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**VOLUME 3 HIGHWAY  
CONSTRUCTION  
DETAILS**

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**HIGHWAY CONSTRUCTION DETAILS**

**AMENDMENT NOVEMBER 2008**

**SUMMARY**

This document contains the replacement pages and drawings for incorporation into the Highway Construction Details.

**INSTRUCTIONS FOR USE**

1. Insert the replacement pages and drawings listed on the Amendments sheet (Amendment - November 2008), remove the corresponding existing pages and drawings, which are superseded by this amendment, and archive as appropriate. (Advice on archiving is given in Standard SD 0/08)
2. Insert the latest Amendments sheet dated November 2008 at the front of the document.
3. Enter details of Amendment - November 2008 on the Registration of Amendments sheet, sign and date to confirm that the amendment has been incorporated.
4. Archive this sheet as appropriate.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from The Stationery Office Ltd.

**MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS  
VOLUME 3 HIGHWAY CONSTRUCTION DETAILS**

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**MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS**

**A BRIEF DESCRIPTION OF NOVEMBER 2008 AMENDMENTS**

**VOLUME 3**

<b>DOCUMENT</b>	<b>DESCRIPTION</b>
<b>Volume 3</b>	<b>Highway Construction Details (MCHW 3)</b>
<b>General</b>	<p>The user's attention is drawn to the following note which has been abstracted from Implementing Standard SD 26/08:</p> <p>“Contracts for which tenders are to be invited after 1 May 2009 shall incorporate by reference the amendments implemented by this Standard, except where the preparation of a contract has reached a stage at which in the opinion of the Overseeing Organisation use of the amendments would result in significant additional expense or delay progress.”</p> <p>The user's attention is drawn to GD 03/08 (DMRB 0.2.2) Implementation and Use of the Standards Improvement System. This Standard superseded HD 34/03 which introduced the Standards Improvement System (SIS).</p> <p>SIS is a computerised database of reports generated from failures of specifications and design standards and other observations on these documents. The database records potential improvements using lists of components, symptoms, diagnoses and detailed descriptions. SIS is operated and maintained by the Highways Agency. Its prime objective is to improve the performance of the engineering standards and specifications published by the Highways Agency, both independently and jointly with other Overseeing Organisations.</p> <p><b>Feedback Arrangement</b></p> <p>To provide feedback on the Highways Agency's standards and specifications, please use this link: <a href="http://www.highways-net.co.uk/information/dmrbackcess.asp">http://www.highways-net.co.uk/information/dmrbackcess.asp</a></p>
<b>Section 1 Series D Drawings Carriageway Markings for Rural Motorways</b>	<p>Drawing Nos. D1 Issue C, D2 Issue D, D5 Issue E and D6 Issue D:</p> <ol style="list-style-type: none"><li>1. White studs are amended from 'bidirectional' to 'unidirectional'.</li></ol>

## Manual of Contract Documents for Highway Works

### Amendment - November 2008 to Volume 3 - Highway Construction Details

Replace existing pages: i/ii and vii/viii with new pages i/ii and vii/viii

For Series D: remove existing pages D1 to D2 and D5 to D6 and replace with new pages D1 to D2 and D5 to D6

#### *Publisher's Note*

- 1. The Specification for Highway Works and its Notes for Guidance to which the Highway Construction Details relate are published by The Stationery Office in Volumes 1 and 2 of the Manual of Contract Documents for Highway Works, and are for use in Highway Works Contracts.*
- 2. The Method of Measurement for Highway Works and a Library of Standard Item Descriptions to which the Highway Construction Details relate are published by The Stationery Office in Volume 4 of the Manual of Contract Documents for Highway Works.*

## VOLUME 3 (with continuation binder 3a)

### HIGHWAY CONSTRUCTION DETAILS

#### Section 1 Carriageway and Other Details

Drawings dated December 1991, August 1993, August 1994 and March 1998

Series A drawings (Highway Cross Sections) have been superseded by TD 27/96 in DMRB Volume 6

Amendment dated March 1999 - revision B to drawing D5

Amendment dated May 2001 - revisions to Series C, D, F, H and K drawings

Amendment dated May 2002 - revisions to Series B, C, G, I and K drawings

Amendment dated February 2003 - revisions to Series G drawings

Amendment dated August 2003 - revisions to Series D drawings

Amendment dated November 2003 - revisions to Series F and G drawings

Amendment dated May 2004 - revisions to Series B, C, E, G, H, I and K drawings

Amendment dated November 2004 - revisions to Series B and F drawings

Amendment dated May 2005 - revisions to Series F drawings

Amendment dated November 2005 - revisions to Series G drawings

Amendment dated May 2006 - revisions to Series B, C and F drawings

Amendment dated November 2006 - revisions to Series E and H drawings

Amendment dated November 2008 - revisions to Series D drawings

#### Section 2 Not Used (05/04)

#### Section 3 National Motorway Communications System Installation Drawings

Amendment dated May 2002 - revised all the National Motorway Communications System Installation Drawings which were introduced in the Amendment dated May 2001.

Amendment dated February 2003 - revisions to the National Motorway Communications System Installation Drawings

Amendment dated August 2003 - revisions to the National Motorway Communications System Installation Drawings

Amendment dated November 2003 - revisions to the National Motorway Communications System Installation Drawings

Amendment dated May 2004 - revisions to the National Motorway Communications System Installation Drawings

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Amendment dated November 2004 - revisions to the National Motorway Communications System Installation Drawings

Amendment dated May 2005 - revisions to the National Motorway Communications System Installation Drawings

Amendment dated November 2005 - revisions to the National Motorway Communications System Installation Drawings

Amendment dated May 2006 - revisions to the National Motorway Communications System Installation Drawings

Amendment dated November 2006 - revisions to the National Motorway Communications System Installation Drawings

**REGISTRATION OF AMENDMENTS**

Amendment No.	Page/Drg No.	Signature & Date of Incorporation of Amendment	Amendment No.	Page/Drg No.	Signature & Date of Incorporation of Amendment

## SCHEDULE OF NUMBERED PAGES AND RELEVANT PUBLICATION DATES

	Page Number	Publication Date		
Introduction	1	March 1998		
List of Drawings	Section 1	2	March 1998	
		3	May 2004	
		4	May 2006	
		5	May 2001	
		6	May 2004	
		7	May 2001	
		8	November 2005	
		9	May 2001	
		10	May 2002	
		11	December 1991	
		12	May 2001	
		Section 2	13 to 14 inclusive Not Used	May 2004
		Section 3	15 to 18 inclusive	May 2006
		19 to 20 inclusive	May 2004	
		21	May 2006	
		22 to 25 inclusive	May 2004	
		26 to 27 inclusive	May 2006	
		28	November 2005	





## SCHEDULE OF DRAWINGS - SECTION 1 AND RELEVANT PUBLICATION DATES

Series	Drawing Number	Issue	Publication Date	
A	Not Used			
B	B1	B	May 2006	
	B2	B	August 1993	
	B3	C	May 2002	
	B4 to B5 inclusive	C	May 2006	
	B6 to B7	C	May 2002	
	B8	B	May 2002	
	B9	C	May 2006	
	B10	F	May 2006	
	B11	C	May 2002	
	B12	D	May 2002	
	B13	C	May 2006	
	B14	E	November 2004	
	B15	B	March 1998	
	B16 to B17 inclusive	C	May 2004	
	B18	C	May 2004	
	C	C1	E	May 2006
		C2	C	May 2006
		C3 to C4 inclusive	E	May 2006
C5		C	May 2006	
C6		B	May 2001	
C7/1, C7/2, C7/3		E	May 2006	
C8/1, C8/2		C	May 2006	
C9		B	May 2006	
C10/1, C10/2		B	May 2006	
C11		B	March 1998	
C12 to C15 inclusive		C	May 2006	
C16		B	May 2006	
C17		C	May 2006	
C18		E	May 2002	
C19		C	May 2006	
C20		E	May 2006	
C21 to C22 inclusive		C	May 2006	
C23		D	May 2006	
C24		C	May 2006	
C25		C	May 2006	
C26		B	May 2006	
D		D1	C	November 2008
		D2	D	November 2008
		D3 to D4 inclusive	C	August 2003
		D5	E	November 2008
		D6	D	November 2008
	(D7 Not Used)			
E	E1	A	December 1991	
	E2	B	November 2006	
	E3	B	August 1993	
	E4 to E5 inclusive	B	May 2004	

