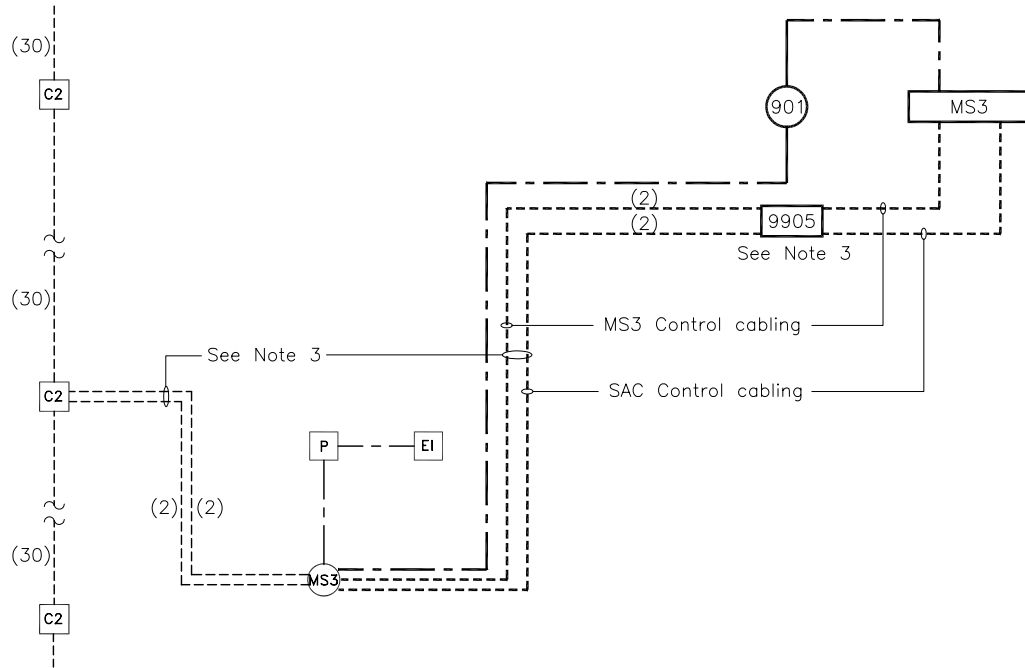


Longitudinal Communications Network

Roadside Equipment

Cantilever Equipment



KEY

- 901 Type 901 power distributor
- 9905 Data link connection box type 9905
- MS3 Motorway Signal MK3

(REV. H)

This drawing was generated on computer and must not be manually updated

Notes

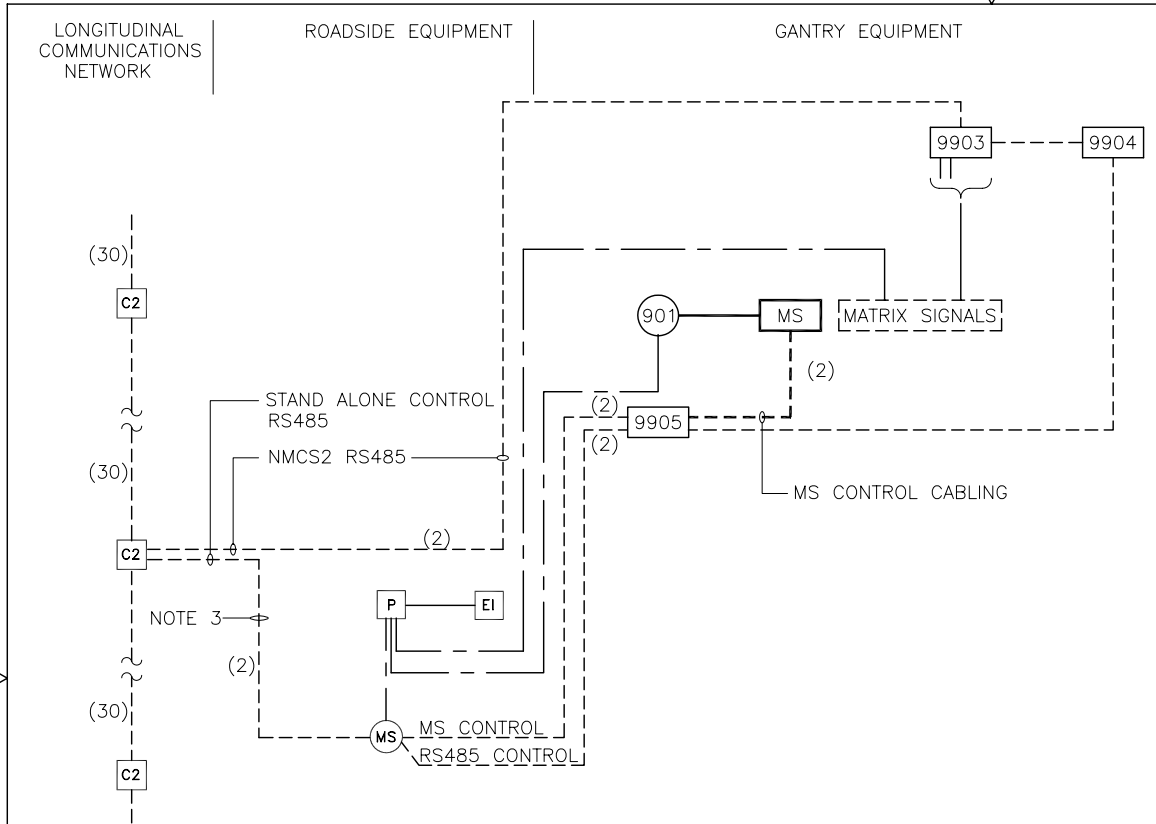
1. This drawing details the arrangements required for MS3 control via either NMCS2, or NMCS2 and SAC, RS485 circuits. It DOES NOT take account of any additional requirements imposed by local communications arrangements and these will be as defined in scheme-specific details/drawings.
2. All Infrastructure designs shall be in accordance with TRH 1642, with connections to the longitudinal cable network as defined in scheme-specific details/drawings.
3. At MS3 sites controlled by a Stand Alone Control (SAC) System provide:-
  - 1 x 2 pair cable for MS3 control (NMCS2 control data from Standard Transponder).
  - 1 x 2 pair cable for SAC Control.
 At MS3 sites controlled fully by NMCS2, provide:-
  - 1 x 2 pair cable for MS3 Control.
4. At MS3 sites controlled fully by NMCS2, use DLCB 9903 instead of DLCB 9905.
5. Termination details shall be as follows:-
  - MS3 cabinet see MCX 0337 and MCX 0156 as appropriate.
  - P cabinet terminations see MCX 0170
6. Equipment arrangement and cable shown in heavy type to be supplied and installed by the Message Sign contractor.
7. Equipment arrangement and cable shown in fine type to be installed by an Infrastructure Contractor.
8. For key to other symbols used see MCX 0131 sheet 2.

|          |   |                 |
|----------|---|-----------------|
| H        | HA ADDRESS REPLACED BY HIGHWAY CONSTRUCTION DETAILS | DWE 02.06       |
| G        | ADDRESS & LOGO REVISED COPYRIGHT NOTICE REMOVED     | DWE 02.02       |
| F        | KEY TO SYMBOLS REVISED                              | AW 8.99         |
| E        | UPDATED TO SUIT MK3 MOTORWAY SIGNALS FROM MK2       | KRL 17.9.98     |
| D        | NEW DRAWING BLANK                                   | FJC 1.7.97      |
| A        | INITIAL ISSUE                                       | 8.94            |
| ISSUE    | AMENDMENTS  | APPD/DATE       |
| DRN      | MS  | CHKD RES        |
| DATE     | 7.1.94  | DATE 7.1.94     |
| DRG. NO. | MCX 0590  |                 |
|          |   | SHT. NO. 1 of 1 |

