

**SECTION – X**  
**FINANCIAL e BID**

**(UPLOADED IN EXCEL SHEET) (RATES AS  
PERCENTAGE BELOW/ABOVE/AT PAR THE  
SCHEDULE/BOQ RATE ARE TO BE FILLED  
ONLINE ONLY)**

**GUIDELINES / INSTRUCTIONS FOR QUOTING OF RATES**

1. Rate in % below/above or at par should be quoted online only, no hard copy of quoted rate shall be submitted along with technical offer.
2. The BOQ consisting of listed out the quantities of various items to be executed under the scope of the tender. Tenderer is advised to quote % above or below or at par **on single percentage basis for total cost of schedule A, B, C, D & E**. The tender(s) shall write percentage in figure. The tender evaluation shall be done on total cost of schedule A, B, C, D & E. Please note that for “At PAR” cost bidder have to enter 0% with Excess (+) option)
3. Along with percentage the tenderer should quote either “above” or “below” or “at par” failing which the percentage quoted shall be considered as percentage below of the total cost as per BOQ.
4. Bidders shall be deemed to have read the Specifications & the other sections of the Bidding Documents and this section to ascertain the full scope of the requirements included in each item prior to filling in the rates and prices. **The rates and prices shall be deemed to include for the full scope as aforesaid, including all taxes, overheads, profit and any other costs to fully complete the works.**
5. The Tenderer(s) should quote in % figures only up to two decimal points, software will convert automatically in words.
6. The Bill of Quantities shall be read in conjunction with the Instructions to Tenderers, Conditions of Contract, General Conditions, Special Conditions of Contract, Works Requirement (Technical Specifications, and Drawings) and other documents forming part of the bid documents.
7. The rates entered in the accepted Bill of Quantities (BOQ) of the Contract are intended to provide for works duly and properly completed in accordance with the general and special (if any) conditions of the contract and the specifications and drawing together with such enlargements, extensions, diminutions, reductions, alterations or additions as may be ordered in terms of these conditions and without prejudice to the generality thereof and shall be deemed to include and cover superintendence and labour, supply, including full freight of materials, stores, fittings, tools and all apparatus and plant required on the works, the erection, maintenance and removal of all temporary works, all watching, lighting, arrangements for the safety to the public or of employees during the execution of works, all sanitary and medical arrangements for labour camps as may be prescribed by the employer/engineer.
8. Sample Format for quoting rates **online** is as under, **not to be filled & submitted offline**:

| Schedule              | Amount<br>(In INR)          | Description  |              |                               |
|-----------------------|-----------------------------|--|--------------|-------------------------------|
| <b>A</b>              | 23,13,20,488.0/-            | Total Amount of Schedule – A (Signalling Supply portion )  |              |                               |
| <b>B</b>              | 72,10,844.0/-               | Total Amount of Schedule – B (Telecommunication Supply portion )                                   |              |                               |
| <b>C</b>              | 3,52,65,878.0/-             | Total Amount of Schedule – C (Signalling Execution portion)  |              |                               |
| <b>D</b>              | 9,65,700.0/-                | Total Amount of Schedule – D (Telecommunication Execution portion)                                 |              |                               |
| <b>E</b>              | 61,84,992.0/-               | Total Amount of Schedule - E (Provision of Vehicle and Provision of Technical & Design Consultant) |              |                               |
| <b>Total</b>          | <b>28,09,47,902.0/-</b>     | <b>Total Without GST (Rs.)</b>   |              |                               |
| <b>+GST</b>           | <b>5,05,70,622.4/-</b>      | GST @ 18% (Rs.)  |              |                               |
|                       | Total Amount with GST (Rs.) | "Above" or "Below"   | % in Figures | Total Quoted Cost (in Rupees) |
| <b>Total With GST</b> | <b>33,15,18,524.4/-</b>     |  |              |                               |

- Annexure A (MSDAC – BREAKUP)

| ANNEXURE-A  |  |  |  |                   |                |
|---|--|--|--|-------------------|----------------|
| Break up of total cost indicating separately unit rates, quantities and total cost of each type of equipment's, modules, assemblies/sub-assemblies, cards BOQ item no. C 9, of Schedule A |  |  |  |                   |                |
| ANNEXURE- A To Financial Bid  |  |  |  |                   |                |
| Name of Work:-  | Design, Alterations, Supply, Installation, Testing & Commissioning of Electronic Interlocking based Signalling System at UP DN IBS between NMWP & NKJ C Cabin alongwith associated works at adjoining stations/sections and Alteration & modification at NMWP & NKJ C cabin in connection with Grade Separator work at Katni. Design, Alterations, Supply, Installation, Testing & Commissioning of Electronic Interlocking based Signalling System at Bargawan & Majhauri alongwith associated works at adjoining stations/sections in connection with Doubling work in Katni - Singrauli section |  |  |                   |                |
| Name of Firm:-  |  |  |  |                   |                |
|   |  |  |  | Station wise Qty. |                |
|   |  |  |  | Qty.              | Total (in INR) |
|   |  |  |  |                   |                |
|   |  |  |  |                   |                |

- Annexure-B (SPARES- MSDAC)

| ANNEXURE-B  |  |      |     |               |                |
|---|--|------|-----|---------------|----------------|
| LIST OF SPARES FOR MSDAC BOQ item no. C 9 of Schedule A |  |      |     |               |                |
| ANNEXURE- B To Financial Bid                            |  |      |     |               |                |
| Name of Work:-  | Design, Alterations, Supply, Installation, Testing & Commissioning of Electronic Interlocking based Signalling System at UP DN IBS between NMWP & NKJ C Cabin alongwith associated works at adjoining stations/sections and Alteration & modification at NMWP & NKJ C cabin in connection with Grade Separator work at Katni. Design, Alterations, Supply, Installation, Testing & Commissioning of Electronic Interlocking based Signalling System at Bargawan & Majhauri alongwith associated works at adjoining stations/sections in connection with Doubling work in Katni - Singrauli section |      |     |               |                |
| Name of Firm:-  |  |      |     |               |                |
| SN  | Description of Item  | Unit | Qty | Rate (In INR) | Total (in INR) |
|   |  |      |     |               |                |



|  |  |  |  |  |  |
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- Annexure C (AFDAS – BREAKUP)

| ANNEXURE-C   |  |      |               |                  |                |
|--|--|------|---------------|------------------|----------------|
| Break up of total cost indicating separately unit rates, quantities and total cost of each type of equipment's, modules, assemblies/sub-assemblies, cards BOQ item no. 59, of Schedule A |  |      |               |                  |                |
| ANNEXURE- C To Financial Bid   |  |      |               |                  |                |
| Name of Work:-   | Design, Alterations, Supply, Installation, Testing & Commissioning of Electronic Interlocking based Signalling System at UP DN IBS between NMWP & NKJ C Cabin alongwith associated works at adjoining stations/sections and Alteration & modification at NMWP & NKJ C cabin in connection with Grade Separator work at Katni. Design, Alterations, Supply, Installation, Testing & Commissioning of Electronic Interlocking based Signalling System at Bargawan & Majhauri alongwith associated works at adjoining stations/sections in connection with Doubling work in Katni - Singrauli section |      |               |                  |                |
| Name of Firm:-   |  |      |               |                  |                |
| SN   | Description of Item  | Unit | Rate (In INR) | Station wise Qty |                |
|  |  |      |               | Qty              | Total (in INR) |
|  |  |      |               |                  |                |
|  |  |      |               |                  |                |

## SECTION – XI

## DRAWINGS

### LIST OF TYPICAL DRAWINGS

| DRW NO.                    | DESCRIPTION   | REFERENCE                    |
|----------------------------|---|------------------------------|
| <b>Signalling Drawings</b> |   |                              |
| 1                          | Signal Foundation   | WCR/S&T/SIG/01               |
| 2                          | CLS Foundation (Rocky Area)                                       | IRCON/S&T/CLS-RA/02          |
| 3                          | Shunt Signal Foundation   | NO/RE/S&T/SIG/TENDER/SK/2/85 |
| 4                          | Anchor Bolt Complete  | SA 110-112-116 A/M           |
| 5                          | Apparatus Case Foundation-Single                                  | JBP/S&T/C/084                |
| 6                          | Apparatus Case Foundation-half                                    | JBP/S&T/C/085                |
| 7                          | GI/HDPE Pipe Arrangement at Culverts                              | IRCON/S&T/GP/14              |
| 8                          | Signal Base 140 Mm dia Tube                                       | S 2011/M                     |
| 9                          | Ladder 3.5 M (For Color Light Signal-Multi Unit Type)             | SA 23150                     |
| 10                         | Ladder Foundation   | S 2033/M                     |
| 11                         | Warning Board   | SA 2380                      |
| 12                         | Typical Installations of Earth for S&T Installations              | TCA 565                      |
| 13                         | Typical Bonding And Earthing Connections For Signalling Equipment |                              |
| 14                         | Track Lead- Junction Box  | SA 20101/M                   |
| 15                         | P Marker  | SA 23455 / SA 23456          |
| 16                         | G Marker  | SA 23477 / SA 23476          |
| 17                         | Installation of Point Machine                                     | S 3361-62                    |
| 18                         | Track Feed Resistance   | SA 20164/ M-66 (Adv)         |
| 19                         | Fuse Block  | SA 23748/ S 23749            |
| 20                         | Terminal Block  | S 23741 / S 23743            |
| 21                         | Composite Relay rack  | CORE/S&T/ALD/SK/454/97       |
| 22                         | Brick Masonry Channel   | NO/RE/S&T/SIG/SK/14/85       |

|    |  |                          |
|----|--|--------------------------|
| 23 | RCC cable route marker                             | CORE/S&T/ALD/SK/600/2013 |
| 24 | Arrangement of RCC pipe Trunking under metal road. | CORE/S&T/ALD/SK/572/04   |
| 25 | Tentative Integrated Power Supply System.          |                          |
| 26 | Tentative Signalling Interlocking Plan of station. |                          |

