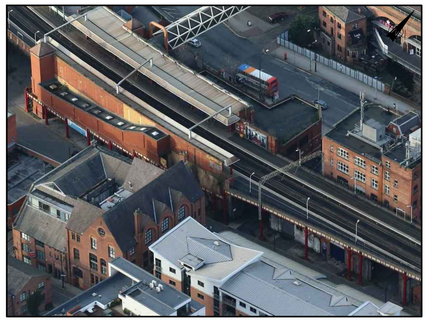
LOCATION PLAN



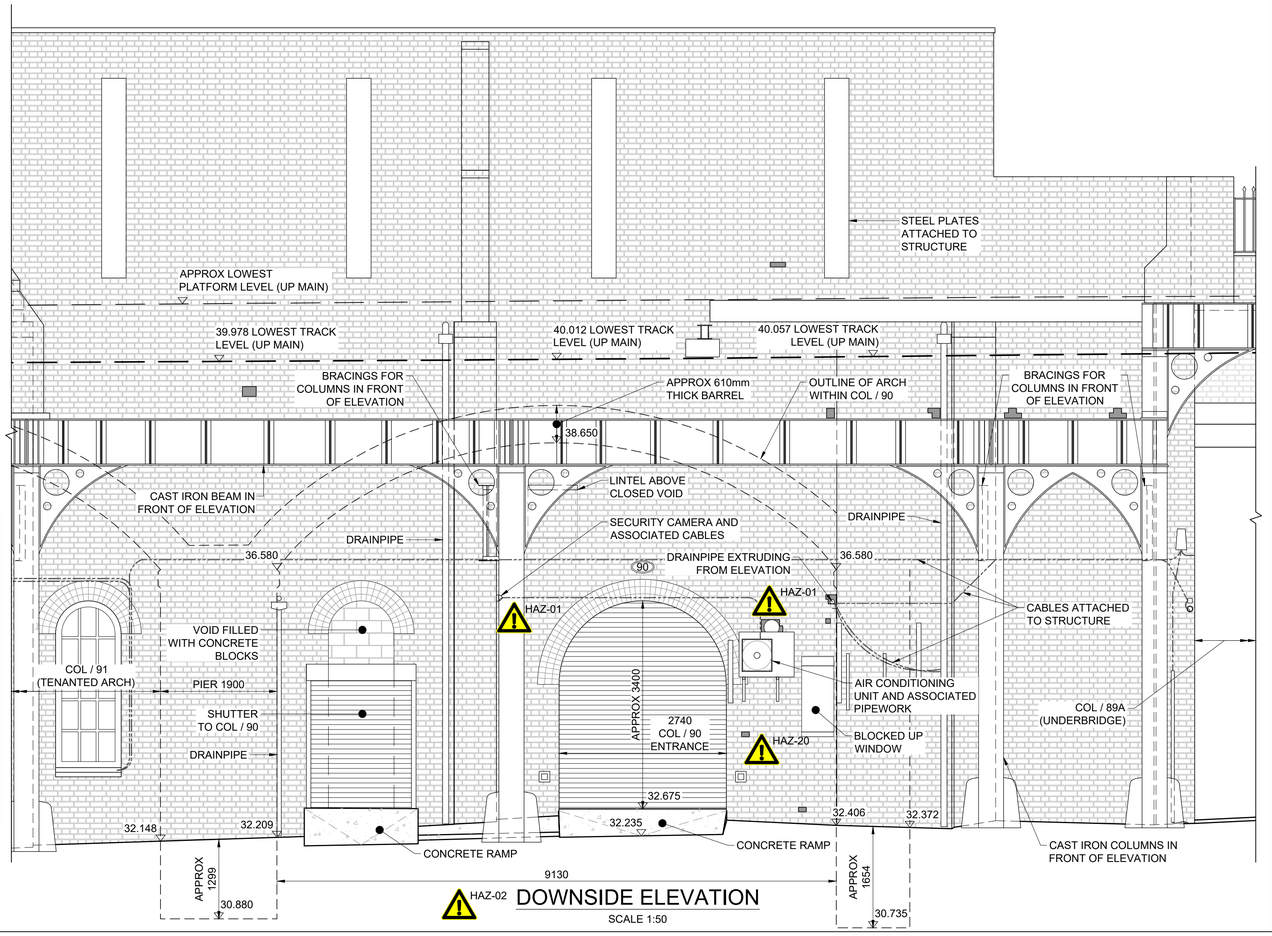
PLAN SHOWING NETWORK RAIL OWNERSHIP



DOWNSIDE ELEVATION FROM HEWITT STREET



BIRDSEYE VIEW LOOKING NORTH WEST OF STATION / PLATFORMS ABOVE COL / 90



DOWNSIDE ELEVATION
SCALE 1:50

Legend/Notes

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. THIS DRAWING IS TO BE PRINTED IN COLOUR.
4. THIS DRAWING IS BASED ON AVAILABLE NETWORK RAIL RECORD INFORMATION AND A TOPOGRAPHICAL AND LASER SCAN SURVEY UNDERTAKEN BY BRIDGEWAY CONSULTING LTD IN AUGUST 2020.
5. THE INTERIOR OF THE ARCH IS CURRENTLY TENANTED BY THE ADJACENT NIGHTCLUB (REBELLION) AND IT IS USED AS AN AREA FOR STORAGE, CELLAR AND TOILETS. THE ARCH IS INTERNALLY DIVIDED BY PARTITION WALLS COMPOSED BY EITHER CONCRETE BLOCKS OR PLASTER. THE AREA INSIDE THE ARCH HAS A FLAT FALSE CEILING SEPARATING IT FROM A HIGHER LEVEL AREA.
6. THE ARCH BARREL HAS THE INTRADOS COVERED WITH REMOVABLE CORRUGATED SHEETING, FIXED INTO TIMBER ELEMENTS.
7. FULL RESULTS OF THE SITE INVESTIGATION WORKS UNDERTAKEN ON SITE ARE CONTAINED WITHIN A FACTUAL REPORT (VERSION 3) PRODUCED BY BRIDGEWAY CONSULTING LTD ON OCTOBER 2020. THESE WORKS COMPRISE OF: 16 No. CORES INTO THE BRICKWORK STRUCTURE; 3 No. FULL BRICKS WERE REMOVED FROM THE INTERIOR OF THE ARCH FOR TESTING; 1 No. ROTARY CORED BOREHOLE FOR GROUND INVESTIGATION.

DRAWING LIST:

166828-NRD-1705-COL-DRG-ECV-

000001 - EXISTING GENERAL ARRANGEMENT
000002 - EXISTING INTERNAL ARRANGEMENT
000003 - SITE PHOTOS
000004 - BRICKWORK REPAIR DETAILS (SHEET 1 OF 2)
000005 - BRICKWORK REPAIR DETAILS (SHEET 2 OF 2)
000006 - PROPOSED GENERAL ARRANGEMENT
000007 - PROPOSED DETAILS
000008 - INDICATIVE CONSTRUCTION SEQUENCE

KEY:

- NETWORK RAIL OWNERSHIP BOUNDARY
- PLATFORM AREA ABOVE ACHES
- BRICKWORK ELEMENTS (PLAN)
- BRICKWORK ELEMENTS (ELEVATION)
- INTERNAL WALLS WITHIN COL/90 BELOW ARCH BARREL
- OLE GANTRY (TRACKSIDE)
- DP DRAINAGE PIPE

0 1 2 3 4 5m
SCALE 1:50

0 2 4 6 8 10m
SCALE 1:100

0 10 20 30 40 50m
SCALE 1:500

REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS: APPROVAL IN PRINCIPLE

DESIGNERS: DESIGN DELIVERY | NetworkRail

Manchester Square One, 4 Travis Street, Manchester, M1 2NY
Tel: 0161 880 3936 Web: www.networkrail.co.uk

PROJECT:

COL / 90 HEWITT STREET UNDERBRIDGE STRENGTHENING

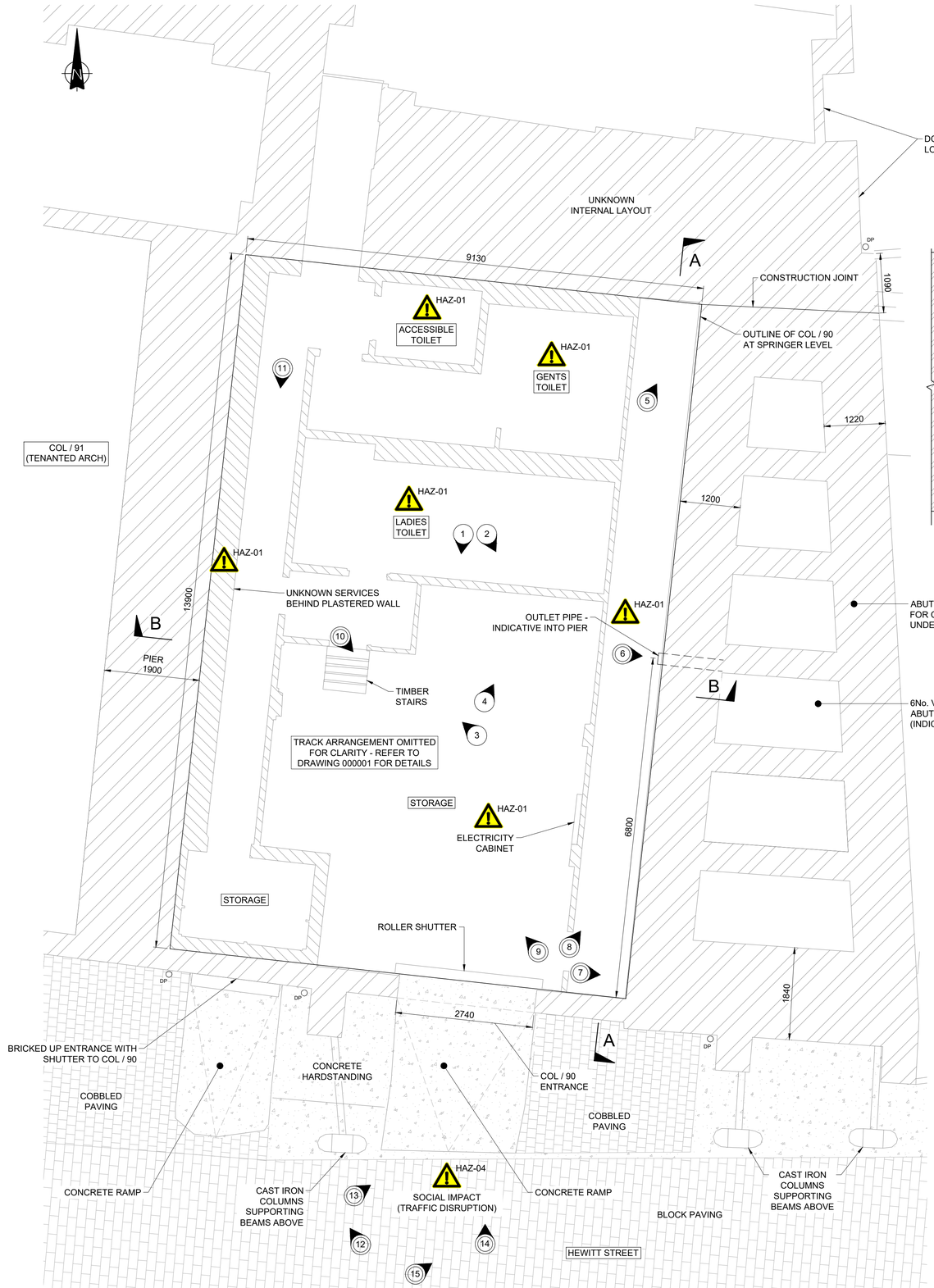
DRAWING TITLE:

EXISTING GENERAL ARRANGEMENT

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

SCALE @ A1 SHEET SIZE = 841 x 594	ELR	MILEAGE	
AS SHOWN	COL	189 miles 1251 yards	

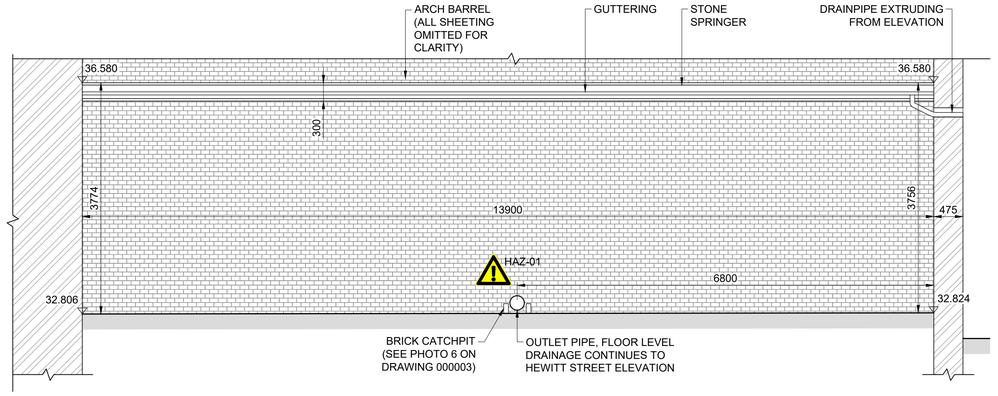
DRAWING NUMBER: 166828-NRD-1705-COL-DRG-ECV-000001 REVISION: A01



INTERNAL PLAN

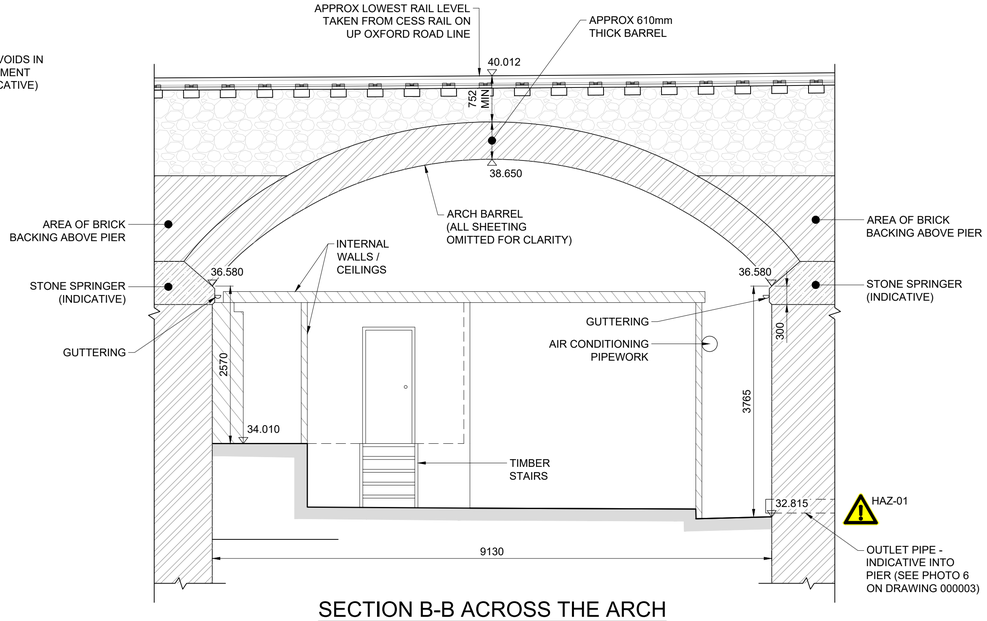
SCALE 1:50

TRACK ARRANGEMENT OMITTED FOR CLARITY - REFER TO DRAWING 000001 FOR DETAILS



ELEVATION A-A ON LOW MILEAGE PIER

SCALE 1:50



SECTION B-B ACROSS THE ARCH

SCALE 1:50

Legend/Notes

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4. THIS DRAWING IS BASED ON AVAILABLE NETWORK RAIL RECORD INFORMATION AND A TOPOGRAPHICAL AND LASER SCAN SURVEY UNDERTAKEN BY BRIDGEWAY CONSULTING LTD IN AUGUST 2020.
5. THE THICKNESS OF THE EXISTING ARCH BARREL AND THE HEIGHT OF THE BACKING BRICKWORK ABOVE THE SPRINGING POINTS WAS DETERMINED BY INTRUSIVE WORKS (CORES) UNDERTAKEN ON THE INTRADOS OF THE ARCH BARREL.

KEY:

- BRICKWORK ELEMENTS (PLAN & SECTION)
- BRICKWORK ELEMENTS (ELEVATION)
- INTERNAL WALLS / CEILINGS WITHIN COL/90 BELOW ARCH BARREL (PLAN & SECTION)
- BALLAST
- DP — DRAINAGE PIPE (PLAN)
- 1 — PHOTO MARKER (ABOVE FALSE CEILING)
- 1 — PHOTO MARKER (GROUND LEVEL)

REFER TO DRAWING 000003 FOR PHOTOS 1 - 15

IMPORTANT CDM / H&S NOTE

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DRA REF:	166828-NRD-1705-COL-RSA-ECV-000001
HAZ-01	DISRUPTION TO EXISTING SERVICES
HAZ-18	SOCIAL IMPACT

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0 1 2 3 4 5m

SCALE 1:50

REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A02	04/02/21	DRN COMMENTS ADDRESSED	RD	GM	RB
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS: APPROVAL IN PRINCIPLE

DESIGNERS

DESIGN DELIVERY | NetworkRail

Manchester Square One, 4 Travis Street, Manchester, M1 2NY
Tel: 0161 880 3936 Web: www.networkrail.co.uk

PROJECT:

COL / 90 HEWITT STREET UNDERBRIDGE STRENGTHENING

DRAWING TITLE:

EXISTING INTERNAL ARRANGEMENT

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

SCALE (@ A1 SHEET SIZE = 841 x 594): AS SHOWN
ELR: COL
MILEAGE: 189 miles 1251 yards

DRAWING NUMBER: 166828-NRD-1705-COL-DRG-ECV-000002
REVISION: A02



PHOTO 1:

SOFFIT OF ARCH BARREL FROM ABOVE FALSE CEILING



PHOTO 2:

SOFFIT OF ARCH BARREL FROM ABOVE FALSE CEILING



PHOTO 3:

SOFFIT OF ARCH BARREL FROM ABOVE FALSE CEILING



PHOTO 4:

SOFFIT OF ARCH BARREL FROM ABOVE FALSE CEILING

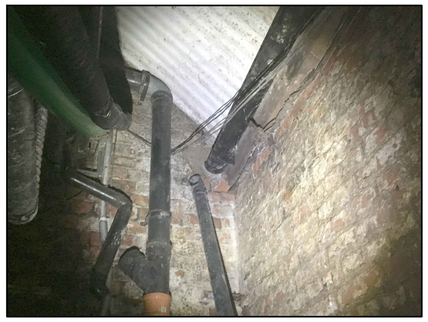


PHOTO 5:

DRAINAGE ELEMENTS (GUTTERING AND DOWNPIPES) AND CORRUGATED SHEETING COVERING THE ARCH BARREL.



PHOTO 6:

OUTLET PIPE IN LOW MILEAGE (EAST) PIER (LOOKING DOWN)

HAZ-01



PHOTO 7:

DRAINAGE ELEMENTS AND CORRUGATED SHEETING (LOOKING UP).



PHOTO 8:

SHELVING BETWEEN CONCRETE BLOCKS PARTITION WALL AND LOW MILEAGE PIER.

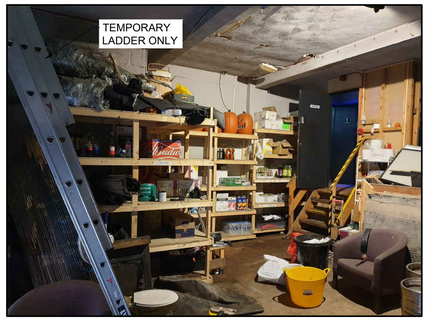


PHOTO 9:

INTERNAL STAIRS FROM ROLLER SHUTTER

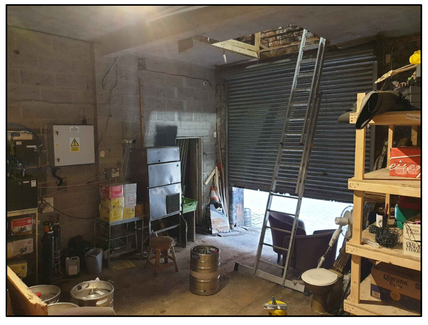


PHOTO 10:

SHUTTER ACCESS FROM HEWITT STREET



PHOTO 11:

CORRIDOR CONNECTING THE INTERIOR OF THE NIGHTCLUB (REBELLION) TO THE ARCH.