**SCHEDULE OF DRAWINGS - SECTION 1  
AND RELEVANT PUBLICATION DATES (*continued*)**

Series	Drawing Number	Issue	Publication Date
F	F1	A	December 1991
	F2	C	November 2003
	F3	E	May 2006
	F4	E	May 2006
	F5 to F6 inclusive	F	November 2004
	F7	E	May 2006
	(F8 Not Used)		
	F9	B	May 2001
	F10	C	November 2003
	F11 to F12 inclusive	F	May 2006
	F13 to F14 inclusive	E	May 2006
	F15	C	November 2004
	F16	B	November 2004
	F17	A	March 1998
	F18 to F21 inclusive	A	December 1991
	F22 to F23 inclusive	B	November 2003
	F24	C	November 2004
	F25 to F26 inclusive	C	May 2006
	F27	C	November 2004
	F28	B	November 2003
G	G1	E	November 2005
	G2	D	November 2005
	G3 to G4 inclusive	E	November 2005
	G5	D	November 2005
	G6	C	November 2005
	G7	G	November 2005
	G8 to G12 inclusive	E	November 2005
	G13	F	November 2005
	G14 to G15 inclusive	D	November 2005
	G16	F	November 2005
	G17	E	November 2005
	G18 to G22 inclusive	D	November 2005
	G23	E	November 2005
	G24	D	November 2005
	G25 to G28 inclusive	C	November 2005
	G29 to G30 inclusive	D	November 2005
	G31 to G32 inclusive	C	November 2005

**SCHEDULE OF DRAWINGS - SECTION 1  
AND RELEVANT PUBLICATION DATES *(continued)***

Series	Drawing Number	Issue	Publication Date
H	H1	C	May 2004
	H2	B	May 2004
	H3	D	May 2004
	H4	C	May 2004
	H5	D	May 2004
	H6	C	May 2004
	H7	A	December 1991
	H8	B	May 2001
	H9 to H10 inclusive	A	December 1991
	H11	D	May 2004
	H12	B	August 1993
	H13 to H14 inclusive	E	May 2004
	H15	D	May 2004
	H16	C	May 2004
	H17 to H25 inclusive	B	May 2004
	H26	B	May 2001
	H27 to H33 inclusive	A	December 1991
	H34 to H35 inclusive	C	May 2004
	H36	B	November 2006
	H37	A	December 1991
H38	B	March 1998	
H39 to H48	A	May 2001	
I	I1 to I2 inclusive	B	May 2004
	I3 to I5 inclusive	A	May 2002
J	J1	A	December 1991
K	K1 to K3 inclusive	A	December 1991
	K4	C	May 2004
	K5	A	May 2001

**SECTION 2**  
**(Not Used)**

**SCHEDULE OF DRAWINGS - SECTION 3  
AND RELEVANT PUBLICATION DATES**

Series	Drawing Number	Issue	Publication Date
MCX	(MCX 0000 to MCX 0068 not used)		
	MCX 0069 Sheet 1	H	May 2006
	MCX 0069 Sheet 2 to Sheet 7 inclusive (MCX 0070 to MCX 0130 not used)	F	May 2006
	MCX 0131 Sheet 1	N	May 2006
	MCX 0131 Sheet 2 to Sheet 3 inclusive	H	May 2006
	MCX 0132 Sheet 1	N	May 2006
	MCX 0132 Sheet 2	P	May 2006
	MCX 0132 Sheet 3	J	May 2006
	MCX 0132 Sheet 4 to Sheet 5 inclusive	K	May 2006
	MCX 0132 Sheet 6	F	May 2006
	MCX 0132 Sheet 7 to Sheet 8 inclusive (MCX 0133 not used)	D	May 2006
	MCX 0134 Sheet 1	N	May 2006
	MCX 0135 Sheet 1	J	May 2006
	MCX 0135 Sheet 2	H	May 2006
	MCX 0135 Sheet 3	G	May 2006
	MCX 0135 Sheet 4 (MCX 0136 not used)	F	May 2006
	MCX 0137 Sheet 1	K	May 2006
	MCX 0138 Sheet 1	N	November 2005
	MCX 0138 Sheet 2	G	May 2004
	MCX 0139 Sheet 1	K	May 2006
	MCX 0140 Sheet 1	S	November 2005
	MCX 0141 Sheet 1	P	February 2003
	MCX 0142 Sheet 1	M	May 2006
	MCX 0142 Sheet 2	L	May 2006
	MCX 0142 Sheet 3	K	May 2006
	MCX 0142 Sheet 4	J	May 2006
	MCX 0143 Sheet 1	R	November 2005
	MCX 0144 Sheet 1 to Sheet 2 inclusive	J	November 2003
	MCX 0144 Sheet 3	F	May 2004
	MCX 0144 Sheet 4	E	May 2004
	MCX 0145 Sheet 1	S	May 2006
	MCX 0145 Sheet 2	L	November 2003
	MCX 0145 Sheet 3	G	May 2002
	MCX 0145 Sheet 4	L	May 2006
	MCX 0145 Sheet 5	F	May 2006
	MCX 0146 Sheet 1	L	February 2003
	MCX 0147 Sheet 1	N	May 2006
	MCX 0147 Sheet 2 (MCX 0148 not used)	K	May 2006
	MCX 0149 Sheet 1	H	May 2006
	MCX 0149 Sheet 2	G	May 2006
	MCX 0150 Sheet 1	H	May 2006
	MCX 0151 Sheet 1	L	May 2006
	MCX 0151 Sheet 2	K	May 2006
	MCX 0151 Sheet 3	L	May 2006
	MCX 0151 Sheet 4 to Sheet 5 inclusive	H	May 2006
	MCX 0151 Sheet 6	F	May 2006
	MCX 0151 Sheet 7	G	May 2006
	MCX 0151 Sheet 8	C	May 2006

**SCHEDULE OF DRAWINGS - SECTION 3  
AND RELEVANT PUBLICATION DATES (*continued*)**

Series	Drawing Number	Issue	Publication Date
MCX	MCX 0152 Sheet 1	M	May 2006
	MCX 0152 Sheet 2	H	May 2006
	MCX 0153 Sheet 1	M	November 2005
	MCX 0153 Sheet 2	F	November 2005
	MCX 0154 Sheet 1	N	May 2006
	(MCX 0155 not used)		
	MCX 0156 Sheet 1	S	May 2006
	MCX 0156 Sheet 2	P	May 2006
	MCX 0156 Sheet 3	N	May 2006
	MCX 0156 Sheet 4	Q	May 2006
	MCX 0156 Sheet 5	K	May 2006
	MCX 0157 Sheet 1	J	May 2006
	MCX 0157 Sheet 2	H	May 2006
	MCX 0157 Sheet 3	J	May 2006
	MCX 0157 Sheet 4	H	May 2006
	MCX 0157 Sheet 5	J	May 2006
	MCX 0157 Sheet 6	G	May 2006
	(MCX 0158 to MCX 0159 not used)		
	MCX 0160 Sheet 1	L	May 2004
	(MCX 0161 to MCX 0162 not used)		
	MCX 0163 Sheet 1	J	May 2006
	MCX 0164 Sheet 1	J	May 2004
	MCX 0164 Sheet 2	L	May 2006
	MCX 0164 Sheet 3	J	May 2006
	MCX 0164 Sheet 4	A	May 2004
	MCX 0165 Sheet 1	H	May 2006
	MCX 0165 Sheet 2	K	May 2006
	MCX 0165 Sheet 3	H	May 2006
	MCX 0165 Sheet 4	D	May 2006
	(MCX 0166 to MCX 0169 not used)		
	MCX 0170 Sheet 1	M	May 2006
	MCX 0170 Sheet 2	N	May 2006
	MCX 0170 Sheet 3	J	May 2006
	MCX 0170 Sheet 4 to Sheet 5 inclusive	E	May 2006
	MCX 0170 Sheet 6	D	May 2006
	MCX 0170 Sheet 7 to Sheet 8 inclusive	E	May 2006
	MCX 0170 Sheet 9	D	May 2006
	MCX 0171 Sheet 1	J	February 2003
	MCX 0171 Sheet 2	F	May 2006
	(MCX 0172 to MCX 0305 not used)		
	MCX 0306 Sheet 1 to Sheet 2 inclusive	J	May 2006
	MCX 0306 Sheet 3	H	May 2006
	(MCX 0307 to MCX 0336 not used)		
	MCX 0337 Sheet 1	S	May 2006
MCX 0337 Sheet 2	J	May 2006	
MCX 0337 Sheet 3	G	May 2006	
MCX 0337 Sheet 4	F	May 2006	
MCX 0337 Sheet 5	K	May 2006	
MCX 0337 Sheet 6	H	May 2006	
MCX 0337 Sheet 7 to Sheet 8 inclusive	F	May 2006	
MCX 0337 Sheet 9 to Sheet 10 inclusive	D	May 2006	
MCX 0037 Sheet 11	C	May 2006	