**NOTE: ALL THE DRAWINGS ARE ONLY INDICATIVE. IRCON/Railway reserves the right for alteration as per requirement during execution of works. The contractor shall take approved copy of drawings before execution of works. Approved drawings also be obtained from office of Dy. CSTE/Con or from IRCON.**

**NOTES:**

- 1 ALL DIMENSIONS ARE IN mm DRG IS NOT TO SCALE
- 2 ANCHOR BOLTS TO BE FITTED IN FOUNDATION BY PROVIDING  
SLOPE OF 1 IN 25 DURING CASTING OF FOUNDATION CONCRETE
- 3 DAILY TAKING MEASUREMENT'S AND ALLOWANCE FOR  
SURFACE BASE
- 4 ONLY THE FOUNDATION SHOULD BE CASTED IN ONE STRICH
- 5 SLOPE OF 1 IN 25 DURING CASTING OF FOUNDATION CONCRETE
- 6 CABLE ENTRY PIPE AND ANCHOR BOLT BE EMBEDDED  
DURING CASTING IT SELF
- 7 OUTER SURFACE SHOULD BE PLASTERED WITH 1:4 CEMENT  
SAND JP TO A LEVEL OF 100 mm BELOW GROUND LEVEL
- 8 FOUNDATION SHOULD BE CASTED WITH MIXTURE OF  
CEMENT, SAND AND STONE CHIPS OF SIZE 15 TO 35 mm  
IN RATIO OF 1:3:6
- 9 BASED ON CENTRAL RAILWAY DRG NO. SK 749
- 10 SOD REQUIREMENTS
- 11 ABOVE RL 2135 mm LENGTHS YARDS  
2360 mm NEW YARDS
- 12 BELOW RL 2575 mm - AT FORMATION LEVEL