HIGHWAY CONSTRUCTION DETAILS

TITLE  
 INSTALLATION DRAWING NMCS 2  
 MOTORWAY SIGNAL MK3  
 CANTILEVER SITE – TYPICAL ARRANGEMENT

ORIGINAL DRAWING SIZE: 297 x 420  
 ALL DIMENSIONS ARE IN MM  
 TOLERANCE ± UNLESS OTHERWISE STATED  
 THIRD ANGLE PROJECTION DO NOT SCALE



NOTES

1. THIS DRAWING DETAILS THE ARRANGEMENTS REQUIRED FOR MESSAGE SIGN CONTROL VIA EITHER NMCS2 OR STAND ALONE CONTROL RS485 CIRCUITS. IT DOES NOT TAKE ACCOUNT OF ANY ADDITIONAL REQUIREMENTS IMPOSED BY LOCAL COMMUNICATIONS ARRANGEMENTS AND THESE WILL BE AS DEFINED IN SCHEME-SPECIFIC DETAILS/DRAWINGS.
2. ALL INFRASTRUCTURE DESIGNS SHALL BE IN ACCORDANCE WITH TRH 1642, WITH CONNECTIONS TO THE LONGITUDINAL CABLE NETWORK AS DEFINED IN SCHEME-SPECIFIC DETAILS/DRAWINGS.
3. AT MS SITES CONTROLLED BY A STAND ALONE CONTROL SYSTEM PROVIDE:-  
1 x 2 PAIR CABLE FOR MS STAND ALONE CONTROL.
4. TERMINATION DETAILS SHALL BE AS FOLLOWS:-  
MS CABINET SEE MCX 0337 AND MCX 0156 AS APPROPRIATE.  
P CABINET TERMINATIONS SEE MCX 0170.
5. MATRIX SIGNAL ARRANGEMENTS REFER TO MCX 0157.
6. EQUIPMENT ARRANGEMENT AND CABLE SHOWN IN HEAVY TYPE TO BE SUPPLIED AND INSTALLED BY THE MESSAGE SIGN CONTRACTOR.
7. EQUIPMENT ARRANGEMENT AND CABLE SHOWN IN FINE TYPE TO BE INSTALLED BY AN INFRASTRUCTURE CONTRACTOR.
8. FOR OTHER SYMBOLS USED REFER TO MCX 0131 SHEET 2.

KEY

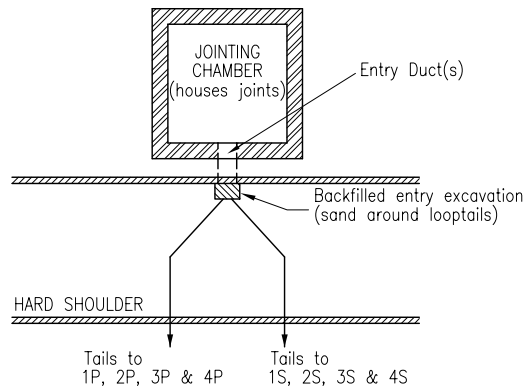
- TYPE 901 POWER DISTRIBUTOR
- DATA LINK CONNECTION BOX TYPES (9903, 9904 & 9905)
- MESSAGE SIGN (MS)

(REV. H)

This drawing was generated on computer and must not be manually updated

|                              |   |                                     |                          |             |          |
|------------------------------|---|-------------------------------------|--------------------------|-------------|----------|
| HIGHWAY CONSTRUCTION DETAILS | TITLE<br>INSTALLATION DRAWING NMCS 2<br>MESSAGE SIGN PORTAL GANTRY SITE WITH LANE SIGNALLING<br>TYPICAL ARRANGEMENT | ORIGINAL DRAWING SIZE: 297 x 420    | DRN MS                   | CHKD RES    | SCALE    |
|                              |   | ALL DIMENSIONS ARE IN MM            | DATE 7.1.94              | DATE 7.1.94 | NTS      |
|                              |   | TOLERANCE ± UNLESS OTHERWISE STATED | DRG. NO. <b>MCX 0591</b> |             | SHT. NO. |
|                              |   | THIRD ANGLE PROJECTION DO NOT SCALE |                          |             | 1 of 1   |

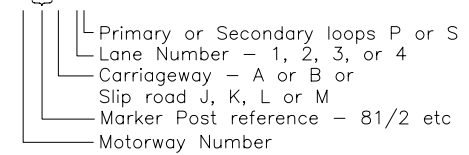
|       |  |             |
|-------|--|-------------|
| H     | HA ADDRESS REPLACED BY HIGHWAY CONSTRUCTION DETAILS    | DWE 02.06   |
| G     | ADDRESS & LOGO REVISED<br>COPYRIGHT NOTICE REMOVED     | DWE 02.02   |
| F     | CABLE, NOTE, TITLE & KEY REV.<br>REVISION AREAS MARKED | AW 8.99     |
| E     | UPDATED TO SUIT MK3<br>MOTORWAY SIGNALS FROM MK2       | KRL 17.9.98 |
| D     | NEW DRAWING BLANK                                      | FJC 1.7.97  |
| A     | INITIAL ISSUE  | 8.93        |
| ISSUE | AMENDMENTS   | APPD/DATE   |



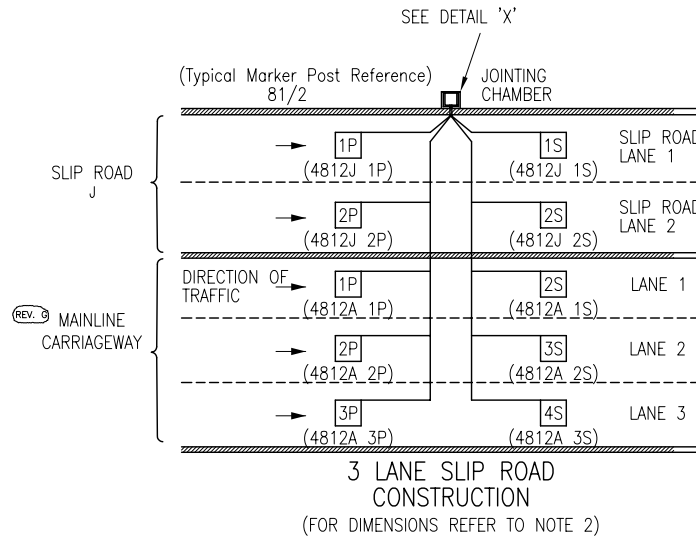
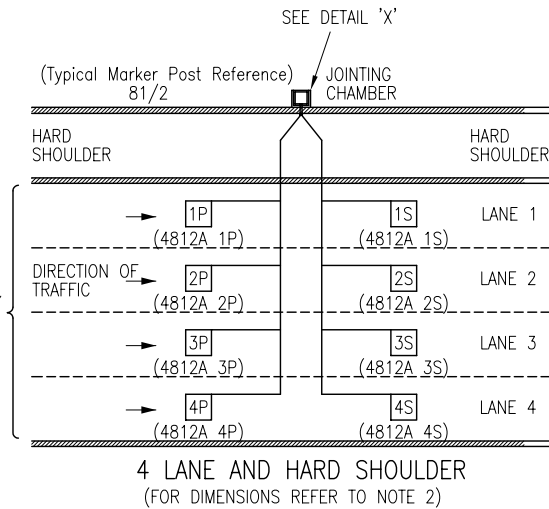
DETAIL X  
JOINTING CHAMBER

Notes

1. This drawing should be read in conjunction with MCX 0594.
2. This drawing to be read in conjunction with Volume 3 of the Manual of Contract Documents for Highway Works (Section 1 Series G of the Highway Construction Details).
3. Conductor sheath colours  
Red/Blue – Primary Loop  
Yellow/Black – Secondary Loop
4. Cable identification on loop detector Tails and feeder cable  
4812A 2P



- (REV. G) 5. Cable marker Critchley type K or equivalent.



