



A Maharatna Company

एन टी पी सी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

(Formerly National Thermal Power Corporation Ltd.)

(केंद्रीय कार्यालय नोएडा)

Corporate Center NOIDA

Reference : CC-ENGG-9587-001-104-QVM-Q-091

Date : 19/08/2024

From : RAMESH CHANDRA SHIAL  
ENGINEER

To : BHARAT HEAVY ELECTRICALS LTD  
NEW DELHI  
110049  
IN

Cc : sudipt@bhel.in  
dipakbag@bhel.in

Subject : EPC Package

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PP-QBE-2401-HD-QA-204

Orgn. Drg. No. : 9587-001-104-QVM-Q-091

Revision No. : 00

Drg. Title : Filed Quality Plan FOR ESP MECHANICAL ERECTION

App. Category : CAT-III

Release Date : 19/08/2024



Scan to verify

Comments : Cat III. Please submit the copy of ESP erection manual for review of this doc.



Engineering Division  
ISO 9001:2008 Certified



अभियंत्रिकी कार्यालय परिसर, प्लॉट नं.- ए 8ए, सेक्टर-24, पोस्ट बॉक्स नं.- 13, नोएडा (उ.प्र.) पिन-201 307

टेलिफोन नं.- 0120-2410333, 2410116 फैक्स-0120-2410136, 2410137

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Ramesh

# इलेक्ट्रो स्टैटिक प्रीसिपिटेटर (यांत्रिक) निर्माण के लिए गुणवत्ता योजना



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## FIELD QUALITY PLAN FOR ELECTRO STATIC PRECIPITATOR (MECH)



A Maharatna Company

एनटीपीसी - लारा सुपर थर्मल पावर प्रोजेक्ट  
चरण-II (2x800 MW)

NTPC-LARA SUPER THERMAL POWER PROJECT  
STAGE-II (2x800 MW)

एनटीपीसी दस्तावेज संख्या / NTPC DOC. NO. : **9587-001-104-QVM-Q-091**  
संशोधन संख्या / REV. No: **00**



**भारत हेवी इलेक्ट्रिकल्स लिमिटेड**

पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता – 700091

**BHARAT HEAVY ELECTRICALS LIMITED**  
POWER SECTOR - EASTERN REGION, KOLKATA – 700091

दस्तावेज संख्या / BHEL DOC. NO. : PP-QBE-2401-HD-QA-204  
संशोधन संख्या / REV. No: 00



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# FIELD QUALITY PLAN FOR ELECTRO STATIC PRECIPITATOR (MECH)

एनटीपीसी दस्तावेज संख्या / NTPC DOC. NO. : **9587-001-104-QVM-Q-091**  
संशोधन संख्या / REVISION NO.: **00**

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|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| द्वारा तैयार<br>PREPARED<br>BY                                          |  Digitally signed by ARUP RATAN PAUL<br>DN: cn=IN, o=BHARAT HEAVY ELECTRICALS<br>LIMITED, ou=GOVERNMENT,<br>2.5.4.20=b6355c0e40c2ad6dbdc8bf4ead5f7<br>c91a7d353fa88668896b74b6a564865593,<br>postalCode=700091, st=WEST BENGAL,<br>serialNumber=1.2bC.28A46BFBF320E7D5EC1<br>FB872DAD924754DAA0E46680985AE7403E<br>3ABF0AE, cn=ARUP RATAN PAUL<br>Date: 2024.08.09 17:54:54 +05'30' | द्वारा अनुमोदित<br>APPROVED BY              |  Digitally signed by SNEHASIS MANDOL<br>DN: cn=IN, o=Bharat Heavy Electricals Limited,<br>ou=HES, postalCode=700091, st=West Bengal,<br>2.5.4.20=b6355c0e40c2ad6dbdc8bf4ead5f7<br>c91a7d353fa88668896b74b6a564865593,<br>postalCode=700091, st=WEST BENGAL,<br>serialNumber=1.2bC.28A46BFBF320E7D5EC1<br>FB872DAD924754DAA0E46680985AE7403E<br>3ABF0AE, cn=SNEHASIS MANDOL<br>Date: 2024.08.09 17:58:00 +05'30' |
| एफक्यूपी संख्या / FQP NO.                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PP-QBE-2401-HD-QA-204                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| जारी करने की मूल तिथि / DATE OF FIRST<br>ISSUE                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 06/08/2024                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| संशोधन संख्या और तारीख / REV. N <sup>o</sup> & DATE                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rev. N <sup>o</sup> : 00, Date : 06/08/2024 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| कॉपी नंबर / COPY NO.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 01                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| को जारी / ISSUED TO                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| जारी करने की तिथि / DATE OF ISSUE                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| उद्देश्य / PURPOSE                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| द्वारा जारी (हस्ताक्षर और पदनाम)<br>ISSUED BY (SIGNATURE & DESIGNATION) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



**भारत हेवी इलेक्ट्रिकल्स लिमिटेड**  
पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता - 700091

**BHARAT HEAVY ELECTRICALS LIMITED**  
POWER SECTOR - EASTERN REGION, KOLKATA - 700091

Ramesh

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|  <p>बी.एच.ई.एल.<br/>पा.से.पू.क्षे.<br/>PSER</p> | <p>इलेक्ट्रो स्टेटिक प्रीसिपिटेटर (यांत्रिक)<br/>निर्माण के लिए गुणवत्ता योजना</p> <p>FIELD QUALITY PLAN FOR ELECTRO<br/>STATIC PRECIPITATOR (MECH)</p> | <p>एफक्यूपी संख्या / FQP NO:<br/>PP-QBE-2401-HD-QA-204</p> <p>संशोधन संख्या / REV. No: 00</p> <p>शीट / SHEET : 01 / 01</p> |  <p>Scan QR code for<br/>checking the latest<br/>revision</p> |
| <p align="center"><b>विषय-सूची / CONTENTS</b></p>                                                                                |                                                                                                                                                         |                                                                                                                            |                                                                                                                                                  |
| <p><u>क्रम संख्या</u><br/><u>S. No.</u></p>                                                                                      | <p><u>विवरण</u><br/><u>Description</u></p>                                                                                                              | <p><u>शीट की संख्या</u><br/><u>No. of Sheets</u></p>                                                                       |                                                                                                                                                  |
| 1.0                                                                                                                              | <p>संशोधन स्थिति<br/>Status of Revisions</p>                                                                                                            | 01                                                                                                                         |                                                                                                                                                  |
| 2.0                                                                                                                              | <p>जाँच और नॉनकन्फॉर्मिटी समाधान के लिए प्राधिकार<br/>Authorization for checks and nonconformity disposition</p>                                        | 01                                                                                                                         |                                                                                                                                                  |
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| 4.0                                                                                                                              | <p>गुणवत्ता योजना में संदर्भित दस्तावेज<br/>Documents referred in QP</p>                                                                                | 01                                                                                                                         |                                                                                                                                                  |
| 5.0                                                                                                                              | <p>लॉग शीट्स<br/>Log Sheets (L-00 to L-04)</p>                                                                                                          | 07                                                                                                                         |                                                                                                                                                  |
| 6.0                                                                                                                              | <p>प्रोटोकॉल प्रारूप<br/>Protocol Format</p>                                                                                                            | 01                                                                                                                         |                                                                                                                                                  |

Ramesh

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| <br>बी एच ई एल<br>पा.से.पू.क्षे.<br>PSER | इलेक्ट्रो स्टैटिक प्रीसिपिटेटर (यांत्रिक)<br>निर्माण के लिए गुणवत्ता योजना<br>FIELD QUALITY PLAN FOR ELECTRO<br>STATIC PRECIPITATOR (MECH) | एफक्यूपी संख्या / FQP NO:<br><b>PP-QBE-2401-HD-QA-204</b> | <br>Scan QR code for<br>checking the latest<br>revision |
|                                                                                                                           |                                                                                                                                            | संशोधन संख्या / REV. No: 00                               |                                                                                                                                            |
|                                                                                                                           |                                                                                                                                            | शीट / SHEET : 01 / 01                                     |                                                                                                                                            |
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| क्रम संख्या<br>SL. NO.                                                                                                    | संशोधित शीट का संदर्भ<br>REFERENCE OF SHEETS<br>REVISED                                                                                    | संशोधन संख्या और तारीख<br>REVISION NO. & DATE             | टिप्पणियाँ<br>REMARKS                                                                                                                      |
| 01                                                                                                                        | All                                                                                                                                        | 00, 06/08/2024                                            | Document prepared in line with NTPC Technical Specifications.                                                                              |

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| <br>पा:से:पू:क्षे:<br><b>PSER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>इलेक्ट्रो स्टेटिक प्रीसिपिटेटर (यांत्रिक)<br/>निर्माण के लिए गुणवत्ता योजना</b><br><b>FIELD QUALITY PLAN FOR ELECTRO<br/>STATIC PRECIPITATOR (MECH)</b> | एफक्यूपी संख्या / FQP NO:<br><b>PP-QBE-2401-HD-QA-204</b><br>संशोधन संख्या / REV. No: 00<br>शीट / SHEET : 01 / 01 | <br>Scan QR code for<br>checking the latest<br>revision |
| <b>जाँच और नॉनकन्फॉर्मिटी समाधान के लिए प्राधिकार</b><br><b>AUTHORISATION FOR DIFFERENT CATEGORIES OF CHECKS &amp; NONCONFORMITY DISPOSITION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                            |                                                                                                                   |                                                                                                                                            |
| <b>जाँच की श्रेणी</b><br>Category of<br>Check                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>निरीक्षण प्राधिकारी</b><br>Inspection Authority                                                                                                         | <b>साक्षी तथा स्वीकृति प्राधिकारी</b><br>Witness & Accepting<br>Authority                                         | <b>एनटीपीसी द्वारा निगरानी</b><br>Surveillance by NTPC                                                                                     |
| <b>'A' (CHP)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BHEL FQA Engineer in<br>association with<br>Executing Engineer.                                                                                            | NTPC FQA Engineer in<br>association with<br>Executing Engineer.                                                   | Head FQA/ NTPC                                                                                                                             |
| <b>'B' (CHP)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BHEL Executing<br>Engineer.                                                                                                                                | NTPC Executing Engineer.                                                                                          | FQA Engineer                                                                                                                               |
| <b>'C'</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | BHEL Executing<br>Engineer.                                                                                                                                | NTPC Executing Engineer.                                                                                          | Another Engineer<br>authorised by Head<br>(Executing Department)                                                                           |
| <b>लेख / Legend:</b><br>Class A : Critical, Class B : Major, Class C : Minor.<br>SR - Site Register, TR- Test Report, LB-Log Book, IR - Inspection Report, MTC - Manufacturer's<br>Test Certificate.<br><b>टिप्पणियाँ / Notes :</b> <ol style="list-style-type: none"> <li>गुणवत्ता योजना में किसी भी गैर-अनुरूपता/विचलन को एनटीपीसी के ध्यान में लाया जाना चाहिए। एनटीपीसी एफएक्यू सिस्टम मैनुअल के अनुसार निपटान प्राधिकारी एनटीपीसी का अधिकृत प्रतिनिधि होगा।<br/>Any non-conformity/ deviation to the Quality plan must be brought to notice of NTPC/Owner. Dispositioning authority shall be the authorised representative of NTPC/Owner as per NTPC FQA system manual.</li> <li>सभी विशेषताओं के लिए जाँच की मात्रा 100% होगी जब तक कि निर्माण क्षेत्र गुणवत्ता योजना/ संदर्भ दस्तावेजों में अन्यथा उल्लेख न किया गया हो।<br/>Quantum of check shall be 100% for all characteristics unless otherwise mentioned in Field Quality Plan/ reference documents.</li> <li>ग्राहक अपने निर्णय से किसी भी 'सी' श्रेणी की जाँच में निगरानी करने के लिए भी अधिकृत है।<br/>Customer is also authorized to carry out surveillance in any of 'C' category of checks at his discretion.</li> <li>सुरक्षित पहुंच सुनिश्चित की जाएगी और केवल उचित सुरक्षा गियर वाले अधिकृत व्यक्ति को ही निर्माण क्षेत्र में प्रवेश करने की अनुमति दी जाएगी।<br/>Safe access shall be ensured and only the authorized persons with proper safety gears to be allowed in construction area.</li> </ol> |                                                                                                                                                            |                                                                                                                   |                                                                                                                                            |