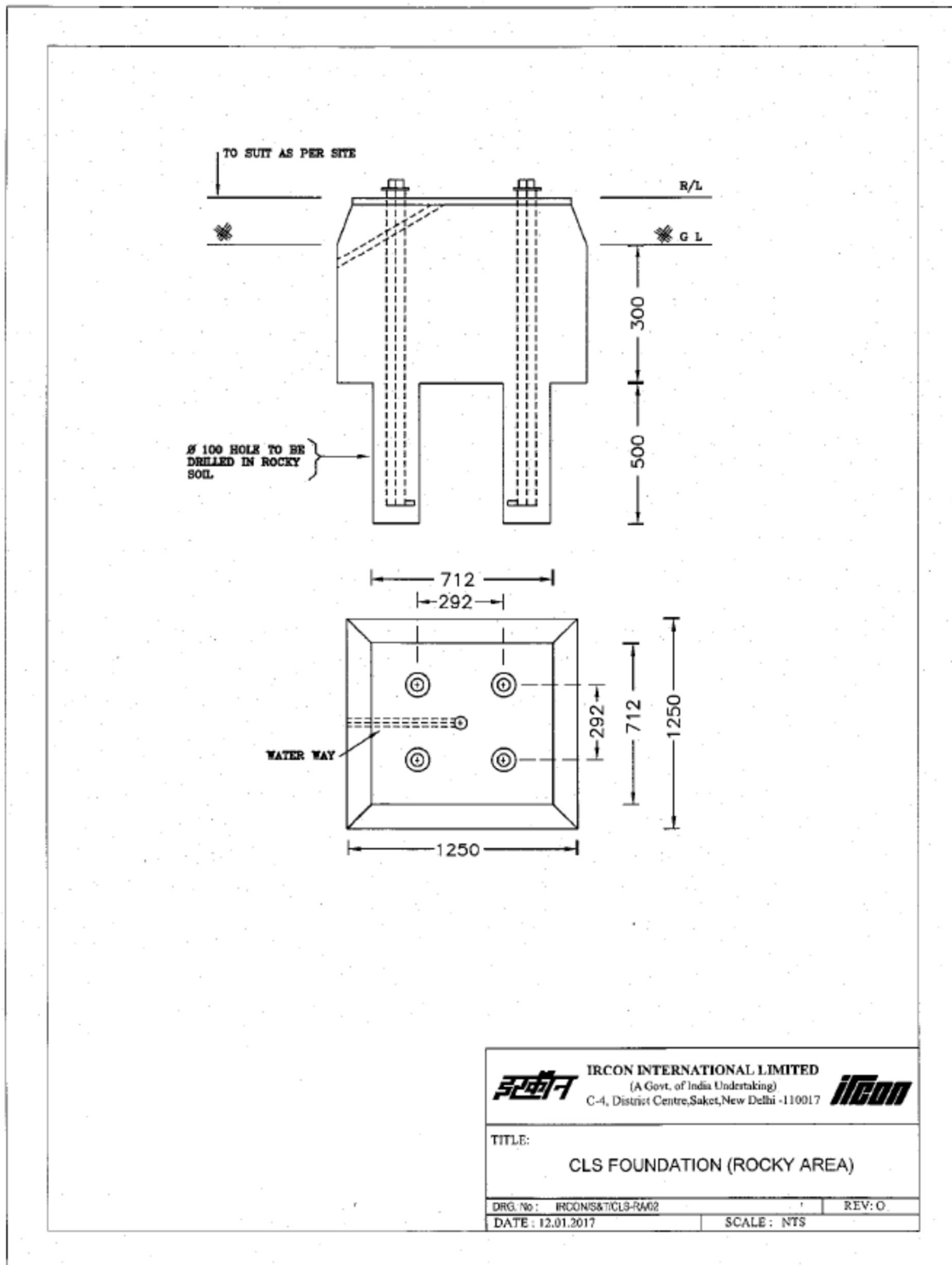
**MAIN SIGNAL FOUNDATION**

**SHUNT SIGNAL FOUNDATION**

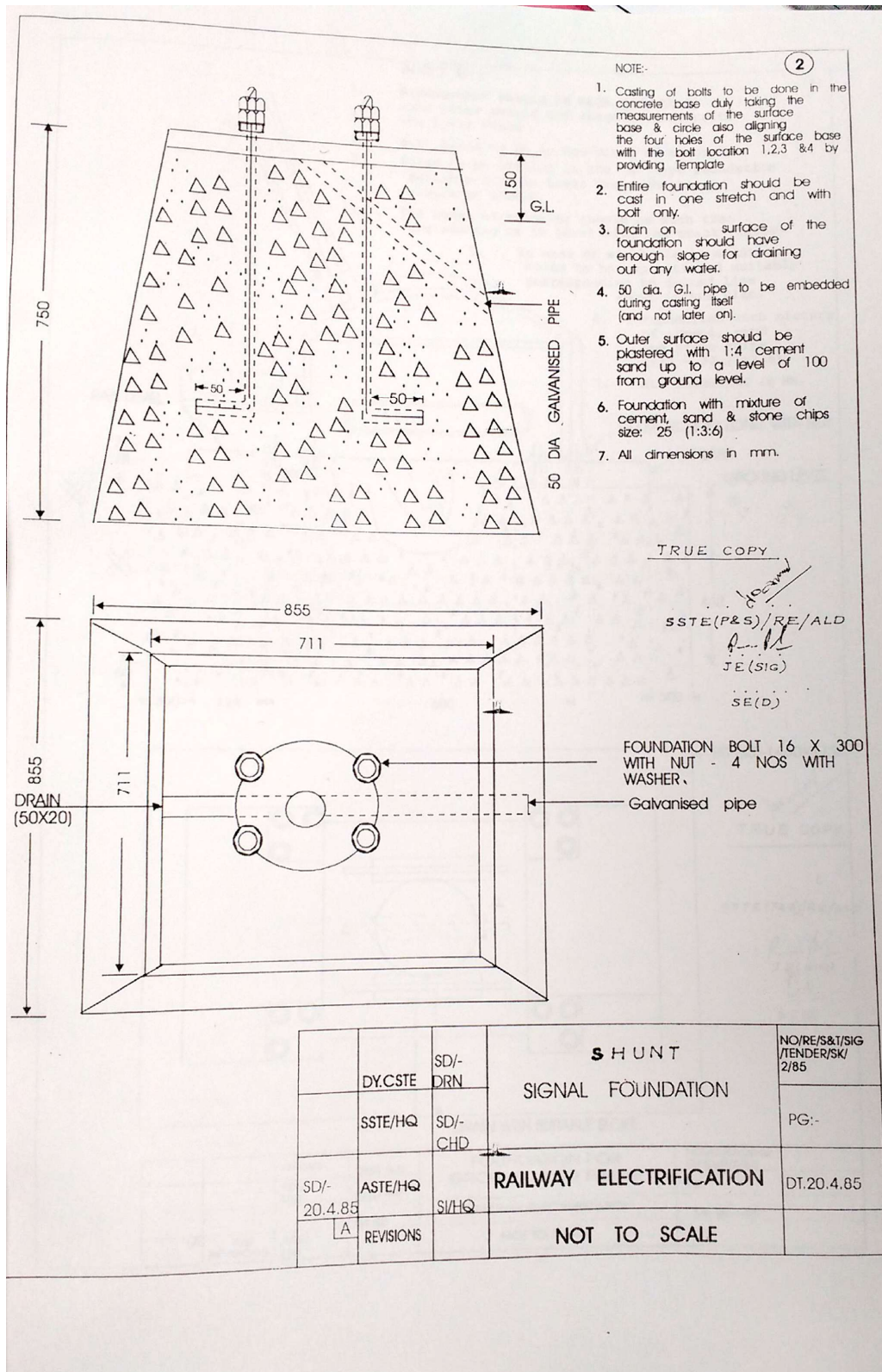
**WEST CENTRAL RAILWAY**

**FOUNDATION FOR MAIN & SHUNT SIGNALS**

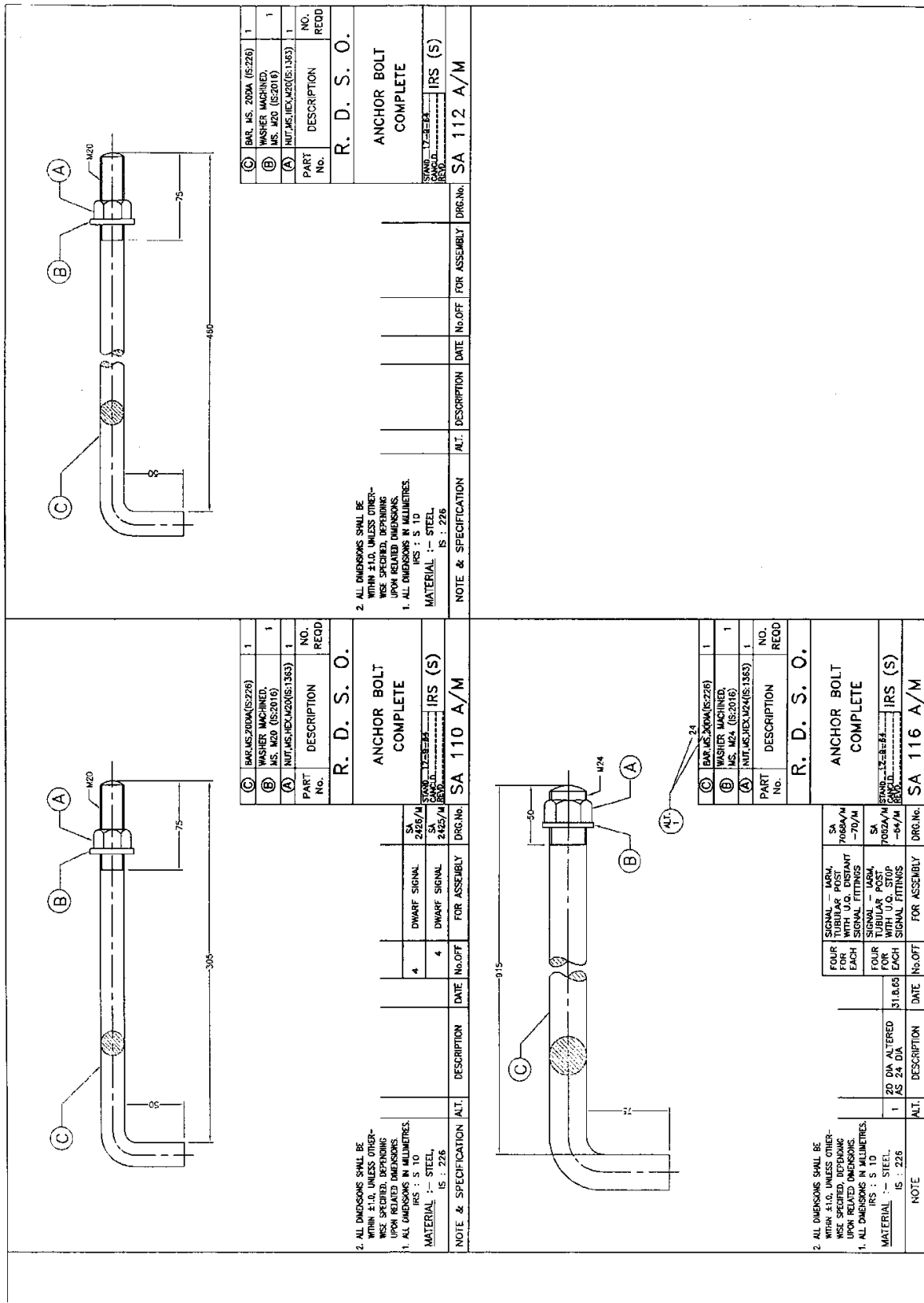