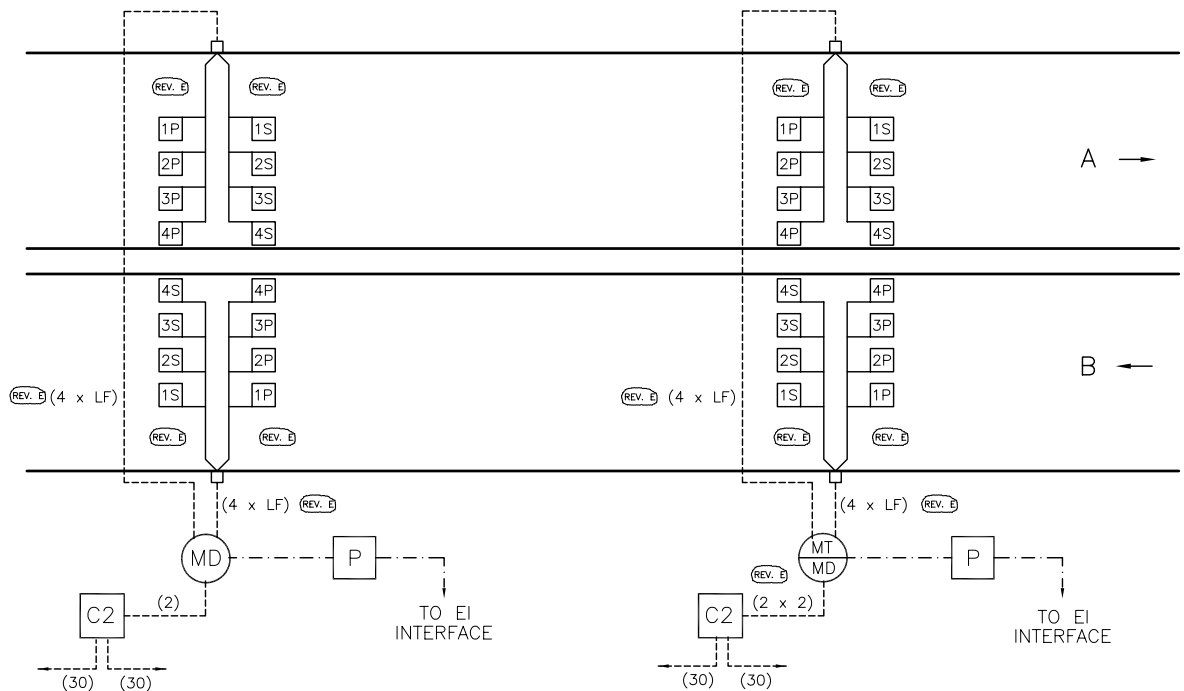
This drawing was generated on computer and must not be manually updated

|             |   |                    |
|-------------|---|--------------------|
| G           | NOTE 5 REVISED, DIAG. REV.                | DWE 02.06          |
| F           | DETECTOR LOOPS REMOVED FROM HARD SHOULDER | DWE 06.05          |
| E           | DETAIL Y RESIN JOINT DELETED              | NCS 7.12.01        |
| D           | NEW DRAWING BLANK                         | FJC 1.7.97         |
| A           | INITIAL ISSUE                             | JAN 94             |
| ISSUE       | AMENDMENTS                                | APPD/DATE          |
| DRN MS      | CHKD RES                                  | SCALE              |
| DATE 7.1.94 | DATE 7.1.94                               | NTS                |
| DRG. NO.    | <b>MCX 0592</b>                           | SHT. NO.<br>1 of 4 |

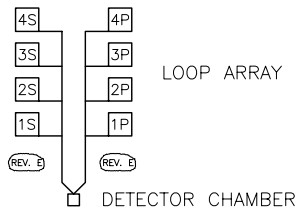
HIGHWAY CONSTRUCTION DETAILS

TITLE  
INSTALLATION DRAWING NMCS 2  
MIDAS LOOPS – FEEDER CABLE JOINT

ORIGINAL DRAWING SIZE: 297 x 420  
ALL DIMENSIONS ARE IN MM  
TOLERANCE ± UNLESS OTHERWISE STATED  
THIRD ANGLE PROJECTION DO NOT SCALE



KEY



NOTE

1. FOR KEY TO REST OF SYMBOLS SEE MCX 0131 SHEET 2.

(REV. B)

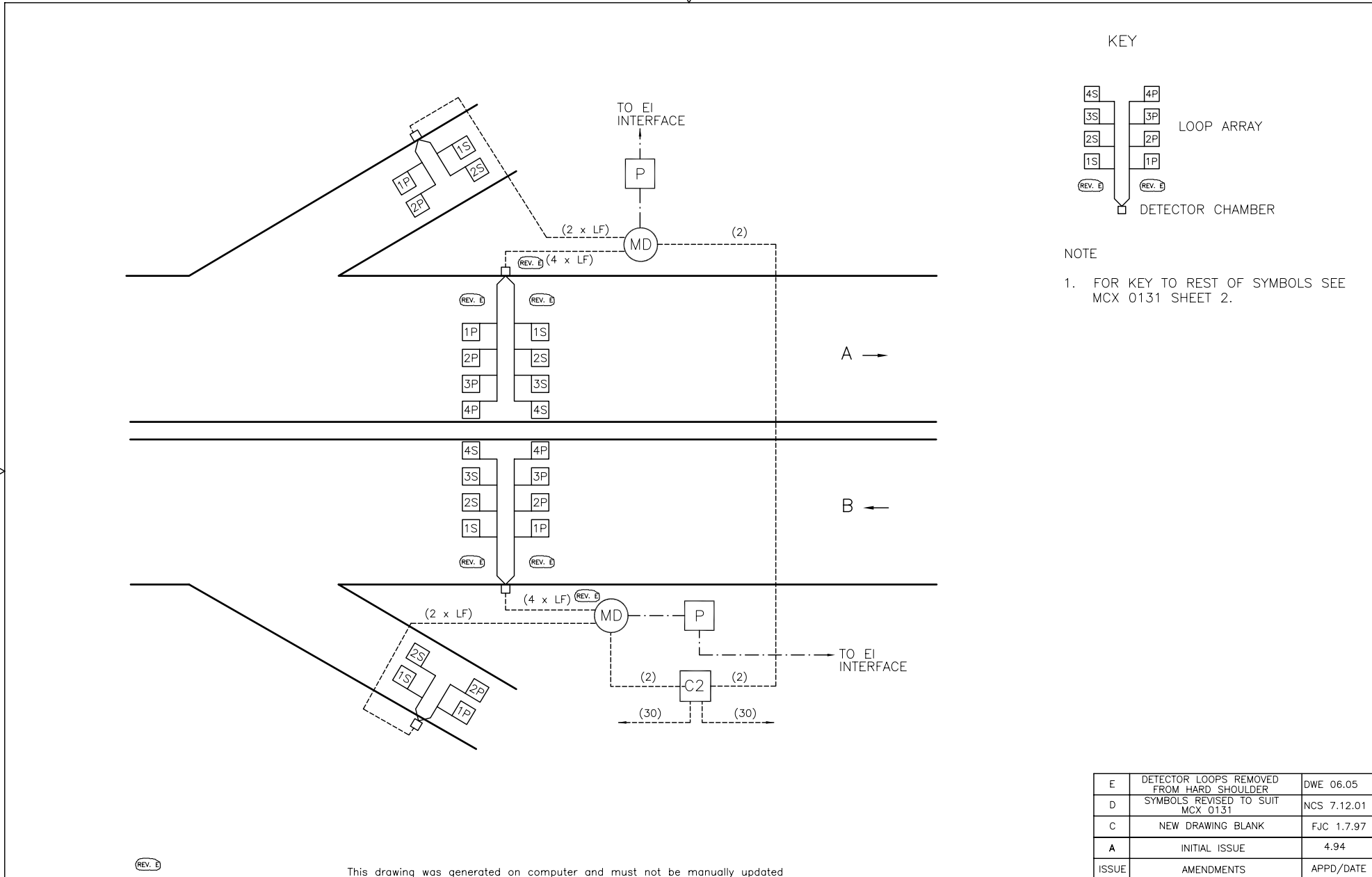
This drawing was generated on computer and must not be manually updated

|          |   |             |
|----------|---|-------------|
| E        | DETECTOR LOOPS REMOVED FROM HARD SHOULDER | DWE 06.05   |
| D        | SYMBOL KEY REVISED TO SUIT MCX 0131       | NCS 7.12.01 |
| C        | NEW DRAWING BLANK                         | FJC 1.7.97  |
| A        | INITIAL ISSUE                             | 4.94        |
| ISSUE    | AMENDMENTS                                | APPD/DATE   |
| DRN      | MS  | CHKD RES    |
| DATE     | 7.4.94                                    | DATE 8.4.94 |
| DRG. NO. | SCALE                                     |             |
|          | MCX 0592                                  |             |
|          | SHT. NO.                                  |             |
|          | 2/4                                       |             |