PHOTO 12: HAZ-02

VIEW FROM HEWITT STREET INTO THE HIGH MILEAGE END OF THE ARCH, SHOWING THE SECONDARY ENTRANCE WITH SHUTTER (UNABLE TO ACCESS ON SITE VISITS) AND THE DRAINAGE DOWNPIPE (CONNECTING AT SPRINGING LEVEL).



PHOTO 13: HAZ-02

VIEW FROM HEWITT STREET INTO THE LOW MILEAGE END OF THE ARCH, SHOWING THE MAIN ENTRANCE WITH SHUTTER VIA A RAMP AND OTHER ELEMENTS.



PHOTO 14: HAZ-02

VIEW FROM HEWITT STREET INTO FACADE, SHOWING THE CAST IRON FRAMING STRUCTURE AND THE DEANSGATE STATION BUILDING ABOVE.

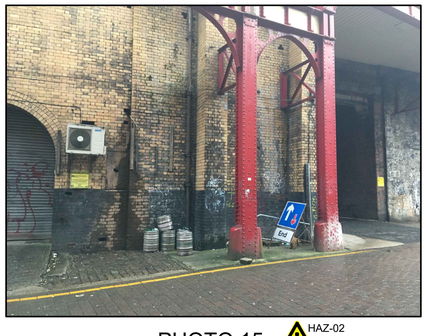


PHOTO 15: HAZ-02

VIEW FROM HEWITT STREET INTO THE LOW MILEAGE END OF THE ARCH, SHOWING CONNECTION OF HEWITT STREET WITH BUGLE STREET (COL/89A).

Legend/Notes

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. THIS DRAWING IS TO BE PRINTED IN COLOUR.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING 000002 WHICH SHOWS THE PHOTO POSITIONS.

IMPORTANT CDM / H&S NOTE

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DRA REF: 166828-NRD-1705-COL-RSA-ECV-000001

HAZ-01	DISRUPTION TO EXISTING SERVICES
HAZ-02	GRADE II LISTED STATUS

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REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS

APPROVAL IN PRINCIPLE

DESIGNERS

DESIGN DELIVERY | NetworkRail

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Tel: 0161 880 3936 Web: www.networkrail.co.uk

PROJECT:

COL / 90 HEWITT STREET
UNDERBRIDGE STRENGTHENING

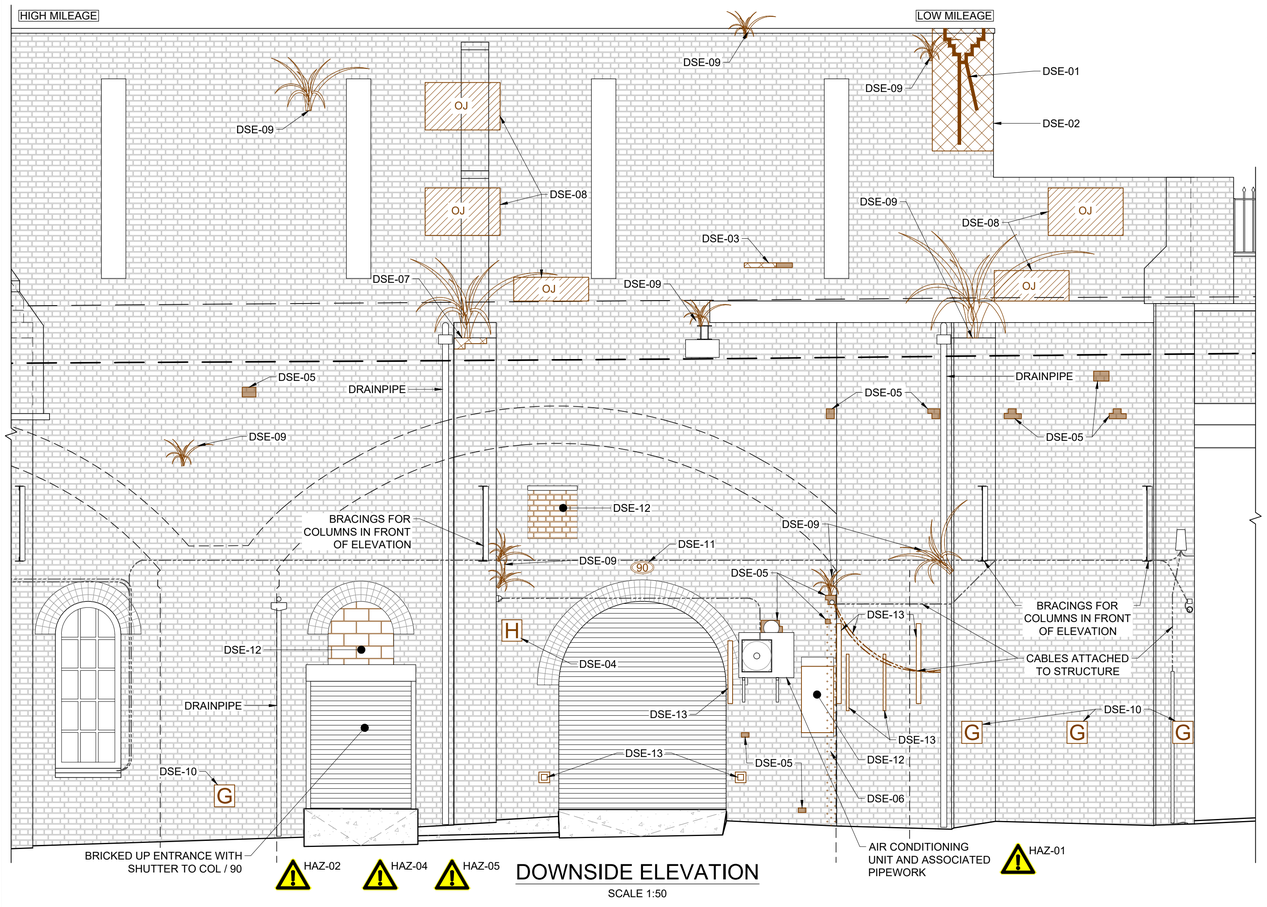
DRAWING TITLE:

SITE PHOTOS

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

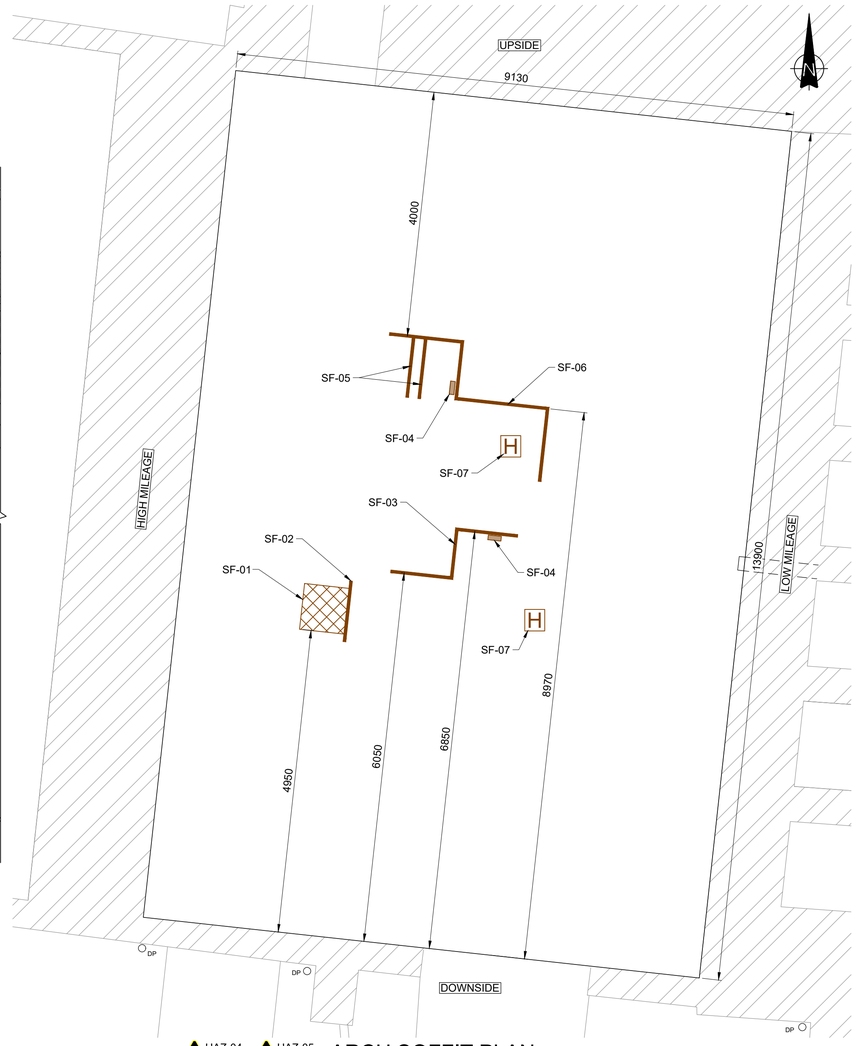
SCALE @ A1 SHEET SIZE = 841 x 594) AS SHOWN | ELR COL | MILEAGE 189 miles 1251 yards