Ramesh

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| <br>पा.से.पू.क्षे.<br><b>PSER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>इलेक्ट्रो स्टेटिक प्रीसिपिटेटर (यांत्रिक)<br/>निर्माण के लिए गुणवत्ता योजना</b><br><b>FIELD QUALITY PLAN FOR ELECTRO<br/>STATIC PRECIPITATOR (MECH)</b> | एफक्यूपी संख्या / FQP NO:<br><b>PP-QBE-2401-HD-QA-204</b><br>संशोधन संख्या / REV. No: 00<br>शीट / SHEET : 01 / 06 | <br>Scan QR code for<br>checking the latest<br>revision |
| <b>जाँच का विवरण / STATEMENT OF CHECKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                            |                                                                                                                   |                                                                                                                                            |
| क्षमता / प्रकार<br>Capacity / Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | : 800MW                                                                                                                                                    |                                                                                                                   |                                                                                                                                            |
| सिस्टम<br>System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | : Steam Generator & Auxiliaries                                                                                                                            |                                                                                                                   |                                                                                                                                            |
| सब-सिस्टम<br>Sub-system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | : Electro Static Precipitator                                                                                                                              |                                                                                                                   |                                                                                                                                            |
| क्षेत्र<br>Area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | : Mechanical Erection                                                                                                                                      |                                                                                                                   |                                                                                                                                            |
| <b>इस्तेमाल किए गए संक्षिप्ताक्षर / ABBREVIATIONS USED:</b><br>R – रिकॉर्ड सत्यापन / Record Verification, V – विसूअल जांच / Visual Check, P – फिजीकल जांच / Physical Check, M – माप / Measurement, T – परीक्षण / Test, MTC – निर्माता परीक्षण प्रमाणपत्र / Manufacturers Test Certificate, SR – साइट रजिस्टर / Site Register, MDR – सामग्री असंगति रिपोर्ट / Material Discrepancy Report<br><b>टिप्पणियाँ / NOTES :</b><br>1. कार्य को संतोषजनक ढंग से करने के प्रमाण के रूप में, सभी जांचों के लिए एक सामान्य प्रयोजन लॉग शीट, L-00 बनाए रखा जाएगा।<br>As an evidence of having carried out the work satisfactorily, a general-purpose log sheet, L-00 shall be maintained for all the checks.<br>2. गैर-अनुरूपता के मामले में, स्वीकार करने वाला प्राधिकारी स्वीकृति से पहले गैर-अनुरूपता का निपटान सुनिश्चित करेगा, और निपटान लॉग-शीट/प्रोटोकॉल में प्रतिबिंबित किया जाएगा।<br>In case of nonconformity, accepting authority shall ensure the disposition of the nonconformity before acceptance and disposition shall be reflected in the log-sheets/ protocols.<br>3. मानकों, विशिष्टता और ड्राइंग का नवीनतम संशोधन लागू होगा।<br>Latest revision of Standards, Specification & Drawings shall apply.<br>4. माप के लिए केवल एनटीपीसी-स्वीकृत और एनएबीएल मान्यता प्राप्त प्रयोगशाला से वैध अंशांकन प्रमाणपत्र वाले गेज और माप उपकरणों का उपयोग किया जाएगा।<br>Only the Gauges and Measuring Instruments having valid calibration from a NTPC-accepted and NABL accredited laboratory shall be used.<br>5. कॉलम संख्या 'D*' में "टिक" (✓) चिह्न के साथ पहचाने गए रिकॉर्ड का प्रारूप अनिवार्य रूप से क्यूए दस्तावेजीकरण में शामिल किया जाएगा।<br>Format of record identified with "tick" (✓) mark in column no. 'D*' shall be essentially included in QA documentation. |                                                                                                                                                            |                                                                                                                   |                                                                                                                                            |

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| FIELD QUALITY PLAN                                                                                                                                                                                                                          |                                                                                                                                                                                                                |                                          |                                                                                                        |                                 |                                                                                                               |                                                                                   |                                                                                                          |                                             |         |                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------|---------|------------------------------------------------------------------------------------------------------------|
| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                                  |                                                                                                                                                                                                                | SYSTEM : Steam Generator & Auxiliaries   |                                                                                                        | QP NO. : PP-QBE-2401-UHN-QA-104 |                                                                                                               | PROJECT:                                                                          |                                                                                                          | NTPC -LARA stage-II 2x800 MW                |         |                                                                                                            |
|  <b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b><br><b>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता</b><br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br><b>PS:ER, KOLKATA</b> |                                                                                                                                                                                                                | SUB-SYSTEM : Electro Static Precipitator |                                                                                                        | REV. No: 00                     |                                                                                                               | PACKAGE:                                                                          |                                                                                                          | EPC                                         |         |                                                                                                            |
|                                                                                                                                                                                                                                             |                                                                                                                                                                                                                |                                          |                                                                                                        | DATE : 06/08/2024               |                                                                                                               | CONTRACT NO.                                                                      |                                                                                                          | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |         |                                                                                                            |
|                                                                                                                                                                                                                                             |                                                                                                                                                                                                                | AREA : Mechanical Erection               |                                                                                                        | PAGE :2 of 13                   |                                                                                                               | MAIN CONTRACTOR                                                                   |                                                                                                          | BHEL, PS:ER, KOLKATA                        |         |                                                                                                            |
| Sl. No                                                                                                                                                                                                                                      | Activity and operation                                                                                                                                                                                         | Type of Check                            | Characteristics / instruments                                                                          | Class of check                  | Quantum of check                                                                                              | Reference Document                                                                | Acceptance Norms                                                                                         | Format of Record                            | Remarks |                                                                                                            |
| 1                                                                                                                                                                                                                                           | 2                                                                                                                                                                                                              | 3                                        | 4                                                                                                      | 5                               | 6                                                                                                             | 7                                                                                 | 8                                                                                                        | 9                                           | D*      |                                                                                                            |
| 1                                                                                                                                                                                                                                           | <b>GENERAL REQUIREMENTS</b>                                                                                                                                                                                    |                                          |                                                                                                        |                                 |                                                                                                               |                                                                                   |                                                                                                          |                                             |         |                                                                                                            |
| 1.01                                                                                                                                                                                                                                        | Ensure availability of requisite equipment in good working condition well before commencement of concerned activity.<br>NOTE: Functioning of MMEs in proper working condition to be verified on monthly basis. | P & R                                    | Wherever practical, a label shall be affixed on the Instrument, indicating the validity of Calibration | A                               | All MMEs in the field shall be calibrated before start of work and thereof yearly OR immediately after repair | Technical Specifications & Drawing                                                | The calibration certificate shall specify the fitness of the MMEs within the limit of tolerance for use. | List of equipment / Calibration certificate | √       | Calibration shall be done by NABL accredited & NTPC-approved lab and the report shall be submitted to NTPC |
| 1.02                                                                                                                                                                                                                                        | Ensure availability of approved drawings & procedures, as applicable                                                                                                                                           | R                                        | -                                                                                                      | B                               | 100% for each structure before start of activity                                                              | List of Latest Revision of Approved Drawings and Owner's Technical Specifications |                                                                                                          | -                                           |         |                                                                                                            |
| 2                                                                                                                                                                                                                                           | <b>FOUNDATION CHECKS</b>                                                                                                                                                                                       |                                          |                                                                                                        |                                 |                                                                                                               |                                                                                   |                                                                                                          |                                             |         |                                                                                                            |
| 2.01                                                                                                                                                                                                                                        | Location of foundation pedestals of ESP with reference axes to boiler.                                                                                                                                         | M                                        | Measuring Tape                                                                                         | B                               | 100%                                                                                                          | Drawing / Erection Manual                                                         |                                                                                                          | L-01                                        | √       |                                                                                                            |
| 2.02                                                                                                                                                                                                                                        | Top elevation of foundation pedestals to be ensured as per drawing.                                                                                                                                            | M                                        | Water Level / Dumpy Level / Scale                                                                      | B                               | 100%                                                                                                          | Drawing / Erection Manual                                                         |                                                                                                          | L-01                                        | √       |                                                                                                            |
| 2.03                                                                                                                                                                                                                                        | Spacing between foundation pedestals and its diagonals.                                                                                                                                                        | M                                        | Measuring Tape                                                                                         | B                               | 100%                                                                                                          | Drawing / Erection Manual                                                         |                                                                                                          | L-01                                        | √       |                                                                                                            |
| 2.04                                                                                                                                                                                                                                        | Bolt pitches and its diagonals of individual pedestals. (7X-X80 Foundation Bolt)                                                                                                                               | M                                        | Measuring Tape                                                                                         | B                               | 100%                                                                                                          | Drawing / Erection Manual                                                         |                                                                                                          | L-01                                        | √       |                                                                                                            |
| 3                                                                                                                                                                                                                                           | <b>STRUCTURE</b>                                                                                                                                                                                               |                                          |                                                                                                        |                                 |                                                                                                               |                                                                                   |                                                                                                          |                                             |         |                                                                                                            |
| 3.01                                                                                                                                                                                                                                        | Check Camber and sweep in column pieces before erection.                                                                                                                                                       | M                                        | Piano wire / Tape                                                                                      | B                               | 100%                                                                                                          | Drawing & Erection Manual                                                         |                                                                                                          | SR                                          | √       |                                                                                                            |
| 3.02                                                                                                                                                                                                                                        | Check BOB level, orientation, spacing between columns and its diagonals.                                                                                                                                       | M                                        | Measuring Tape / Water Level                                                                           | B                               | 100%                                                                                                          | Drawing & Erection Manual                                                         |                                                                                                          | L-01                                        | √       | BOB shall be ensured using shim plates as per drawing.                                                     |
| 3.03                                                                                                                                                                                                                                        | Verticality of X81 columns both in X & Y directions.                                                                                                                                                           | M V                                      | Electronic theodolite / Measuring Tape                                                                 | B                               | 100%                                                                                                          | Drawing & Erection Manual                                                         |                                                                                                          | L-02                                        | √       |                                                                                                            |
| 3.04                                                                                                                                                                                                                                        | Ensure completion of bolt tightening of horizontal and diagonal bracings & supporting structures before erecting casing columns.                                                                               | M                                        | Bolt tension calibrator, Torque wrench                                                                 | B                               | Random 10% or 2 no, bolt assy., which ever is larger, in each joint                                           | Drawing, IS 4000                                                                  |                                                                                                          | Joint Protocol                              | √       |                                                                                                            |
| 3.05                                                                                                                                                                                                                                        | Verification of test certificates of grout material and grouting of column bases.                                                                                                                              | V                                        |                                                                                                        | B                               | 100%                                                                                                          | Drawing & Grouting Procedure                                                      |                                                                                                          | SR                                          |         | Cube test of Grout by FQA                                                                                  |
| 3.06                                                                                                                                                                                                                                        | Ensure proper sequence of welding, as applicable                                                                                                                                                               | V                                        | -                                                                                                      | C                               | 100%                                                                                                          | Drawings & WPS                                                                    | Drawings & WPS                                                                                           | SR                                          |         |                                                                                                            |