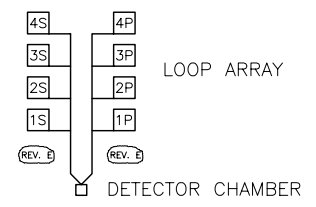
HIGHWAY CONSTRUCTION DETAILS

TITLE  
 INSTALLATION DRAWING NMCS 2  
 MIDAS OUTSTATION – TYPICAL OUTSTATION

ORIGINAL DRAWING SIZE: 297 x 420  
 ALL DIMENSIONS ARE IN MM  
 TOLERANCE ± UNLESS OTHERWISE STATED  
 THIRD ANGLE PROJECTION DO NOT SCALE



KEY



NOTE

1. FOR KEY TO REST OF SYMBOLS SEE MCX 0131 SHEET 2.

(REV. B)

This drawing was generated on computer and must not be manually updated

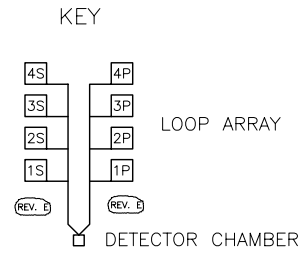
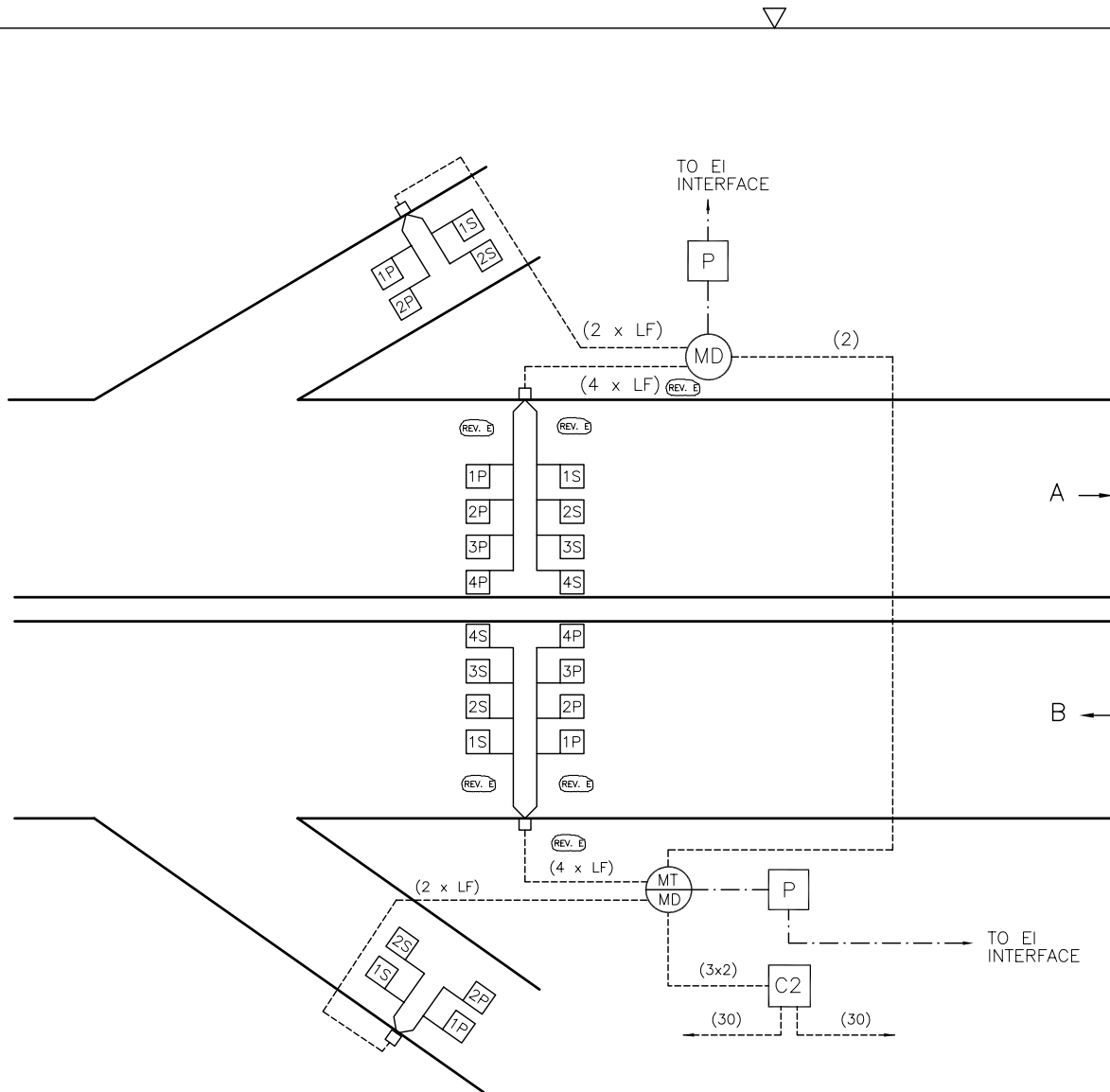
HIGHWAY CONSTRUCTION DETAILS

TITLE  
 INSTALLATION DRAWING NMCS 2  
 MIDAS OUTSTATION - TYPICAL ARRANGEMENT  
 WHERE MORE THAN 20 LOOPS PER SITE EXIST

ORIGINAL DRAWING SIZE: 297 x 420  
 ALL DIMENSIONS ARE IN MM  
 TOLERANCE ± UNLESS OTHERWISE STATED  
 THIRD ANGLE PROJECTION DO NOT SCALE

|             |   |              |
|-------------|---|--------------|
| E           | DETECTOR LOOPS REMOVED FROM HARD SHOULDER | DWE 06.05    |
| D           | SYMBOLS REVISED TO SUIT MCX 0131          | NCS 7.12.01  |
| C           | NEW DRAWING BLANK                         | FJC 1.7.97   |
| A           | INITIAL ISSUE                             | 4.94         |
| ISSUE       | AMENDMENTS                                | APPD/DATE    |
| DRN         | IWP                                       | CHKD RES     |
| DATE 7.4.94 | DATE 8.4.94                               | SCALE NTS    |
| DRG. NO.    | MCX 0592                                  | SHT. NO. 3/4 |





NOTE  
 1. FOR KEY TO REST OF SYMBOLS SEE MCX 0131 SHEET 2.