DRG. NO. WCRS&T/S/GC1

**DRAWING NO. 2**

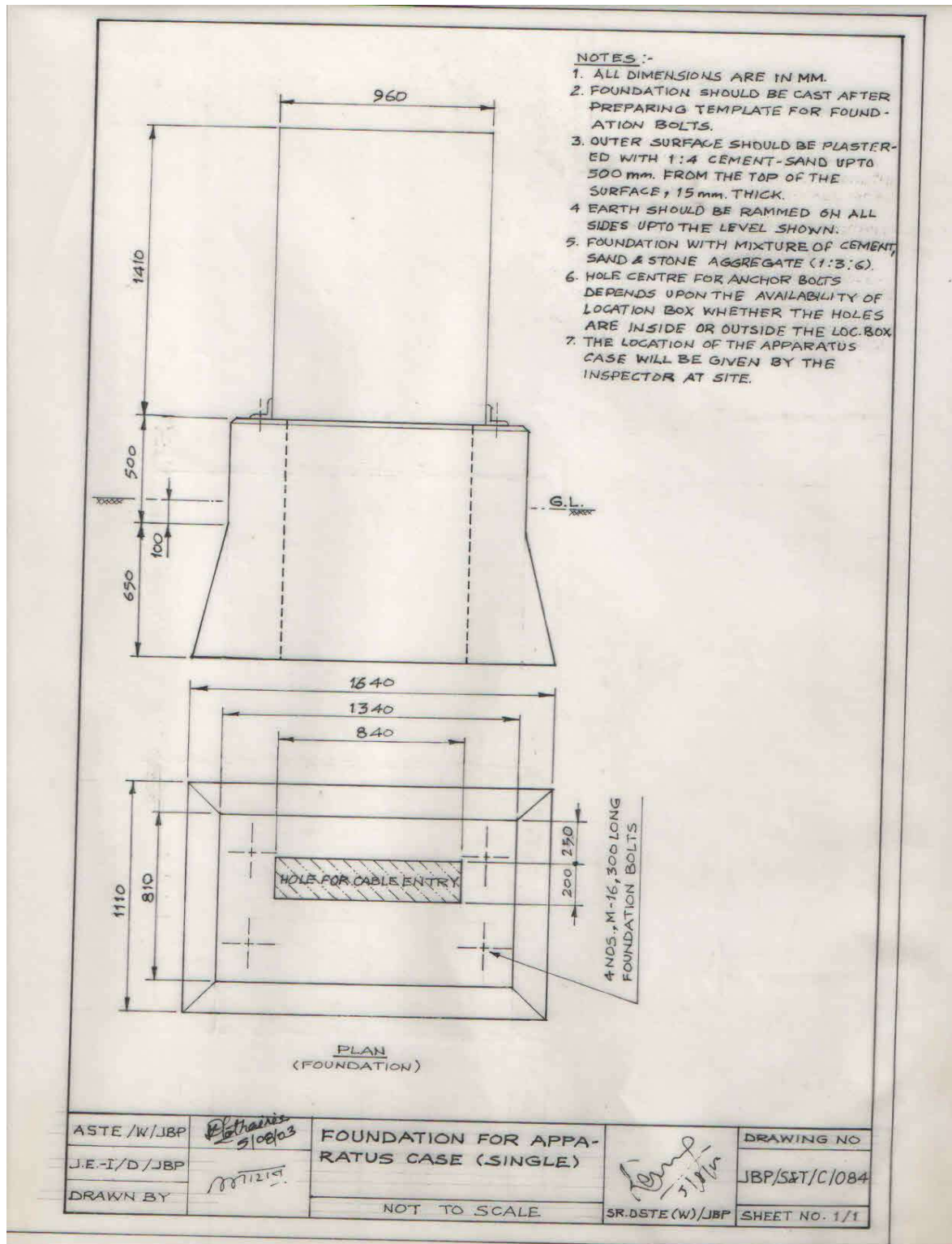


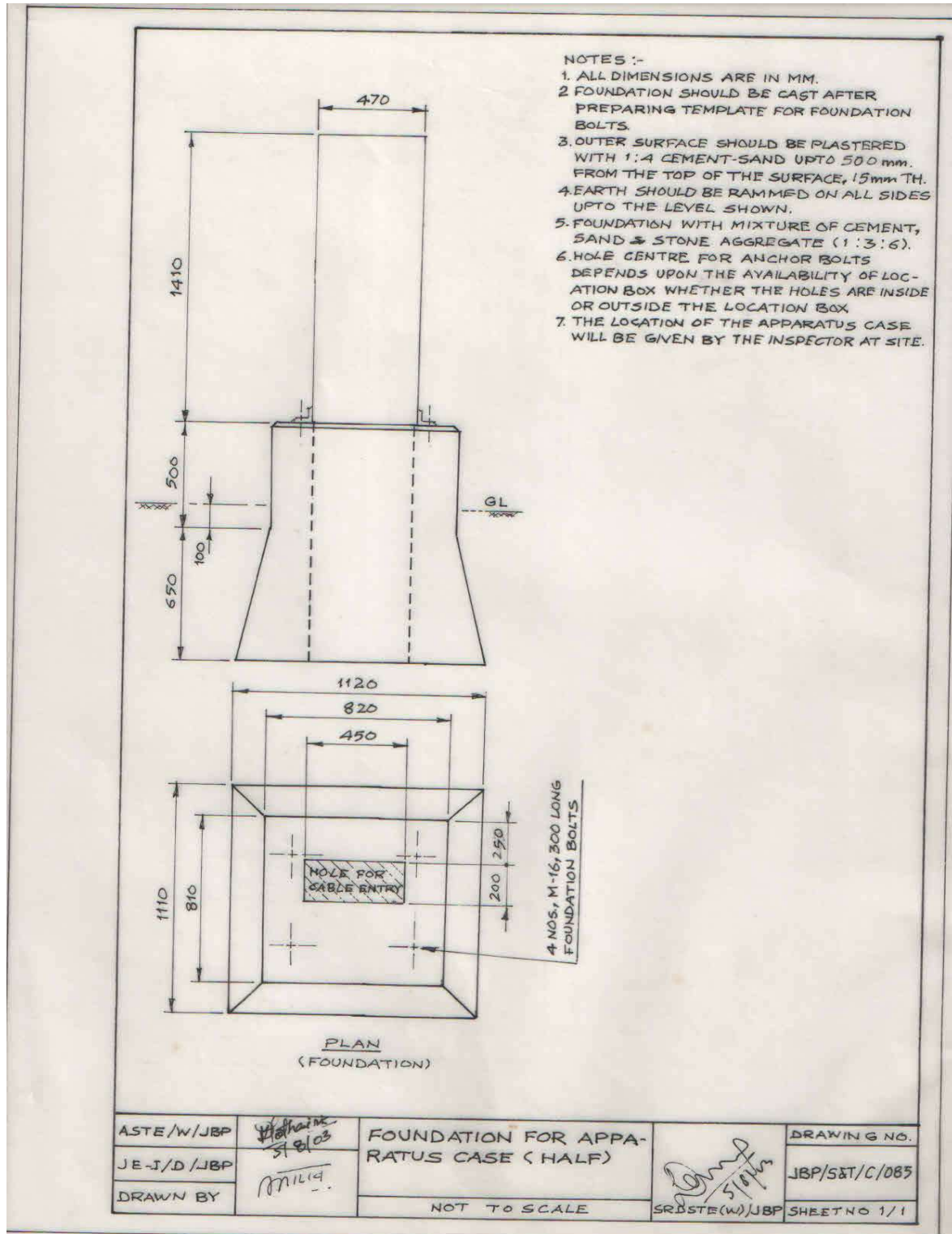
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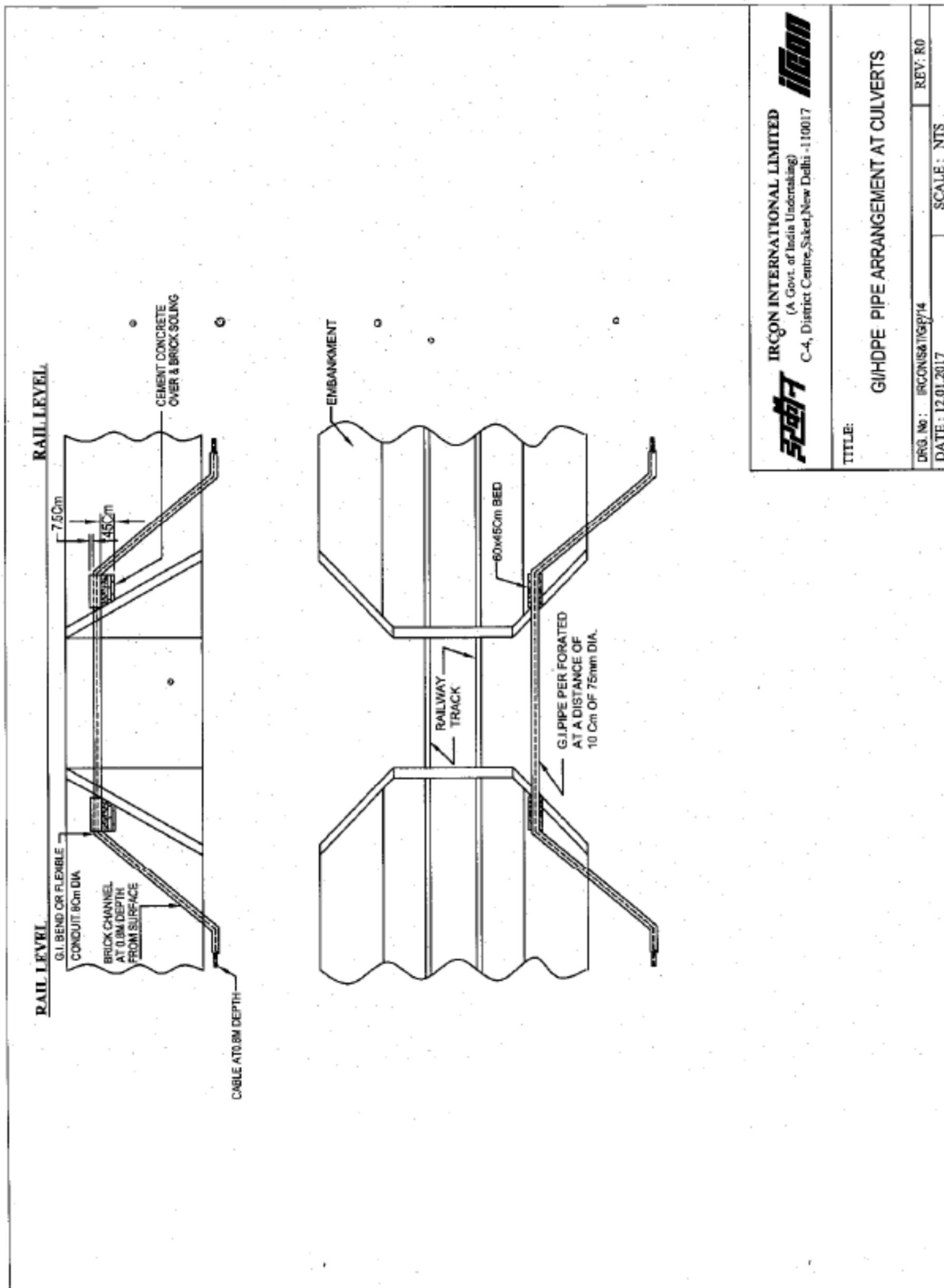
## DRAWING NO. 4