**SCHEDULE OF DRAWINGS - SECTION 3  
AND RELEVANT PUBLICATION DATES (continued)**

Series	Drawing Number	Issue	Publication Date
MCX	(MCX 0338 not used)		
	MCX 0339 Sheet 1 to Sheet 2 inclusive	K	May 2006
	MCX 0339 Sheet 3	G	May 2006
	MCX 0339 Sheet 4	F	May 2006
	(MCX 0340 to MCX 0425 not used)		
	MCX 0426 Sheet 1 to Sheet 2 inclusive	H	May 2006
	(MCX 0427 to MCX 0485 not used)		
	MCX 0486 Sheet 1	H	May 2006
	MCX 0486 Sheet 2	F	May 2006
	(MCX 0487 to MCX 0488 not used)		
	MCX 0489 Sheet 1	G	May 2006
	MCX 0489 Sheet 2	J	May 2006
	MCX 0489 Sheet 3	H	May 2006
	MCX 0489 Sheet 4	F	May 2006
	MCX 0489 Sheet 5 to Sheet 6 inclusive	J	May 2006
	MCX 0489 Sheet 7	B	May 2006
	MCX 0490 Sheet 1 to Sheet 2 inclusive	J	May 2004
	MCX 0490 Sheet 3	K	November 2005
	MCX 0490 Sheet 4	N	November 2005
	MCX 0490 Sheet 5	L	May 2006
	(MCX 0491 to MCX 0508 not used)		
	MCX 0509 Sheet 1	D	May 2006
	MCX 0509 Sheet 2	F	May 2006
	(MCX 0510 to MCX 0514 not used)		
	MCX 0515 Sheet 1 to Sheet 3 inclusive	E	May 2006
	(MCX 0516 to MCX 0541 not used)		
	MCX 0542 Sheet 1 to Sheet 4 inclusive	G	May 2006
	MCX 0543 Sheet 1	G	May 2006
	(MCX 0544 to MCX 0551 not used)		
	MCX 0552 Sheet 1 to Sheet 2 inclusive	E	May 2006
	(MCX 0553 to MCX 0559 not used)		
	MCX 0560 Sheet 1	F	May 2006
	(MCX 0561 to MCX 0564 not used)		
	MCX 0565 Sheet 1	F	May 2006
	MCX 0566 Sheet 1	F	February 2003
	(MCX 0567 to MCX 0574 not used)		
	MCX 0575 Sheet 1	F	November 2003
	(MCX 0576 to MCX 0581 not used)		
	MCX 0582 Sheet 1	K	May 2005
	MCX 0582 Sheet 2	E	May 2005
	MCX 0582 Sheet 3	D	May 2004
	MCX 0583 Sheet 1	K	February 2003
	MCX 0583 Sheet 2	J	February 2003
	MCX 0583 Sheet 3 to Sheet 4 inclusive	K	May 2006
	MCX 0583 Sheet 5	E	February 2003
	MCX 0583 Sheet 6 to Sheet 7 inclusive	E	May 2006
	MCX 0583 Sheet 8	G	May 2006
	MCX 0583 Sheet 9	D	May 2006
	MCX 0583 Sheet 10 to Sheet 11 inclusive	E	May 2006
	MCX 0583 Sheet 12	B	May 2006
MCX 0584 Sheet 1	L	May 2006	
MCX 0584 Sheet 2	K	May 2006	
MCX 0584 Sheet 3 to Sheet 5 inclusive	L	November 2003	
MCX 0584 Sheet 6	J	May 2006	
MCX 0584 Sheet 7	K	May 2006	

**SCHEDULE OF DRAWINGS - SECTION 3  
AND RELEVANT PUBLICATION DATES (*continued*)**

Series	Drawing Number	Issue	Publication Date
MCX	MCX 0584 Sheet 8	H	February 2003
	MCX 0584 Sheet 9	H	May 2006
	MCX 0584 Sheet 10 (MCX 0585 to MCX 0586 not used)	J	May 2006
	MCX 0587 Sheet 1 to Sheet 3	D	May 2006
	MCX 0587 Sheet 4 (MCX 0588 to MCX 0589 not used)	C	May 2006
	MCX 0590 Sheet 1	H	May 2006
	MCX 0591 Sheet 1	H	May 2006
	MCX 0592 Sheet 1	G	May 2006
	MCX 0592 Sheet 2 to Sheet 4 inclusive (MCX 0593 not used)	E	November 2005
	MCX 0594 Sheet 1 to Sheet 2 inclusive	G	May 2006
	MCX 0594 Sheet 3	G	November 2005
	MCX 0594 Sheet 4 (MCX 0595 to MCX 0601 not used)	C	May 2006
	MCX 0602 Sheet 1 to Sheet 2 inclusive (MCX 0603 to MCX 0722 not used)	E	May 2006
	MCX 0723 Sheet 1	E	November 2005
	MCX 0723 Sheet 2	D	February 2003
	MCX 0723 Sheet 3 (MCX 0724 to MCX 0799 not used)	D	May 2006
	MCX 0800 Sheet 1 to Sheet 2	G	November 2005
	MCX 0800 Sheet 3	E	February 2003
	MCX 0801 Sheet 1 to Sheet 3 inclusive	H	May 2006
	MCX 0801 Sheet 4	H	November 2005
	MCX 0801 Sheet 5	H	May 2006
	MCX 0802 Sheet 1 (MCX 0803 to MCX 0809 not used)	F	May 2006
	MCX 0810 Sheet 1	F	May 2004
	MCX 0810 Sheet 2	F	February 2003
	MCX 0810 Sheet 3	D	May 2006
	MCX 0811 Sheet 1	E	May 2006
	MCX 0811 Sheet 2 to 3 inclusive	G	November 2005
	MCX 0811 Sheet 4	F	May 2006
	MCX 0812 Sheet 1	F	November 2005
	MCX 0812 Sheet 2	G	November 2005
	MCX 0813 Sheet 1	G	November 2003
	MCX 0814 Sheet 1 to Sheet 2 inclusive	F	February 2003
	MCX 0814 Sheet 3	F	May 2004
	MCX 0814 Sheet 4	F	February 2003
	MCX 0814 Sheet 5	F	May 2006
	MCX 0815 Sheet 1	H	November 2004
	MCX 0815 Sheet 2	F	February 2003
	MCX 0815 Sheet 3 to Sheet 4 inclusive (MCX 0816 to MCX 0819 not used)	H	November 2004
	MCX 0820 Sheet 1	E	May 2006
	MCX 0821 Sheet 1 to Sheet 3 inclusive	F	May 2006
	MCX 0821 Sheet 4	F	February 2003
	MCX 0822 Sheet 1	G	May 2006
	MCX 0822 Sheet 2 to Sheet 4 inclusive	F	May 2006
MCX 0822 Sheet 5	H	May 2006	
MCX 0822 Sheet 6	F	May 2006	



**SCHEDULE OF DRAWINGS - SECTION 3  
AND RELEVANT PUBLICATION DATES (*continued*)**

Series	Drawing Number	Issue	Publication Date
MCX	MCX 0823 Sheet 1	E	May 2006
	MCX 0823 Sheet 2	F	February 2003
	MCX 0823 Sheet 3	H	May 2006
	MCX 0823 Sheet 4	F	May 2006
	MCX 0824 Sheet 1	E	May 2006
	(MCX 0825 to MCX 0829 not used)		
	MCX 0830 Sheet 1	E	February 2003
	MCX 0831 Sheet 1	F	May 2006
	MCX 0832 Sheet 1	H	May 2006
	MCX 0832 Sheet 2	E	May 2006
	MCX 0833 Sheet 1	F	February 2003
	MCX 0833 Sheet 2	E	February 2003
	MCX 0834 Sheet 1 to Sheet 3 inclusive	E	May 2006
	MCX 0834 Sheet 4 to Sheet 6 inclusive	E	November 2005
	MCX 0834 Sheet 7 to Sheet 10 inclusive	F	May 2006
	(MCX 0835 to MCX 0850 not used)		
	MCX 0851 Sheet 1	E	May 2006
	MCX 0851 Sheet 2	F	May 2006
	MCX 0851 Sheet 3 to Sheet 4 inclusive	E	May 2006
	MCX 0852 Sheet 1	F	May 2006
	MCX 0853 Sheet 1 to Sheet 3 inclusive	E	May 2006
	MCX 0854 Sheet 1 to Sheet 3 inclusive	E	May 2006
	(MCX 0855 to MCX 0860 not used)		
	MCX 0861 Sheet 1 to Sheet 3 inclusive	E	May 2006
	MCX 0862 Sheet 1 to Sheet 3 inclusive	E	May 2006
	MCX 0863 Sheet 1	F	May 2006
	MCX 0864 Sheet 1	F	May 2006
	MCX 0864 Sheet 2 to Sheet 3 inclusive	E	May 2004
	MCX 0864 Sheet 4	G	May 2004
	MCX 0864 Sheet 5	E	May 2004
	MCX 0864 Sheet 6	F	May 2004
	MCX 0864 Sheet 7	G	May 2006
	(MCX 0865 to MCX 0870 not used)		
	MCX 0871 Sheet 1	F	May 2006
	MCX 0871 Sheet 2 to Sheet 3 inclusive	E	May 2006
	MCX 0872 Sheet 1	E	May 2006
	MCX 0873 Sheet 1	F	May 2006
	MCX 0873 Sheet 2	D	May 2006
	(MCX 0874 to MCX 0898 not used)		
	MCX 0899 Sheet 1	F	May 2006
	(MCX 0900 to MCX 1021 not used)		
	MCX 1022 Sheet 1 to Sheet 3	B	May 2006
	MCX 1022 Sheet 4	C	May 2006
	MCX 1022 Sheet 5	B	May 2006
	(MCX 1023 to MCX 1025 not used)		
	MCX 1026 Sheet 1	B	November 2006
	MCX 1026 Sheet 2 to Sheet 4 inclusive	A	February 2003
	(MCX 1027 to MCX 1029 not used)		
	MCX 1030 Sheet 1 to Sheet 10 inclusive	B	November 2005
	MCX 1030 Sheet 11 to Sheet 18 inclusive	A	November 2005



