Supplementary Information

The following information is associated with Network Rail Standard:
NR CIV/SD/105 Rev A

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CAD Drawing

- CIV/SD/105

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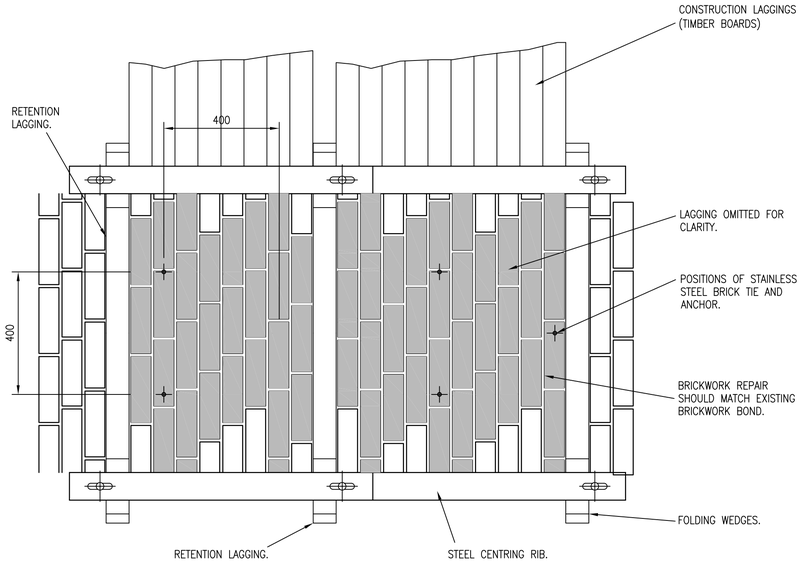
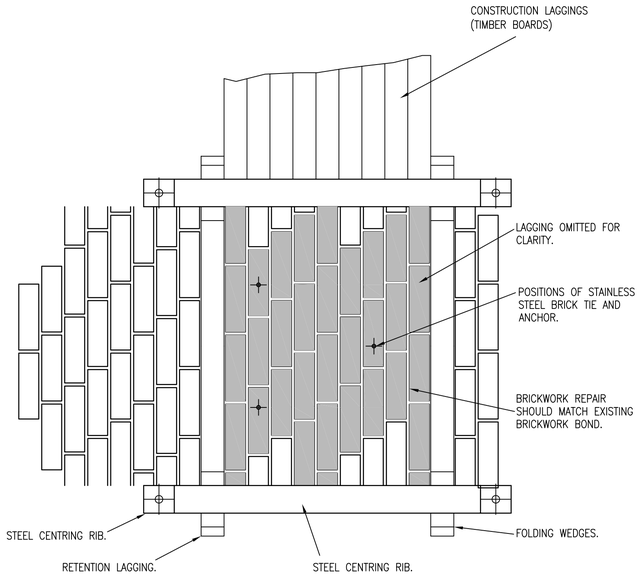
DRAWING No. NR/CIV/SD/105



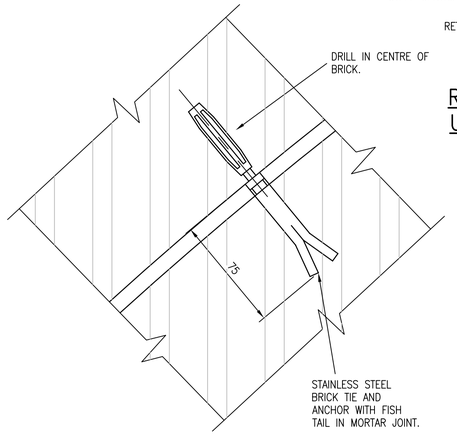
REFLECTED PLAN SHOWING POSITON OF TIES (THIS USE OF FLAT BAR AS ILLUSTRATED ALLOWS THE REPAIR TO EXTENDED LONGITUDINALLY)