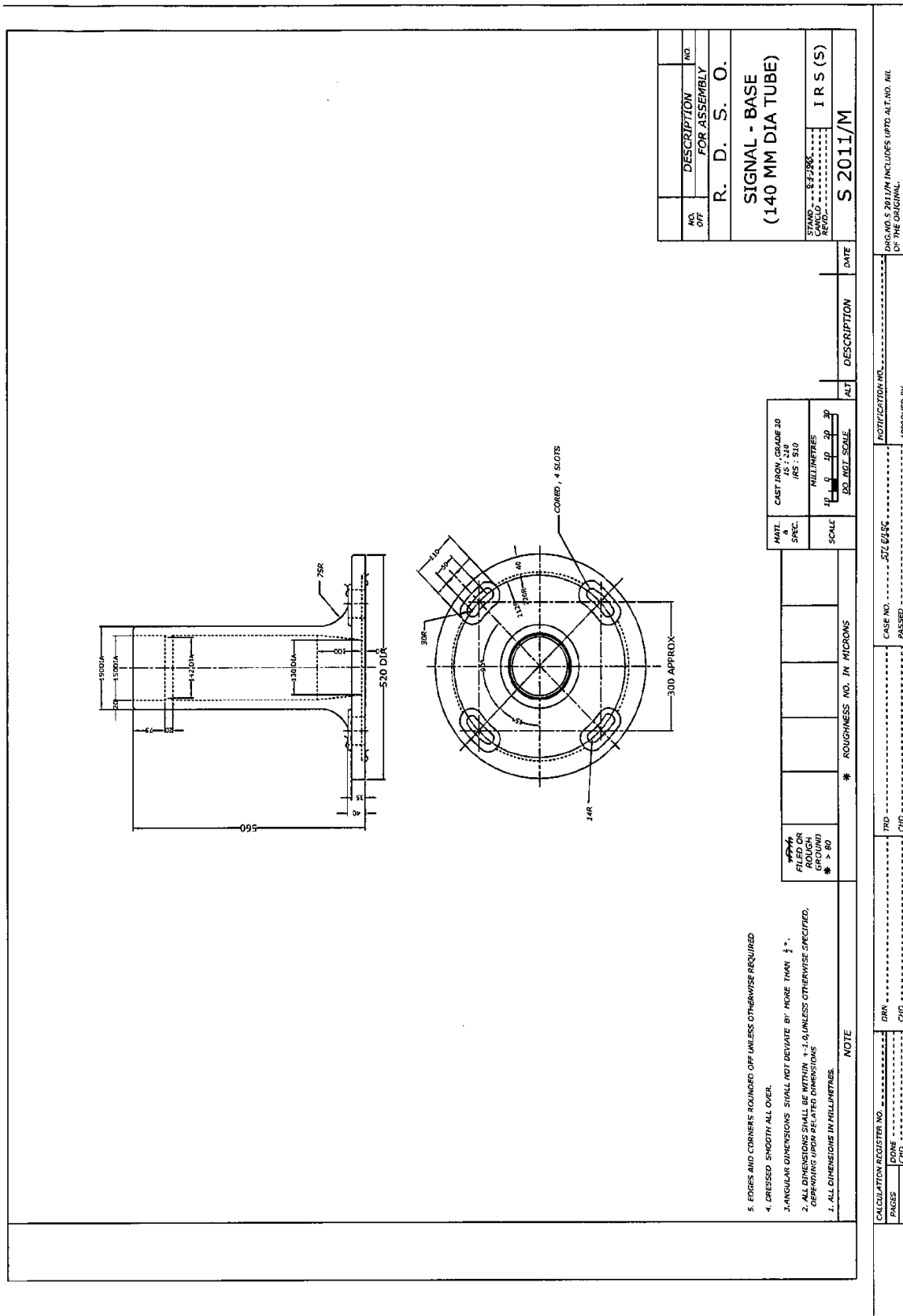


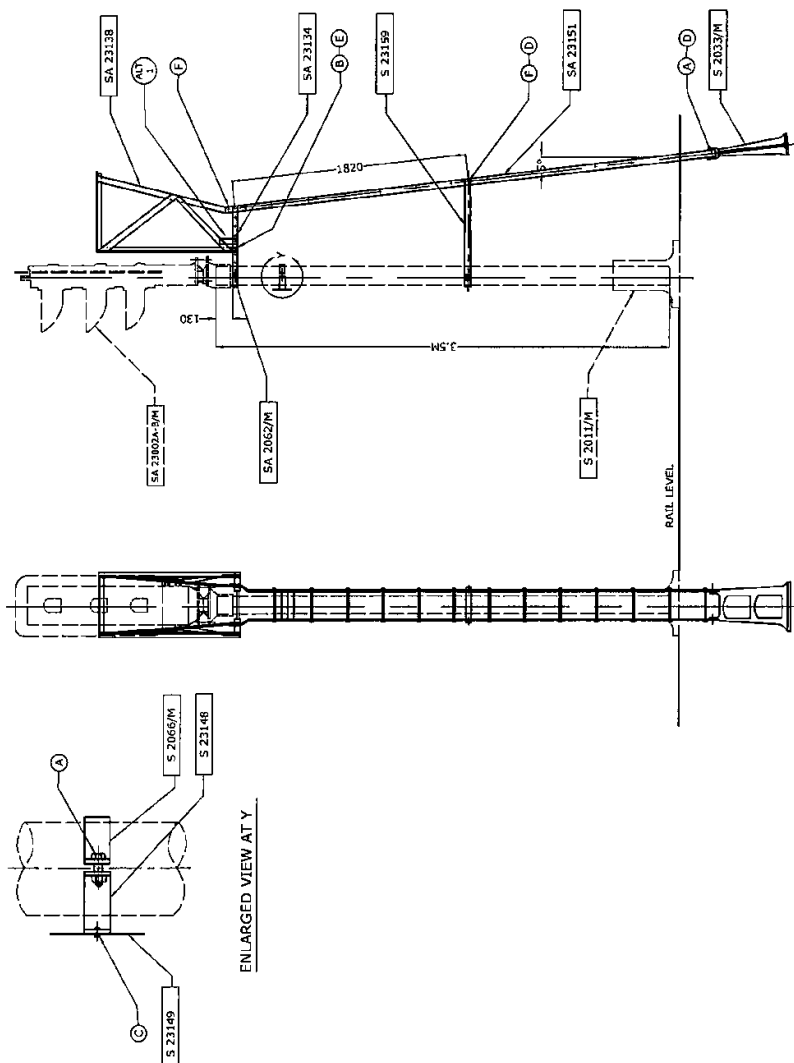
**DRAWING NO. 5**

**DRAWING NO. 6**

**DRAWING NO. 7**

**DRAWING NO. 8**



[illegible]

2. PAINTED ALL OVER EXCEPT ON THE NUMBER PLATE TWO PRIMING COATS, ONE OF ZINC CHROME TO IS:104 FOLLOWED BY ANOTHER OF RED OXIDE TO IS:2074 AND A FINISHING COAT OF DEAD BLACK PAINT TO IS:154.
3. THIS SPECIFICATION IS IN PARTS, EQUIVALENT MEANS SIZE AND SPECULATION SHALL BE DECIDED WITHIN INDUSTRY.
2. PAINTED WITH DEAD BLACK TO IS:1544 WITH A PRIMING COAT OF RED LEAD TO IS:102 ALL OVER EXCEPT ON THE NUMBER PLATE.
1. ALL DIMENSIONS IN MILLIMETRES.

|       |   |                                  |         |
|-------|---|----------------------------------|---------|
| SPEC  | IRS: S10  | PART LIST, VIEW & NOTE           | DATE    |
| SCALE | MILLIMETRES<br>100 0 200 400<br> | 2 AMENDED AND NOTE<br>3 DELETED. | 25.4.75 |
|       |   | ALT DESCRIPTION                  |         |
|       |   | ALT                              |         |

|                                |  |                  |  |                  |  |                 |  |                   |  |
|--------------------------------|--|------------------|--|------------------|--|-----------------|--|-------------------|--|
| CALCULATION REGISTER No. _____ |  | DRAWN BY _____   |  | TRACED BY _____  |  | CASE No. _____  |  | SIZE/ISC _____    |  |
| DONE BY _____                  |  | CHECKED BY _____ |  | CHECKED BY _____ |  | PASSED BY _____ |  | APPROVED BY _____ |  |
| PAGES _____                    |  | CHECKED BY _____ |  | CHECKED BY _____ |  | PASSED BY _____ |  | APPROVED BY _____ |  |

TRACED FROM RISKS (2.6) WITH MATCH VALUES

6 42 13 2 HOLES

|                  |              |           |  |
|------------------|--------------|-----------|--|
| 1                | LADDER 10.5M | SA 2017/M |  |
| 1                | LADDER 9.5M  | SA 2025/M |  |
| 1                | LADDER 8.5M  | SA 2024/M |  |
| 1                | LADDER 7.5M  | SA 2022/M |  |
| 1                | LADDER 6.5M  | SA 2021/M |  |
| 1                | LADDER 6.0M  | SA 2020/M |  |
| No. DESCRIPTION  |              | No.       |  |
| OFF FOR ASSEMBLY |              |           |  |

R. D. S. O.

LADDER FOUNDATION

|                   |          |
|-------------------|----------|
| STANDARD REVISION | REVISION |
| S 2033/M          |          |

5. WEIGHT = 17.3 Kgs. APPROX.

4. TO BE DRESSED SMOOTH ALL OVER.

3. CORNERS TO BE ROUNDED OFF.

2. ALL DIMENSIONS SHALL BE WITHIN  $\pm 0.8$ , UNLESS OTHERWISE SPECIFIED, DEPENDING UPON RELATED DIMENSIONS.

1. ALL DIMENSIONS ARE IN mm.

|                         |      |       |             |      |
|-------------------------|------|-------|-------------|------|
| CM                      | ALT: | SCALE | DESCRIPTION | DATE |
| 2 0 2 4 6 8 10 12 14 16 |      |       |             |      |

STAMP No. 1/243 MICRO FILMED 10/87

IR.S.-S10.

MATERIAL - CAST IRON, GRADE 12.

IS: 210.

|               |                     |                                |
|---------------|---------------------|--------------------------------|
| SPECIFICATION | CASE No. ST/M/ALPST | TRACED BY: <i>[Signature]</i>  |
|               |                     | CHECKED BY: <i>[Signature]</i> |

NOTE

|                               |                              |                                 |
|-------------------------------|------------------------------|---------------------------------|
| CALCULATION REGISTER No. .... | DRAWN BY: <i>[Signature]</i> | APPROVED BY: <i>[Signature]</i> |
| PAGES 1 OF 1                  |                              |                                 |