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# HIGHWAY CONSTRUCTION DETAILS

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### Introduction

#### **Section 1: Carriageway and Other Details**

Series A	Not Used
Series B	Edge of Pavement Details
Series C	Concrete Carriageway
Series D	Carriageway Markings for Rural Motorways
Series E	Distance Marker Posts
Series F	Drainage
Series G	Loop Detectors
Series H	Fences, Stiles and Gates
Series I	Underground Cable Ducts
Series J	Flexible Composite Carriageway
Series K	Miscellaneous

#### **Section 2: Not Used (05/04)**

#### **Section 3: National Motorway Communications System**

Series MCX	Installation Drawings
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## **Introduction**

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1. The Highway Construction Details (HCD) is published as Volume 3 of the Manual of Contract Documents for Highway Works and contains standard drawings for use in the construction, improvement and maintenance of trunk roads.
2. The numbers, titles and dates of the individual drawings, or parts of drawings, included in the Contract are listed in Appendix 0/4 to the Specification.
3. The following apply to each drawing unless otherwise stated thereon:
  - i. SHW means the Specification for Highway Works published by The Stationery Office as Volume 1 of the Manual of Contract Documents for Highway Works.
  - ii. Reference to a Clause is a reference to a Clause of the Specification for Highway Works.
  - iii. Reference to a Numbered Appendix (eg. Appendix 3/1) is a reference to a Numbered Appendix to the Specification.

The relevant publication date of each Clause is to be determined from the Schedule of Pages and Relevant Publication Dates in the Specification.

The relevant publication date of each British Standard (BS) and other reference document referred to in the HCD is to be determined in accordance with Clause 004 of the Specification.

**LIST OF DRAWINGS**  
**SECTION 1**  
**SERIES A - NOT USED**

**LIST OF DRAWINGS**  
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**SERIES B - EDGE OF PAVEMENT DETAILS**

- B1 Cuttings - Combined Surface Water and Groundwater Filter Drains
- B2 Cuttings - Surface Water Channel for Rigid Carriageway
- B3 Cuttings - Surface Water Channel for Flexible Carriageway
- B4 Cuttings - Drainage Channel Blocks and Drains
- B5 Central Reserve - Combined Surface Water and Groundwater Filter Drains
- B6 Central Reserve - Surface Water Channel for Rigid Carriageway
- B7 Central Reserve - Surface Water Channel for Flexible Carriageway
- B8 Central Reserve - Drainage Channel Blocks and Drains
- B9 Embankments - Channels Formed by Kerbs
- B10 Embankments - External Kerbs and Drainage Channel Blocks
- B11 Embankments - Surface Water Channel for Rigid Carriageway
- B12 Embankments - Surface Water Channel for Flexible Carriageway
- B13 Embankments - Verge Drainage or Verge and Carriageway Drainage over Embankment Slope
- B14 Cross Section of Concrete Surface Water Channel
- B15 Cuttings and Central Reserve - Combined Surface and Ground Water Filter Drains
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- C11 Permitted Alternative Longitudinal Joint Positions and tolerances
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- C13 Typical Longitudinal Joint Positions, Unreinforced Slabs, 7.3m Single Carriageway with Climbing Lane
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- G5 Installation Drawing NMCS and All-Purpose Roads - Cross Cutting Corners of Slots
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- G15 Installation Drawing NMCS and All-Purpose Roads - MIDAS and MS3 Loop Details - Sheet 5
- G16 Installation Drawing NMCS and All-Purpose Roads - MIDAS and MS3 Loop Details - Sheet 6
- G17 Installation Drawing NMCS - Motorway Loop Layout - Sheet 1
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- G25 Loop (Inductive) All-Purpose Roads - Detail of Carriageway Box Chamber
- G26 Loop (Inductive) All-Purpose Roads - Detail of Signal Duct Box Chamber
- G27 Loop (Inductive) All-Purpose Roads - Chevron Loops
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H2	Temporary Fences Types 3 and 4
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H4	Motorway and Accommodation Works High Tensile Strained Wire Deer Fences 135
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H15	Accommodation Works Timber Post and 3 Rail Fences
H16	Accommodation Works Woven and Lap Boarded Panel Fences
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H18	Steel Half Mesh Single Field Gate
H19	Steel Extra Wide Single Field Gate
H20	Steel Double Field Gate
H21	Timber Single Field Gate
H22	Timber Double Field Gate
H23	Timber Wicket Gate Type 1
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H26	Hinges for Steel Field Gates
H27	'D' Latch, Type A for Steel Single Field Gates
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H33	Standard Gate Stops
H34	Timber Stile - Type 1
H35	Timber Stile - Type 2
H36	Diagrammatic Methods of Attaching Fencing to Structures
H37	Rules for The Selection Of Non-Structural Timber for Use In Environmental Barriers - Sheet 1
H38	Rules for The Selection Of Non-Structural Timber for Use In Environmental Barriers - Sheet 2
H39	Planting Works Fencing - Rabbit and Deer Fencing Types 1 and 2
H40	Planting Works Fencing - Rabbit and Deer Fencing Types 3, 4 and 5
H41	Planting Works Fencing - Gate
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H43	Planting Works Fencing - Fenced Tree Guards Types 1, 2 and 3
H44	Planting Works Fencing - Urban Area Fencing
H45	Badger Gate
H46	Attachment of Wire mesh to Fencing (Sheet 1 of 3)
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- K1 Road Lighting Column - Fastener Head In Door Recess and Key
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- K3 Flat Traffic Delineator Test Details
- K4 Typical Bench Reinstatement Details for Bituminous and Concrete Pavements
- K5 Planting Details for Planting Large Trees



**SECTION 2**  
**NOT USED** (05/04)



## LIST OF DRAWINGS

### SECTION 3

## NATIONAL MOTORWAY COMMUNICATIONS SYSTEM INSTALLATION DRAWINGS

Drg No.	Sheet No.	Title
MCX 0000 to MCX 0068		Not Used
MCX 0069	1	Installation Drawing NMCS 1 & 2, Signal Alignment & Sighting Post Details (Alignment of Motorway Matrix Indicators - Post Mounted)
MCX 0069	2	Installation Drawing NMCS 1 & 2, Gantry Signal Indicator Alignment Details
MCX 0069	3	Installation Drawing NMCS 2, Motorway Signals Mk3 and Message Signs, Cantilever Sign Setting Out and Optical Alignment
MCX 0069	4	Installation Drawing NMCS 2, Motorway Signals Mk3 and Message Signs, Cantilever Sign Setting Out and Optical Alignment
MCX 0069	5	Installation Drawing NMCS 2, Motorway Signals Mk3 and Message Signs, Cantilever Sign Setting Out and Optical Alignment
MCX 0069	6	Installation Drawing NMCS 2, Motorway Signals Mk3 and Message Signs, Cantilever Sign Setting Out and Optical Alignment
MCX 0069	7	Installation Drawing NMCS 2, Motorway Signals Mk3 and Message Signs, Cantilever Sign Setting Out and Optical Alignment
MCX 0070 to MCX 0130		Not Used
MCX 0131	1	Installation Drawing NMCS 1, Typical Schematic Drawings & Schedule of Symbols
MCX 0131	2	Installation Drawing NMCS 2, Symbol Schedule for Signals, Telephones & MIDAS Schematics
MCX 0131	3	Installation Drawing NMCS 2, Typical Layouts for Signals, Telephones & MIDAS Schematics
MCX 0132	1	Installation Drawing NMCS 1 & 2, Box 615 with Terminator Frame Fitted
MCX 0132	2	Installation Drawing NMCS 1 & 2, Terminator Frame Type 13C (Wiring)
MCX 0132	3	Installation Drawing NMCS 1 & 2, Terminator Frame Type 14C (Wiring)
MCX 0132	4	Installation Drawing NMCS 1 & 2, Termination of Transmission Circuits
MCX 0132	5	Installation Drawing NMCS 1 & 2, Terminator frame Type 13 and 14, Building Out and Tag Strip Wiring Details
MCX 0132	6	Installation Drawing NMCS 1, Terminator Frame Type 14C (Wiring 30 pr –20 pr)
MCX 0132	7	Installation Drawing NMCS 1, with 21 bit I/F Terminator Frame Type 14C
MCX 0132	8	Installation Drawing NMCS 2, Terminator Frame Type 14C (Wiring 30 pr –20 pr)
MCX 0133		Not Used
MCX 0134	1	Installation Drawing NMCS 1 & 2, Termination Arrangement Within Box 615 (Local Side)
MCX 0135	1	Installation Drawing NMCS, Telephone and Housing 611 (Armoured Cable)
MCX 0135	2	Installation Drawing NMCS, Telephone 352 (Armoured Cable) Fitting of Lightning Protection Device
MCX 0135	3	Installation Drawing NMCS, Telephone and Housing 611 (Non-Armoured Cable)
MCX 0135	4	Installation Drawing NMCS, Telephone 352 (Non-Armoured Cable) Fitting of Lightning Protection Device
MCX 0136	1	Not Used
MCX 0137	1	Installation Drawing NMCS, Method of Sealing Cable Ends
MCX 0138	1	Installation Drawing NMCS 1 & 2, Typical Access Steps
MCX 0138	2	Installation Drawing NMCS 1 & 2, Typical Safety Handrail Details