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## FIELD QUALITY PLAN

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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                          | SYSTEM : Steam Generator & Auxiliaries   |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                  | PROJECT:                                            |                  | NTPC -LARA stage-II 2x800 MW                |         |                                                                                     |
|  भारत हेवी इलेक्ट्रिकल्स लिमिटेड<br>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता<br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br>PS:ER, KOLKATA |                                                                                                                                                                                                                                                                                                                                                                                          | SUB-SYSTEM : Electro Static Precipitator |                               | REV. No: 00                     |                  | PACKAGE:                                            |                  | EPC                                         |         |                                                                                     |
|                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                          |                                          |                               | DATE : 06/08/2024               |                  | CONTRACT NO.                                        |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |         |                                                                                     |
|                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                          | AREA : Mechanical Erection               |                               | PAGE :3 of 13                   |                  | MAIN CONTRACTOR                                     |                  | BHEL, PS:ER, KOLKATA                        |         |                                                                                     |
| Sl. No                                                                                                                                                                                                                 | Activity and operation                                                                                                                                                                                                                                                                                                                                                                   | Type of Check                            | Characteristics / instruments | Class of check                  | Quantum of check | Reference Document                                  | Acceptance Norms | Format of Record                            | Remarks |  |
| 1                                                                                                                                                                                                                      | 2                                                                                                                                                                                                                                                                                                                                                                                        | 3                                        | 4                             | 5                               | 6                | 7                                                   | 8                | 9                                           | D*      |                                                                                     |
| 4                                                                                                                                                                                                                      | 7X-X01 SLIDE SUPPORT BEARINGS                                                                                                                                                                                                                                                                                                                                                            |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                                     |
| 4.01                                                                                                                                                                                                                   | Ensure location and orientation of sliding supports w.r.t. fixed foot.<br>NOTE: Ensure that support bearings are erected in locked condition and to be released before admitting flue gas into ESP.                                                                                                                                                                                      | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual                           | L-03             | √                                           |         |                                                                                     |
| 4.02                                                                                                                                                                                                                   | Ensure type (biaxial / mono axial) and capacity (vertical load / horizontal load) of bearing as per drawing.                                                                                                                                                                                                                                                                             | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           | Log Book         |                                             |         |                                                                                     |
| 4.03                                                                                                                                                                                                                   | Check Top level of support (slide supports and fixed foot).                                                                                                                                                                                                                                                                                                                              | M                                        | Water Level /Scale            | A                               | 100%             | Drawing & Erection Manual                           | L-03             | √                                           |         |                                                                                     |
| 4.04                                                                                                                                                                                                                   | Check Horizontality of slide supports.                                                                                                                                                                                                                                                                                                                                                   | M                                        | Water Level / Scale           | A                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                                     |
| 4.05                                                                                                                                                                                                                   | Ensure welding of top and bottom plates at all locations.                                                                                                                                                                                                                                                                                                                                | V                                        |                               | A                               | 100%             | Drawing, Technical Directive: 016 & Erection Manual | SR               |                                             |         |                                                                                     |
| 5                                                                                                                                                                                                                      | 7X-X48 CASING STRUCTURE                                                                                                                                                                                                                                                                                                                                                                  |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                                     |
| 5.01                                                                                                                                                                                                                   | Check Column overall height as per drawing before erection                                                                                                                                                                                                                                                                                                                               | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | SR               |                                             |         |                                                                                     |
| 5.02                                                                                                                                                                                                                   | Check Diagonals of inlet, outlet and intermediate frames (pre-assembly).                                                                                                                                                                                                                                                                                                                 | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-04             | √                                           |         |                                                                                     |
| 5.03                                                                                                                                                                                                                   | Check Verticality of all columns of inlet, outlet and intermediate frames in both X & Y directions.                                                                                                                                                                                                                                                                                      | M                                        | Plumb bob / Tape              | B                               | 100%             | Drawing & Erection Manual                           | L-02             | √                                           |         |                                                                                     |
| 5.04                                                                                                                                                                                                                   | Check Verticality of inlet, outlet and intermediate frames after erection.                                                                                                                                                                                                                                                                                                               | M                                        | - do -                        | B                               | 100%             | Drawing & Erection Manual                           | L-02             | √                                           |         |                                                                                     |
| 5.05                                                                                                                                                                                                                   | Ensure the center line matching of X81 columns, X01 bearings and X48 columns before erection of casing assembly (maximum permissible deviation: 5 mm)<br>· Transfer the foundation center line to base plate center line.<br>· From the base plate, transfer the center line to bearing bottom plate.<br>· From the bearing bottom plate, transfer the center line to X48 column center. | M V                                      | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | SR               |                                             |         |                                                                                     |
| 5.06                                                                                                                                                                                                                   | Ensure welding of horizontal and diagonal bracings to the gusset provided in the column as per assembly drawing.                                                                                                                                                                                                                                                                         | V                                        |                               | B                               | 100%             | Drawing, Technical Directive: 017 & Erection Manual | SR               |                                             |         |                                                                                     |
| 5.07                                                                                                                                                                                                                   | Ensure completion of welding of casing structure with horizontal and diagonal bracings before erecting further and load the same.                                                                                                                                                                                                                                                        | V                                        |                               | B                               | 100%             | Drawing, Technical Directive: 017 & Erection Manual | SR               |                                             |         |                                                                                     |
| 5.08                                                                                                                                                                                                                   | Close the welding openings outside of gas path.                                                                                                                                                                                                                                                                                                                                          | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           | SR               |                                             |         |                                                                                     |

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| FIELD QUALITY PLAN                                                                                                                                                                                                                       |                                                                                                                                                                                                     |               |                                          |                |                                 |                                                     |                  |                  |                                             |                                                                                     |
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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                               |                                                                                                                                                                                                     |               | SYSTEM : Steam Generator & Auxiliaries   |                | QP NO. : PP-QBE-2401-UHN-QA-104 |                                                     | PROJECT:         |                  | NTPC -LARA stage-II 2x800 MW                |                                                                                     |
| <div></div> <div>भारत हेवी इलेक्ट्रिकल्स लिमिटेड<br/>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता<br/>BHARAT HEAVY ELECTRICALS LIMITED<br/>PS:ER, KOLKATA</div> |                                                                                                                                                                                                     |               | SUB-SYSTEM : Electro Static Precipitator |                | REV. No: 00                     |                                                     | PACKAGE:         |                  | EPC                                         |                                                                                     |
|                                                                                                                                                                                                                                          |                                                                                                                                                                                                     |               |                                          |                | DATE : 06/08/2024               |                                                     | CONTRACT NO.     |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |                                                                                     |
|                                                                                                                                                                                                                                          |                                                                                                                                                                                                     |               | AREA : Mechanical Erection               |                | PAGE :4 of 13                   |                                                     | MAIN CONTRACTOR  |                  | BHEL, PS:ER, KOLKATA                        |                                                                                     |
| Sl. No                                                                                                                                                                                                                                   | Activity and operation                                                                                                                                                                              | Type of Check | Characteristics / instruments            | Class of check | Quantum of check                | Reference Document                                  | Acceptance Norms | Format of Record | Remarks                                     |  |
| 1                                                                                                                                                                                                                                        | 2                                                                                                                                                                                                   | 3             | 4                                        | 5              | 6                               | 7                                                   | 8                | 9                | D*                                          |                                                                                     |
| 6                                                                                                                                                                                                                                        | CASING SHELL                                                                                                                                                                                        |               |                                          |                |                                 |                                                     |                  |                  |                                             |                                                                                     |
| 6.01                                                                                                                                                                                                                                     | Straightness and diagonals of wall panel assembly before erection.                                                                                                                                  | M             | Tape / Piano wire                        | C              | 100%                            | Drawing & Erection Manual                           | Log Book         |                  |                                             |                                                                                     |
| 6.02                                                                                                                                                                                                                                     | Ensure that Panels are temporarily stiffened during lifting.<br>NOTE: Wall panels should be welded with respective columns before erecting next panel.                                              | V             | -                                        | C              | 100%                            | Drawing & Erection Manual                           | SR               |                  |                                             |                                                                                     |
| 6.03                                                                                                                                                                                                                                     | Check Verticality of walls.                                                                                                                                                                         | M             | Plumb bob / Tape                         | B              | 100%                            | Drawing & Erection Manual                           | Joint Protocol   | √                |                                             |                                                                                     |
| 6.04                                                                                                                                                                                                                                     | Check Distance between the walls.                                                                                                                                                                   | M             | Tape                                     | C              | 100%                            | Drawing & Erection Manual                           | SR               |                  |                                             |                                                                                     |
| 6.05                                                                                                                                                                                                                                     | Check Straightness of wall along the gas flow.                                                                                                                                                      | M             | Piano wire / Tape                        | C              | 100%                            | Drawing & Erection Manual                           | SR               |                  |                                             |                                                                                     |
| 6.06                                                                                                                                                                                                                                     | Check Diagonals of wall panel assembly after erection.                                                                                                                                              | M             | Tape                                     | A              | 100%                            | Drawing & Erection Manual                           | L-05             | √                |                                             |                                                                                     |
| 6.07                                                                                                                                                                                                                                     | Ensure welding between primary stiffeners in casing wall with horizontal bracings in X48 PGMA.                                                                                                      | V             |                                          | B              | 100%                            | Drawing, Technical Directive: 034 & Erection Manual | SR               |                  | Welding & NDT check as per SI. No. 20       |                                                                                     |
| 6.08                                                                                                                                                                                                                                     | Ensure completeness of welding at all locations. (Fasteners are provided for locating purpose only).                                                                                                | V             |                                          | B              | 100%                            | Drawing & Erection Manual                           | SR               |                  | Welding & NDT check as per SI. No. 20       |                                                                                     |
| 6.09                                                                                                                                                                                                                                     | Weld continuous fillet in the inner side (gas path) of the walls.                                                                                                                                   | V             |                                          | B              | 100%                            | Drawing & Erection Manual                           | SR               |                  | Welding & NDT check as per SI. No. 20       |                                                                                     |
| 6.10                                                                                                                                                                                                                                     | Weld fillet size and length of weld to be ensured at all locations.                                                                                                                                 | V             |                                          | C              | 100%                            | Drawing & Erection Manual                           | SR               |                  | Welding & NDT check as per SI. No. 20       |                                                                                     |
| 6.11                                                                                                                                                                                                                                     | Ensure proper erection of deflection plates to avoid sneackage.                                                                                                                                     | V             |                                          | A              | 100%                            | Drawing, Technical Directive: 026 & Erection Manual | SR               |                  |                                             |                                                                                     |
| 7                                                                                                                                                                                                                                        | ROOF BEAMS                                                                                                                                                                                          |               |                                          |                |                                 |                                                     |                  |                  |                                             |                                                                                     |
| 7.01                                                                                                                                                                                                                                     | Camber and sweep of roof beams in pre-assembly condition before erection.                                                                                                                           | M             | Piano wire/ Tape/ Water Level            | B              | 100%                            | Drawing & Erection Manual                           | Log Book         |                  |                                             |                                                                                     |
| 7.02                                                                                                                                                                                                                                     | Length, out of squareness of roof beams before erection.                                                                                                                                            | M             | Tape / Plumb bob                         | B              | 100%                            | Drawing & Erection Manual                           | Log Book         |                  |                                             |                                                                                     |
| 7.03                                                                                                                                                                                                                                     | Centre line to be marked on both side of the flanges.                                                                                                                                               | V             |                                          | C              | 100%                            | Drawing & Erection Manual                           | Log Book         |                  |                                             |                                                                                     |
| 7.04                                                                                                                                                                                                                                     | Welding of Roof Beams<br>NOTE:<br>1. Before placing the splice plate each layer of weld shall undergo LPI<br>2. LR beam butt welding to be inspected with RT/ PAUT after completion of all welding. | V             |                                          | B              | 100%                            | Drawing & Erection Manual                           | Log Book         |                  | Welding & NDT check as per SI. No. 20       |                                                                                     |