DRAWING NUMBER 166828-NRD-1705-COL-DRG-ECV-000003 | REVISION A01



DOWNSIDE ELEVATION

SCALE 1:50



ARCH SOFFIT PLAN

SCALE 1:50

DEFECT REF:	LOCATION	DEFECTS	REPAIR	PRIORITY
DSE-01	DOWNSIDE PARAPET	AREA OF ISLAND FRACTURES (THROUGH JOINTS ONLY) STARTING BELOW COPING AND OPENING UP TO 40mm AT WORST	REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/111	P1
DSE-02	DOWNSIDE PARAPET	ISOLATED AREAS OF DISPLACEMENT UP TO 20mm OBSERVED AROUND		
DSE-03	DOWNSIDE PARAPET	1No MISSING BRICK WITH 2 DISPLACED BRICKS UP TO 20mm TO SURROUND	REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/111	P1
DSE-04	SPANDREL	4No LOOSE TO HAMMER BRICKS	REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/111	P1
DSE-05	THROUGHOUT	MISSING BRICKS (APPROX 20No TOTAL)	REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/111	P1
DSE-06	WEEP HOLE LOW MILEAGE	WEEP HOLE HAS NO DOWNPIPE RESULTING IN WATER RUNNING DOWN BRICKWORK FACE	INSTALL NEW DOWNPIPE	P1
DSE-07	DOWNSIDE PARAPET	3No DISPLACED BRICKS UP TO 10mm DUE TO TREE ROOTS GROWING FROM JOINTS	REMOVE TREE / VEGETATION IN ACCORDANCE WITH NOTE 9 & REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/111	P1
DSE-08	DOWNSIDE PARAPET	PATCHES OF OPEN JOINTS THROUGHOUT PARAPET FACE (APPROX 5m² TOTAL OPEN TYPICALLY 10mm - 20mm)	RAKE OUT AND REPOINT BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/101	P3
DSE-09	THROUGHOUT	TREE GROWTH / VEGETATION	REMOVE TREE / VEGETATION IN ACCORDANCE WITH NOTE 9 & RAKE OUT AND REPOINT BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/101	P1
DSE-10	LOW MILEAGE	GRAFFITI	SPECIALIST CONTRACTOR WILL PROPOSE METHOD OF REMOVAL.	P3
DSE-11	SPANDREL	WEATHERED BRIDGE ID PLATE	NEW BRIDGE ID PLATE TO BE INSTALLED	P3
DSE-12	SPANDREL	3No. AREAS OF NON MATCHING BRICKWORK WITHIN ELEVATION DETRACTING FROM APPEARANCE OF LISTED STRUCTURE	AREAS HIGHLIGHTED TO BE DISCUSSED WITH CLIENT AND EXTENT OF REPLACEMENT AS PART OF WORKS TO BE CONFIRMED	P3
DSE-13	SPANDREL	REDUNDANT FEATURES SUCH AS CABLES, TIMBER AND BRACKETRY ATTACHED TO ELEVATION	ITEMS TO BE REMOVED WHERE APPROPRIATE AND SURFACE REPAIRED WHERE NECESSARY	P3

DOWNSIDE ELEVATION DEFECTS TABLE

DEFECT REF:	LOCATION	DEFECTS	REPAIR	PRIORITY
SF-01	SOFFIT	AREA OF BULGED BRICKWORK (APPROX 0.5m² & UP TO 10-20mm)	REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/104	P1
SF-02	SOFFIT	TRANSVERSE FRACTURE (APPROX 1m LONG & OPEN 1-2mm)	STITCH FRACTURE IN ACCORDANCE WITH NR/CIV/SD/110	P1
SF-03	SOFFIT	LONGITUDINAL & TRANSVERSE FRACTURE THROUGH JOINTS & BRICKWORK (APPROX 1m LONG & OPEN 1-2mm)	STITCH FRACTURE IN ACCORDANCE WITH NR/CIV/SD/110	P1
SF-04	SOFFIT	2No. WEDGED BRICK	REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/105	P1
SF-05	SOFFIT	2No LONGITUDINAL FRACTURES (APPROX 1m LONG EACH & OPEN HL TO 1mm)	STITCH FRACTURE IN ACCORDANCE WITH NR/CIV/SD/110	P1
SF-06	SOFFIT	LONGITUDINAL FRACTURE 1.2m LONG x 1mm WIDE CHANGING TO TRANSVERSE FRACTURE 1.5m LONG x 1mm CHANGING TO LONGITUDINAL FRACTURE 1.2m LONG x 1mm OPEN (FRACTURE IS AROUND PATCH REPAIR WITH ISLAND FRACTURES AROUND SAME AREA)	STITCH FRACTURE IN ACCORDANCE WITH NR/CIV/SD/110	P1
SF-07	SOFFIT	AREAS OF HOLLOWNESS (APPROX 1m² EACH)	REPLACE BRICKWORK IN ACCORDANCE WITH NR/CIV/SD/104	P1
NOTE: WHEN ARCH WAS OBSERVED UNDER LOAD OF DEFLECTION OF APPROX 2-3mm WAS OBSERVED AROUND FRACTURES SF-05 & SF06 WITH CRUNCHING NOISES HEARD				

ARCH SOFFIT DEFECTS TABLE

PRIORITY TABLE		
PRIORITY	DESCRIPTION	ACTION
P1	Brickwork: a) Loose or missing bricks. b) Spalling bricks greater than 45mm deep c) Fractures due to spandrel or arch face movement	a) Replace loose, missing spalled brickwork / stonework with a suitable brick or stone or a similar colour / hardness. All new work to be tied into sound material. Mortar to be coloured to blend in with the original. b) Cut out and replace spalled bricks with a suitable brick or stone or a similar colour / hardness. c) Provide lost head type ties. Point & grout fractures.
P1	Pointing: a) Mortar loss greater than 40mm deep in brickwork.	a) Rake out any loose mortar. Re-point using sand /cement /lime based mortar (mix to suit material). Pointing to have "bucket handle" finish. Mortar to be coloured to blend in with the original.
P2	Brickwork: a) Spalling bricks 30 - 45mm deep	b) Cut out and replace spalled bricks with a suitable brick or stone or a similar colour / hardness.
P2	Pointing: a) Mortar loss 25 - 40mm deep in brickwork. Note: P2 pointing items are only where the remaining mortar is soft.	a) Rake out any loose mortar. Re-point using sand /cement /lime based mortar (mix to suit material). Pointing to have "bucket handle" finish. Mortar to be coloured to blend in with the original.
P3	Brickwork: a) Spalling bricks 15 - 30mm deep	a) Cut out and replace spalled bricks with a suitable brick of a similar colour / hardness. Mortar to be coloured to blend in with the original.
P3	Pointing: a) Mortar loss 10 - 25mm deep in brickwork. Note: P3 pointing items are only where the remaining mortar is soft.	a) Rake out any loose mortar. Re-point using sand /cement /lime based mortar (mix to suit material). Pointing to have "bucket handle" finish. Mortar to be coloured to blend in with the original.

KEY:

- MISSING / SPALLING / WEDGED BRICKWORK
- OJ — OPEN JOINTS
- FRACTURES
- BULGING / DISPLACED BRICKWORK
- H — HOLLOW / DRUMMY BRICKWORK
- DAMP PATCHES
- TREE / VEGETATION GROWTH
- G — GRAFFITI
- DP — DRAINAGE PIPE

NETWORK RAIL STANDARD COLOUR CONVENSION:

BLACK = EXISTING WORKS TO BE RETAINED
RED = PROPOSED WORKS
GREEN = EXISTING WORKS TO BE REMOVED
BLUE = EXISTING WORKS TO BE RELOCATED / MODIFIED
BROWN = EXISTING DEFECTS (ADDITION TO NR STANDARDS)

REF KEY:

DSE-01 - DOWNSIDE EXTERNAL ELEVATION, DEFECT 01
SF-01 - SOFFIT PLAN, DEFECT 01

IMPORTANT CDM / H&S NOTE

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DRA REF: 166828-NRD-1705-COL-RSA-ECV-000001

HAZ-01	DISRUPTION TO EXISTING SERVICES
HAZ-02	GRADE II LISTED STATUS
HAZ-04	WORKING AT HEIGHT
HAZ-05	DISPLACEMENT OF LOOSE BRICKS / FALLING BRICKS

FOR MORE DETAILS ON THE HIGHLIGHTED HAZARDS REFER TO THE DESIGN RISK ASSESSMENT FOR THIS PROJECT
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Legend/Notes

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2. DO NOT SCALE FROM THIS DRAWING.
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4. ALL BRICKWORK REPAIRS TO BE CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING DRAWINGS AND SPECIFICATIONS INCLUDED THEREON:-
   NR/CIV/SD/TUM/101 - TECHNICAL USER MANUAL FOR BRICKWORK AND MASONRY REPAIR
   NR/CIV/SD/101 - SPECIFICATION FOR THE WORKS
   NR/CIV/SD/104 - RECASING OF BRICKWORK
   NR/CIV/SD/105 - RECASING OF BRICKWORK (SINGLE RING)
   NR/CIV/SD/110 - STITCHING OF LONGITUDINAL CRACKS
   NR/CIV/SD/111 - SPOT REPLACEMENT OF BRICKS
   NR/CIV/SD/116 - RE-CASING VERTICAL WALLS
5. EXISTING MASONRY IS TO BE JET WASHED THROUGHOUT TO ALLOW A DETAILED INSPECTION AND EXISTING CONDITION TO BE ASSESSED AND SUITABLE REPAIRS UNDERTAKEN PRIOR TO MAIN STRENGTHENING WORKS.
6. DETAILED AS BUILT RECORDS IN THE FORM OF BEFORE AND AFTER PHOTOS OF EACH REPAIR ARE TO BE PROVIDED.
7. ALL REPAIR LOCATIONS ARE TO BE MARKED OUT BY THE CONTRACTOR AND AGREED WITH THE ENGINEER/CLIENT'S REPRESENTATIVE.
8. NO ADDITIONAL WORKS ARE TO BE UNDERTAKEN WITHOUT PRIOR AUTHORISATION FROM NETWORK RAIL.
9. ALL VEGETATION ON OR WITHIN 3m OF THE STRUCTURE TO BE TREATED WITH TO BE GLYPHOSATE OR SIMILAR APPROVED HERBICEDE AND ALLOWED TO DIE IN ACCORDANCE WITH RT/CE/C/008255. ALL RESULTING DEBRIS TO BE CUT BACK AND REMOVED FROM SITE. ROOT SYSTEMS TO BE REMOVED AS FAR AS PRACTICABLY POSSIBLE AND STRUCTURAL ELEMENTS MADE GOOD.
10. EXISTING OUTLET PIPE ON LOW MILEAGE ELEVATION TO BE CLEARED OF DEBRIS.
10. JET WASH SPANDRELS & PIERS TO DOWNSIDE ELEVATION.
11. THE CHEMICALS USED FOR JET WASHING ARE TO BE FULLY BIODEGRADABLE, NON-HAZARDOUS AND COMPLETELY NEUTRALISED BY WATER ALLOWING NORMAL DRAINAGE USE FOR DISPOSAL. THE PRESSSURE USED FOR JET WASHING MUST BE CONTROLLED SO THAT IT DOES NOT DAMAGE THE MASONRY AND MORTAR BED AND DOES NOT LEAVE STAINS TO THE ELEVATIONS. IF THE CONTRACTOR PROPOSES TO USE OTHER ALTERNATIVES, APPROVAL MUST BE SORT FROM NETWORK RAIL AND THE ENVIRONMENT AGENCY.
12. ALL NEW MORTAR SHOULD BE LIME BASED THAT MATCHES THE EXISTING ORIGINAL/HISTORIC MORTAR BY WAY OF CHEMICAL COMPOSITION, COLOUR, TEXTURE AND FINISHED APPEARANCE OF APPLICATION. SAMPLES TO BE TAKEN IN ADVANCE OF WORKS AND MORTAR SOURCED TO MATCH.
13. BRICKWORK REPLACEMENT SHOULD BE KEPT TO A MINIMUM AND NEW BRICKS SHOULD MATCH THE EXISTING SURROUNDING ORIGINAL/HISTORIC BRICKWORK IN ALL RESPECTS INCLUDING COURSING PATTERN, BRICK TYPE, SIZE, COLOUR AND TEXTURE. SAMPLES TO BE TAKEN IN ADVANCE OF WORKS AND BRICKS SOURCED TO MATCH.