SCALE 1 : 10



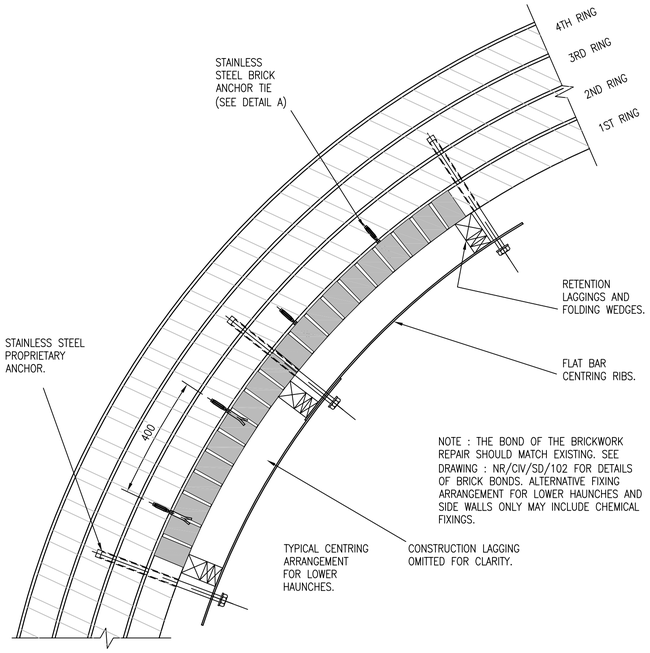
REFLECTED PLAN SHOWING POSITON OF TIES (THIS USE OF SHAPED BAR LIMITS THE REPAIR AREA TO APPROXIMATELY 1m²)

SCALE 1 : 10



DETAIL A

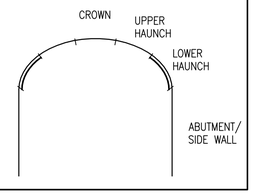
SCALE 1 : 2



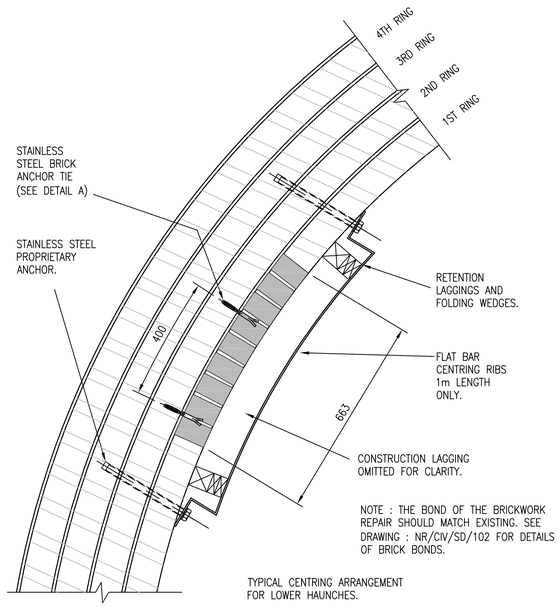
PART SECTION THROUGH ARCH – (4 RING ARCH SHOWN) USE OF FLAT BAR RIB FOR LARGE AREAS (>1m²)

SCALE 1 : 10

ADVISED AREA OF REPAIR :



AREA APPROPRIATE FOR DETAILED REPAIR IS SHOWN BY HEAVY LINE.



PART SECTION THROUGH ARCH – (4 RING ARCH SHOWN) USE OF SHAPED BAR FOR SMALL AREAS (1m²)

SCALE 1 : 10

NOTES

DESIGN ASSUMPTIONS – NONE

RISK ASSESSMENT

REFER TO DRAWING NR/CIV/SD/101

INSTALLATION GUIDANCE

a) IN THE CASE OF UNDERBRIDGES BRICKWORK RE–CASING MUST NOT BE CARRIED OUT UNDER LIVE LOAD CONDITIONS. LIVE LOADING SHOULD ONLY COMMENCE AFTER A MINIMUM 10 HOURS HAS ELAPSED AFTER COMPLETING THE REPAIRS AND WITH THE TEMPORARY WORKS STILL IN PLACE. FOR TEMPORARY WORK ARRANGEMENTS SEE DRAWING NR/CIV/SD/112. IN CIRCUMSTANCES REQUIRING RECASING TO BE COMPLETED UNDER "LIVE LOAD" CONDITIONS A PROJECT SPECIFIC FORM A/B SUBMISSION IS REQUIRED. NO SUCH RESTRICTIONS NEED APPLY TO TUNNELS.