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## FIELD QUALITY PLAN

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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                             |                                                                                                                                 | SYSTEM : Steam Generator & Auxiliaries   |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                  | PROJECT:                  |                  | NTPC -LARA stage-II 2x800 MW                |                                       |                                                                                     |
|  भारत हेवी इलेक्ट्रिकल्स लिमिटेड<br>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता<br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br>PS:ER, KOLKATA |                                                                                                                                 | SUB-SYSTEM : Electro Static Precipitator |                               | REV. No: 00                     |                  | PACKAGE:                  |                  | EPC                                         |                                       |                                                                                     |
|                                                                                                                                                                                                                        |                                                                                                                                 |                                          |                               | DATE : 06/08/2024               |                  | CONTRACT NO.              |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |                                       |                                                                                     |
|                                                                                                                                                                                                                        |                                                                                                                                 | AREA : Mechanical Erection               |                               | PAGE :5 of 13                   |                  | MAIN CONTRACTOR           |                  | BHEL, PS:ER, KOLKATA                        |                                       |                                                                                     |
| Sl. No                                                                                                                                                                                                                 | Activity and operation                                                                                                          | Type of Check                            | Characteristics / instruments | Class of check                  | Quantum of check | Reference Document        | Acceptance Norms | Format of Record                            | Remarks                               |  |
| 1                                                                                                                                                                                                                      | 2                                                                                                                               | 3                                        | 4                             | 5                               | 6                | 7                         | 8                | 9                                           | D*                                    |                                                                                     |
| 7.05                                                                                                                                                                                                                   | Level of bottom flange of roof beams.                                                                                           | M                                        | Water Level / Scale           | A                               | 100%             | Drawing & Erection Manual | L-05             | √                                           |                                       |                                                                                     |
| 7.06                                                                                                                                                                                                                   | Spacing of roof beams.                                                                                                          | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual | L-05             | √                                           |                                       |                                                                                     |
| 7.07                                                                                                                                                                                                                   | Marking of gas path center line (GPCL) on roof beams on top and bottom flange.                                                  | M                                        | Plumb bob / Tape              | A                               | 100%             | Drawing & Erection Manual | L-05             | √                                           |                                       |                                                                                     |
| 7.08                                                                                                                                                                                                                   | Alignment of insulator support panel w.r.t. GPCL - spacing and diagonals.                                                       | M                                        | Piano wire / Tape             | A                               | 100%             | Drawing & Erection Manual | L-06             | √                                           |                                       |                                                                                     |
| 7.09                                                                                                                                                                                                                   | Ensure TR beam CL coincide with top panel vertical stiffener web bottom line.                                                   | M & V                                    | Tape                          | C                               | 100%             | Drawing & Erection Manual |                  |                                             |                                       |                                                                                     |
| 7.10                                                                                                                                                                                                                   | Ensure welding of stiffeners in LR beams at casing column locations.                                                            | V                                        |                               | C                               | 100%             | Drawing & Erection Manual |                  |                                             | Welding & NDT check as per Sl. No. 20 |                                                                                     |
| 7.11                                                                                                                                                                                                                   | Ensure welding of stiffeners in TR beams at primary channel locations in side wall top panel.                                   | V                                        |                               | C                               | 100%             | Drawing & Erection Manual |                  |                                             | Welding & NDT check as per Sl. No. 20 |                                                                                     |
| 7.12                                                                                                                                                                                                                   | Ensure completeness of welding at all locations. (Fasteners are provided for locating purpose only).                            | V                                        |                               | B                               | 100%             | Drawing & Erection Manual |                  |                                             | Welding & NDT check as per Sl. No. 20 |                                                                                     |
| 8                                                                                                                                                                                                                      | COLLECTING ELECTRODE SUSPENSION                                                                                                 |                                          |                               |                                 |                  |                           |                  |                                             |                                       |                                                                                     |
| 8.01                                                                                                                                                                                                                   | Check for straightness and dimensional tolerance (at ground before erection).                                                   | M                                        | Tape                          | C                               | 100%             | Drawing & Erection Manual |                  |                                             |                                       |                                                                                     |
| 8.02                                                                                                                                                                                                                   | Diagonal variation of individual frame between corner hooks.                                                                    | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual | L-07             | √                                           |                                       |                                                                                     |
| 8.03                                                                                                                                                                                                                   | Individual and cumulative pitch of support angles.                                                                              | M                                        | Tape                          | C                               | 100%             | Drawing & Erection Manual | L-07             | √                                           |                                       |                                                                                     |
| 8.04                                                                                                                                                                                                                   | Check Straightness of frame.                                                                                                    | M                                        | Piano wire / Tape             | B                               | 100%             | Drawing & Erection Manual | Log Book         |                                             |                                       |                                                                                     |
| 8.05                                                                                                                                                                                                                   | Ensure Alignment of frame w.r.t. GPCL.                                                                                          | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual | L-08             | √                                           |                                       |                                                                                     |
| 8.06                                                                                                                                                                                                                   | Disposition of adjacent suspension frame, cumulative measurement from GPCL to the middle angle of individual suspension frames. | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual | L-08             | √                                           |                                       |                                                                                     |
| 8.07                                                                                                                                                                                                                   | Hooks in angles at rapping side are in one-line perpendicular to GPCL.                                                          | M                                        | Piano wire / Tape             | B                               | 100%             | Drawing & Erection Manual |                  |                                             |                                       |                                                                                     |
| 8.08                                                                                                                                                                                                                   | Distance between center of emitting system suspension point to first hook with collecting electrodes frames.                    | M                                        | Tape                          | A C                             | 100%             | Drawing & Erection Manual | L-08             | √                                           |                                       |                                                                                     |
| 8.09                                                                                                                                                                                                                   | Gap between guide ends and casing walls.                                                                                        | M                                        | Tape                          | C                               | 100%             | Drawing & Erection Manual | L-08             | √                                           |                                       |                                                                                     |
| 8.10                                                                                                                                                                                                                   | Level of suspension frames at bottom of end hooks in each field.                                                                | M                                        | Water Level / Scale           | B                               | 100%             | Drawing & Erection Manual | SR               |                                             |                                       |                                                                                     |

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| FIELD QUALITY PLAN                                                                                                                                                                                                                          |                                                                                                                                                                                                                                             |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------|---------------------------------|------------------|-----------------------------------------------------|------------------|---------------------------------------------|---------|---------------------------------------|
| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                                  |                                                                                                                                                                                                                                             | SYSTEM : Steam Generator & Auxiliaries   |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                  | PROJECT:                                            |                  | NTPC -LARA stage-II 2x800 MW                |         |                                       |
|  <b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b><br><b>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता</b><br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br><b>PS:ER, KOLKATA</b> |                                                                                                                                                                                                                                             | SUB-SYSTEM : Electro Static Precipitator |                               | REV. No: 00                     |                  | PACKAGE:                                            |                  | EPC                                         |         |                                       |
|                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                             |                                          |                               | DATE : 06/08/2024               |                  | CONTRACT NO.                                        |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |         |                                       |
|                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                             | AREA : Mechanical Erection               |                               | PAGE :6 of 13                   |                  | MAIN CONTRACTOR                                     |                  | BHEL, PS:ER, KOLKATA                        |         |                                       |
| Sl. No                                                                                                                                                                                                                                      | Activity and operation                                                                                                                                                                                                                      | Type of Check                            | Characteristics / instruments | Class of check                  | Quantum of check | Reference Document                                  | Acceptance Norms | Format of Record                            | Remarks |                                       |
| 1                                                                                                                                                                                                                                           | 2                                                                                                                                                                                                                                           | 3                                        | 4                             | 5                               | 6                | 7                                                   | 8                | 9                                           | D*      |                                       |
| 8.11                                                                                                                                                                                                                                        | Completion of welding.<br>NOTE:<br>1.Welding of locking plate shall be on one side of roof beam only.<br>2. Do not weld suspension arrangement and attachment to roof beams.<br>3. Ensure welding of support angle with support beam.       | V                                        | -                             | B                               | 100%             | Drawing & Erection Manual                           |                  | L-11                                        | √       | Welding & NDT check as per Sl. No. 20 |
| 9                                                                                                                                                                                                                                           | <b>EMITTING ELECTRODE SUSPENSION:</b>                                                                                                                                                                                                       |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                       |
| 9.01                                                                                                                                                                                                                                        | Diagonal variation of individual frames between corner holders.                                                                                                                                                                             | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           |                  | L-09                                        | √       |                                       |
| 9.02                                                                                                                                                                                                                                        | Individual and cumulative pitch between rows.                                                                                                                                                                                               | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           |                  | L-09                                        | √       |                                       |
| 9.03                                                                                                                                                                                                                                        | Straightness of support beams, vertical beams and shock beams.                                                                                                                                                                              | M                                        | Piano wire / Tape             | B                               | 100%             | Drawing & Erection Manual                           |                  | Joint Protocol                              | √       |                                       |
| 9.04                                                                                                                                                                                                                                        | Straightness of vertical stays. (if applicable)                                                                                                                                                                                             | V                                        | -                             | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                       |
| 9.05                                                                                                                                                                                                                                        | Alignment of support beam with frame part top.                                                                                                                                                                                              | M                                        | Water level / Tape            | A                               | 100%             | Drawing & Erection Manual                           |                  | L-10                                        | √       |                                       |
| 9.06                                                                                                                                                                                                                                        | Alignment of frame part top w.r.t. GPCL.                                                                                                                                                                                                    | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual                           |                  | Log Book                                    |         |                                       |
| 9.07                                                                                                                                                                                                                                        | Cumulative pitches and diagonals of the holders of frame part top.                                                                                                                                                                          | M                                        | Tape                          | C                               | 100%             | Drawing & Erection Manual                           |                  | Log Book                                    |         |                                       |
| 9.08                                                                                                                                                                                                                                        | End side emitting frame middle to be positioned before erecting the frame bottom.                                                                                                                                                           | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                       |
| 9.09                                                                                                                                                                                                                                        | During alignment of middle and bottom frames, the water level of shock angle of the middle frame shall be maintained uniform throughout the width of ESP.                                                                                   | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                       |
| 9.10                                                                                                                                                                                                                                        | Holders are in one line for top, middle and bottom frame part.                                                                                                                                                                              | M                                        | Plumb bob / Tape              | B                               | 100%             | Drawing & Erection Manual                           |                  | Log Book                                    |         |                                       |
| 9.11                                                                                                                                                                                                                                        | Verticality and diagonals of emitting frame work assembly for frame part middle and bottom.                                                                                                                                                 | M                                        | Plumb bob / Tape              | A                               | 100%             | Drawing & Erection Manual                           |                  | L-10                                        | √       |                                       |
| 9.12                                                                                                                                                                                                                                        | Alignment of holders top to bottom in both directions – measure at four extreme corner holders.                                                                                                                                             | M                                        | Plumb bob / Tape              | C                               | 100%             | Drawing & Erection Manual                           |                  | Log Book                                    |         |                                       |
| 9.13                                                                                                                                                                                                                                        | The gap between emitting frame of two bus sections shall be maintained at prescribed levels at all places. Excess projection of EE frame towards casing wall shall be cut & maintained to 50mm at all levels after completion of alignment. | V                                        |                               | A                               | 100%             | Drawing, Technical Directive: 027 & Erection Manual |                  |                                             |         |                                       |
| 9.14                                                                                                                                                                                                                                        | Ensure welding of supporting beam with frame part top and welding of supporting beam with vertical beam.                                                                                                                                    | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                       |