0 1 2 3 4 5m

SCALE 1:50

REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A02	04/02/21	DRN COMMENTS ADDRESSED	RD	GM	RB
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS: APPROVAL IN PRINCIPLE

DESIGNERS

DESIGN DELIVERY | NetworkRail

Manchester Square One, 4 Travis Street, Manchester, M1 2NY
Tel: 0161 880 3936 Web: www.networkrail.co.uk

PROJECT:

COL / 90 HEWITT STREET
UNDERBRIDGE STRENGTHENING

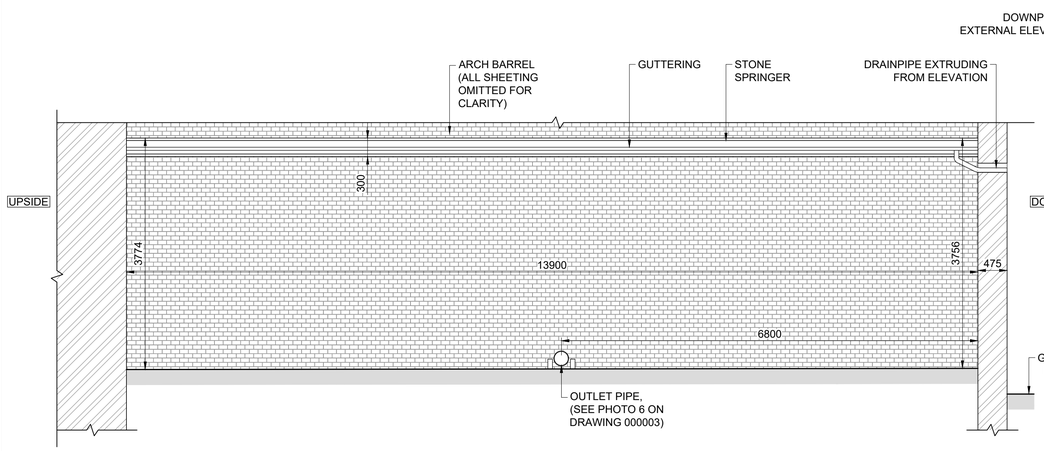
DRAWING TITLE:

BRICKWORK REPAIR DETAILS
(SHEET 1 OF 2)

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

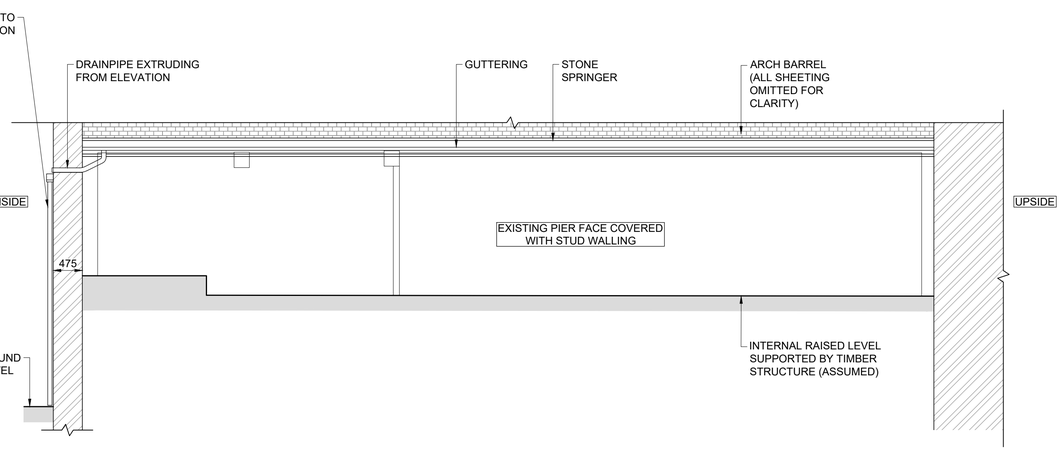
SCALE @ A1 SHEET SIZE = 841 x 594	ELR	MILEAGE
AS SHOWN	COL	189 miles 1251 yards

DRAWING NUMBER: 166828-NRD-1705-COL-DRG-ECV-000004 REVISION: A02



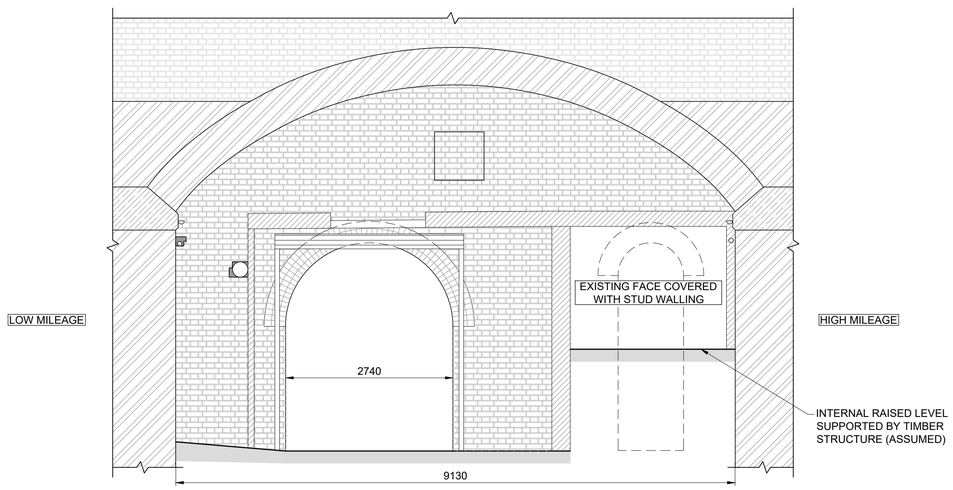
LOW MILEAGE PIER ELEVATION

SCALE 1:50



HIGH MILEAGE PIER ELEVATION

SCALE 1:50



DOWNSIDE INTERNAL ELEVATION

SCALE 1:50

HAZ-01

CURRENTLY THERE ARE NO DEFECTS IDENTIFIED IN THESE ELEVATIONS DUE TO THE COVERING ELEMENTS. FULL SURVEY IS TO BE UNDERTAKEN WITH COVERING ELEMENTS REMOVED TO IDENTIFY, AS FAR AS REASONABLY PRACTICABLE, ANY ADDITIONAL DEFECTS.

IMPORTANT CDM / H&S NOTE

THE DESIGNERS WOULD DRAW THE READER'S ATTENTION TO THE KEY RESIDUAL HEALTH AND SAFETY RISKS THAT HAVE NOT BEEN ELIMINATED FROM THE DESIGN, SHOWN ON THIS DRAWING, BY THE DESIGN PROCESS.

DRA REF: 166828-NRD-1705-COL-RSA-ECV-000001

HAZ-01	DISRUPTION TO EXISTING SERVICES
HAZ-02	GRADE II LISTED STATUS
HAZ-04	WORKING AT HEIGHT
HAZ-05	DISPLACEMENT OF LOOSE BRICKS / FALLING BRICKS
HAZ-12	UNIDENTIFIED BRICKWORK DEFECTS

FOR MORE DETAILS ON THE HIGHLIGHTED HAZARDS REFER TO THE DESIGN RISK ASSESSMENT FOR THIS PROJECT
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PRIORITY TABLE

PRIORITY	DESCRIPTION	ACTION
P1	Brickwork: a) Loose or missing bricks. b) Spalling bricks greater than 45mm deep c) Fractures due to spandrel or arch face movement	a) Replace loose, missing spalled brickwork / stonework with a suitable brick or stone or a similar colour / hardness. All new work to be tied into sound material. Mortar to be coloured to blend in with the original. b) Cut out and replace spalled bricks with a suitable brick or stone or a similar colour / hardness. c) Provide lost head type ties. Point & grout fractures.
P1	Pointing: a) Mortar loss greater than 40mm deep in brickwork.	a) Rake out any loose mortar. Re-point using sand /cement /lime based mortar (mix to suit material). Pointing to have "bucket handle" finish. Mortar to be coloured to blend in with the original.
P2	Brickwork: a) Spalling bricks 30 - 45mm deep	b) Cut out and replace spalled bricks with a suitable brick or stone or a similar colour / hardness.
P2	Pointing: a) Mortar loss 25 - 40mm deep in brickwork. Note: P2 pointing items are only where the remaining mortar is soft.	a) Rake out any loose mortar. Re-point using sand /cement /lime based mortar (mix to suit material). Pointing to have "bucket handle" finish. Mortar to be coloured to blend in with the original.
P3	Brickwork: a) Spalling bricks 15 - 30mm deep	a) Cut out and replace spalled bricks with a suitable brick of a similar colour / hardness. Mortar to be coloured to blend in with the original.
P3	Pointing: a) Mortar loss 10 - 25mm deep in brickwork. Note: P3 pointing items are only where the remaining mortar is soft.	a) Rake out any loose mortar. Re-point using sand /cement /lime based mortar (mix to suit material). Pointing to have "bucket handle" finish. Mortar to be coloured to blend in with the original.

