Supplementary Information

The following information is associated with Network Rail Standard:
NR CIV/SD/116 Rev A

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CAD Drawing

- CIV/SD/116

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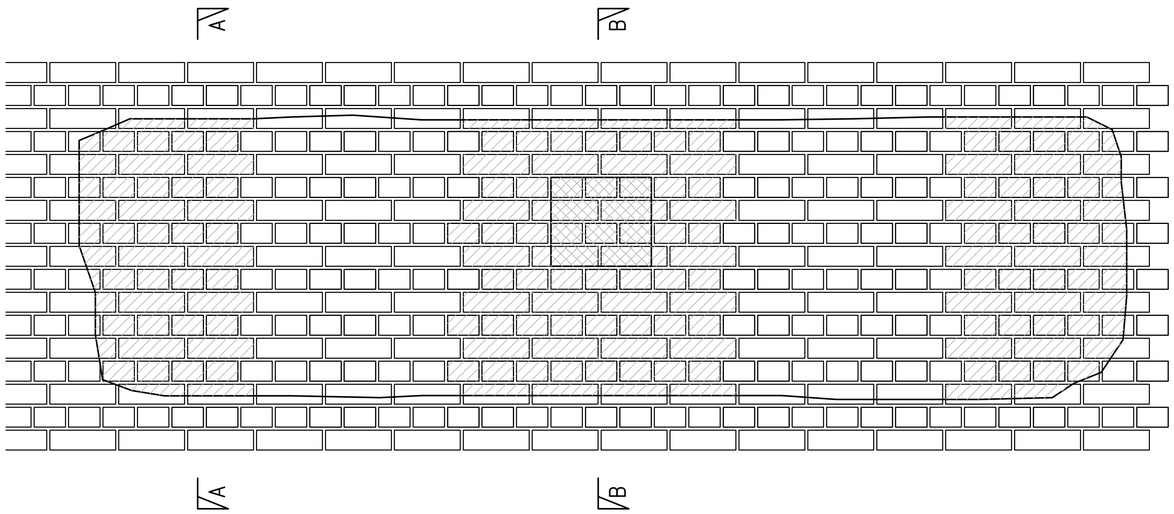
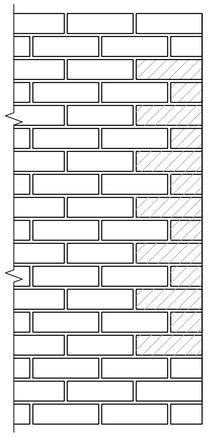
DRAWING No. NR/CIV/SD/116