(REV. B)

This drawing was generated on computer and must not be manually updated

HIGHWAY CONSTRUCTION DETAILS

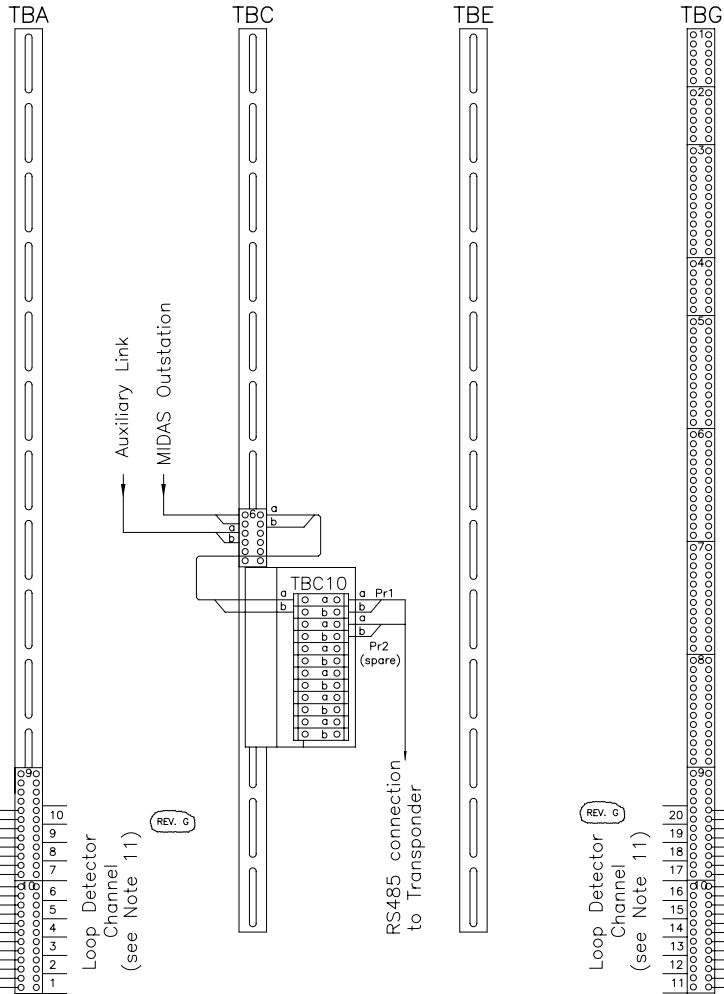
TITLE  
 INSTALLATION DRAWING NMCS 2  
 MIDAS OUTSTATION – TYPICAL ARRANGEMENT WHERE MORE THAN 20 LOOPS PER SITE EXIST WITH MIDAS TRANSDUCER

ORIGINAL DRAWING SIZE: 297 x 420  
 ALL DIMENSIONS ARE IN MM  
 TOLERANCE ± UNLESS OTHERWISE STATED  
 THIRD ANGLE PROJECTION DO NOT SCALE

|          |   |              |
|----------|---|--------------|
| E        | DETECTOR LOOPS REMOVED FROM HARD SHOULDER | DWE 06.05    |
| D        | SYMBOLS REVISED TO SUIT MCX 0131          | NCS 7.12.01  |
| C        | NEW DRAWING BLANK                         | FJC 1.7.97   |
| A        | INITIAL ISSUE                             | 4/94         |
| ISSUE    | AMENDMENTS                                | APPD/DATE    |
| DRN      | IWP                                       | CHKD RES     |
| DATE     | 7.4.94                                    | DATE 8.4.94  |
| DRG. NO. | MCX 0592                                  |              |
|          |   | SHT. NO. 4/4 |

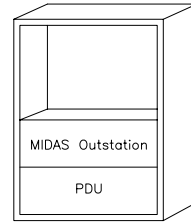


**MCX 0593**  
**NOT USED**

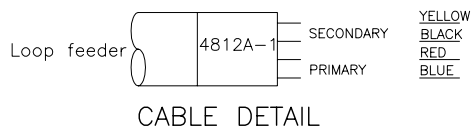
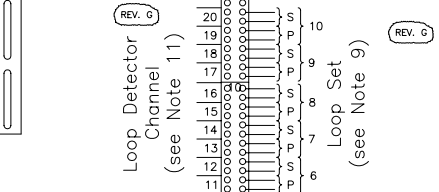
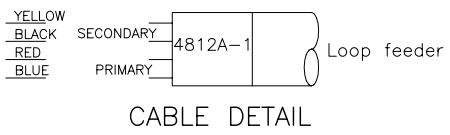
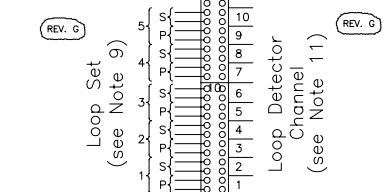


NOTES

1. ALL TERMINAL BLOCKS ARE TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR.
2. TBA IS FOR TERMINATING INCOMING CABLES.
3. TBC10 TERMINAL BLOCKS ARE TO BE KLIPPON TYPE SAKC4 (CAT. No. 034062) OR EQUIVALENT MOUNTED ON A BRACKET ARRANGEMENT DETAILED IN DRG. MCX 0337/1.
4. TBD TO BE REMOVED TO ALLOW FITTING OF TERMINAL BLOCKS.
5. ALL WIRING SHALL BE BOUND IN EXPANDABLE BRAIDED SLEEVE AND SUPPORTED AS NECESSARY.
6. EARTH BONDING AND MARKING OF INCOMING AND OUTGOING CABLES SHALL BE AS SHOWN ON DRG. MCX 0132/1.
7. CABLE PAIR COLOUR ALLOCATION ARE SPECIFIED IN MCG 1022.
8. TBA AND TBG 9&10 RESERVED FOR LOOP SITE FEEDER CABLE CONNECTIONS.
9. REFER TO DRG. MCX 0594/3 FOR LOOP FEEDER CABLE TERMINATION CONFIGURATIONS.
10. ALL TERMINAL BLOCKS ARE KLIPPON TYPE BK6 OR BK12 OR EQUIVALENT WITH THE EXCEPTION OF TBG2 WHICH IS KLIPPON TYPE BKLW6 OR EQUIVALENT. TERMINAL 1 OF SUCH BLOCKS IS AT THE TOP OF THE TERMINAL BLOCK.
11. LOOP DETECTOR CHANNEL WIRING SHALL BE TERMINATED WITH INSULATED 'FLAT-PIN' TERMINALS AND THE KLIPPON BLOCK SCREW TERMINALS TIGHTENED TO 0.6Nm USING A TORQUE DRIVER WITH A SLIPPING ACTION. THE TORQUE DRIVER SHALL HAVE A RESOLUTION OF 0.1Nm AND AN ACCURACY OF ±5%.