Legend/Notes

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9. CONDITION OF THE PIER'S INTERNAL SURFACES COULD NOT BE ESTABLISHED. THE HIGH MILEAGE PIER IS COMPLETELY COVERED WITH A PLASTER WALL AND THE LOW MILEAGE PIER HAS SHELVING PARTIALLY COVERING THE SURFACE.
10. EXISTING OUTLET PIPE ON LOW MILEAGE ELEVATION TO BE CLEARED OF DEBRIS.
10. JET WASH SPANDRELS & PIERS TO DOWNSIDE ELEVATION.
11. THE CHEMICALS USED FOR JET WASHING ARE TO BE FULLY BIODEGRADABLE, NON-HAZARDOUS AND COMPLETELY NEUTRALISED BY WATER ALLOWING NORMAL DRAINAGE USE FOR DISPOSAL. THE PRESSURE USED FOR JET WASHING MUST BE CONTROLLED SO THAT IT DOES NOT DAMAGE THE MASONRY AND MORTAR BED AND DOES NOT LEAVE STAINS TO THE ELEVATIONS. IF THE CONTRACTOR PROPOSES TO USE OTHER ALTERNATIVES, APPROVAL MUST BE SORT FROM NETWORK RAIL AND THE ENVIRONMENT AGENCY.
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0 1 2 3 4 5m

SCALE 1:50

REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A02	04/02/21	DRN COMMENTS ADDRESSED	RD	GM	RB
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS: APPROVAL IN PRINCIPLE

DESIGNERS

DESIGN DELIVERY | Network Rail

Manchester Square One, 4 Travis Street, Manchester, M1 2NY
Tel: 0161 880 3936 Web: www.networkrail.co.uk

PROJECT:

COL / 90 HEWITT STREET UNDERBRIDGE STRENGTHENING

DRAWING TITLE:

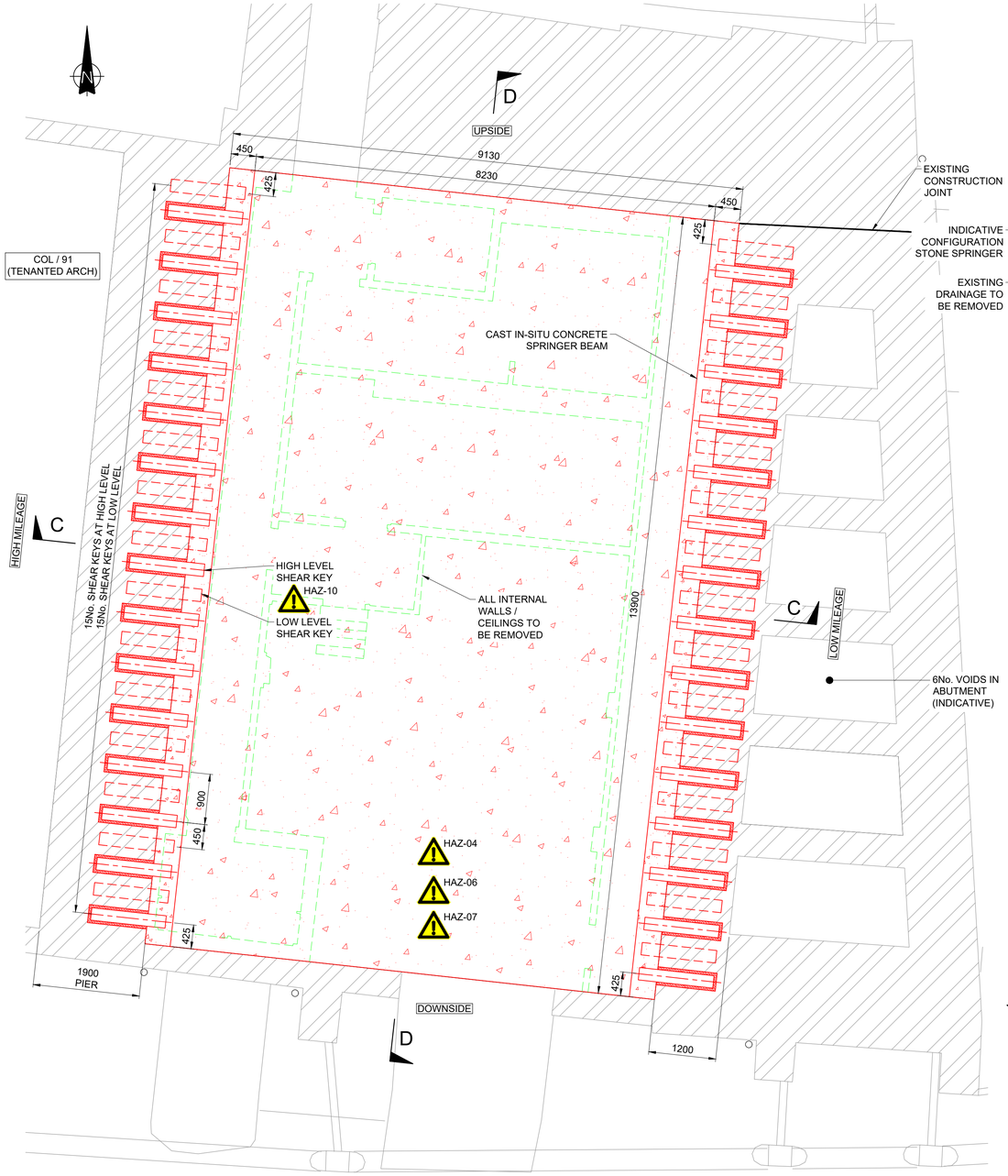
BRICKWORK REPAIR DETAILS (SHEET 2 OF 2)

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

SCALE (@ A1 SHEET SIZE = 841 x 594)	ELR	MILEAGE
AS SHOWN	COL	189 miles 1251 yards

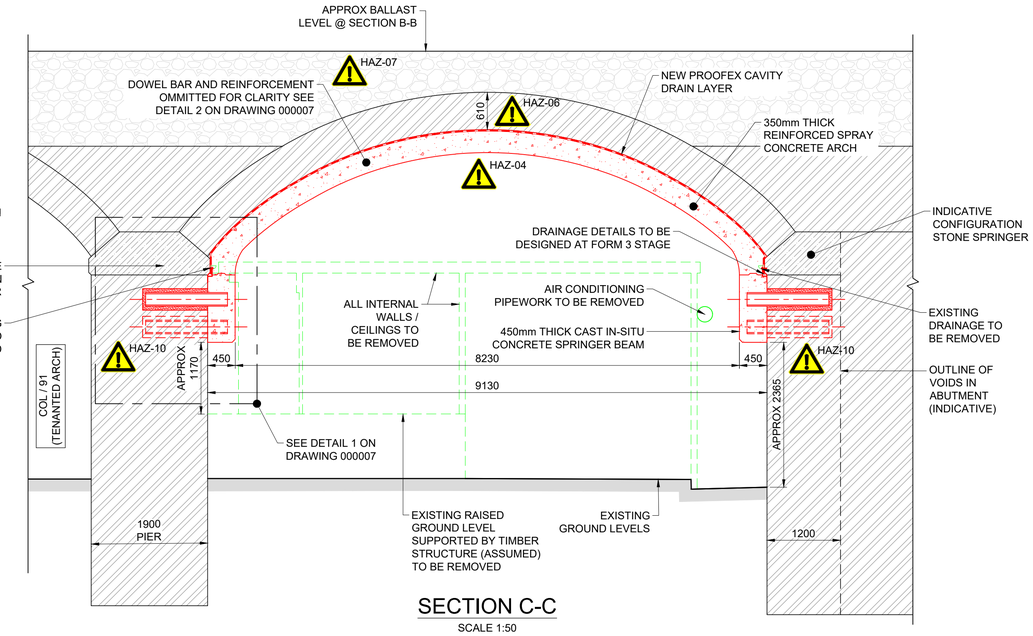
DRAWING NUMBER: 166828-NRD-1705-COL-DRG-ECV-000005

REVISION: A02



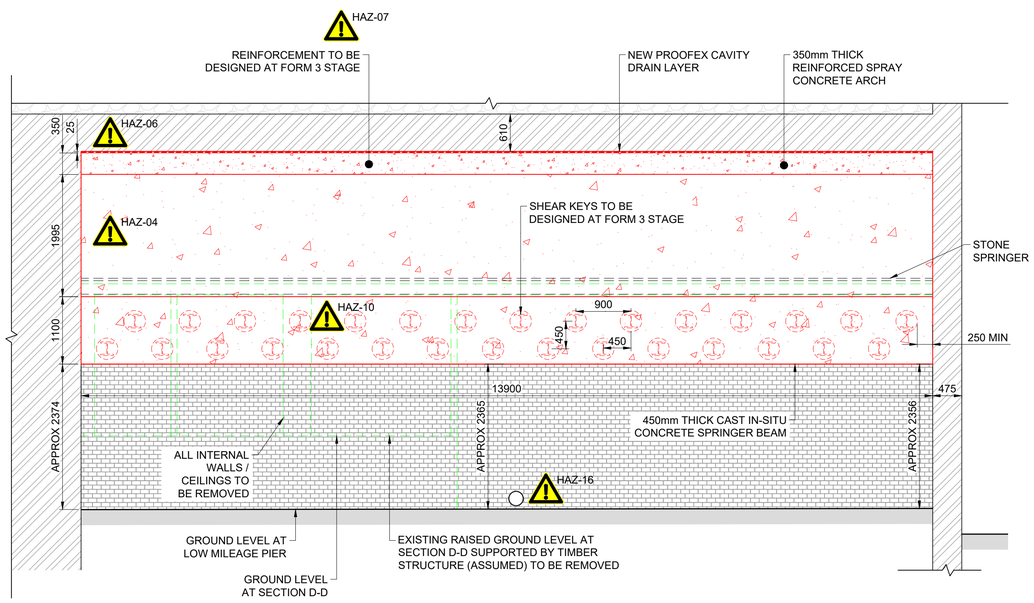
ARCH SOFFIT PLAN

SCALE 1:50



SECTION C-C

SCALE 1:50



SECTION D-D
LOOKING AT LOW MILEAGE PIER

SCALE 1:50

Legend/Notes

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5. ALL CORING IN MASONRY TO BE CARRIED OUT USING DIAMOND CORING BITS ONLY. NO PERCUSSION CORING OR DRILLING TECHNIQUES ARE TO BE PERMITTED.
6. NEW PROOFEX CAVITY DRAIN LINER TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS AND HAVE A MINIMUM OF 50mm CONCRETE COVER AT THE ARCH ENDS.