RE-CASING A VERTICAL WALL USING THE "HIT & MISS" METHOD

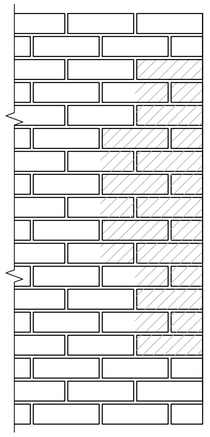
NOT TO SCALE



SECTION A – A

NOT TO SCALE

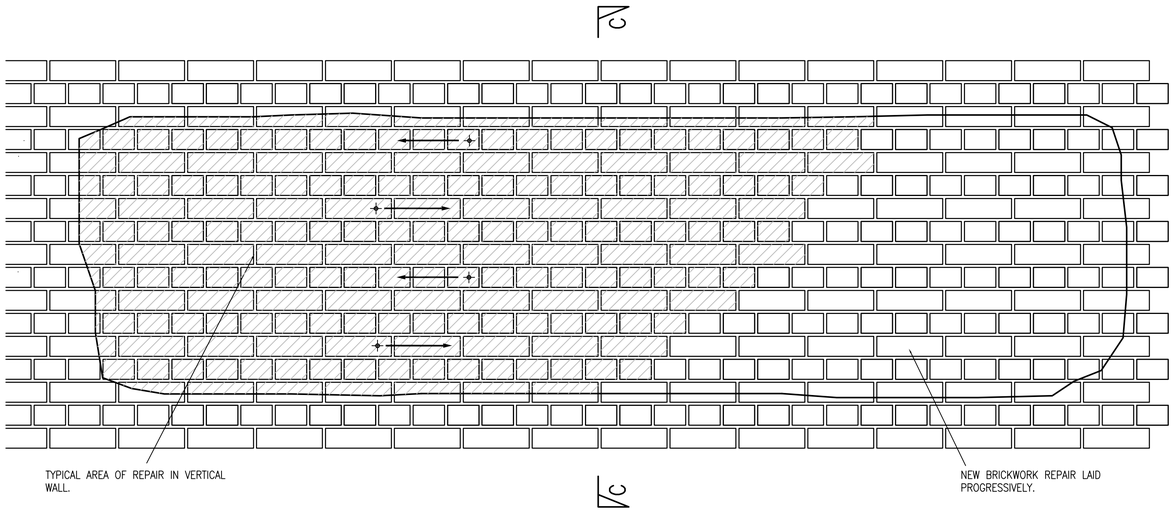
EXAMPLE OF MOST DESIRED TOOTHED BRICKWORK



SECTION B – B

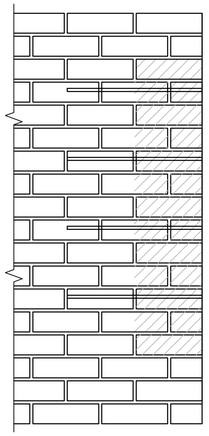
NOT TO SCALE

NEW BRICKWORK REPAIR "BLOCK BONDING"



PROGRESSIVE REPAIR INCORPORATING TIMBER SOLDIERS OR PROPS

NOT TO SCALE



SECTION C – C

NOT TO SCALE

NEW BRICKWORK PINNED TO HOST BACKING
HOLE DIAMETER 10mm, BAR SIZE 6mm, 50mm MORTAR BACKING

INSTALLATION GUIDANCE

a) MOST BRICKWORK AND MASONRY REPAIRS TO VERTICAL MEMBERS E.G. PIERS, ABUTMENTS, WING AND RETAINING WALLS ARE CARRIED OUT TO ARREST ENVIRONMENTAL ACTION SUCH AS SPALLING AND BULGING DUE TO HEAVE OR CRACKING.

b) ALTERNATIVELY A CONTINUOUS HORIZONTAL REPAIR PANEL MAY BE REMOVED PROVIDING TIMBER SOLDIERS OR ACRO PROPS ARE USED. THE HEIGHT OF THE PANEL SHOULD NOT EXCEED 1m. RE-CASING CAN PROCEED LATERALLY, REMOVING THE PROPS AS THE REPAIR PROGRESSES. NEW BRICKWORK MUST BE SUFFICIENTLY CURED BEFORE EACH PROP IS REMOVED.

c) REPAIRS BENEATH CILL BEAMS OR PAD STONES WHERE THE VERTICAL MEMBER IS MORE SENSITIVE TO LIVE LOADING CAN BE UNDERTAKEN PROVIDED ADEQUATE TEMPORARY WORKS ARE EMPLOYED I.E. A SHORING SUPPORT SYSTEM OF JACKS AND PROPS IS IN PLACE.

d) WHERE A DEFECTIVE AREA IS SMALL IT MAY BE POSSIBLE TO AFFECT THE REPAIR WITHOUT THE NEED FOR TEMPORARY WORKS. THIS MUST BE CLOSELY MONITORED. IF THE BACKING IS OF POOR CONDITION IT MAY THEN BE NECESSARY TO INSTALL TEMPORARY WORKS.

e) IF THE VERTICAL MEMBER COMPRISES HEADERS AND STRETCHERS THEN THE COMPLETE BRICK SHALL BE REMOVED TO ELIMINATE THE PRACTICE OF USING SNAPPED HEADERS.

SPECIFICATION

f) RE-CASING THE SUBSTRUCTURE MUST BE CARRIED OUT IN CONTAINED AREAS OF REPAIR OF NO GREATER THAN $1m^2$ ON A 'HIT AND MISS' BASIS, I.E. $1m^2$ IS CUT OUT AND RE-CASED AND $1m^2$ IS LEFT UNTOUCHED. AFTER A PERIOD OF 7 DAYS THE UNTOUCHED BRICKWORK/MASONRY IS THEN CUT, RE-CASED AND BONDED TO THE EARLIER RE-CASING TO MATCH.