b) POSITION & ERECT CENTRING (RIBS & LAGGING) TO THE PROFILE OF ARCH TO OFFER COVER AND SUPPORT TO THE AREA OF DEFECTIVE BRICKWORK BEING REMOVED. THIS WILL MINIMISE DISTURBANCE TO THE SURROUNDING BRICKWORK AND ESTABLISH THE PROFILE FOR RE–CASING. MAXIMUM HORIZONTAL DISTANCE BETWEEN CENTRING TO BE 1000mm.

c) INITIALLY, CAREFULLY BREAK OUT DEFECTIVE BRICKWORK AND TOOTH THE SIDES OF THE OPENING ON FIRST ARCH RING ONLY. THIS MUST BE CARRIED OUT WITH THE MINIMUM OF DISTURBANCE TO ADJOINING BRICKWORK OR MASONRY.

d) INSPECT SECOND ARCH–RING TO DETERMINE ITS CONDITION. AT THIS STAGE IT SHOULD BE ASCERTAINED WHETHER FURTHER REMEDIAL WORKS ARE REQUIRED TO THE SECOND OR SUBSEQUENT ARCH RINGS. IT MAY BE NECESSARY TO GROUT, STITCH OR RE–CASE ADDITIONAL RINGS (REFER TO DRAWING NR/CIV/SD/104 & NR/CIV/SD/106). IF BUILD–UP OF CALCIUM DEPOSITS ARE FOUND THESE SHOULD BE CLEANED OFF.

e) WHERE NEW BRICKWORK IS TO BE KEYED TO EXISTING BRICKWORK, THE SURFACE OF THE EXISTING BRICKWORK SHALL BE WETTED TO CONTROL THE SUCTION RATE AS FAR AS REASONABLY PRACTICABLE.

f) BRICKWORK RE–CASING TO BE BUILT TO THE EXISTING ARCH PROFILE. ALL TIMBER LAGGINGS TO BE FIRMLY POSITIONED AND WEDGED INTO PLACE. BRICKS MUST BE "BEDDED" ON MORTAR KEYED INTO THE BACKING AND BED COURSE. MORTAR JOINTS TO BE STRUCK FLUSH.

g) INSTALLING THE FINAL COURSE CAN BE ACHIEVED BY CLOSING FROM BOTH SIDES OF THE OPENING USING 2 LAGGINGS TO SLIDE TOGETHER. ONCE CLOSED WITHDRAW ONE OF THE LAGGINGS AND FOLLOW THROUGH WITH THE OTHER.

h) WHILE THE RE–CASING PANEL IS STILL GREEN THE FIRST AND BOTTOM TIMBER LAGGING CAN BE TEMPORARILY REMOVED TO EXPOSE THE FACE OF RE–CASING. THIS CAN NOW BE BRUSHED CLEAN AND STRUCK. REPLACE THE FIRST LAGGING BEFORE THE SECOND IS REMOVED AND THE PROCESS REPEATED.

i) AFTER ONE WEEK, CAREFULLY DISMANTLE WEDGES, LAGGINGS AND CENTRING AND MAKE GOOD ANY ATTACHMENT HOLES.

N.B.

j) IF MORE BRICKWORK HAS BEEN CUT OUT THAN CAN BE REPLACED IN THE POSSESSION, THE OPENING MUST BE SEALED BY DRY LAGGING USING TIMBER LAGGINGS WEDGED INTO PLACE.

k) THE CONTRACTOR IS AT LIBERTY TO PROPOSE ALTERNATIVE METHODS AND/OR MATERIALS FOR CARRYING OUT THE WORKS IN A PROJECT SPECIFIC FORM A/B SUBMISSION.

GENERAL

1. MAXIMUM AREA OF BRICKWORK TO BE REMOVED IN ANY ONE REPAIR IS DEPENDENT ON – TOTAL THICKNESS OF ARCH RINGS, CONDITION OF BRICKWORK, LENGTH OF POSSESSION ETC.

2. THE VERTICAL EXTENT OF REPAIR BEING LIMITED TO SITE CONDITIONS AND POSSESSION TIMES.

3. SHOULD THE CONDITION OF THE BACKING COURSE REVEALED BE UNSTABLE THEN IT SHOULD BE BROUGHT TO THE URGENT ATTENTION OF THE EMPLOYERS REPRESENTATIVE.