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| FIELD QUALITY PLAN                                                                                                                                                                                                                          |                                                                                                                                                   |                                          |                               |                                 |                  |                                                     |                  |                                             |                                |  |
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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                                  |                                                                                                                                                   | SYSTEM : Steam Generator & Auxiliaries   |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                  | PROJECT:                                            |                  | NTPC -LARA stage-II 2x800 MW                |                                |  |
|  <b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b><br><b>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता</b><br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br><b>PS:ER, KOLKATA</b> |                                                                                                                                                   | SUB-SYSTEM : Electro Static Precipitator |                               | REV. No: 00                     |                  | PACKAGE:                                            |                  | EPC                                         |                                |  |
|                                                                                                                                                                                                                                             |                                                                                                                                                   |                                          |                               | DATE : 06/08/2024               |                  | CONTRACT NO.                                        |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |                                |  |
|                                                                                                                                                                                                                                             |                                                                                                                                                   | AREA : Mechanical Erection               |                               | PAGE :7 of 13                   |                  | MAIN CONTRACTOR                                     |                  | BHEL, PS:ER, KOLKATA                        |                                |  |
| Sl. No                                                                                                                                                                                                                                      | Activity and operation                                                                                                                            | Type of Check                            | Characteristics / instruments | Class of check                  | Quantum of check | Reference Document                                  | Acceptance Norms | Format of Record                            | Remarks                        |  |
| 1                                                                                                                                                                                                                                           | 2                                                                                                                                                 | 3                                        | 4                             | 5                               | 6                | 7                                                   | 8                | 9                                           | D*                             |  |
| 9.15                                                                                                                                                                                                                                        | Ensure welding of stair beam with vertical beam and vertical beam with middle & bottom frames.                                                    | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 9.16                                                                                                                                                                                                                                        | Ensure welding of vertical stay with emitting frames and diagonal stay with vertical beam.                                                        | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 9.17                                                                                                                                                                                                                                        | Avoid falling of weld splatter on support insulator i.e. complete all the welding in support insulator area before placement of support insulator | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 9.18                                                                                                                                                                                                                                        | Ensure critical dimensions in insulator housing (HT connection clearance with support insulator heater/thermostat)                                | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  | Log Book                                    | (dimension is to be indicated) |  |
| <b>10</b>                                                                                                                                                                                                                                   | <b>COLLECTING SYSTEM:</b>                                                                                                                         |                                          |                               |                                 |                  |                                                     |                  |                                             |                                |  |
| 10.01                                                                                                                                                                                                                                       | Straightness of collecting electrodes before erection.                                                                                            | V                                        | Fixture                       | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 10.02                                                                                                                                                                                                                                       | Welding of "U" guides in collecting electrodes. Use low current only to avoid damage to CE. (Refer to BAP-Ranipet for WPS no.)                    | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 10.03                                                                                                                                                                                                                                       | Ensure correct orientation of collecting electrodes (orientation in 1st field is different from other fields).                                    | V                                        |                               | A                               | 100%             | Drawing, Technical Directive: 033 & Erection Manual |                  |                                             |                                |  |
| 10.04                                                                                                                                                                                                                                       | Ensure that each collecting electrode rests on both hooks.                                                                                        | V                                        |                               | A                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 10.05                                                                                                                                                                                                                                       | Distance between collecting electrodes to vertical beam (on front & rear).                                                                        | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual                           |                  | L-11                                        | √                              |  |
| 10.06                                                                                                                                                                                                                                       | Gap at bottom of gas distributor screen assembly (Minimum 100 mm to be maintained).                                                               | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           |                  | L-11                                        | √                              |  |
| 10.07                                                                                                                                                                                                                                       | Clearance between shock bar edge to ridge cap.                                                                                                    | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual                           |                  | L-11                                        | √                              |  |
| 10.08                                                                                                                                                                                                                                       | Clearance between shock bar edge to shock bar guide (40 mm).                                                                                      | M                                        | Tape                          | A                               | 100%             | Drawing, Technical Directive: 007 & Erection Manual |                  | L-11                                        | √                              |  |
| 10.09                                                                                                                                                                                                                                       | Shock pads of all shock bars are in one line.                                                                                                     | M                                        | Piano wire /Tape              | B                               | 100%             | Drawing & Erection Manual                           |                  | L-11                                        | √                              |  |
| 10.10                                                                                                                                                                                                                                       | Clearance between collecting electrodes and hopper (vertical) deflection plate in the vertical plane.                                             | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           |                  | L-11                                        | √                              |  |
| 10.11                                                                                                                                                                                                                                       | Clearance between shock bar to hopper ridge plate (40 mm min).                                                                                    | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual                           |                  | L-11                                        | √                              |  |
| 10.12                                                                                                                                                                                                                                       | Straightness of shock bars and guides.                                                                                                            | M                                        | Piano wire                    | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 10.13                                                                                                                                                                                                                                       | Lock bolting of electrodes to be done after ensuring straightness of the collecting electrodes.                                                   | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |                                |  |
| 10.14                                                                                                                                                                                                                                       | Ensuring removal of temp locking (if any) between shock bar & guide during alignment. Ensure free movement of shock bars. Refer TD No-46.         | V                                        |                               | B                               | 100%             | Drawing, Technical Directive: 046 & Erection Manual |                  | Log Book                                    |                                |  |

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## FIELD QUALITY PLAN

|                                                                                                                                                                                                                        |                                                                                                                                                                                         |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                                     |
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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                             |                                                                                                                                                                                         | SYSTEM : Steam Generator & Auxiliaries   |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                  | PROJECT:                                            |                  | NTPC -LARA stage-II 2x800 MW                |         |                                                                                     |
|  भारत हेवी इलेक्ट्रिकल्स लिमिटेड<br>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता<br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br>PS:ER, KOLKATA |                                                                                                                                                                                         | SUB-SYSTEM : Electro Static Precipitator |                               | REV. No: 00                     |                  | PACKAGE:                                            |                  | EPC                                         |         |                                                                                     |
|                                                                                                                                                                                                                        |                                                                                                                                                                                         |                                          |                               | DATE : 06/08/2024               |                  | CONTRACT NO.                                        |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |         |                                                                                     |
|                                                                                                                                                                                                                        |                                                                                                                                                                                         | AREA : Mechanical Erection               |                               | PAGE :8 of 13                   |                  | MAIN CONTRACTOR                                     |                  | BHEL, PS:ER, KOLKATA                        |         |                                                                                     |
| Sl. No                                                                                                                                                                                                                 | Activity and operation                                                                                                                                                                  | Type of Check                            | Characteristics / instruments | Class of check                  | Quantum of check | Reference Document                                  | Acceptance Norms | Format of Record                            | Remarks |  |
| 1                                                                                                                                                                                                                      | 2                                                                                                                                                                                       | 3                                        | 4                             | 5                               | 6                | 7                                                   | 8                | 9                                           | D*      |                                                                                     |
| 11                                                                                                                                                                                                                     | <b>EMITTING SYSTEM:</b>                                                                                                                                                                 |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                                     |
| 11.01                                                                                                                                                                                                                  | Record sweep / camber for vertical beam, vertical stay and supporting beam.                                                                                                             | M                                        | Tape                          | C                               | 100%             | Drawing & Erection Manual                           | Log Book         |                                             |         |                                                                                     |
| 11.02                                                                                                                                                                                                                  | Distance between transverse roof beam bottom to emitting frame supporting beam top.                                                                                                     | M                                        | Tape                          | A                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 11.03                                                                                                                                                                                                                  | Concentricity of suspension rod to screen tube.                                                                                                                                         | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 11.04                                                                                                                                                                                                                  | Distance between emitting suspension screen tube edge and deflection plate (shield).                                                                                                    | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 11.05                                                                                                                                                                                                                  | Distance between emitting rapping shaft screen tube edge and deflection plate.                                                                                                          | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 11.06                                                                                                                                                                                                                  | Pin wheel clearance.                                                                                                                                                                    | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 11.07                                                                                                                                                                                                                  | Spring back of emitting electrode.                                                                                                                                                      | M                                        | Tape                          | A                               | Random           | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 11.08                                                                                                                                                                                                                  | Stretching of emitting electrodes (by stretching tool only).                                                                                                                            | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                                     |
| 11.09                                                                                                                                                                                                                  | The emitting electrode shall be stretched only up to hook level to avoid overstretching.                                                                                                | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                                     |
| 11.10                                                                                                                                                                                                                  | Earthing device shall be located on the frame near the inspection door.                                                                                                                 | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                                     |
| 11.11                                                                                                                                                                                                                  | Insulators – cleanliness, glossiness and no cracks.                                                                                                                                     | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                                     |
| 11.12                                                                                                                                                                                                                  | Supporting flange below the support insulators shall be fully welded as per drawing.                                                                                                    | V                                        |                               | A                               | 100%             | Drawing, Technical Directive: 005 & Erection Manual |                  |                                             |         |                                                                                     |
| 11.13                                                                                                                                                                                                                  | Clearance between the emitting frame and collecting electrode.                                                                                                                          | M                                        | Tape /Go-gauge                | A                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 12                                                                                                                                                                                                                     | <b>COLLECTING RAPPING SYSTEM:</b>                                                                                                                                                       |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                                     |
| 12.01                                                                                                                                                                                                                  | Clearance between shaft axis to gable wall - front / rear                                                                                                                               | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |
| 12.02                                                                                                                                                                                                                  | Distance between the roof beams and Centre line of 1st and last collecting electrodes in all the fields located in each row adjacent to ESP walls to be marked and plumbed on ESP wall. | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                                     |
| 12.03                                                                                                                                                                                                                  | Ensure lube oil as per the grade specified in drawing/datasheet.De-coupling and direction of rotation check                                                                             | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                                     |
| 12.04                                                                                                                                                                                                                  | Distance between Centre line of rapping shaft to Centre of shock bar (310 mm).                                                                                                          | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-11             | √                                           |         |                                                                                     |