**LIST OF DRAWINGS**  
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**NATIONAL MOTORWAY COMMUNICATIONS SYSTEM**  
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Drg No.	Sheet No.	Title
MCX 0139	1	Installation Drawing NMCS 1 & 2, Cabinet 609 with Box 615MCX 0140 01
		Installation Drawing NMCS, Foundation for Cabinets (600, 609 & 617)
MCX 0141	1	Installation Drawing NMCS 1 & 2, Cable Trench for Armoured Cable
MCX 0142	1	Installation Drawing NMCS 1 & 2, Cable Arrangement on Gantry, Typical 2 or 3 Lane Arrangement (Schematic)
MCX 0142	2	Installation Drawing NMCS 2, Cable Arrangements on Gantry, Typical 4 or 5 Lane Arrangement (Schematic)
MCX 0142	3	Installation Drawing NMCS 1, Cable Arrangements on Gantry, Typical 4 or 5 Lane Arrangement (Schematic)
MCX 0142	4	Installation Drawing NMCS 1 & 2, Cable Arrangements on Gantry, Mounting Plate Details
MCX 0143	1	Installation Drawing NMCS 1 & 2, Post 71 with Hardstanding and Housing 611
MCX 0144	1	Installation Drawing NMCS, Post Mounted Signals, Foundation Parameters for Signal 111 (Post 75E)
MCX 0144	2	Installation Drawing NMCS, Post Mounted Signals, Foundation Parameters for Signal 113 (Post 75E)
MCX 0144	3	Installation Drawing NMCS, Post Mounted Signals, General Assembly of Signal Type 111 (Single)
MCX 0144	4	Installation Drawing NMCS, Post Mounted Signals, Brackets and Clamp (Signals 111 and 113)
MCX 0145	1	Installation Drawing NMCS 1 & 2, Labels for Cabinets 600, 609 & Post 75
MCX 0145	2	Installation Drawing NMCS 1 & 2, Labels for Signal Posts
MCX 0145	3	Installation Drawing NMCS 1 & 2, Labels for Gantries
MCX 0145	4	Installation Drawing NMCS 1 & 2, System Identification of Labels for Cabinets & Posts 75/85
MCX 0145	5	Installation Drawing NMCS, Type VI Label for Target Boards
MCX 0146	1	Installation Drawing NMCS, Cabinet 609/620 Set in Standard Motorway Fence
MCX 0147	1	Installation Drawing NMCS, Labels for Cables & Telephone Housing
MCX 0147	2	Installation Drawing NMCS, Telephone Instruction For Use Label
MCX 0148		Not Used
MCX 0149	1	Installation Drawing NMCS 1 & 2, Cabinet 609 - Typical Siting to Allow for Extra Cable Length
MCX 0149	2	Installation Drawing NMCS 1 & 2, Standard Transverse Cabling Arrangements at Cabinet Locations
MCX 0150	1	Installation Drawing NMCS 1 & 2, Cabinet 609 - Typical Siting to Allow for Extra Fibre Optic Cable Length
MCX 0151	1	Installation Drawing NMCS 1, Distributor 903B for Gantry Signals
MCX 0151	2	Installation Drawing NMCS 2, Data Link Connection Box Type 9903 for Gantry Signals
MCX 0151	3	Installation Drawing NMCS 2, Data Link Connection Box Type 9904 for Gantry Signals
MCX 0151	4	Installation Drawing NMCS 2, Data Link Connection Box Cable Pair Allocation
MCX 0151	5	Installation Drawing NMCS 2, 20/30 to 2 Pair Quad Cable Gland Conversion Kit
MCX 0151	6	Installation Drawing NMCS 2, Data Link Connection Box Type 9905 for Cantilever MS3 Signals
MCX 0151	7	Installation Drawing NMCS 2, Data Link Connection Box Type 9905 for Gantry Message Signs
MCX 0151	8	Installation Drawing NMCS 2, Data Link Connection Box Type 9903 for Cantilever Mk3 Signals

## LIST OF DRAWINGS SECTION 3 NATIONAL MOTORWAY COMMUNICATIONS SYSTEM INSTALLATION DRAWINGS (*continued*)

Drg No.	Sheet No.	Title
MCX 0152	1	Installation Drawing NMCS 1, Distributor 902E & B (MK2) for Post Signals
MCX 0152	2	Installation Drawing NMCS 2, Data Link Connection Box Type 9902
MCX 0153	1	Installation Drawing, Layout of Communications Cabinets, Posts, Ducts & Hardstanding
MCX 0153	2	Installation Drawing NMCS 1 & 2, Communications Cable Trough Detail
MCX 0154	1	Installation Drawing NMCS, Typical Communications Cable Layout in Cabinet 609 (Plan View)
MCX 0155		Not Used
MCX 0156	1	Installation Drawing NMCS, Cabinet 600
MCX 0156	2	Installation Drawing NMCS, Cabinet 600, Cable Securing and Earthing Detail
MCX 0156	3	Installation Drawing NMCS 1, Cabinet 600, Wiring Details for Plessey TBU
MCX 0156	4	Installation Drawing NMCS 2, Cabinet 600 - Power Supply to PDU and Extended Mains Supply
MCX 0156	5	Installation Drawing NMCS 2, Cabinet 600 - Power Supply to PDU and Extended Mains Supply Alternative Arrangement for MS3
MCX 0157	1	Installation Drawing NMCS 2, Motorway Signals Interconnections of Equipment on Gantries (Config. P) (Type Numbers of Equipment Shown)
MCX 0157	2	Installation Drawing NMCS 2, Motorway Signals Interconnections of Equipment on Gantries (Config. P) (Type Numbers of Equipment Shown)
MCX 0157	3	Installation Drawing NMCS 2, Motorway Signals Interconnections of Equipment on Gantries (Config. F) (Type Numbers of Equipment Shown)
MCX 0157	4	Installation Drawing NMCS 2, Motorway Signals Interconnections of Equipment on Gantries (Config. F) (Type Numbers of Equipment Shown)
MCX 0157	5	Installation Drawing NMCS 2, Signals Interconnections of Equipment on Rural Sites (Config. P & F) (Type Numbers of Equipment Shown)
MCX 0157	6	Installation Drawing NMCS 2, Gantry Data Link Connection Boxes, Standard and Extension Arrangements
MCX 0158 to MCX 0159		Not Used
MCX 0160	1	Installation Drawing NMCS, Safety Barrier Protection of Cabinets - Guide
MCX 0161 to MCX 0162		Not Used
MCX 0163	1	Installation Drawing NMCS 1 & 2, Box Type 615B
MCX 0164	1	Installation Drawing NMCS 1 & 2, ESC Interface Cabinet, Layout for Non Transmission Station Locations
MCX 0164	2	Installation Drawing NMCS 1 & 2, ESC Interface Cabinet, Notes
MCX 0164	3	Installation Drawing NMCS 1 & 2, ESC Interface Cabinet, Parts List
MCX 0164	4	Installation Drawing NMCS 1 & 2, ESC Interface Cabinet, Layout for Transmission Station Locations
MCX 0165	1	Installation Drawing NMCS 1 & 2, Rural Power Cabinet, Typical Layout
MCX 0165	2	Installation Drawing NMCS 1 & 2, Rural Power Cabinet, Notes
MCX 0165	3	Installation Drawing NMCS 1 & 2, Rural Power Cabinet, Parts List
MCX 0165	4	Installation Drawing NMCS 1 & 2, Rural Power Cabinet, Rural Signal Interface
MCX 0166 to MCX 0169		Not Used
MCX 0170	1	Installation Drawing NMCS, Gantry Power Cabinet, Notes
MCX 0170	2	Installation Drawing NMCS, Gantry Power Cabinet, Circuit Diagrams
MCX 0170	3	Installation Drawing NMCS, Gantry Power Cabinet, Circuit Diagrams

**LIST OF DRAWINGS**  
**SECTION 3**  
**NATIONAL MOTORWAY COMMUNICATIONS SYSTEM**  
**INSTALLATION DRAWINGS (*continued*)**