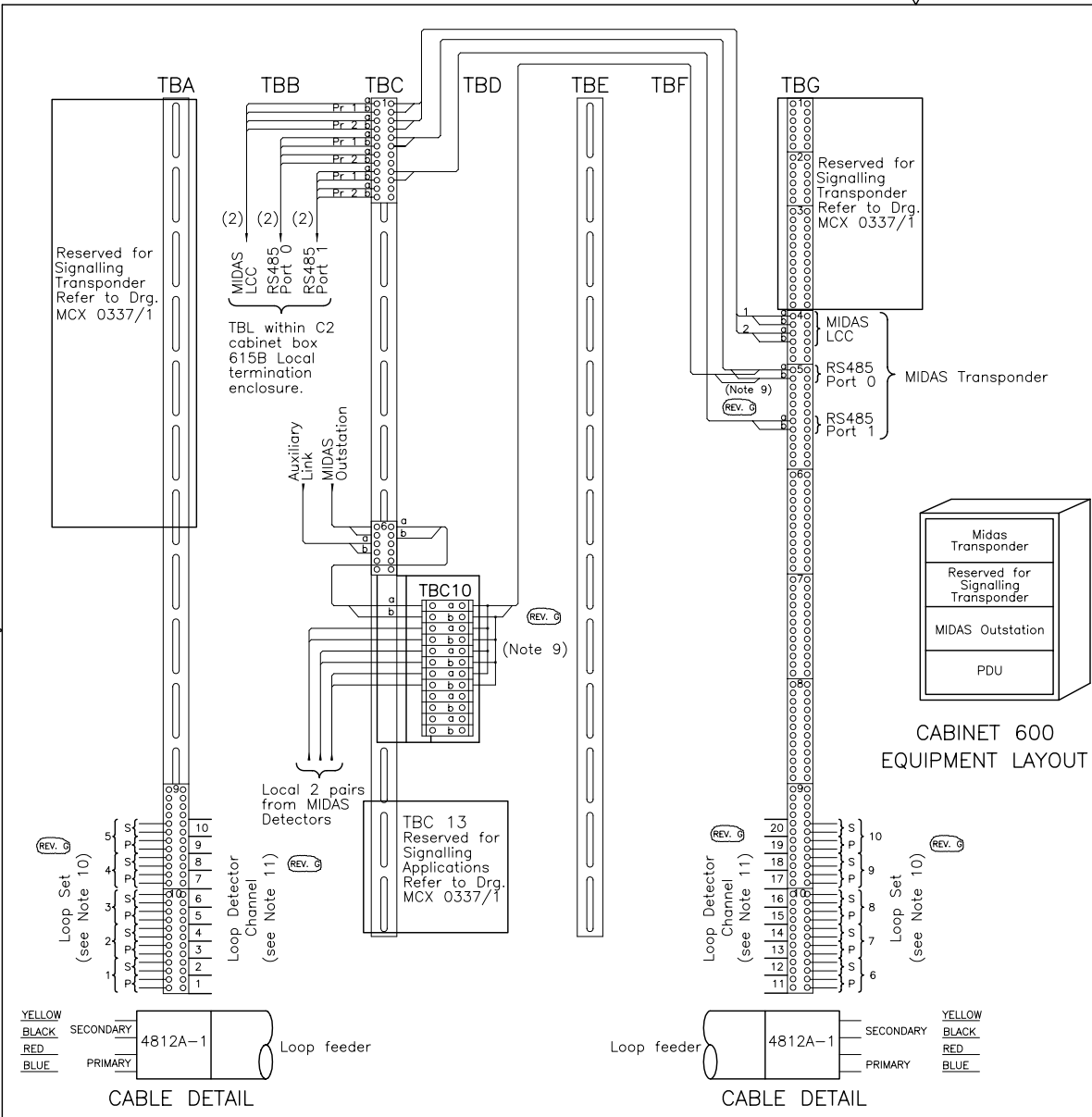
CABINET 600 EQUIPMENT LAYOUT



|       |  |             |
|-------|--|-------------|
| G     | HA ADDRESS REPLACED BY HCD. NOTES 6 & 9 DEL. 3 & 10 REV. | DWE 02.06   |
| F     | CABLE IDENTIFICATION TAG REVISED ON CABLE DETAILS        | DWE 06.05   |
| E     | MINOR REVISIONS TO NOTES ADDRESS BLOCK REVISED           | DWE 08.02   |
| D     | NOTE 3 REVISED TO SUIT DRAWING REFERENCE                 | KRB 7.12.01 |
| C     | NEW DRAWING BLANK NOTE 13 ADDED, MINOR MODS              | SB 5.6.97   |
| A     | INITIAL ISSUE  | 8.93        |
| ISSUE | AMENDMENTS   | APPD/DATE   |

|                              |   |                                     |             |                 |          |
|------------------------------|---|-------------------------------------|-------------|-----------------|----------|
| HIGHWAY CONSTRUCTION DETAILS | TITLE<br>INSTALLATION DRAWING NMCS 2<br>MIDAS OUTSTATION<br>CABINET 600 ARRANGEMENT | ORIGINAL DRAWING SIZE: 297 x 420    | DRN MS      | CHKD RES        | SCALE    |
|                              |   | ALL DIMENSIONS ARE IN MM            | DATE 7.1.94 | DATE 7.1.94     | NTS      |
|                              |   | TOLERANCE ± UNLESS OTHERWISE STATED | DRG. NO.    | <b>MCX 0594</b> | SHT. NO. |
|                              |   | THIRD ANGLE PROJECTION DO NOT SCALE |             |                 | 1 of 4   |





NOTES

1. ALL TERMINAL BLOCKS ARE TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR.
2. TBD TO BE REMOVED TO ALLOW FITTING OF TERMINAL BLOCKS.
3. TBA IS FOR TERMINATING INCOMING CABLES.
4. TBC 10 TERMINAL BLOCKS ARE TO BE KLIPPON TYPE SAKC4 (CAT. No. 034062) OR EQUIVALENT MOUNTED ON A BRACKET ARRANGEMENT DETAILED IN DRG. MCX 0337/1.
5. ALL WIRING SHALL BE BOUND IN EXPANDABLE BRAIDED SLEEVE AND SUPPORTED AS NECESSARY.
6. EARTH BONDING AND MARKING OF INCOMING AND OUTGOING CABLES SHALL BE AS SHOWN ON DRG. MCX 0132/1.
7. CABLE PAIR COLOUR ALLOCATION ARE SPECIFIED IN MCG 1022.
8. TBA AND TBG 9&10 RESERVED FOR LOOP SITE FEEDER CABLE CONNECTIONS.
9. SOLDER CONNECTIONS IN ACCORDANCE WITH DRG. MCX 0132/5.
10. REFER TO DRG. MCX 0594/3 FOR LOOP FEEDER CABLE TERMINATION CONFIGURATIONS.
11. LOOP DETECTOR CHANNEL WIRING SHALL BE TERMINATED WITH INSULATED 'FLAT-PIN' TERMINALS AND THE TERMINAL BLOCK SCREW TERMINALS TIGHTENED TO 0.6Nm USING A TORQUE DRIVER WITH A SLIPPING ACTION. THE TORQUE DRIVER SHALL HAVE A RESOLUTION OF 0.1Nm AND AN ACCURACY OF ±5%.
12. FOR INSTALLATION OF STCL MIDAS TRANSPONDER INTERNAL WIRING AT TBG5 7/8 TO BE RETERMINATED AT TBG5 3/4.

|             |  |                 |
|-------------|--|-----------------|
| G           | HA ADDRESS REPLACED BY HCD. NOTES 6 & 9 DEL.11 REV. NOTE REFS REV. | DWE 02.06       |
| F           | CABLE IDENTIFICATION TAG REVISED ON CABLE DETAILS                  | DWE 06.05       |
| E           | MINOR REVS. TO NOTES ADDRESS BLOCK REVISED                         | DWE 08.02       |
| D           | NOTE 14 ADDED, NOTE 4 REV.   | KRB 7.12.01     |
| C           | NEW DRAWING BLANK NOTE 13 ADDED, MINOR MODS                        | SB 5.6.97       |
| A           | INITIAL ISSUE  | 8.93            |
| ISSUE       | AMENDMENTS   | APPD/DATE       |
| DRN MS      | CHKD RES   | SCALE           |
| DATE 7.1.94 | DATE 7.1.94  | NTS             |
| DRG. NO.    | <b>MCX 0594</b>  | SHT. NO. 2 of 4 |

This drawing was generated on computer and must not be manually updated

|                              |       |  |                                     |             |             |          |
|------------------------------|-------|--|-------------------------------------|-------------|-------------|----------|
| HIGHWAY CONSTRUCTION DETAILS | TITLE | INSTALLATION DRAWING NMCS 2<br>MIDAS TRANSPONDER AND OUTSTATION<br>CABINET 600 ARRANGEMENT | ORIGINAL DRAWING SIZE: 297 x 420    | DRN MS      | CHKD RES    | SCALE    |
|                              |       |  | ALL DIMENSIONS ARE IN MM            | DATE 7.1.94 | DATE 7.1.94 | NTS      |
|                              |       |  | TOLERANCE ± UNLESS OTHERWISE STATED | DRG. NO.    |             | SHT. NO. |
|                              |       |  | THIRD ANGLE PROJECTION DO NOT SCALE |             |             | 2 of 4   |