4. CONSIDERATION MUST BE GIVEN AT ALL TIMES FOR TRACKSIDE STRUCTURES TO ENSURE THAT WHEN ERECTING TEMPORARY FORMWORK THE GAUGING CLEARANCE IS MAINTAINED THROUGHOUT THE WORKS. ADVICE SHOULD BE SOUGHT FROM THE TERRITORY GAUGING ENGINEER VIA THE EMPLOYERS REPRESENTATIVE.

SPECIFICATION

5. THE WIDTH OF REPAIR BETWEEN THE CENTRING RIBS SHALL NOT EXCEED A MAXIMUM 5 STRETCHER BRICKS, THE RIBS BEING PLACED 1000mm APART.

6. IT IS POSSIBLE TO RE–CASE THE FIRST RING ONLY BUT WHERE HEADER COURSES ARE ENCOUNTERED THE WHOLE BRICK MUST BE REPLACED. UNDER NO CIRCUMSTANCES ARE HALF BRICK ("SNAPPED HEADERS") TO BE USED.

7. THE BOND OF THE BRICK REPAIR SHALL MATCH EXISTING. SEE DRAWING NR/CIV/SD/102 FOR TYPES OF BRICK BOND.

8. OBSTRUCTIONS, SUCH AS CABLE TRAY BRACKETS AND DOWN PIPES SHOULD ONLY BE REMOVED PRIOR TO THE REPAIR WITH THE AGREEMENT OF THE EMPLOYERS REPRESENTATIVE. OHLE BRACKETS SHOULD NOT BE REMOVED AND CARE MUST BE TAKEN NOT TO DISTURB THE BRICKWORK ADJACENT TO THESE BRACKETS.

9. TEMPORARY WORKS DETAILS AND NOTES ON THIS AND
RELATED DRAWINGS ARE INDICATIVE ONLY AND ARE MEANT FOR GUIDANCE. FOR EACH PARTICULAR PROJECT, THE CONTRACTOR MUST SATISFY HIMSELF AND THE EMPLOYERS REPRESENTATIVE THAT ALL TEMPORARY WORKS ARE CORRECTLY DESIGNED FOR THE EXPECTED LOADING CONDITIONS AND THAT GAUGING REQUIREMENTS ARE FULLY SATISFIED WHENEVER TRACK IS OPEN TO TRAFFIC WITH TEMPORARY WORKS IN PLACE. THE TEMPORARY WORKS DESIGN, DRAWINGS AND FORM C ARE TO BE PRODUCED IN ACCORDANCE WITH NETWORK RAIL COMPANY STANDARD NR/SP/CIV/003.

ALL RECASING WORK WHICH REQUIRES TEMPORARY WORKS TO BE CONSTRUCTED MUST NOT BE CARRIED OUT UNDER LIVE LOAD CRITERIA. FURTHERMORE, THE LOCATION OF THE TEMPORARY WORKS MUST BE CHECKED TO ENSURE GAUGING CLEARANCES ARE NOT COMPROMISED. EXCEPTIONALLY WHERE CLEARANCES ARE TIGHT AND LOADS NEGLIGIBLE (E.G. SELF WEIGHT OF NEW BRICKWORK ONLY) THEN PLYWOOD WITH APPROPRIATE ANCHORS MAY BE USED. THE CONTRACTOR SHALL INCLUDE DETAILS OF THEIR PROPOSALS IN THEIR METHOD STATEMENTS.

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

Network Rail
40 Melton Street
London NW1 2EE
Tel: 020–7557–8000

	Name	Position	Signature	Date
Approved	P. CLARK	Programme Eng. Manager Civils, MP & I	PC	25.05.06
Authorised	K. TEAGER	Director of Civil Engineering	KT	08.06.06

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BRICK AND MASONRY REPAIR STANDARD DRAWINGS

SINGLE RING RE–CASING OF DEFECTIVE BRICKWORK IN ARCHES AND TUNNEL LININGS UP TO 4 RINGS

Scale	AS SHOWN	
Drawing Number	NR/CIV/SD/105	REV. A

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