Drg No.	Sheet No.	Title
MCX 0170	4	Installation Drawing NMCS, Gantry Power Cabinet, Standard Situation
MCX 0170	5	Installation Drawing NMCS, Cantilever Power Cabinet, Two Way Consumer Unit Arrangement
MCX 0170	6	Installation Drawing NMCS, Gantry Power Cabinet, Gantry with Auxiliary Supply
MCX 0170	7	Installation Drawing NMCS, Gantry Power Cabinet, Double Gantry (ESC Supply Side)
MCX 0170	8	Installation Drawing NMCS, Gantry Power Cabinet, Double Gantry
MCX 0170	9	Installation Drawing NMCS, Gantry Power Cabinet, Parts List
MCX 0171	1	Installation Drawing NMCS, Labels For Use on Electrical Switchgear Enclosures
MCX 0171	2	Installation Drawing NMCS, Parts
MCX 0172 to MCX 0305		Not Used
MCX 0306	1	Installation Drawing NMCS 1 & 2, Cabinet 617 Audio Transmission Stations
MCX 0306	2	Installation Drawing NMCS 1 & 2, Cabinet 617 Mini-Carrier Transmission Stations
MCX 0306	3	Installation Drawing NMCS 1 & 2, Cabinet 617 Labelling for Transmission Station
MCX 0307 to MCX 0336		Not Used
MCX 0337	1	Installation Drawing NMCS 1 & 2, Cabinet 600 Wiring
MCX 0337	2	Installation Drawing NMCS 1 & 2, Cabinet 600 Wiring for Interface Unit Type 2456
MCX 0337	3	Installation Drawing NMCS 1, Cabinet 600 (Pre 1974 only) Wiring for Interface Unit Type 2456
MCX 0337	4	Installation Drawing NMCS 1 & 2, Cabinet 600 Wiring for Interface Unit Type 9334
MCX 0337	5	Installation Drawing NMCS 2, MS3/Message Signs 600 Cabinet Termination NMCS 2 Control - Cantilever Sites
MCX 0337	6	Installation Drawing NMCS 2, MS3/Message Signs 600 Cabinet Termination NMCS 2 and Standalone Control - Cantilever Sites
MCX 0337	7	Installation Drawing NMCS 2, Message Signs 600 Cabinet Termination NMCS 2 Control - Gantry Sites
MCX 0337	8	Installation Drawing NMCS 2, Message Signs 600 Cabinet Termination Standalone Control Gantry Sites
MCX 0337	9	Installation Drawing NMCS, Parts
MCX 0337	10	Installation Drawing NMCS 1 & 2, TS Marshalling Cabinet 600 - 30 Pr Installation Notes
MCX 0337	11	Installation Drawing NMCS 1 & 2, TS Marshalling Cabinet 600 - 30 Pr Installation of Rear Frame
MCX 0338		Not Used
MCX 0339	1	Installation Drawing NMCS 2, MS3/Message Signs and Midas Box 615B Local Termination Arrangements
MCX 0339	2	Installation Drawing NMCS 2, MS3/Message Signs and Midas Box 615B Local Termination Arrangements
MCX 0339	3	Installation Drawing NMCS 2, MS3/Message Signs and Midas Box 615B Local Termination Arrangements
MCX 0339	4	Installation Drawing NMCS 2, MS3/Message Signs and Midas Box 615B Local Termination Arrangements
MCX 0340 to MCX 0425		Not Used

**LIST OF DRAWINGS**  
**SECTION 3**  
**NATIONAL MOTORWAY COMMUNICATIONS SYSTEM**  
**INSTALLATION DRAWINGS (*continued*)**

Drg No.	Sheet No.	Title
MCX 0426	1	Installation Drawing, Transmission Wiring for Sector Switch and TLC (NMCS 2 Transmission Cabinet)
MCX 0426	2	Installation Drawing, Transmission Wiring for Sector Switch and TLC (NMCS 2 Transmission Cabinet)
MCX 0427 to MCX 0485		Not Used
MCX 0486	1	Installation Drawing NMCS 2, Cable Glands - Gland Types
MCX 0486	2	Installation Drawing NMCS, Cable Glands - Parts
MCX 0487 to MCX 0488		Not Used
MCX 0489	1	Installation Drawing, Cassette Termination Arrangement for Fibre Optic Communications Cables within Cabinet 609
MCX 0489	2	Installation Drawing, Cassette Termination Arrangement for Fibre Optic Communications Cables within Cabinet 609
MCX 0489	3	Installation Drawing, Cassette Termination Arrangement for Fibre Optic Communications Cables within Cabinet 609
MCX 0489	4	Installation Drawing, Cassette Termination Arrangement for Fibre Optic Communications Cables within Cabinet 609
MCX 0489	5	Installation Drawing, Cassette Termination Arrangement for Fibre Optic Communications Cables within Cabinet 609 Through and Local Sides
MCX 0489	6	Installation Drawing, Cassette Termination Arrangement for Fibre Optic Communications Cables within Cabinet 609
MCX 0489	7	Installation Drawing, Cassette Termination Arrangement for Fibre Optic Communications Cables 12 Fibre Armoured - 24 Fibre Unarmoured
MCX 0490	1	Installation Drawing, Termination Arrangement for Fibre Optic Cables Within Tx Stations and Control Office Buildings
MCX 0490	2	Installation Drawing, Termination Arrangement for Fibre Optic Communications Cables at Sites Without Computer Flooring
MCX 0490	3	Installation Drawing, Termination Arrangement for Fibre Optic Cables Within Tx Stations Control Office Buildings
MCX 0490	4	Installation Drawing, Termination Arrangement for Fibre Optic Communications Cables Within Tx Stations and Control Office Buildings
MCX 0490	5	Installation Drawing, Termination Arrangement for Fibre Optic Cables Within Tx Stations and Control Office Buildings
MCX 0491 to MCX 0508		Not Used
MCX 0509	1	Installation Drawing, Gantry Earthing and Bonding
MCX 0509	2	Installation Drawing NMCS 2, Typical Earth Bonding System for Gantry and Cantilever Structures
MCX 0510 to MCX 0514		Not Used
MCX 0515	1	Installation Drawing NMCS 2, Motorway VMS - Interconnection of Equipment on Gantries
MCX 0515	2	Installation Drawing NMCS 2, Motorway VMS - Interconnection of Equipment on 6 Lane Gantry & Single Sign
MCX 0515	3	Installation Drawing NMCS 2, Motorway VMS - Interconnection of Equipment on Posts

**LIST OF DRAWINGS**  
**SECTION 3**  
**NATIONAL MOTORWAY COMMUNICATIONS SYSTEM**  
**INSTALLATION DRAWINGS (*continued*)**

Drg No.	Sheet No.	Title
MCX 0516 to MCX 0541		Not Used
MCX 0542	1	Installation Drawing, Cabinet 2303 - Terminations and Wiring (Transmission Station)
MCX 0542	2	Installation Drawing, Cabinet 2303 - Terminations and Wiring (Transmission Station) - Notes
MCX 0542	3	Installation Drawing, Cabinet 2303 - Terminations and Wiring (Control Office)
MCX 0542	4	Installation Drawing, Cabinet 2303 - Terminations and Wiring (Control Office) - Notes
MCX 0543	1	Installation Drawing, Cabinet 2304 - Cable Terminations
MCX 0544 to MCX 0551		Not Used
MCX 0552	1	Installation Drawing, Co-axial Cable Termination
MCX 0552	2	Installation Drawing, Co-axial Termination Component List
MCX 0553 to MCX 0559		Not Used
MCX 0560	1	Installation Drawing NMCS, Cabling Arrangement at Transmission Station Building Site
MCX 0561 to MCX 0564		Not Used
MCX 0565	1	Installation Drawing, Typical Layout for installing NMCS 2 Signal and Telephone Equipment within a Cabinet Type 600
MCX 0566	1	Installation Drawing NMCS 2, Showing Details of Providing Power from a Motorway Site to an All-Purpose Road Installation
MCX 0567 to MCX 0574		Not Used
MCX 0575	1	Installation Drawing, Typical 15 Metre and 10 Metre CCTV Mast and Cabinet Base with Paved Area
MCX 0576 to MCX 0581		Not Used
MCX 0582	1	Installation Drawing NMCS 2, Message Signs and Motorway Signals Mk3 Preferred Outstation Layout
MCX 0582	2	Installation Drawing NMCS 2, Message Signs and Motorway Signals Mk3 Preferred Highload Route Outstation Layout
MCX 0582	3	Installation Drawing NMCS 2, Message Signs and Motorway Signals Mk3 Preferred Outstation Layout for Restricted Space
MCX 0583	1	Installation Drawing NMCS 2, Motorway Signals Mk3 Cantilever Structures - Notes
MCX 0583	2	Installation Drawing NMCS 2, Motorway Signals Mk3 (3x18) Structures - Cantilever Elevation
MCX 0583	3	Installation Drawing NMCS 2, Motorway Signals Mk3 (3x18) Cantilever Structures - Sectional Plan at Walkway Level
MCX 0583	4	Installation Drawing NMCS 2, Motorway Signals Mk3 (3x18) Cantilever Structures - Typical Cross Section Through Walkway
MCX 0583	5	Installation Drawing NMCS 2, Motorway Signals Mk3 (2x16) Cantilever Structures - Cantilever Elevation
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MCX 0583	8	Installation Drawing NMCS 2, Motorway Signals Mk3 (2x16 & 3x18) Cantilever Structures - HD Arrangements
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MCX 0584	1	Installation Drawing NMCS 2, Message Signs on Portal Gantries General Conceptual Metalwork
MCX 0584	2	Installation Drawing NMCS 2, Message Signs on Portal Gantries (Structure/Sign Interface)
MCX 0584	3	Installation Drawing NMCS 2, Message Signs - Alterations to HA Standard, Portal Gantries of 19 to 21m Span, Steelwork at Left Hand End
MCX 0584	4	Installation Drawing NMCS 2, Message Signs - Alterations to HA and SERO Standard, Portal Gantries of 23 to 35m Span, Steelwork at Left Hand End
MCX 0584	5	Installation Drawing NMCS 2, Message Signs - Alterations to HA and SERO Standard, Portal Gantries of 23 to 35m Span, Steelwork in Mid Span
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MCX 0584	9	Installation Drawing NMCS 2, Message Signs - Alterations to HA Standard, Portal Gantries of 19 to 35m Span, Alterations to Sign Support Steelwork Page 2 of 2
MCX 0584	10	Installation Drawing NMCS 2, Message Signs - General Notes
MCX 0585 to MCX 0586		Not Used
MCX 0587	1	Installation Drawing, PW Interface Cabinet - Typical Arrangement for PSTN Connection Only, Non Armoured Cable
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MCX 0587	3	Installation Drawing, PW Interface Cabinet - Typical Arrangement for Private Wire Rented Circuit
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MCX 0588 to MCX 0589		Not Used
MCX 0590	1	Installation Drawing NMCS 2, Motorway Signal Mk3, Cantilever Site - Typical Arrangement
MCX 0591	1	Installation Drawing NMCS 2, Message Signs Portal Gantry Site with Lane Signalling - Typical Arrangement
MCX 0592	1	Installation Drawing NMCS 2, Midas Loops - Feeder Cable Joint
MCX 0592	2	Installation Drawing NMCS 2, Midas Outstation - Typical Arrangement