NETWORK RAIL STANDARD COLOUR CONVENSION:

BLACK = EXISTING WORKS TO BE RETAINED
RED = PROPOSED WORKS
GREEN = EXISTING WORKS TO BE REMOVED
BLUE = EXISTING WORKS TO BE RELOCATED / MODIFIED

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DRA REF: 166828-NRD-1705-COL-RSA-ECV-000001

HAZ-04	WORKING AT HEIGHT
HAZ-06	DAMAGE TO EXISTING ARCH BARREL (SPRAY CONCRETE APPLICATION)
HAZ-07	COLLAPSE OF ARCH REINFORCEMENT
HAZ-10	UNKNOWN EXISTING VOIDS IN PIERS
HAZ-16	DEFECTIVE AND UNKNOWN DRAINAGE

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0 1 2 3 4 5m

SCALE 1:50

REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS: APPROVAL IN PRINCIPLE

DESIGNERS: DESIGN DELIVERY | NetworkRail

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PROJECT:

COL / 90 HEWITT STREET
UNDERBRIDGE STRENGTHENING

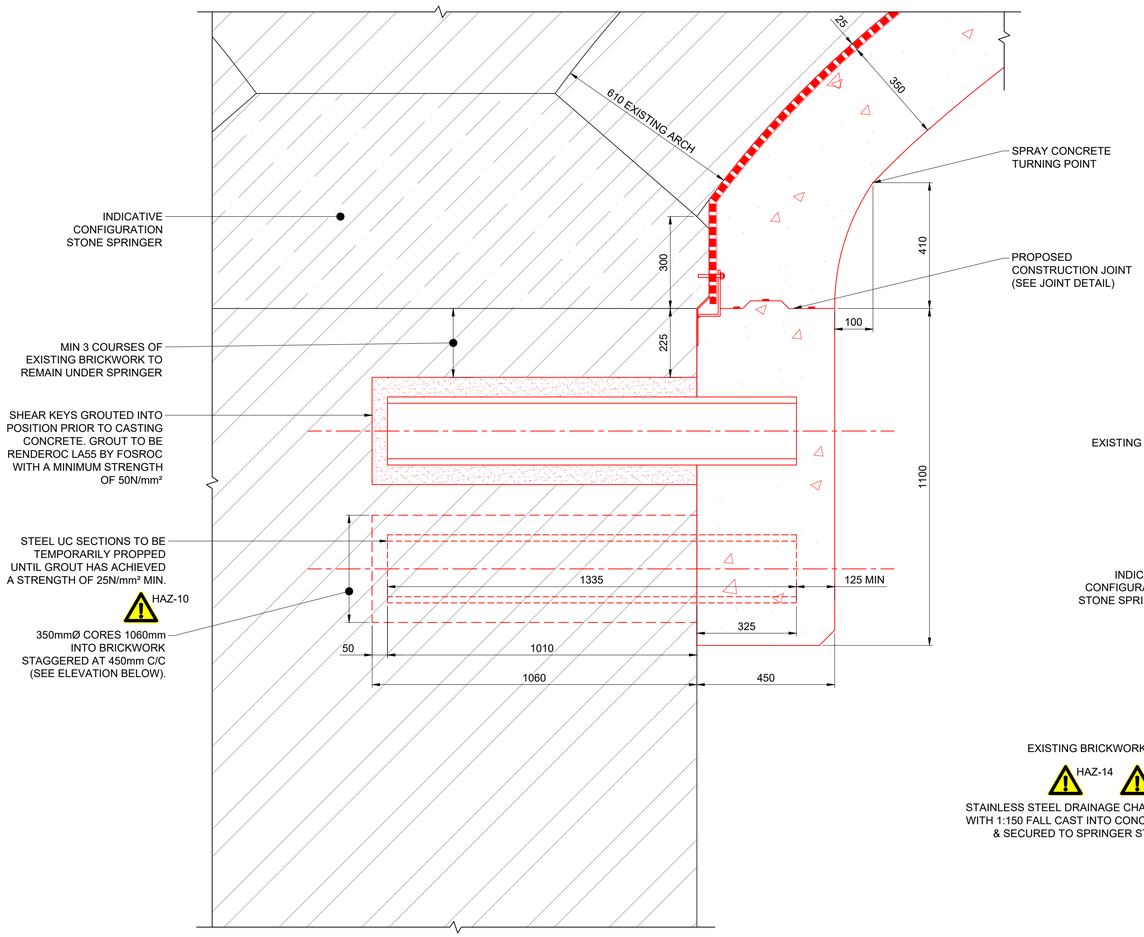
DRAWING TITLE:

PROPOSED GENERAL ARRANGEMENT

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

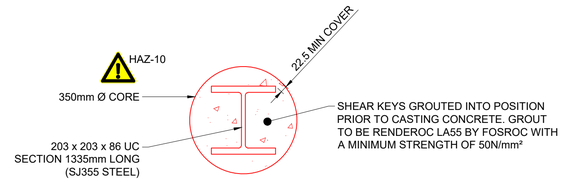
SCALE (@ A1 SHEET SIZE = 841 x 594)	ELR	MILEAGE
AS SHOWN	COL	189 miles 1251 yards

DRAWING NUMBER: 166828-NRD-1705-COL-DRG-ECV-000006 REVISION: A01



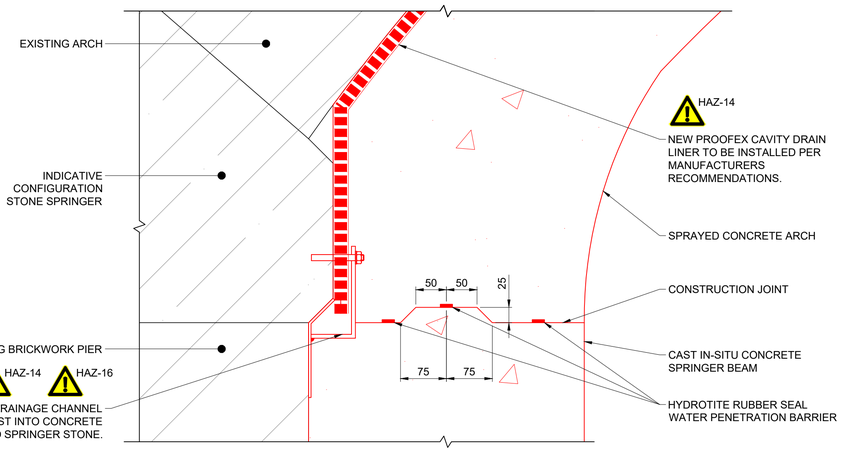
DETAIL 1

(REFER TO DRAWING 000006 FOR LOCATION)
SCALE 1:10



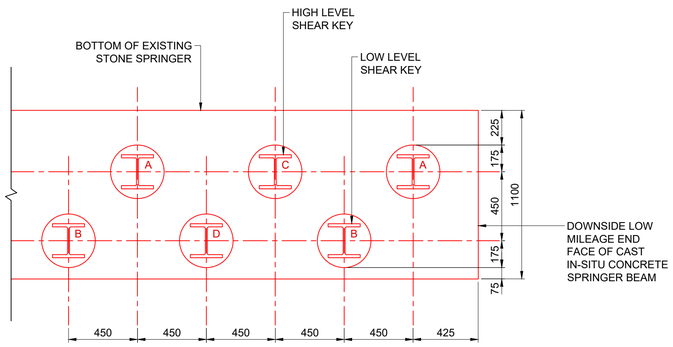
SECTION THROUGH SHEAR KEY

60No LOCATIONS TOTAL (30No PER PIER)
WEIGHT = 121Kg
SCALE 1:10



JOINT DETAIL

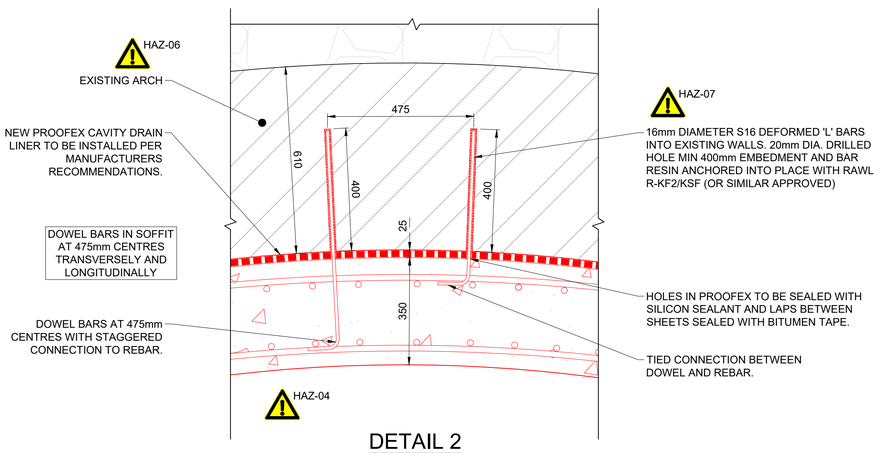
SCALE 1:5



PART ELEVATION ON 450mm THICK CONCRETE SPRINGER BEAM

SCALE 1:20

SEQUENCE OF INSTALLATION FOR SHEAR KEYS:
STAGE 1: CORE AND GROUT SHEAR KEYS MARK A
STAGE 2: CORE AND GROUT SHEAR KEYS MARKED B AFTER A HAS ACHIEVED 25N/mm² MIN.
STAGE 3: CORE AND GROUT SHEAR KEYS MARKED C AFTER B HAS ACHIEVED 25N/mm² MIN.
STAGE 4: CORE AND GROUT SHEAR KEYS MARKED D AFTER C HAS ACHIEVED 25N/mm² MIN.