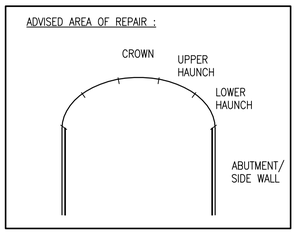
g) MASONRY RE-CASING MUST BE CONFINED TO EVEN SMALLER $0.5m^2$ AREAS OF REPAIR AS THE DEPTH OF FACE STONES IS ONLY REVEALED UPON THEIR REMOVAL.

h) ONCE EXPOSED THE BACKING OF THE REPAIR AREA MUST BE WASHED WITH UNCONTAMINATED TAP WATER TO REMOVE TRACES OF FINES OR WASHED SOIL AND TO CONTROL THE SUCTION RATE.

i) PERCOLATING WATER MUST BE CONTROLLED BY RE-DIRECTING THROUGH DRAINAGE CHANNELS AND WEEP HOLES BEFORE ATTEMPTING ANY REPAIR.

j) WHERE POSSIBLE THE BRICKWORK SHOULD BE TOOTHED AS IN CROSS SECTION VIEW ON A-A. WHERE THIS IS NOT ACHIEVABLE DUE TO THE POOR CONDITION OF EXISTING BRICKWORK BLOCK BONDING AS IN CROSS SECTION VIEW ON B-B OR PINNING AS IN CROSS SECTION VIEW ON C-C MAY BE CONSIDERED. ADDITIONALLY STAINLESS STEEL TIES MAY BE USED.

ADVISED AREA OF REPAIR :



AREA APPROPRIATE FOR DETAILED REPAIR IS SHOWN BY HEAVY LINE.

NOTES

GENERAL

1. FACING OF EXISTING VERTICAL SURFACE TO STRENGTHEN THE VERTICAL MEMBER MAY INVOLVE PINNING AND TYING TO THE HOST MEMBER. (SEE DRAWINGS NR/CIV/SD/105 & NR/CIV/SD/106 FOR EXAMPLES) MAY INCLUDE REMOVING THE SURFACE LAYER AS IN RE-CASING.

2. CONSTRAINTS GOVERNING THE TYPE OF REPAIR ARE DETERMINED BY :

a) LOADING FACTORS OF THE SUPPORTING VERTICAL MEMBER EITHER VERTICAL OR HORIZONTAL.

b) SIZE OF REPAIR; SMALL REPAIRS MINIMISE THE RISK OF STRUCTURAL WEAKNESS DURING REPAIR.

c) MATERIALS USED; BRICKS, MASONRY OR CONCRETE.

d) TIME (POSSESSIONS).

e) RESTRICTED ACCESS.

f) THE LEVEL OF SKILL AVAILABLE (CRAFTSMEN) TO ACHIEVE A MATCHING FAIR FACE IF UNSIGHTLY PATCHWORK REPAIR IS TO BE AVOIDED.

3. PRIOR TO THE INSTALLATION OF TEMPORARY WORKS, A DESIGN FOR WHICH, TOGETHER WITH FORM 'C' MUST BE SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NETWORK RAIL SPECIFICATION NR/SP/CIV/003 TECHNICAL APPROVAL OF DESIGN, CONSTRUCTION AND MAINTENANCE OF CIVIL ENGINEERING INFRASTRUCTURE AND MUST TAKE INTO ACCOUNT STRUCTURE CLEARANCES AND GAUGING. REFER BACK TO DRAWING NR/CIV/SD/112 FOR DETAILS. TEMPORARY WORKS MUST BE SUITABLE FOR CARRYING OUT REPAIR UNDER FULLY OPERATIONAL RAILWAY OR ROAD.

DESIGN ASSUMPTIONS

NONE

RISK ASSESSMENT

REFER TO DRAWING NR/CIV/SD/101.

Rev	Date	Description of revision	Design'd	C'kd
A	22.06.06	FIRST ISSUE –NR APPROVED	RMA	NGAY
P3	17.03.06	REVISED FORM B.	RMA	NGAY
P2	31.01.06	FORM B ISSUE.	RMA	NGAY
P1	13.01.06	PRELIMINARY DRAFT	RMA	NGAY

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BRICK AND MASONRY REPAIR STANDARD DRAWINGS

RE-CASING VERTICAL WALLS

Scale	AS SHOWN	
Drawing Number	NR/CIV/SD/116	REV. A

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