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MCX 0592	4	Installation Drawing NMCS 2, Midas Outstation - Typical Arrangement where more than 20 Loops per Site Exist with MIDAS Transponder
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MCX 0594	1	Installation Drawing NMCS 2, Midas Outstation, 600 Cabinet Arrangement
MCX 0594	2	Installation Drawing NMCS 2, Midas Transponder and Outstation 600 Cabinet Arrangement
MCX 0594	3	Installation Drawing NMCS 2, Midas System 600 Cabinet Feeder Cable Termination Examples
MCX 0594	4	Installation Drawing NMCS 2, Midas Transponder and Outstation Lightning Protection Unit Positioning
MCX 0595 to MCX 0601		Not Used
MCX 0602	1	Installation Drawing NMCS 2, Security Strap for Cabinet 600
MCX 0602	2	Installation Drawing NMCS 2, Security Strap for Cabinet 609
MCX 0603 to MCX 0722		Not Used
MCX 0723	1	Installation Drawing, Camera Site - Cabinet Layout
MCX 0723	2	Installation Drawing, Camera Site - Duct Arrangement
MCX 0723	3	Installation Drawing, Camera Site - Earthing Arrangement
MCX 0724 to MCX 0799		Not Used
MCX 0800	1	Installation Drawing NMCS (Ducted Cable), Network Design Typical Outstation Layout (Post Signals)
MCX 0800	2	Installation Drawing NMCS (Ducted Cable), Network Design Typical Outstation Layout (Gantry Signal)
MCX 0800	3	Installation Drawing NMCS (Ducted Cable), Network Design MCX 0800 Series Drawings
MCX 0801	1	Installation Drawing NMCS (Ducted Cable), Schematic Layout Emergency Telephone Sites
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MCX 0801	3	Installation Drawing NMCS (Ducted Cable), Schematic Layout Gantry and Cantilever Sites
MCX 0801	4	Installation Drawing NMCS (Ducted Cable), Schematic Layout, MIDAS Sites
MCX 0801	5	Installation Drawing NMCS (Ducted Cable), Schematic Layout, CCTV Sites
MCX 0802	1	Installation Drawing NMCS (Ducted Cable), Interface with Non Ducted Network, General Arrangement
MCX 0803 to MCX 0809		Not Used
MCX 0810	1	Installation Drawing NMCS (Ducted Cable), Network Ducts, Sections
MCX 0810	2	Installation Drawing NMCS (Ducted Cable), Network Ducts, Plan View
MCX 0810	3	Installation Drawing NMCS (Ducted Cable), Network Ducts, Deep Traverse Ducts
MCX 0811	1	Installation Drawing NMCS (Ducted Cable), Local Ducts To Cabinet Sites
MCX 0811	2	Installation Drawing NMCS (Ducted Cable), Local Ducts, Connections to Post Signals
MCX 0811	3	Installation Drawing NMCS (Ducted Cable), Local Ducts, Connection to Telephones

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MCX 0812	1	Installation Drawing NMCS (Ducted Cable), Cabinet Arrangements, General Layout
MCX 0812	2	Installation Drawing NMCS (Ducted Cable), Cabinet Arrangements, Plinth Details
MCX 0813	1	Installation Drawing NMCS (Ducted Cable), Transmission Stations, Chamber and Cabinet Arrangements
MCX 0814	1	Installation Drawing NMCS (Ducted Cable), Duct Installation, Longitudinal Ducts
MCX 0814	2	Installation Drawing NMCS (Ducted Cable), Duct Installation, Local Ducts
MCX 0814	3	Installation Drawing NMCS (Ducted Cable), Duct Installation, Transverse Ducts
MCX 0814	4	Installation Drawing NMCS (Ducted Cable), Duct Installation, Spacer and Strapping
MCX 0814	5	Installation Drawing NMCS (Ducted Cable), Duct Installation, Mechanical Duct Plug
MCX 0815	1	Installation Drawing NMCS (Ducted Cable), Chambers, Type A
MCX 0815	2	Installation Drawing NMCS (Ducted Cable), Chambers, Cable Supports for Type A
MCX 0815	3	Installation Drawing NMCS (Ducted Cable), Chambers, Type B
MCX 0815	4	Installation Drawing NMCS (Ducted Cable), Chambers, Type C
MCX 0816 to MCX 0819		Not Used
MCX 0820	1	Installation Drawing NMCS (Ducted Cable), Cable Joint Enclosure (CJE) -General Details
MCX 0821	1	Installation Drawing NMCS (Ducted Cable), Cable Joint Enclosure (CJE) - Layout Longitudinal Cable Joint
MCX 0821	2	Installation Drawing NMCS (Ducted Cable), Cable Joint Enclosure (CJE) - Layout Local Cable Joint
MCX 0821	3	Installation Drawing NMCS (Ducted Cable), Cable Joint Enclosure (CJE) - Layout Cable Joints RSI, HFC and T
MCX 0821	4	Installation Drawing NMCS (Ducted Cable), Cable Joint Enclosure (CJE) - Layout Fibre Optic Cable Joint
MCX 0822	1	Installation Drawing NMCS (Ducted Cable), CJE Internal Wiring Schematic Type 15-1 Unloaded Longitudinal Cable
MCX 0822	2	Installation Drawing NMCS (Ducted Cable), CJE Internal Wiring Schematic Type 15-2 Longitudinal Cable
MCX 0822	3	Installation Drawing NMCS (Ducted Cable), CJE Internal Wiring Schematic Type 15-3 Longitudinal Cable
MCX 0822	4	Installation Drawing NMCS (Ducted Cable), CJE Internal Wiring Schematic Type 15-4 Longitudinal Cable
MCX 0822	5	Installation Drawing NMCS (Ducted Cable), CJE Internal Wiring Schematic Local Cable Joint
MCX 0822	6	Installation Drawing NMCS (Ducted Cable), CJE Internal Wiring Schematic RSI, HFC, T
MCX 0823	1	Installation Drawing NMCS (Ducted Cable), CJE External Wiring Longitudinal Cable Joint
MCX 0823	2	Installation Drawing NMCS (Ducted Cable), CJE External Wiring Local Cable Joint
MCX 0823	3	Installation Drawing NMCS (Ducted Cable), CJE External Wiring Multipurpose Cable Joint - RSI and T
MCX 0823	4	Installation Drawing NMCS (Ducted Cable), CJE External Wiring Multipurpose Cable Joint - HFC