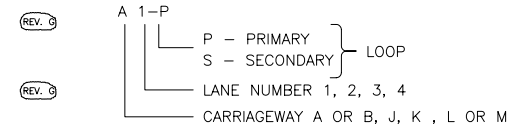
**MIDAS DETECTOR**  
600 CABINET FEEDER CABLE TERMINATIONS

| LOOP SET       | LOOP DETECTOR CHANNEL | 2 LANES WITH HARD SHOULDER AND 2 SLIP LANES EACH SIDE | 2 LANES (A) AND 3 LANES (B) WITH HARD SHOULDER EACH SIDE | 6 LANES WITH HARD SHOULDER ON 'A' CARRIAGEWAY | 6 LANES WITH HARD SHOULDER ON 'B' CARRIAGEWAY | 3 LANES PLUS 2 OUTER SLIP LANES (K) PLUS 2 INNER SLIP LANES (J) ALL ON 'A' CARRIAGEWAY | 4 LANES PLUS 2 SLIP LANES ON 'A' CARRIAGEWAY, 3 LANES ON 'B' CARRIAGEWAY | 2 LANES ON 'A' CARRIAGEWAY, 4 LANES PLUS SLIP WITH 1 LAINE AND HARD SHOULDER ON 'B' CARRIAGEWAY | TERMINAL BLOCK |
|----------------|-----------------------|---|--|---|---|--|--|---|----------------|
| 1              | 1                     | Aslip 1-P   | -  | -   | -   | Kslip 1-P  | Aslip 1-P  | A 1-P   | TBA 10 - 11/12 |
|                | 2                     | Aslip 1-S   | -  | -   | -   | Kslip 1-S  | Aslip 1-S  | A 1-S   | TBA 10 - 9/10  |
| 2              | 3                     | Aslip 2-P   | A 1-P  | A 1-P   | B 1-P   | Kslip 2-P  | Aslip 2-P  | A 2-P   | TBA 10 - 7/8   |
|                | 4                     | Aslip 2-S   | A 1-S  | A 1-S   | B 1-S   | Kslip 2-S  | Aslip 2-S  | A 2-S   | TBA 10 - 5/6   |
| 3              | 5                     | -   | A 2-P  | A 2-P   | B 2-P   | Jslip 1-P  | A 1-P  | -   | TBA 10 - 3/4   |
|                | 6                     | -   | A 2-S  | A 2-S   | B 2-S   | Jslip 1-S  | A 1-S  | -   | TBA 10 - 1/2   |
| 4              | 7                     | A 1-P   | -  | A 3-P   | B 3-P   | Jslip 2-P  | A 2-P  | -   | TBA 9 - 11/12  |
|                | 8                     | A 1-S   | -  | A 3-S   | B 3-S   | Jslip 2-S  | A 2-S  | -   | TBA 9 - 9/10   |
| 5              | 9                     | A 2-P   | -  | A 4-P   | B 4-P   | A 1-P  | A 3-P  | Bslip 1-P   | TBA 9 - 7/8    |
|                | 10                    | A 2-S   | -  | A 4-S   | B 4-S   | A 1-S  | A 3-S  | Bslip 1-S   | TBA 9 - 5/6    |
| (Hatched area) |                       |   |  |   |   |  |  |   |                |
| 6              | 11                    | Bslip 1-P   | -  | A 5-P   | B 5-P   | A 2-P  | A 4-P  | B 1-P   | TBG 10 - 11/12 |
|                | 12                    | Bslip 1-S   | -  | A 5-S   | B 5-S   | A 2-S  | A 4-S  | B 1-S   | TBG 10 - 9/10  |
| 7              | 13                    | Bslip 2-P   | B 1-P  | A 6-P   | B 6-P   | A 3-P  | -  | B 2-P   | TBG 10 - 7/8   |
|                | 14                    | Bslip 2-S   | B 1-S  | A 6-S   | B 6-S   | A 3-S  | -  | B 2-S   | TBG 10 - 5/6   |
| 8              | 15                    | -   | B 2-P  | -   | -   | -  | B 1-P  | B 3-P   | TBG 10 - 3/4   |
|                | 16                    | -   | B 2-S  | -   | -   | -  | B 1-S  | B 3-S   | TBG 10 - 1/2   |
| 9              | 17                    | B 1-P   | B 3-P  | -   | -   | -  | B 2-P  | B 4-P   | TBG 9 - 11/12  |
|                | 18                    | B 1-S   | B 3-S  | -   | -   | -  | B 2-S  | B 4-S   | TBG 9 - 9/10   |
| 10             | 19                    | B 2-P   | -  | -   | -   | -  | B 3-P  | -   | TBG 9 - 7/8    |
|                | 20                    | B 2-S   | -  | -   | -   | -  | B 3-S  | -   | TBG 9 - 5/6    |

**NOTES**

1. KEY

FOR EXAMPLE



2. A MAXIMUM OF 20 LOOPS ONLY MAY BE INSTALLED IN CABINET 600. WHERE >20 LOOPS (OR >10 LANES) EXIST AT A LOCATION A 600 CABINET SHALL BE USED FOR EACH CARRIAGEWAY. THE SAME RULES APPLY TO EACH OUTSTATION.

3. THE FOLLOWING GUIDANCE SHALL BE FOLLOWED WHEN CONFIGURING AND INSTALLING LOOPS:

(a) EACH LANE CONTAINS A PAIR OF LOOPS, THE PRIMARY (UPSTREAM) LOOP AND THE SECONDARY (DOWNSTREAM) LOOP. THE PRIMARY LOOP OF A PAIR SHOULD ALWAYS BE CONNECTED BEFORE THE SECONDARY.

(b) THERE ARE UP TO FOUR SITES PER OUTSTATION, EG 2 SLIP ROADS AND 2 MAIN CARRIAGEWAYS, OR 3 SLIPS AND ONE CARRIAGEWAY. THE LANES WITHIN A SITE SHOULD ALWAYS BE CONNECTED LANE 1 FIRST FOLLOWED BY 2 ETC FOR BOTH MAIN CARRIAGEWAY AND SLIP ROAD SITES.

(c) THE SITES SHOULD BE CONNECTED IN THE ORDER SLIP ROAD, MAIN CARRIAGEWAY (A CARRIAGEWAY), SLIP ROAD, MAIN CARRIAGEWAY (B CARRIAGEWAY). THE A CARRIAGEWAY SITES ARE THEREFORE ALWAYS ON TBA9 AND 10, WHILST THE B CARRIAGEWAY SITES ARE ON TBA9 AND 10 ONLY IF THERE ARE NO A CARRIAGEWAY SITES PRESENT.

(d) WHERE THERE IS MORE THAN ONE SLIP ROAD ON EITHER CARRIAGEWAY, THE SITES SHOULD BE CONNECTED IN THE ORDER SLIP ROAD (OUTER) SLIP ROAD (INNER). 'OUTER', 'INNER' BEING THE FURTHER AND NEARER SLIPS WITH RESPECT TO THE MAIN CARRIAGEWAY.

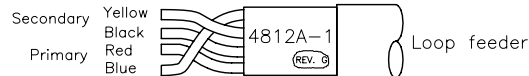
(e) WHERE THERE ARE <10 LANES AT A LOCATION THEN WHERE POSSIBLE LANES ON THE A CARRIAGEWAY SHOULD BE CONNECTED TO CHANNELS 1-10 STARTING AT 1, AND LANES ON THE B CARRIAGEWAY SHOULD BE CONNECTED TO CHANNELS 11-20 STARTING AT 11. IF THERE ARE >5 LANES ON THE A CARRIAGEWAY THEN CHANNELS UP TO 12, 14 ETC SHOULD BE USED, AND THE LANES ON THE B CARRIAGEWAY OFFSET ACCORDINGLY. IF THERE ARE >5 LANES ON THE B CARRIAGEWAY THEN THESE LANES SHOULD BE CONNECTED STARTING AT CHANNEL 9, 7 ETC. WHENEVER POSSIBLE A GAP OF 1 LOOP SET SHOULD BE LEFT.