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| FIELD QUALITY PLAN                                                                                                                                                                                                            |                                                                                                              |               |                                          |                |                                 |                           |                  |                  |                                             |                                                                                     |  |
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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                    |                                                                                                              |               | SYSTEM : Steam Generator & Auxiliaries   |                | QP NO. : PP-QBE-2401-UHN-QA-104 |                           | PROJECT:         |                  | NTPC -LARA stage-II 2x800 MW                |                                                                                     |  |
|  <div>भारत हेवी इलेक्ट्रिकल्स लिमिटेड<br/>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता<br/>BHARAT HEAVY ELECTRICALS LIMITED<br/>PS:ER, KOLKATA</div> |                                                                                                              |               | SUB-SYSTEM : Electro Static Precipitator |                | REV. No: 00                     |                           | PACKAGE:         |                  | EPC                                         |                                                                                     |  |
|                                                                                                                                                                                                                               |                                                                                                              |               |                                          |                | DATE : 06/08/2024               |                           | CONTRACT NO.     |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |                                                                                     |  |
|                                                                                                                                                                                                                               |                                                                                                              |               | AREA : Mechanical Erection               |                | PAGE :9 of 13                   |                           | MAIN CONTRACTOR  |                  | BHEL, PS:ER, KOLKATA                        |                                                                                     |  |
| Sl. No                                                                                                                                                                                                                        | Activity and operation                                                                                       | Type of Check | Characteristics / instruments            | Class of check | Quantum of check                | Reference Document        | Acceptance Norms | Format of Record | Remarks                                     |  |  |
| 1                                                                                                                                                                                                                             | 2                                                                                                            | 3             | 4                                        | 5              | 6                               | 7                         | 8                | 9                | D*                                          |                                                                                     |  |
| 12.05                                                                                                                                                                                                                         | Distance between support insulator center and roof beams. (Clarity required)                                 | M             | Tape                                     | B              | 100%                            | Drawing & Erection Manual |                  | Log Book         |                                             |                                                                                     |  |
| 12.06                                                                                                                                                                                                                         | Ensure motor base plate center line is in same vertical plane with center line of rapping shaft.             | V             | Water Level/Tape                         | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.07                                                                                                                                                                                                                         | Ensure indicator correctness as per direction of rotation marked in drawing.                                 | V             |                                          | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.08                                                                                                                                                                                                                         | Shock pad face and shaft axis to be in the same vertical plane to be in the same line for effective rapping. | M             | Plumb bob                                | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.09                                                                                                                                                                                                                         | Lateral shift of hammers w.r.t. shock pad centers.                                                           | M             | Tape                                     | B              | 100%                            | Drawing & Erection Manual |                  | Log Book         |                                             |                                                                                     |  |
| 12.10                                                                                                                                                                                                                         | Ensure phase angle of hammers and direction of rotation before welding of sleeves.                           | V             |                                          | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.11                                                                                                                                                                                                                         | Locking of plain bearings and set rings.                                                                     | V             |                                          | C              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.12                                                                                                                                                                                                                         | Alignment of plain bearing and proper seating of rapping shaft in the bearing.                               | V             |                                          | C              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.13                                                                                                                                                                                                                         | Ensure water level throughout the length of each shaft assembly (use shims if required).                     | M             | Water level / Tape                       | C              | 100%                            | Drawing & Erection Manual |                  | Log Book         |                                             |                                                                                     |  |
| 12.14                                                                                                                                                                                                                         | Set ring position and completion of welding.                                                                 | V             |                                          | B              | 100%                            | Drawing & Erection Manual |                  | L-11             | √                                           |                                                                                     |  |
| 12.15                                                                                                                                                                                                                         | Ensure circumferential groove on coupling matches with the edge of clutch.                                   | V             |                                          | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.16                                                                                                                                                                                                                         | Radial and axial alignment of clutch and coupling.                                                           | V             |                                          | A              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 12.17                                                                                                                                                                                                                         | Sealing of the opening for CE rapping shaft in the casing.                                                   | V             |                                          | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 13                                                                                                                                                                                                                            | K. EMITTING RAPPING SYSTEM:                                                                                  |               |                                          |                |                                 |                           |                  |                  |                                             |                                                                                     |  |
| 13.01                                                                                                                                                                                                                         | Check for the straightness of the shaft.                                                                     | M             | Piano wire                               | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 13.02                                                                                                                                                                                                                         | Ensure that shaft is free from undercuts and burrs.                                                          | V             |                                          | C              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 13.03                                                                                                                                                                                                                         | Distance between shaft Centre to vertical beam.                                                              | M             | Tape                                     | B              | 100%                            | Drawing & Erection Manual |                  | L-11             | √                                           |                                                                                     |  |
| 13.04                                                                                                                                                                                                                         | Distance between Centre line of rapping shaft to hitting point on shock beam.                                | M             | Tape                                     | B              | 100%                            | Drawing & Erection Manual |                  | L-11             | √                                           |                                                                                     |  |
| 13.05                                                                                                                                                                                                                         | Phase angle of hammers and direction of rotation.                                                            | V             |                                          | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |
| 13.06                                                                                                                                                                                                                         | Alignment of bearing & proper seating of rapping shaft in the bearing.                                       | V             |                                          | B              | 100%                            | Drawing & Erection Manual |                  |                  |                                             |                                                                                     |  |



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## FIELD QUALITY PLAN

| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                                  |                                                                                                                                        | SYSTEM : Steam Generator & Auxiliaries   |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                  | PROJECT:                                         | NTPC -LARA stage-II 2x800 MW                |                  |         |                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------|---------------------------------|------------------|--------------------------------------------------|---------------------------------------------|------------------|---------|-------------------------------------------------------------------------------------|
|  <b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b><br><b>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता</b><br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br><b>PS:ER, KOLKATA</b> |                                                                                                                                        | SUB-SYSTEM : Electro Static Precipitator |                               | REV. No: 00                     |                  | PACKAGE:                                         | EPC                                         |                  |         |                                                                                     |
|                                                                                                                                                                                                                                             |                                                                                                                                        |                                          |                               | DATE : 06/08/2024               |                  | CONTRACT NO.                                     | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |                  |         |                                                                                     |
|                                                                                                                                                                                                                                             |                                                                                                                                        | AREA : Mechanical Erection               |                               | PAGE :10 of 13                  |                  | MAIN CONTRACTOR                                  | BHEL, PS:ER, KOLKATA                        |                  |         |                                                                                     |
| Sl. No                                                                                                                                                                                                                                      | Activity and operation                                                                                                                 | Type of Check                            | Characteristics / instruments | Class of check                  | Quantum of check | Reference Document                               | Acceptance Norms                            | Format of Record | Remarks |  |
| 1                                                                                                                                                                                                                                           | 2                                                                                                                                      | 3                                        | 4                             | 5                               | 6                | 7                                                | 8                                           | 9                | D*      |                                                                                     |
| 13.07                                                                                                                                                                                                                                       | Ensure water level throughout the length of each shaft assembly (use shims if required).                                               | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                        |                                             |                  |         |                                                                                     |
| 13.08                                                                                                                                                                                                                                       | Level of plain bearing to be ensured by water level.                                                                                   | M                                        | Water level / Tape            | B                               | 100%             | Drawing & Erection Manual                        |                                             | Log Book         |         |                                                                                     |
| 13.09                                                                                                                                                                                                                                       | Set ring position and completion of welding.                                                                                           | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                        |                                             | L-11             | √       |                                                                                     |
| <b>14</b>                                                                                                                                                                                                                                   | <b>GD Test related activity:</b>                                                                                                       |                                          |                               |                                 |                  |                                                  |                                             |                  |         |                                                                                     |
| 14.01                                                                                                                                                                                                                                       | Ensure the erection of guide vanes in the ducting system as per the flow model report for uniform distribution. Refer TD NO-031.       | V                                        |                               | B                               | 100%             | Drawing, Erection Manual/ Flow Model Test Report |                                             |                  |         |                                                                                     |
| 14.02                                                                                                                                                                                                                                       | Ensure GD screen orientation as per drawing                                                                                            | V                                        |                               | C                               | 100%             | Drawing                                          |                                             |                  |         |                                                                                     |
| 14.03                                                                                                                                                                                                                                       | Deflection plates in the GD screens shall be placed as per flow model report (if applicable) and to be tack welded only after GD test. | V                                        |                               | C                               | 100%             | Flow Model Test Report/ GD Test Report           |                                             |                  |         |                                                                                     |
| <b>15</b>                                                                                                                                                                                                                                   | <b>G D SCREEN RAPPING SYSTEM:</b>                                                                                                      |                                          |                               |                                 |                  |                                                  |                                             |                  |         |                                                                                     |
| 15.01                                                                                                                                                                                                                                       | Clearance between shaft axis to primary screen edge.                                                                                   | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                        |                                             | Log Book         |         |                                                                                     |
| 15.02                                                                                                                                                                                                                                       | Distance between Centre line of rapping shaft to hitting point at rapping bracket.                                                     | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                        |                                             | L-11             | √       |                                                                                     |
| 15.03                                                                                                                                                                                                                                       | Lateral shift of hammers w.r.t. hitting point at rapping bracket.                                                                      | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                        |                                             | Log Book         |         |                                                                                     |
| 15.04                                                                                                                                                                                                                                       | Ensure motor base plate center line is in same vertical plane with center line of rapping shaft.                                       | V                                        | Water Level/Tape              | B                               | 100%             | Drawing & Erection Manual                        |                                             | Log Book         |         |                                                                                     |
| 15.05                                                                                                                                                                                                                                       | Ensure indicator correctness as per direction of rotation marked in drawing.                                                           | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                        |                                             |                  |         |                                                                                     |
| 15.06                                                                                                                                                                                                                                       | Phase angle of hammers and direction of rotation.                                                                                      | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                        |                                             |                  |         |                                                                                     |
| 15.07                                                                                                                                                                                                                                       | Alignment of bearing and proper seating of rapping shaft in the bearing.                                                               | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                        |                                             |                  |         |                                                                                     |
| 15.08                                                                                                                                                                                                                                       | Ensure circumferential groove on the coupling matches with the edge of clutch.                                                         | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                        |                                             |                  |         |                                                                                     |
| 15.09                                                                                                                                                                                                                                       | Radial and axial alignment of clutch and coupling.                                                                                     | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                        |                                             | Log Book         |         |                                                                                     |
| 15.10                                                                                                                                                                                                                                       | Set ring position and completion of welding.                                                                                           | V                                        |                               | A                               | 100%             | Drawing & Erection Manual                        |                                             |                  |         |                                                                                     |