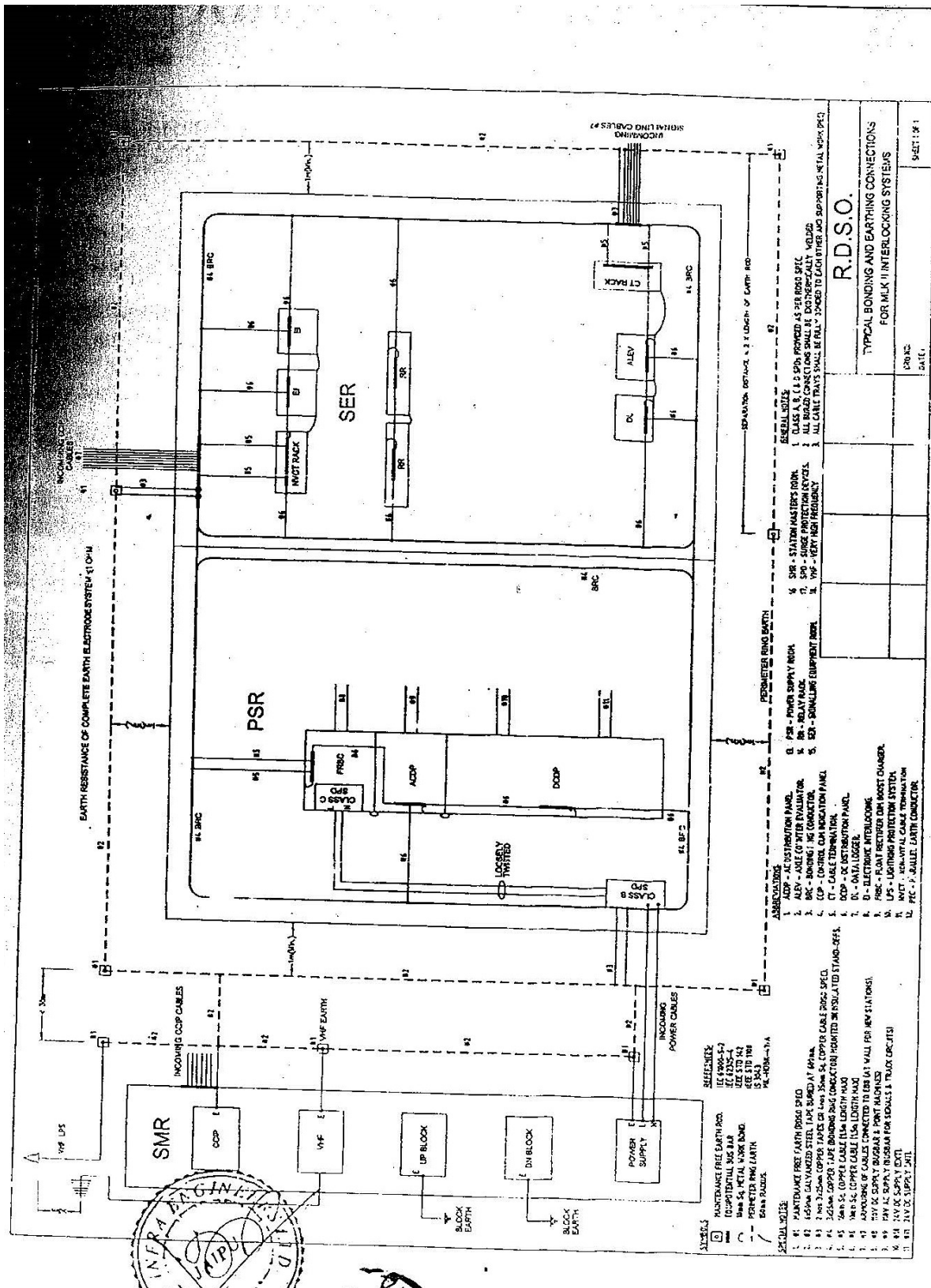
[illegible]



| NO. | DESCRIPTION | UNIT | QTY. | REMARKS |
|-----|-------------|------|------|---------|
| 1   | EARTH WIRE  | M    | 1000 |         |
| 2   | EARTH WIRE  | M    | 1000 |         |
| 3   | EARTH WIRE  | M    | 1000 |         |
| 4   | EARTH WIRE  | M    | 1000 |         |
| 5   | EARTH WIRE  | M    | 1000 |         |
| 6   | EARTH WIRE  | M    | 1000 |         |
| 7   | EARTH WIRE  | M    | 1000 |         |
| 8   | EARTH WIRE  | M    | 1000 |         |
| 9   | EARTH WIRE  | M    | 1000 |         |
| 10  | EARTH WIRE  | M    | 1000 |         |
| 11  | EARTH WIRE  | M    | 1000 |         |
| 12  | EARTH WIRE  | M    | 1000 |         |
| 13  | EARTH WIRE  | M    | 1000 |         |
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| 48  | EARTH WIRE  | M    | 1000 |         |
| 49  | EARTH WIRE  | M    | 1000 |         |
| 50  | EARTH WIRE  | M    | 1000 |         |
| 51  | EARTH WIRE  | M    | 1000 |         |
| 52  | EARTH WIRE  | M    | 1000 |         |
| 53  | EARTH WIRE  | M    | 1000 |         |
| 54  | EARTH WIRE  | M    | 1000 |         |
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| 56  | EARTH WIRE  | M    | 1000 |         |
| 57  | EARTH WIRE  | M    | 1000 |         |
| 58  | EARTH WIRE  | M    | 1000 |         |
| 59  | EARTH WIRE  | M    | 1000 |         |
| 60  | EARTH WIRE  | M    | 1000 |         |
| 61  | EARTH WIRE  | M    | 1000 |         |
| 62  | EARTH WIRE  | M    | 1000 |         |
| 63  | EARTH WIRE  | M    | 1000 |         |
| 64  | EARTH WIRE  | M    | 1000 |         |
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| 69  | EARTH WIRE  | M    | 1000 |         |
| 70  | EARTH WIRE  | M    | 1000 |         |
| 71  | EARTH WIRE  | M    | 1000 |         |
| 72  | EARTH WIRE  | M    | 1000 |         |
| 73  | EARTH WIRE  | M    | 1000 |         |
| 74  | EARTH WIRE  | M    | 1000 |         |
| 75  | EARTH WIRE  | M    | 1000 |         |
| 76  | EARTH WIRE  | M    | 1000 |         |
| 77  | EARTH WIRE  | M    | 1000 |         |
| 78  | EARTH WIRE  | M    | 1000 |         |
| 79  | EARTH WIRE  | M    | 1000 |         |
| 80  | EARTH WIRE  | M    | 1000 |         |
| 81  | EARTH WIRE  | M    | 1000 |         |
| 82  | EARTH WIRE  | M    | 1000 |         |
| 83  | EARTH WIRE  | M    | 1000 | </      |



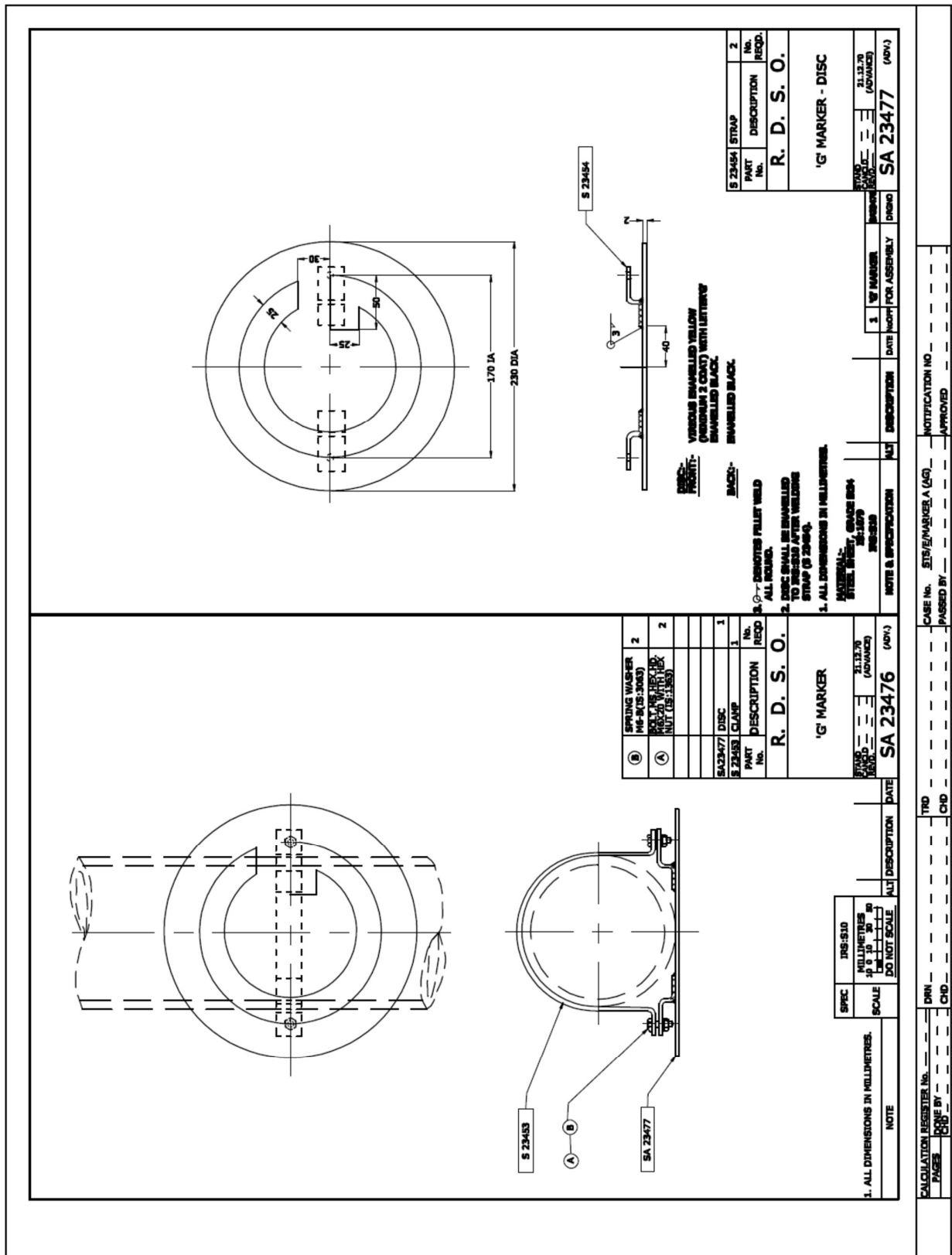
**DRAWING NO. 13**



[illegible]