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MCX 0824	1	Installation Drawing NMCS (Ducted Cable), Cable Joint Enclosure (CJE) Cable Pair Allocation
MCX 0825 to MCX 0829		Not Used
MCX 0830	1	Installation Drawing NMCS (Ducted Cable), 600/609/620 Cabinets General Installation Details
MCX 0831	1	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Fitting Out Details, Termination Frame
MCX 0832	1	Installation Drawing NMCS (Ducted Cable), 600 Cabinet - Internal Wiring Details
MCX 0832	2	Installation Drawing NMCS (Ducted Cable), 600 Cabinet - Internal Wiring Schedule
MCX 0833	1	Installation Drawing NMCS (Ducted Cable), 600 Cabinet - External Wiring IDC Terminations
MCX 0833	2	Installation Drawing NMCS (Ducted Cable), 600 Cabinet - External Wiring MIDAS Loop Feeder Cable Terminations
MCX 0834	1	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, Transponder (Signals Only)
MCX 0834	2	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, Responder Only
MCX 0834	3	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, Transponder and Responder
MCX 0834	4	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, MIDAS Detector
MCX 0834	5	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, MIDAS Transponder and Detector
MCX 0834	6	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, MIDAS Detector and Transponder (Signals Only)
MCX 0834	7	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, Gantry - NMCS 2 Control
MCX 0834	8	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, Gantry - Standalone Control
MCX 0834	9	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, MS3 Cantilever - NMCS 2 Control
MCX 0834	10	Installation Drawing NMCS (Ducted Cable), 600 Cabinet Equipment Configuration, MS3 Cantilever - Standalone Control
MCX 0835 to MCX 0850		Not Used
MCX 0851	1	Installation Drawing NMCS (Ducted Cable), 40 Pair to 30 Pair Interface, Notes
MCX 0851	2	Installation Drawing NMCS (Ducted Cable), 40 Pair to 30 Pair Interface Internal Wiring Schematic
MCX 0851	3	Installation Drawing NMCS (Ducted Cable), 40 Pair to 30 Pair Interface External Cabling 40 Pair
MCX 0851	4	Installation Drawing NMCS (Ducted Cable), 40 Pair to 30 Pair Interface External Cabling 30 Pair
MCX 0852	1	Installation Drawing NMCS (Ducted Cable) Interface Arrangements, Fibre Interface
MCX 0853	1	Installation Drawing NMCS (Ducted Cable), Marshalling Cabinet - TS Building, Notes
MCX 0853	2	Installation Drawing NMCS (Ducted Cable), Marshalling Cabinet - TS Building Cabinet 600/620 Rear

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MCX 0853	3	Installation Drawing NMCS (Ducted Cable), Marshalling Cabinet - TS Building Cabinet 620 Front
MCX 0854	1	Installation Drawing NMCS (Ducted Cable), Marshalling Cabinet 617 Site, Notes
MCX 0854	2	Installation Drawing NMCS (Ducted Cable), Marshalling Cabinet 617 Site, Cabinet 600/620 Rear
MCX 0854	3	Installation Drawing NMCS (Ducted Cable), Marshalling Cabinet 617 Site, Cabinet 600/620 External Cabling
MCX 0855 to MCX 0860		Not Used
MCX 0861	1	Installation Drawing NMCS (Ducted Cable), Transmission Station Cabinet 2303 Notes (1 of 2)
MCX 0861	2	Installation Drawing NMCS (Ducted Cable), Transmission Station Cabinet 2303 Notes (2 of 2)
MCX 0861	3	Installation Drawing NMCS (Ducted Cable), Transmission Station Cabinet 2303 Terminations & Wiring
MCX 0862	1	Installation Drawing NMCS (Ducted Cable), Control Office Cabinet 2303 Notes (1 of 2)
MCX 0862	2	Installation Drawing NMCS (Ducted Cable), Control Office Cabinet 2303 Notes (2 of 2)
MCX 0862	3	Installation Drawing NMCS (Ducted Cable), Control Office Cabinet 2303 Terminations and Wiring
MCX 0863	1	Installation Drawing NMCS (Ducted Cable), Control Office Cabinet 2304 Terminations and Wiring
MCX 0864	1	Installation Drawing NMCS (Ducted Cable), Fibre Optic Distribution Rack (ODF) Notes
MCX 0864	2	Installation Drawing NMCS (Ducted Cable), Fibre Optic Distribution Rack (ODF) Suspended Floor (Non Armoured Cable)
MCX 0864	3	Installation Drawing NMCS (Ducted Cable), Fibre Optic Distribution Rack (ODF) Solid Floor (Non Armoured Cable)
MCX 0864	4	Installation Drawing NMCS (Ducted Cable), Fibre Optic Distribution Rack (ODF) Armoured and Non Armoured Cable
MCX 0864	5	Installation Drawing NMCS (Ducted Cable), Fibre Optic Distribution Rack (ODF) Carrier and Coaxial Termination Frame
MCX 0864	6	Installation Drawing NMCS (Ducted Cable), Fibre Optic Distribution Rack (ODF) Fibre Optic Distribution Tray
MCX 0864	7	Installation Drawing NMCS (Ducted Cable), Fibre Optic Distribution Rack (ODF) Parts List
MCX 0865 to MCX 0870		Not Used
MCX 0871	1	Installation Drawing NMCS (Ducted Cable), Cable Termination and Continuity Kit
MCX 0871	2	Installation Drawing NMCS (Ducted Cable), Cable Termination and Continuity Kit
MCX 0871	3	Installation Drawing NMCS (Ducted Cable), Cable Termination and Continuity Kit
MCX 0872	1	Installation Drawing NMCS (Ducted Cable), Cable Installation, Cable Marking
MCX 0873	1	Installation Drawing NMCS (Ducted Cable), Cable Management, Joint Chamber
MCX 0873	2	Installation Drawing NMCS (Ducted Cable), Cable Management, Details
MCX 0874 to MCX 0898		Not Used

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MCX 0899	1	Installation Drawing NMCS (Ducted Cable), Modification To Termination Frame, 600 Cabinet
MCX 0900 to MCX 1021		Not Used
MCX 1022	1	Installation Drawing NMCS2 Indicator Type 94XX Matrix Indicator (Including Signal Driver) Gantry D.L.C.B Standard & Extension Arrangements
MCX 1022	2	Installation Drawing NMCS2 Type 94XX Matrix Indicator (Including Signal Driver) Motorway Signals Interconnections of Equipment on Gantries
MCX 1022	3	Installation Drawing - NMCS2 Type 94XX Matrix Indicator (Including Signal Driver) Motorway Signals Interconnections of Equipment on Gantries
MCX 1022	4	Installation Drawing NMCS2 Type 94XX Matrix Indicator (Including Signal Driver) Motorway Signal Interconnections of Equipment on Rural Sites
MCX 1022	5	Installation Drawing NMCS2 Type 94XX Matrix Indicator (Including Signal Driver) Aspects
MCX 1023 to MCX 1025		Not Used
MCX 1026	1	Installation Drawing NMCS2 NOMAD Additional Asset Data NOMAD Duct Barcode Label Mounting Plate
MCX 1026	2	Installation Drawing NMCS2 NOMAD Additional Asset Data NOMAD Communications Asset Barcode Labels
MCX 1026	3	Installation Drawing NMCS2 NOMAD Additional Asset Data NOMAD Labels Placement in Typical Joint Chamber
MCX 1026	4	Installation Drawing NMCS2 NOMAD Additional Asset Data NOMAD Labels Placement in Typical Box 615
MCX 1027 to MCX 1029		Not Used
MCX 1030	1	Installation Drawing Unarmoured Copper Above Ground Cable Joint - General Notes and Cable Pair Allocation'
MCX 1030	2	Installation Drawing: Unarmoured Copper Above Ground Cable Joint - Telephone Sites - Schematic Layout
MCX 1030	3	Installation Drawing: Unarmoured Copper Above Ground Cable Joint - Signal Post Sites - Schematic Layout
MCX 1030	4	Installation Drawing: Unarmoured Copper Above Ground Cable Joint - Central Reserve and Entry Slip Signal Sites - Schematic Layout
MCX 1030	5	Installation Drawing: Unarmoured Copper Above Ground Cable Joint - Portal and Cantilever Sites - Schematic Layout
MCX 1030	6	Installation Drawing: Unarmoured Copper Above Ground Cable Joint - MIDAS Sites - Schematic Layout'
MCX 1030	7	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - CCTV Sites- Schematic Layout
MCX 1030	8	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Dual Cabinet Sites Layout
MCX 1030	9	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Multiple Cabinet Sites Layout
MCX 1030	10	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Verges of Less Than 3.5 m - Multiple Cabinet Sites
MCX 1030	11	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 and AGCJ

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MCX 1030	12	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 ST and AGCJ
MCX 1030	13	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 TR and AGCJ
MCX 1030	14	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 ST and TR and AGCJ
MCX 1030	15	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 MD and AGCJ
MCX 1030	16	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 MT/MD and AGCJ
MCX 1030	17	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 ST/MD and AGCJ
MCX 1030	18	Installation Drawing: Unarmoured Copper and Fibre Above Ground Cable Joint - Interconnection details between cabinet 600 MS and AGCJ