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| FIELD QUALITY PLAN                                                                                                                                                                                                                          |                                                                                                               |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                             |
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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                                  |                                                                                                               | SYSTEM : Steam Generator & Auxiliaries   |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                  | PROJECT:                                            |                  | NTPC -LARA stage-II 2x800 MW                |         |                                                                             |
|  <b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b><br><b>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता</b><br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br><b>PS:ER, KOLKATA</b> |                                                                                                               | SUB-SYSTEM : Electro Static Precipitator |                               | REV. No: 00                     |                  | PACKAGE:                                            |                  | EPC                                         |         |                                                                             |
|                                                                                                                                                                                                                                             |                                                                                                               |                                          |                               | DATE : 06/08/2024               |                  | CONTRACT NO.                                        |                  | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |         |                                                                             |
|                                                                                                                                                                                                                                             |                                                                                                               | AREA : Mechanical Erection               |                               | PAGE :11 of 13                  |                  | MAIN CONTRACTOR                                     |                  | BHEL, PS:ER, KOLKATA                        |         |                                                                             |
| Sl. No                                                                                                                                                                                                                                      | Activity and operation                                                                                        | Type of Check                            | Characteristics / instruments | Class of check                  | Quantum of check | Reference Document                                  | Acceptance Norms | Format of Record                            | Remarks |                                                                             |
| 1                                                                                                                                                                                                                                           | 2                                                                                                             | 3                                        | 4                             | 5                               | 6                | 7                                                   | 8                | 9                                           | D*      |                                                                             |
| <b>16</b>                                                                                                                                                                                                                                   | <b>INLET &amp; OUTLET FUNNELS</b>                                                                             |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                             |
| 16.01                                                                                                                                                                                                                                       | Check Elevation                                                                                               | M                                        | Tape/Water level              | B                               | 100%             | Drawing & Erection Manual                           | L-12             | √                                           |         |                                                                             |
| 16.02                                                                                                                                                                                                                                       | Check Length and opening dimensions.                                                                          | M                                        | Tape                          | C                               | 100%             | Drawing & Erection Manual                           | L-12             | √                                           |         |                                                                             |
| 16.03                                                                                                                                                                                                                                       | Ensure erection of Tertiary screen.                                                                           |                                          |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                             |
| 16.04                                                                                                                                                                                                                                       | Ensure no gap is left after trial assembly and erection.                                                      | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                             |
| 16.05                                                                                                                                                                                                                                       | Kerosene test to be performed for funnel pre-assembly joints                                                  | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                             |
| <b>17</b>                                                                                                                                                                                                                                   | <b>HOPPERS</b>                                                                                                |                                          |                               |                                 |                  |                                                     |                  |                                             |         |                                                                             |
| 17.01                                                                                                                                                                                                                                       | Ensure welding of hopper plate with ridges as per drawing.                                                    | V                                        |                               | B                               | 100%             | Drawing, Technical Directive: 018 & Erection Manual |                  |                                             |         | Use E7018 welding electrode and 100% LPI is to be ensured for these joints. |
| 17.02                                                                                                                                                                                                                                       | Elevation (bottom flange).                                                                                    | M                                        | Tape/Water level              | B                               | 100%             | Drawing & Erection Manual                           | L-12             | √                                           |         |                                                                             |
| 17.03                                                                                                                                                                                                                                       | Spacing w.r.t. reference axes.                                                                                | M                                        | Tape                          | B                               | 100%             | Drawing & Erection Manual                           | L-12             | √                                           |         |                                                                             |
| 17.04                                                                                                                                                                                                                                       | Weld continuous fillet in the inner side (gas path) of the walls.                                             | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                             |
| 17.05                                                                                                                                                                                                                                       | Ensure correct orientation of hopper manhole door location w.r.t. gas flow direction for each row of hoppers. | V                                        |                               | C                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                             |
| 17.06                                                                                                                                                                                                                                       | Ensure surface contact of hopper heater with hopper wall.                                                     | V                                        |                               | B                               | 100%             | Drawing, Technical Directive: 022 & Erection Manual | SR               |                                             |         |                                                                             |
| 17.07                                                                                                                                                                                                                                       | Ensure welding of poke hole tube as per drawing to avoid dust entry into the heating chamber.                 | V                                        |                               | A                               | 100%             | Drawing, Technical Directive: 012 & Erection Manual | SR               |                                             |         |                                                                             |
| 17.08                                                                                                                                                                                                                                       | Ensure welding of fluidizing pad (customer scope) to avoid damage to heating elements during operation.       | V                                        |                               | A                               | 100%             | Drawing & Erection Manual                           | SR               |                                             |         |                                                                             |
| 17.09                                                                                                                                                                                                                                       | Support for ash handling pipes shall be taken from hopper stiffeners only.                                    | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                             |
| 17.10                                                                                                                                                                                                                                       | Ensure expansion joints are envisaged by ash handling vendor wherever supports are taken from hoppers.        | V                                        |                               | B                               | 100%             | Drawing & Erection Manual                           |                  |                                             |         |                                                                             |

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| FIELD QUALITY PLAN                                                                                                                                                                                                                          |                                                                                                          |                                        |                               |                                 |                              |                                                          |                                             |                              |         |                                           |
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| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                                  |                                                                                                          | SYSTEM : Steam Generator & Auxiliaries |                               | QP NO. : PP-QBE-2401-UHN-QA-104 |                              | PROJECT:                                                 |                                             | NTPC -LARA stage-II 2x800 MW |         |                                           |
|  <b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b><br><b>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता</b><br><b>BHARAT HEAVY ELECTRICALS LIMITED</b><br><b>PS:ER, KOLKATA</b> | SUB-SYSTEM : Electro Static Precipitator                                                                 |                                        | REV. No: 00                   |                                 | PACKAGE:                     |                                                          | EPC                                         |                              |         |                                           |
|                                                                                                                                                                                                                                             |                                                                                                          |                                        | DATE : 06/08/2024             |                                 | CONTRACT NO.                 |                                                          | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |                              |         |                                           |
|                                                                                                                                                                                                                                             | AREA : Mechanical Erection                                                                               |                                        | PAGE :12 of 13                |                                 | MAIN CONTRACTOR              |                                                          | BHEL, PS:ER, KOLKATA                        |                              |         |                                           |
| Sl. No                                                                                                                                                                                                                                      | Activity and operation                                                                                   | Type of Check                          | Characteristics / instruments | Class of check                  | Quantum of check             | Reference Document                                       | Acceptance Norms                            | Format of Record             | Remarks |                                           |
| 1                                                                                                                                                                                                                                           | 2                                                                                                        | 3                                      | 4                             | 5                               | 6                            | 7                                                        | 8                                           | 9                            | D*      |                                           |
| <b>18</b>                                                                                                                                                                                                                                   | <b>INSULATOR HOUSING</b>                                                                                 |                                        |                               |                                 |                              |                                                          |                                             |                              |         |                                           |
| 18.01                                                                                                                                                                                                                                       | Ensure firm connection without any looseness in the copper tubing on both ends of the bushing insulator. | V                                      |                               | A                               | 100%                         | Drawing, Technical Directive: 037 & Erection Manual      |                                             |                              |         |                                           |
| 18.02                                                                                                                                                                                                                                       | Thermostat for insulator housing heaters shall be fixed at first/second field.                           | V                                      |                               | B                               | 100%                         | Drawing & Erection Manual                                |                                             |                              |         |                                           |
| <b>19</b>                                                                                                                                                                                                                                   | <b>INSULATION &amp; CLADDING</b>                                                                         |                                        |                               |                                 |                              |                                                          |                                             |                              |         |                                           |
| 19.01                                                                                                                                                                                                                                       | Laying of insulation as per applicable erection drawings.                                                | V                                      |                               | B                               | 100%                         | Drawing, Technical Directive: 012, 045 & Erection Manual |                                             |                              |         |                                           |
| <b>20</b>                                                                                                                                                                                                                                   | <b>WELDING &amp; NDT</b>                                                                                 |                                        |                               |                                 |                              |                                                          |                                             |                              |         |                                           |
| 20.01                                                                                                                                                                                                                                       | Availability of applicable WPS, Field Welding Schedule / Drawing (as applicable)                         | R                                      |                               | A                               | 100%                         | Drawings/ Welding Schedule & WPS                         | Drawings/ Welding Schedule & WPS            | WPS                          |         |                                           |
| 20.02                                                                                                                                                                                                                                       | Qualification of welders.                                                                                | V / R                                  |                               | A                               | 100%                         | WPS/ ASME Section IX                                     | WPS/ ASME Section IX                        | WQR                          | √       |                                           |
| 20.03                                                                                                                                                                                                                                       | Edge preparation and fit up of joints. Ensure proper root gap.                                           | V                                      |                               | C                               | 100%                         | Drawing                                                  | Drawing                                     |                              |         |                                           |
| 20.04                                                                                                                                                                                                                                       | NDT for new edges prepared at site where t > 32 mm                                                       | V                                      |                               | C                               | 100% MPI / LPI               | ASTM E165                                                | AWS D1.1                                    | NDT Report                   | √       |                                           |
| 20.05                                                                                                                                                                                                                                       | Pre heating, Post heating and Post Weld Heat Treatment of weld joints, as applicable.                    | V / M                                  | Time Temperature Recorder     | A                               | As per WPS                   | WPS / Drawing                                            | WPS / Drawing                               | HT Chart                     | √       |                                           |
| 20.06                                                                                                                                                                                                                                       | Adoption of correct procedure, use of approved Electrodes and methods.                                   | V / R                                  |                               | A                               | 100%                         | Drawing & WPS                                            | Drawing & WPS                               |                              |         |                                           |
| 20.07                                                                                                                                                                                                                                       | Ensure proper sequence of welding.                                                                       | V                                      |                               | B                               | Random in each shift         | Drawing                                                  | Drawing                                     |                              |         |                                           |
| 20.08                                                                                                                                                                                                                                       | Visual Inspection of field weldments                                                                     | V / M                                  | Weld gauge                    | B                               | 100%                         | Drawing                                                  | AWS D1.1                                    | SR                           | √       | Surveillance by FQA                       |
| 20.09                                                                                                                                                                                                                                       | NDT on back gouged/ ground grooves prior to welding from second side.                                    | V / P                                  | LPI Kit                       | C                               | 100% LPI                     | ASTM E165                                                | AWS D1.1                                    | NDT Report                   | √       | Surveillance by FQA                       |
| 20.10                                                                                                                                                                                                                                       | NDT on field groove welds for t ≥ 32 mm.                                                                 | V                                      |                               | A                               | 100% RT / UT                 | AWS D1.1                                                 | AWS D1.1                                    | NDT Report                   | √       | Wherever RT is not possible UT to be done |
| 20.11                                                                                                                                                                                                                                       | NDT on field groove welds for t ≥ 25 mm < 32 mm.                                                         | V                                      |                               | A                               | 10% RT/ UT and 100% MPI/ LPI | AWS D1.1                                                 | AWS D1.1                                    | NDT Report                   | √       | Wherever RT is not possible UT to be done |
| 20.12                                                                                                                                                                                                                                       | NDT on field groove welds for t < 25 mm.                                                                 | V / P                                  | MPI Kit / LPI Kit             | A                               | 10% MPI/ LPI                 | ASTM E709 / ASTM E165                                    | AWS D1.1                                    | NDT Report                   | √       |                                           |