| CALCULATION REGISTER No. _____   |  | CASE No. - S15/E/MARKER X-1  |  | NOTIFICATION No. _____   |  |
|--|--|--|--|--|--|
| PAGE _____   |  | TND _____  |  | APPROVED _____   |  |
| DONE BY: _____   |  | TND _____  |  | APPROVED _____   |  |
| CHKD _____   |  | CHKD _____   |  | APPROVED _____   |  |
|  |  |  |  |  |  |
| <p><b>FRONT:-</b> VITREOUS ENAMELLED WHITE<br/>(MINIMUM 2 COATS) WITH LETTERS 'P'<br/>ENAMELLED BLACK.</p> <p><b>BACK:-</b> ENAMELLED BLACK.</p> |  | <p><b>FRONT:-</b> VITREOUS ENAMELLED WHITE<br/>(MINIMUM 2 COATS) WITH LETTERS 'P'<br/>ENAMELLED BLACK.</p> <p><b>BACK:-</b> ENAMELLED BLACK.</p> |  | <p><b>FRONT:-</b> VITREOUS ENAMELLED WHITE<br/>(MINIMUM 2 COATS) WITH LETTERS 'P'<br/>ENAMELLED BLACK.</p> <p><b>BACK:-</b> ENAMELLED BLACK.</p> |  |
| <p><b>SA 23455 (ADV)</b></p> <p><b>'P' MARKER</b><br/>(NON-ILLUMINATED)</p> <p><b>R. D. S. O.</b></p>  |  | <p><b>SA 23455 (ADV)</b></p> <p><b>'P' MARKER</b><br/>(NON-ILLUMINATED)</p> <p><b>R. D. S. O.</b></p>  |  | <p><b>SA 23455 (ADV)</b></p> <p><b>'P' MARKER</b><br/>(NON-ILLUMINATED)</p> <p><b>R. D. S. O.</b></p>  |  |
| <p><b>ITEM NO.</b> 1</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  | <p><b>ITEM NO.</b> 2</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  | <p><b>ITEM NO.</b> 3</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  |
| <p><b>ITEM NO.</b> 4</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  | <p><b>ITEM NO.</b> 5</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  | <p><b>ITEM NO.</b> 6</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  |
| <p><b>ITEM NO.</b> 7</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  | <p><b>ITEM NO.</b> 8</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  | <p><b>ITEM NO.</b> 9</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>  |  |
| <p><b>ITEM NO.</b> 10</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 11</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 12</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 13</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 14</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 15</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 16</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 17</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 18</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 19</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 20</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 21</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 22</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 23</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 24</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 25</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 26</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 27</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 28</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 29</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 30</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 31</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 32</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 33</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 34</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 35</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 36</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 37</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 38</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 39</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 40</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 41</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 42</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 43</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 44</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  | <p><b>ITEM NO.</b> 45</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b> 1</p>   |  |
| <p><b>ITEM NO.</b> 46</p> <p><b>DESCRIPTION</b> 'P' MARKER</p> <p><b>QTY</b></p>   |  |  |  |  |  |

**DRAWING NO. 16**

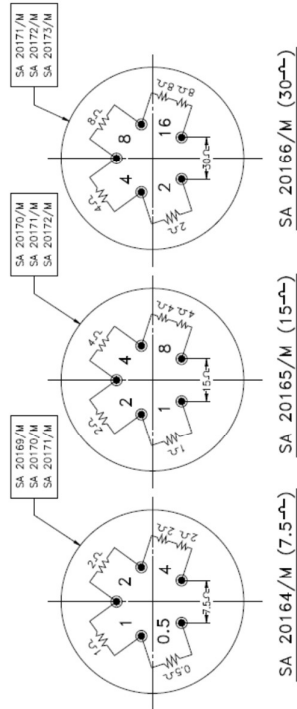
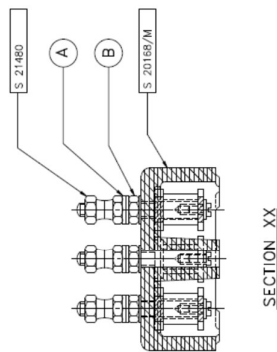




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| DRG NO     | DESCRIPTION   | RESISTANCE |
|------------|---|------------|
| SA 20164/M | TRACK FEED RESISTANCE (WITH PHENOLIC MouldING BASE) | 7.5 $\mu$  |
| SA 20165/M | TRACK FEED RESISTANCE (WITH PHENOLIC MouldING BASE) | 15 $\mu$   |
| SA 20166/M | TRACK FEED RESISTANCE (WITH PHENOLIC MouldING BASE) | 30 $\mu$   |



|     | PART NO                                  | DESCRIPTION | R       | D  | S  |
|-----|--|-------------|---------|----|----|
| (B) | LOOK NUT(BRASS)HEX.<br>M5 (IS-2989)      |             | 5       | 5  | 5  |
| (A) | WASHER (MACHINED)<br>BRASS, M5 (IS-2016) |             | 15      | 15 | 15 |
|     | S 21480 BINDING NUT                      |             | 10      | 10 | 10 |
|     | SAC0717/M RESISTANCE UNIT (8.0A3)        |             | -       | 3  | 3  |
|     | SAC0717/M RESISTANCE UNIT (4.0A3)        |             | -       | 3  | 1  |
|     | SAC0717/M RESISTANCE UNIT (2.0A3)        |             | 3       | 1  | 1  |
|     | SAC0717/M RESISTANCE UNIT (1.0A3)        |             | 1       | -  | -  |
|     | SAC0717/M RESISTANCE UNIT (0.5A3)        |             | 1       | -  | -  |
|     | S 2067/M INSULATING BASE                 |             | 1       | -  | -  |
|     | TOTAL PARTS REQUIRED FOR THE JOB         |             |         |    |    |
|     |  |             | NO REQD |    |    |

|                       |                   |  |
|-----------------------|-------------------|--|
| SA 20164/M-66/M (ADV) | 25-1-68 (ADVANCE) | TRACK FEED RESISTANCE<br>(WITH PHENOLIC MOULDING BASE) |
|-----------------------|-------------------|--|

5. WARE THE TRACK FEED RESISTANCE UNIT IS SUPPORTED ON A METALLIC FRAME AN INSULATING PLATE AT LEAST 1/8" THICK SHALL BE INSERTED BETWEEN THE TRACK FEED RESISTANCE BASE AND THE METALLIC FRAME.
6. FOR CHECKING COMPLIANCE WITH THE REQUIREMENTS OF CLAUSE 8.6 OF IRS 5-23, THE TRACK FEED RESISTANCE UNIT SHALL BE PASSED THROUGH IT CURRENT PASSING THROUGH IT WHEN A VOLTAGE OF 2.5V IS APPLIED ACROSS ITS TERMINALS.
7. THE CONNECTIONS OF THE RESISTANCE UNITS TO FORM ONE COMPLETE TRACK FEED RESISTANCE SHALL BE MADE BY SOLDERING.
8. WASHER & LOCK NUT (A) & (B) RESPECTIVELY SHALL BE NICKEL PLATED TO 4C, (C) OF BS1224. ALL DIMENSIONS IN MILLIMETRES.

**NOTE**

|                                |            |           |                  |                        |   |
|--------------------------------|------------|-----------|------------------|------------------------|---|
| CALCULATION REGISTER No. _____ |            | TRN _____ | STG/EM/TER _____ | NOTIFICATION No. _____ | DRG No. SA 20164/M-66/M INCLUDES UPTO ACTNO 1 OF THE ORIGINAL |
| PAGES _____                    | DONE _____ | CHL _____ | PASSEL _____     | APPROVED _____         |   |
| CHD _____                      | CHD _____  | CHD _____ | CHD _____        | CHD _____              |   |

[illegible]