DETAIL 2

SCALE 1:10

Legend/Notes

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DRA REF: 166828-NRD-1705-COL-RSA-ECV-000001

HAZ-04	WORKING AT HEIGHT
HAZ-06	DAMAGE TO EXISTING ARCH BARREL (SPRAY CONCRETE APPLICATION)
HAZ-07	COLLAPSE OF ARCH REINFORCEMENT
HAZ-10	UNKNOWN EXISTING VOIDS IN PIERS
HAZ-14	WATER INGRESS
HAZ-16	DEFECTIVE AND UNKNOWN DRAINAGE

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0 100 200 300 400 500mm
SCALE 1:5

0 200 400 600 800 1000mm
SCALE 1:10

0 0.4 0.8 1.2 1.6 2.0m
SCALE 1:20

REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A02	04/02/21	DRN COMMENTS ADDRESSED	RD	GM	RB
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS
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DESIGNERS
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PROJECT:
COL / 90 HEWITT STREET UNDERBRIDGE STRENGTHENING

DRAWING TITLE:
PROPOSED DETAILS

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

SCALE (@ A1 SHEET SIZE = 841 x 594) AS SHOWN
ELR COL
MILEAGE 189 miles 1251 yards

DRAWING NUMBER 166828-NRD-1705-COL-DRG-ECV-000007
REVISION A02

INDICATIVE CONSTRUCTION SEQUENCE:

STAGE 1 - SITE PREPARATION AND INITIAL REPAIR WORKS (SEE DRAWINGS 000001 TO 000005)

1. ALL DEBRIS AND INTERNAL INFRASTRUCTURE WITHIN UNIT TO BE REMOVED (INTERNAL PARTITION WALLS, PLASTER COVERS, FALSE CEILING, SHEETING, WIRING AND FITTINGS WITHIN). ALL SERVICES TO BE ISOLATED. (SPECIAL CARE TO BE TAKEN WHEN REMOVING LIVE WIRING, ELECTRICAL CABINET AND WATER SUPPLY PIPES). HAZ-01 HAZ-21 HAZ-22

2. ALL BRICKWORK TO BE JET WASHED TO REMOVE PAINT AND CALCITE AND ALLOW AN ACCURATE INSPECTION OF EXISTING CONDITION TO BE UNDERTAKEN TO ESTABLISH EXACT REPAIR DETAILS, SEVERITY AND QUANTITIES. SIGNIFICANT AREAS OF DISLODGED BRICKWORK ARE TO BE REPAIRED IMMEDIATELY. HAZ-02 HAZ-05 HAZ-12

3. REPAIRS IDENTIFIED WITHIN DRAWINGS 000004 AND 000005 (AND ADDITIONAL AGREED ITEMS FOUND FOLLOWING JET WASHING OF BRICKWORK) TO BE UNDERTAKEN. HAZ-02 HAZ-05 HAZ-12

STAGE 2 - MAIN WORKS (SEE DRAWINGS 000006 TO 000007)

4. CORE POCKETS TO BE DRILLED WITHIN PIERS FOR STEEL SHEAR KEY BEAMS, INSTALLATION OF SHEAR KEY BEAMS AND GROUTING OF SHEAR KEY BEAMS WITHIN HOLES TO BE COMPLETED IN SPECIFIED ORDER. HAZ-10

5. INSTALLATION OF WATERPROOFING LAYER TO ARCH SOFFIT (PROOFEX CAVITY DRAIN LINER) AND STAINLESS STEEL DOWEL BARS. (ANY HOLES IN PROOFEX CAVITY DRAIN TO BE SEALED WITH SILICON SEALANT, ALL JOINTS TO BE SEALED WITH BITUMEN TAP).

6. INSTALLATION OF STAINLESS STEEL DRAINAGE CHANNEL ALONG BOTH PIERS ABOVE PROPOSED SPRINGER BEAMS INTO EXISTING SPRINGER.

7. INSTALLATION OF STEEL REINFORCEMENT AROUND SHEAR KEY BEAMS AND INSTALLATION OF DRAINAGE PIPES THROUGH SPRINGER BEAM CONNECTING TO STAINLESS STEEL CHANNELS. DRAINAGE SYSTEM TO BE TESTED.

8. INSTALLATION OF FORMWORK AND CASTING OF CONCRETE FOR SPRINGER BEAMS. ALLOW STRENGTH TO REACH 30N/mm² PRIOR TO INTERFACING WITH SPRAY CONCRETE. HAZ-20

9. INSTALLATION OF ARCH REINFORCEMENT. HAZ-06 HAZ-07

10. INSTALLATION OF FORMWORK TO ARCH ENDS.

11. CONCRETE SPRAY TO ARCH SOFFIT: HAZ-06 HAZ-08 HAZ-09

- INSTALL FIRST 75mm LAYER AND ALLOW STRENGTH TO REACH 30n/mm2 STARTING FROM SPRINGER LEVEL.PRIOR TO SECOND SPRAY AND INSPECTION SHALL BE UNDERTAKEN TO ESTABLISH THE PRESENCE OF CRACKS WITHIN THE CONCRETE.

- INSTALL SUBSEQUENT SPRAY CONCRETE LAYERS IN 75mm LAYERS MAXIMUM AND ALLOW STRENGTH TO REACH 30N/mm2 PRIOR TO COMMENCING THE NEXT LAYER.

- SPRAY FINAL 25mm FLASHING COAT AND ALLOW STRENGTH TO REACH 30N/mm².

12. INSTALLATION OF DOWNPIPES AND RODDING EYES BETWEEN SPRINGER BEAMS AND EXISTING FLOOR LEVEL DRAINAGE. (TESTING OF DRAINAGE SYSTEM TO BE UNDERTAKEN TO ENSURE WORKING CONDITION).

HAZARDS THAT APPLY THROUGHOUT THE WORKS: HAZ-03 HAZ-04 HAZ-18 HAZ-19 HAZ-23

Legend/Notes

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWINGS 000001 TO 000007.

IMPORTANT CDM / H&S NOTE

THE DESIGNERS WOULD DRAW THE READER'S ATTENTION TO THE KEY RESIDUAL HEALTH AND SAFETY RISKS THAT HAVE NOT BEEN ELIMINATED FROM THE DESIGN, SHOWN ON THIS DRAWING, BY THE DESIGN PROCESS.

DRA REF: 166828-NRD-1705-COL-RSA-ECV-000001

HAZ-01	DISRUPTION TO EXISTING SERVICES
HAZ-02	GRADE II LISTED STATUS
HAZ-03	TENANTED ARCH
HAZ-04	WORKING AT HEIGHT
HAZ-05	DISPLACEMENT OF LOOSE BRICKS / FALLING BRICKS
HAZ-06	DAMAGE TO EXISTING ARCH BARREL (SPRAY CONCRETE APPLICATION)
HAZ-07	COLLAPSE OF ARCH REINFORCEMENT
HAZ-08	FAILURE OF SPRAY CONCRETE EQUIPMENT DURING APPLICATION
HAZ-09	FAILURE OF SPRAY CONCRETE UNDER LIVE LOADING
HAZ-10	UNKNOWN EXISTING VOIDS IN PIERS
HAZ-12	UNIDENTIFIED BRICKWORK DEFECTS
HAZ-18	SOCIAL IMPACT
HAZ-19	ENVIRONMENTAL IMPACT
HAZ-20	CLASH BETWEEN EQUIPMENT REQUIRED INSIDE ARCH AND FACADE
HAZ-21	DEMOLITION ACTIVITIES
HAZ-22	REMOTE MONITORING

FOR MORE DETAILS ON THE HIGHLIGHTED HAZARDS REFER TO THE DESIGN RISK ASSESSMENT FOR THIS PROJECT
"EVERYDAY" LOW RISK HAZARDS AND THOSE HAZARDS WHICH SHOULD BE OBVIOUS TO A COMPETENT CONTRACTOR HAVE NOT BEEN INDICATED ON THIS DRAWING. SHOULD ANY ADDITIONAL HAZARDS BE IDENTIFIED DURING THE COURSE OF THE WORKS THE CONTRACTOR SHALL NOTIFY ALL RELEVANT MEMBERS OF THE PROJECT TEAM.

REV	DATE	DESCRIPTION OF REVISIONS	DRAWN	CHK'D	APPR'D
A01	24/11/20	FIRST ISSUE	RD	GM	RB

STATUS: APPROVAL IN PRINCIPLE

DESIGNERS

DESIGN DELIVERY | NetworkRail

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PROJECT:

COL / 90 HEWITT STREET
UNDERBRIDGE STRENGTHENING

DRAWING TITLE:

INDICATIVE CONSTRUCTION SEQUENCE

DESIGNED	G. TELO	SIGNED	Date 24/11/2020
DRAWN	R. DIVILLY	SIGNED	Date 24/11/2020
CHECKED	G. MICHAS	SIGNED	Date 24/11/2020
APPROVED	R. BRINDLEY	SIGNED	Date 24/11/2020

SCALE (@ A1 SHEET SIZE = 841 x 594): AS SHOWN
ELR: COL
MILEAGE: 189 miles 1251 yards

DRAWING NUMBER: 166828-NRD-1705-COL-DRG-ECV-000008
REVISION: A01