(f) WHERE THERE IS MORE THAN ONE SITE ON A GIVEN SLIP OR CARRIAGEWAY THEN THE FURTHEST UPSTREAM SITE SHOULD BE CONNECTED TO THE FIRST LOOP SET FOR THAT CARRIAGEWAY (TBA10-11/12 OR TBG10-11/12).

(g) WHERE AN OUTSTATION COVERS MORE THAN ONE ROAD, SITES ON ROADS ADJOINING THE OUTSTATION SHOULD BE TREATED AS SLIP ROADS WHEN APPLYING THE ABOVE RULES.

4. THE EXAMPLE TABLE SHOWS CONFIGURATIONS FOR A 600 CABINET LOCATED ON EITHER THE A OR B CARRIAGEWAYS. THERE SHOULD BE NO DIFFERENCE.

5. FOR JOINTING DETAILS REFER TO MCX 0592.



**CABLE DETAIL**

(REV. 3)

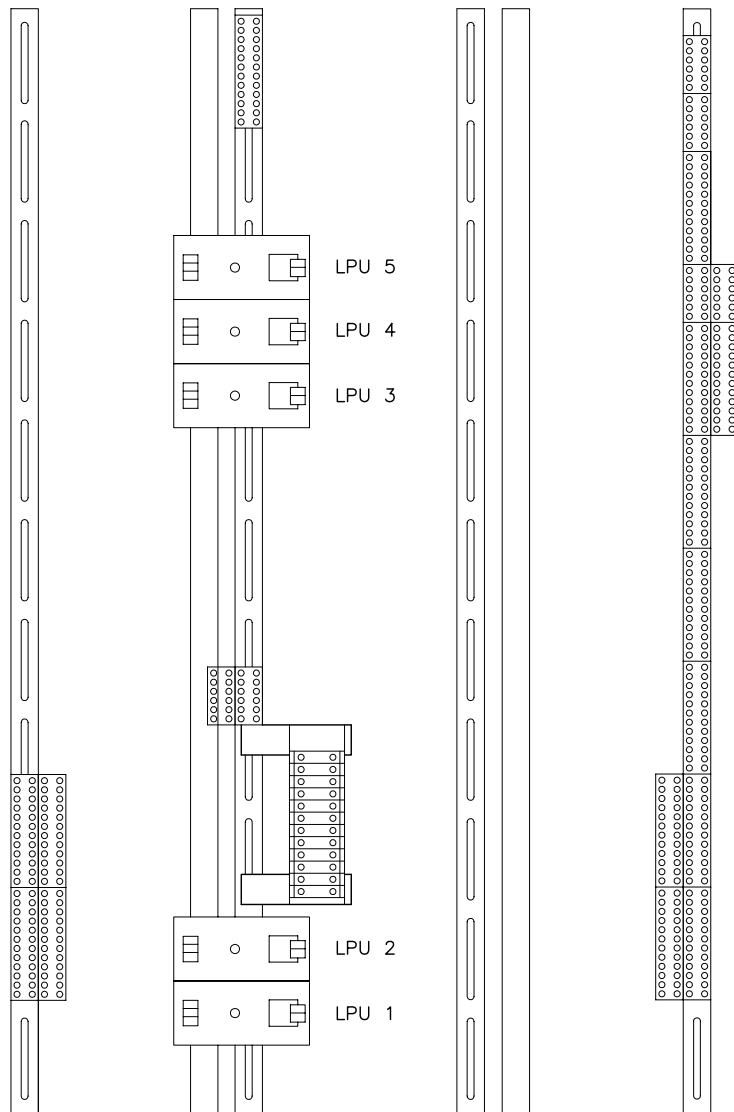
This drawing was generated on computer and must not be manually updated

|                                     |  |           |                          |  |              |
|-------------------------------------|--|-----------|--------------------------|--|--------------|
|                                     |  |           | D                        | GENERALLY UPDATED                              | FJC 12.04.01 |
| G                                   | DETECTOR LOOPS REMOVED FROM HARD SHOULDER        | DWE 06.05 | C                        | NEW DRAWING BLANK NOTE 3 AMENDED, NOTE 4 ADDED | SB 5.6.97    |
| F                                   | CABLE DETAIL ADDED FROM MCX 0833/2 (NOW DELETED) | DM 9.1.02 | A                        | INITIAL ISSUE                                  | JAN 94       |
| E                                   | REV TO LOOP SETS 3 & 4 AT 3 LANES J-SLIP         | BH 1.5.01 | ISSUE                    | AMENDMENTS                                     | APPD/DATE    |
| ORIGINAL DRAWING SIZE: 297 x 420    |  |           | DRN MS                   | CHKD RES                                       | SCALE        |
| ALL DIMENSIONS ARE IN MM            |  |           | DATE 7.1.94              | DATE 7.1.94                                    | NTS          |
| TOLERANCE ± UNLESS OTHERWISE STATED |  |           | DRG. NO. <b>MCX 0594</b> |  | SHT. NO. 3/4 |
| THIRD ANGLE PROJECTION DO NOT SCALE |  |           |                          |  |              |

HIGHWAY CONSTRUCTION DETAILS

TITLE  
INSTALLATION DRAWING NMCS 2  
MIDAS SYSTEM 600 CABINET FEEDER  
CABLE TERMINATION EXAMPLES

(REV. 3)



(REV. 3)

This drawing was generated on computer and must not be manually updated

Notes

1. Lightning Protection Units are to be orientated such that equipment is connected to the left hand side and the line connected to the right hand side of the LPU.
2. LPU's 3, 4 and 5 are not to be fitted when a Transponder is not installed in the cabinet.
3. LPU 1 is used for the protection of the Outstation Auxiliary Link. (Cables will be labelled 'OAL'.)
4. LPU 2 is used for the protection of the Outstation to Transponder Link. (Cables will be labelled 'TPR'.)
5. LPU 3 is used for the protection of the Link B from the Transponder to MIDAS Outstations. (Cables will be labelled 'Link B'.)
6. LPU 4 is used for the protection of the Link A from the Transponder to MIDAS Outstations. (Cables will be labelled 'Link A'.)
7. LPU 5 is used for the protection of the HDLC Link from the Transponder to the LCC. (Left hand cable will be labelled 'DIGITAL' and right-hand cable will be labelled 'DIG/ANLG'.)

|              |   |                    |
|--------------|---|--------------------|
| C            | HA ADDRESS REPLACED BY HIGHWAY CONSTRUCTION DETAILS | DWE 02.06          |
| B            | ADDRESS & LOGO REVISED<br>COPYRIGHT NOTICE REMOVED  | DWE 02.02          |
| A            | INITIAL ISSUE<br>SHEET 4 ADDED TO SET               | SB 5.6.97          |
| ISSUE        | AMENDMENTS  | APPD/DATE          |
| DRN JB       | CHKD SB   | SCALE              |
| DATE 14.2.97 | DATE 5.6.97   | NTS                |
| DRG. NO.     | <b>MCX 0594</b>                                     | SHT. NO.<br>4 of 4 |

|                                     |
|-------------------------------------|
| ORIGINAL DRAWING SIZE: 297 x 420    |
| ALL DIMENSIONS ARE IN MM            |
| TOLERANCE ± UNLESS OTHERWISE STATED |
| THIRD ANGLE PROJECTION DO NOT SCALE |

HIGHWAY CONSTRUCTION DETAILS

TITLE  
 INSTALLATION DRAWING NMCS 2  
 MIDAS TRANSPONDER AND OUTSTATION  
 LIGHTNING PROTECTION UNIT POSITIONING

**MCX 0595 – 0601**  
**NOT USED**