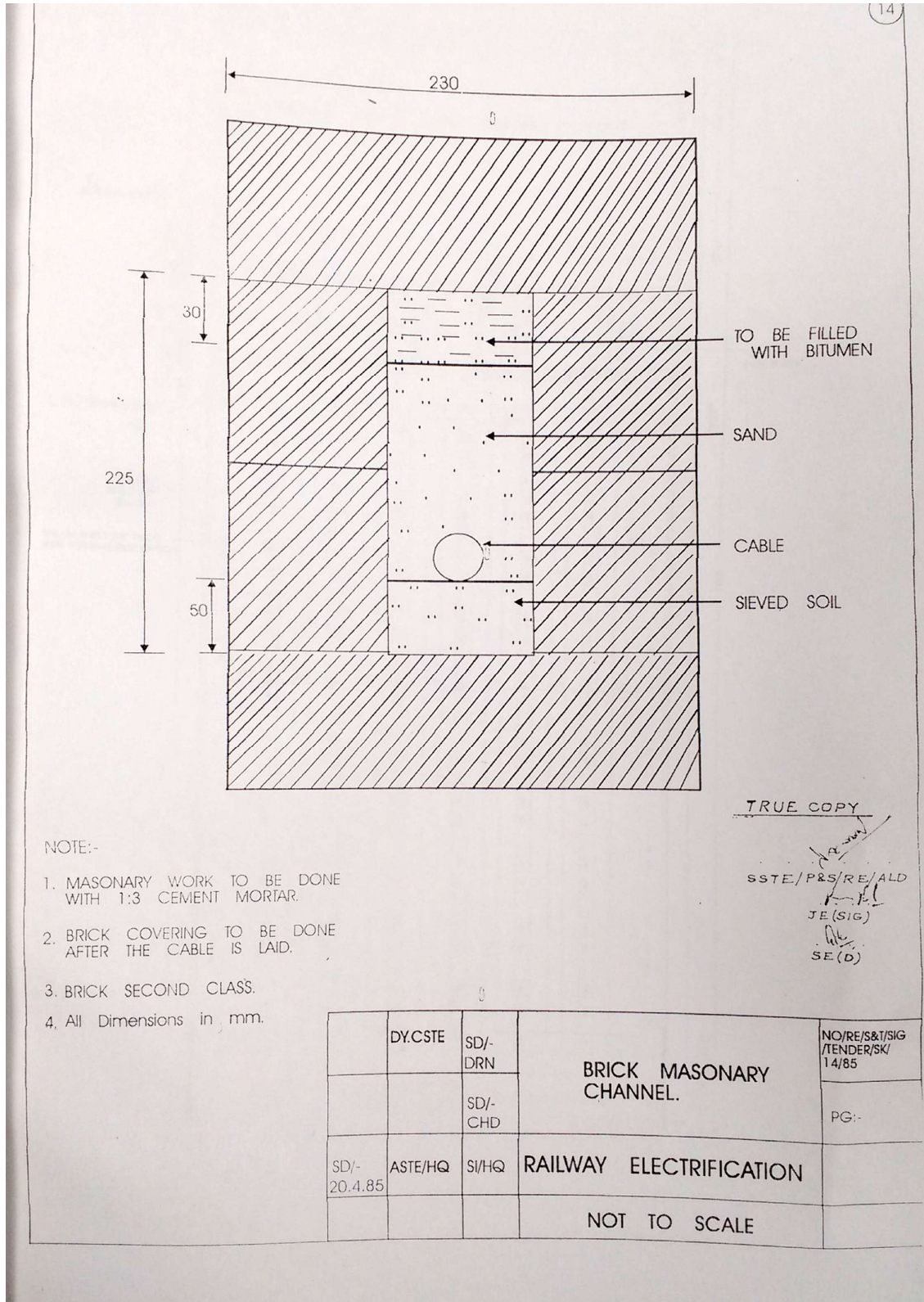
## A

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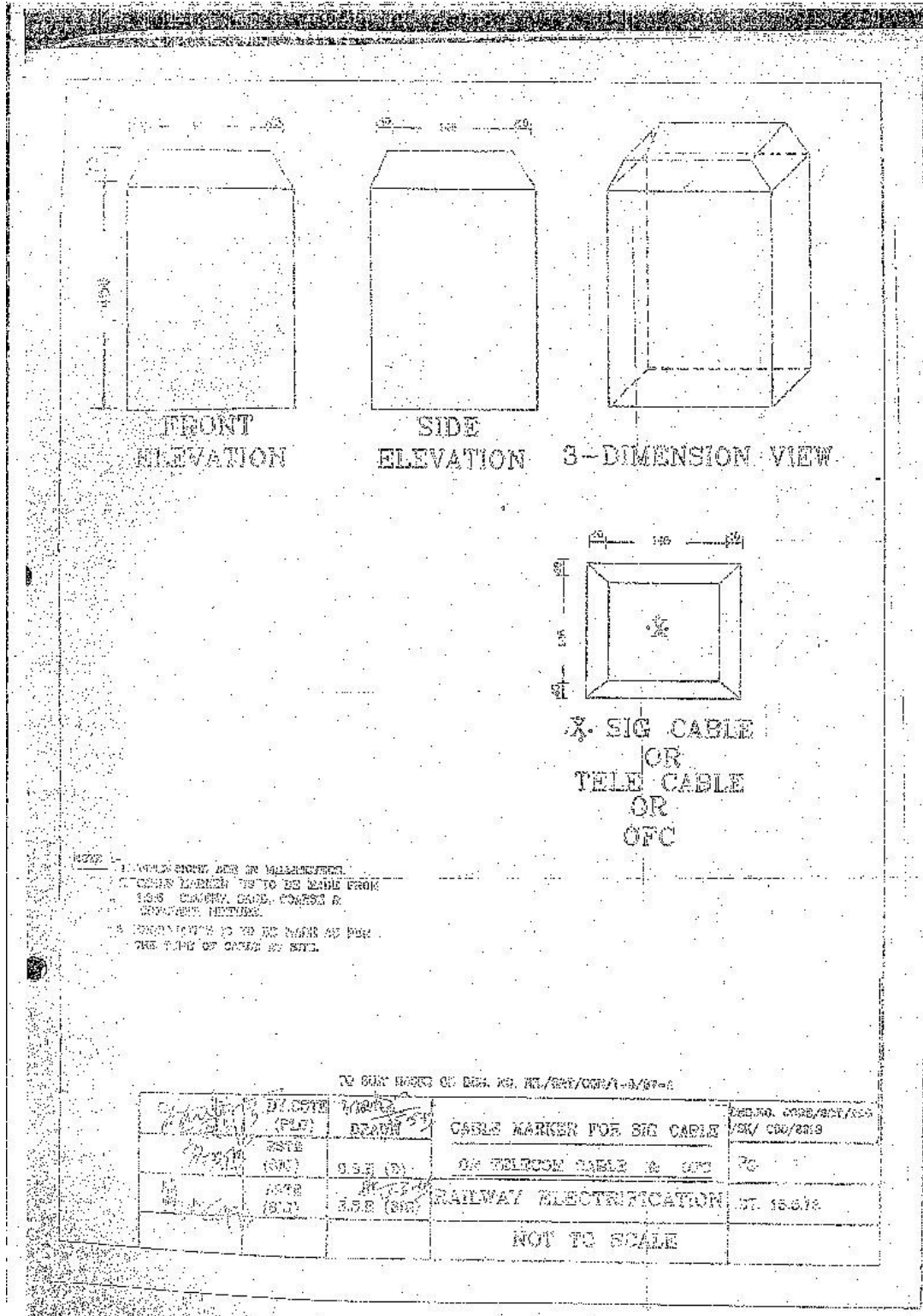


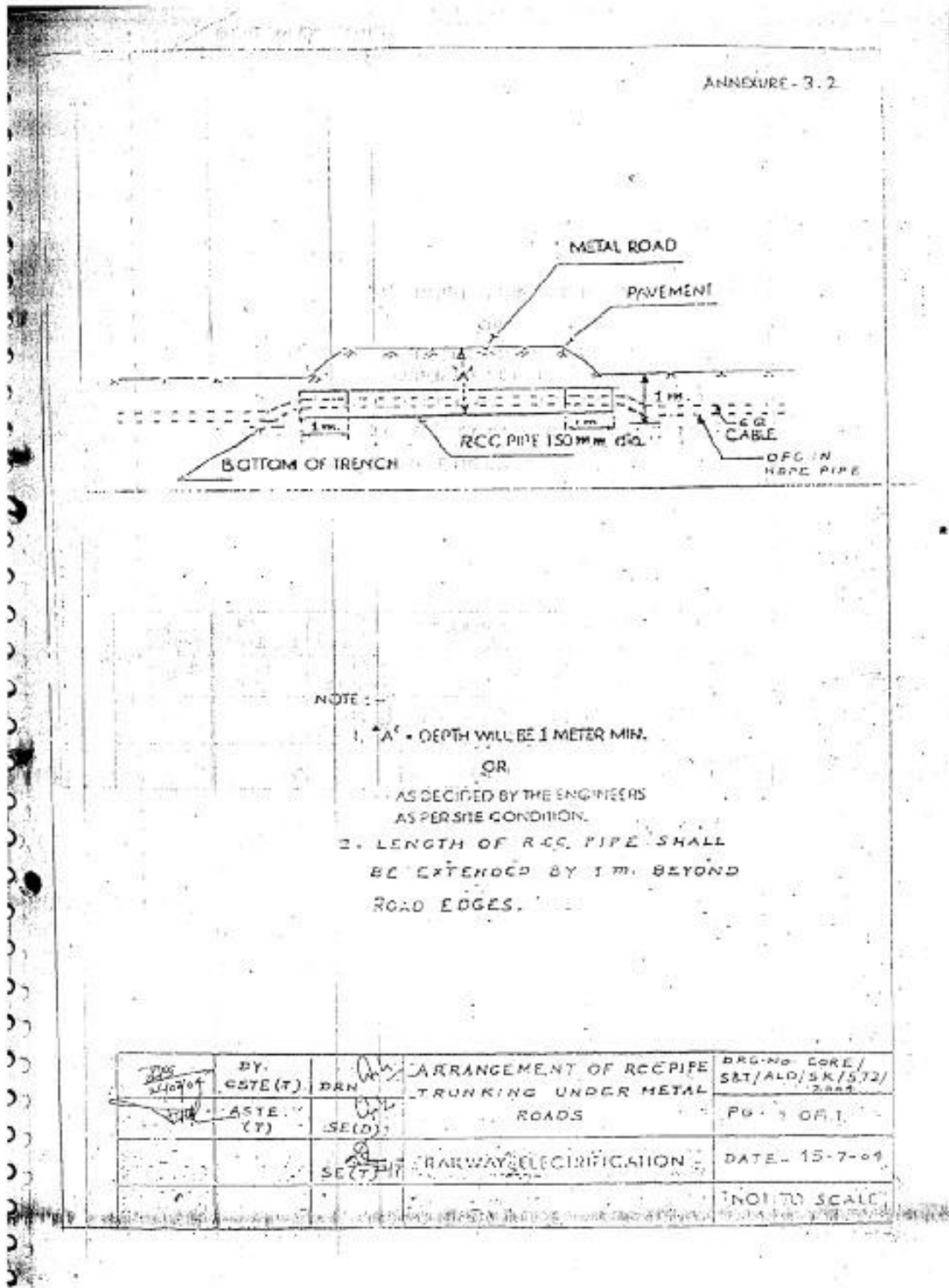
57



**DRAWING NO. 22**



**DRAWING NO. 23**

**DRAWING NO. 24**

**DRAWING NO. 25 (IPS DRAWING FOR Station)**

**Attached as separate files.**

**DRAWING NO. 26 (SIP of Stations)**

**The SIPs are attached as separate files.**