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| FIELD QUALITY PLAN                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                             |               |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                      |                                                                                                                                                       |                  |                                                    |                                             |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------|---------------------------------------------|--|
| SUPPLIERS NAME AND ADDRESS                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                             |               | SYSTEM : Steam Generator & Auxiliaries   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | QP NO. : PP-QBE-2401-UHN-QA-104                                                                                      |                                                                                                                                                       | PROJECT:         |                                                    | NTPC -LARA stage-II 2x800 MW                |  |
| <div><div>भारत हेवी इलेक्ट्रिकल्स लिमिटेड<br/>पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता<br/>BHARAT HEAVY ELECTRICALS LIMITED<br/>PS:ER, KOLKATA</div></div>                                                                                                                                                                                                                        |                                                                                                                                                                                             |               | SUB-SYSTEM : Electro Static Precipitator |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | REV. No: 00                                                                                                          |                                                                                                                                                       | PACKAGE:         |                                                    | EPC                                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                             |               |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DATE : 06/08/2024                                                                                                    |                                                                                                                                                       | CONTRACT NO.     |                                                    | CS-9587-001R-2-SC-NOA-7333, DATE-29.08.2023 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                             |               | AREA : Mechanical Erection               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | PAGE :13 of 13                                                                                                       |                                                                                                                                                       | MAIN CONTRACTOR  |                                                    | BHEL, PS:ER, KOLKATA                        |  |
| Sl. No                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Activity and operation                                                                                                                                                                      | Type of Check | Characteristics / instruments            | Class of check                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Quantum of check                                                                                                     | Reference Document                                                                                                                                    | Acceptance Norms | Format of Record                                   | Remarks                                     |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2                                                                                                                                                                                           | 3             | 4                                        | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6                                                                                                                    | 7                                                                                                                                                     | 8                | 9                                                  | D*                                          |  |
| 20.13                                                                                                                                                                                                                                                                                                                                                                                                                                                          | NDT on field fillet welds                                                                                                                                                                   | V             |                                          | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -100% MPI/ LPI on all fillet welds of built up plate girders<br>- MPI / LPI on other fillet weld : 5% of weld length | ASTM E709 / ASTM E165                                                                                                                                 | AWS D1.1         | NDT Report                                         | √                                           |  |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                                                             | GENERAL                                                                                                                                                                                     |               |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                      |                                                                                                                                                       |                  |                                                    |                                             |  |
| 21.01                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Completion of air in leakage test before application of insulation. Soap water solution during air tightness test also to be done for casing walls, hoppers joints, funnels and inner roof. | V             | Venturi meter                            | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 100%                                                                                                                 | Drawing, Technical Directive: 036 & Approved Procedure                                                                                                |                  |                                                    |                                             |  |
| 21.02                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Completion of welding of insulation hooks and insulation.                                                                                                                                   | V             |                                          | B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 100%                                                                                                                 | Drawing & Erection Manual                                                                                                                             |                  |                                                    |                                             |  |
| 21.03                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Completion of galleries around ESP. Ensure approach and access for PG test of the ESP.                                                                                                      | V             |                                          | B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 100%                                                                                                                 | Drawing, Technical Directive: 025 & Erection Manual                                                                                                   |                  |                                                    |                                             |  |
| 21.04                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Ensure proper insulation of all support insulator housing chambers, inner roof and emitting rapping drive.                                                                                  | V             |                                          | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 100%                                                                                                                 | Drawing & Erection Manual                                                                                                                             |                  |                                                    |                                             |  |
| <div><div>Digitally signed by ARUP RATAN PAUL<br/>DN: c=IN, o=BHARAT HEAVY ELECTRICALS LIMITED, ou=GOVERNMENT, 2.5.4.20=b6355c0e40c2ad6bdc8b4ead57fc91a7d353fa8866896bf74b6a564865593, postalCode=700091, st=WEST BENGAL, serialNumber=12BC8B448BF8320E7DE8C1F8B72DAD924764DAA0E46680985AE7403E3A8F0AE, cn=ARUP RATAN PAUL<br/>Date: 2024.08.09 17:55:19 +05'30'</div></div> |                                                                                                                                                                                             |               |                                          | <b>LEGENDS :</b><br>* Records identified with tick (√) shall be essentially included by supplier in QA documentation.<br># Class A : Critical, Class B : Major, Class C : Minor.<br>Class 'A' checks shall be witnessed by Owner FQA and Execution Engineer, Class 'B' checks shall be witnessed by Owner Execution Engineer, Class 'C' checks shall be witnessed by Main contractor engineer. CLASS 'A' & 'B' CHECKS SHALL BE NTPC CHP STAGE.<br>SR - Site Register, TR- Test Report, LB-Log Book, IR - Inspection Report, MTC - Manufacturer's Test Certificate.<br>Surveillance of Class 'A' checks shall be perform By Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt).<br><b>Note: Any non conformity/ deviation to the Quality plan must be brought to notice of NTPC. Dispositioning authority shall be the authorised representative of NTPC as per NTPC FQA system manual</b> |                                                                                                                      | For Owner Use                                                                                                                                         |                  | NTPC Doc. No. : 9587-001-104-QVM-Q-091 / Rev. - 00 |                                             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                             |               |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                      | <div><div>एनटीपीसी<br/>NTPC<br/>A Maharashtra Company</div></div> |                  |                                                    |                                             |  |
| Main Contractor                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                             |               |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                      | REVIEWED BY                                                                                                                                           |                  | APPROVED BY                                        | APPROVAL SEAL                               |  |

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## RECORD OF QUALITY CHECKS

| SHEET NO. OF QPI | CHECK NO. | RESULTS ACHIEVED OK / NOT OK | DRAWING / DOCUMENT REFERENCE | FORMAT OF RECORD | INSPECTED BY SIGN. & DATE | CLEARED BY SIGN. & DATE | REMARKS |
|------------------|-----------|------------------------------|------------------------------|------------------|---------------------------|-------------------------|---------|
|                  |           |                              |                              |                  |                           |                         |         |

**Note:** Any protocol made is to be numbered & mentioned in "Format of Record" column.

|          |  |                  |            |          |                                  |
|----------|--|------------------|------------|----------|----------------------------------|
|          |  | SYSTEM           | SUB-SYSTEM | AREA     | DOC. NO. : PP-QBE-2401-HD-QA-204 |
| PROJECT  |  |                  |            |          | REV. NO. : 00                    |
| UNIT NO. |  | BOILER AUXILIARY | ESP        | ERECTION | LOG SHEET NO. : L-00             |
| RATING   |  |                  |            |          | SHEET 1 / 1 SHEETS               |

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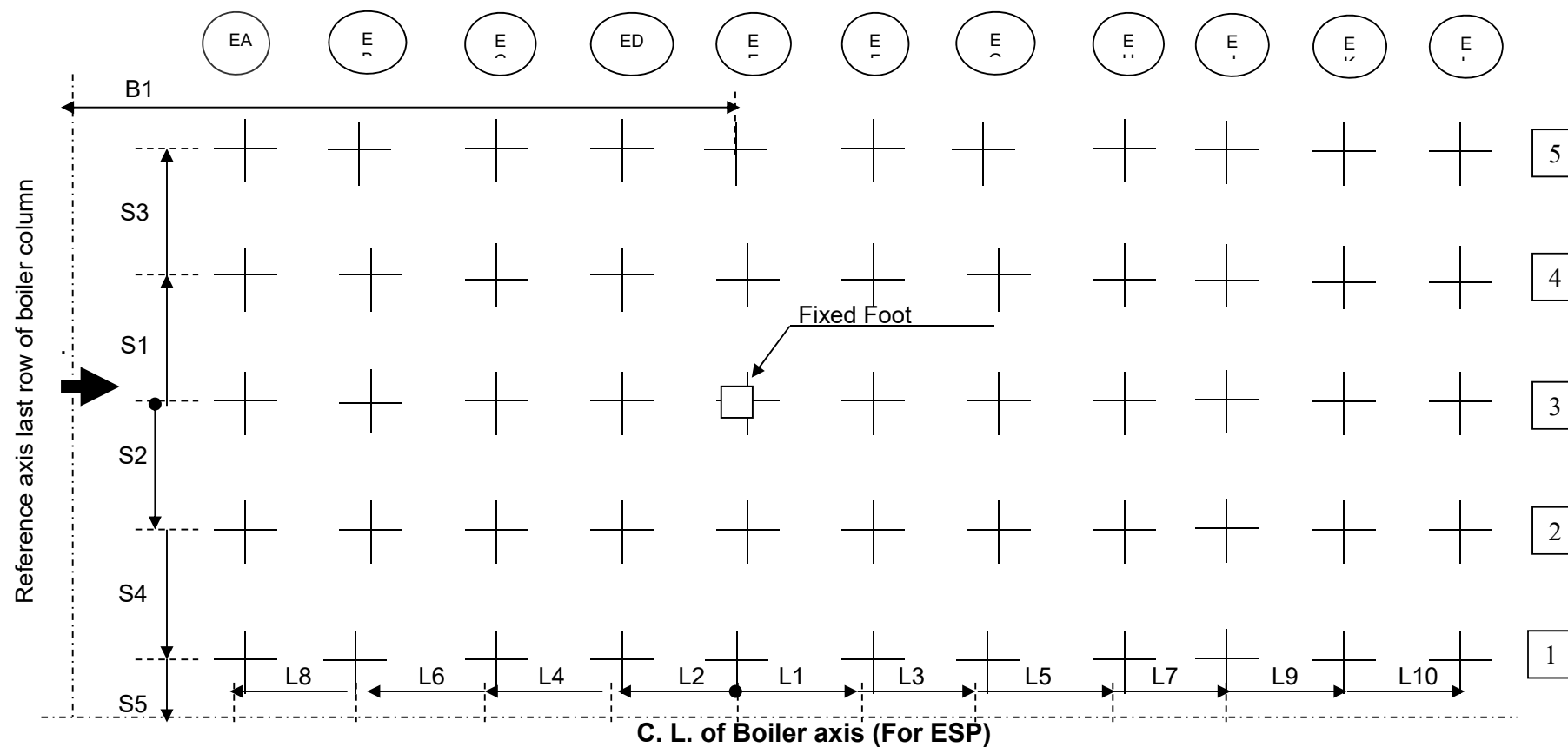


INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT NO.

### Location of ESP with Reference Axes & SPACING OF FOUNDATION PEDESTALS



|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-01           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 1 / 7                    |

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INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

**SPACING OF FOUNDATION PEDESTALS**Tolerance on spacing:  $\pm 10$  mm (including over all)

ESP No : 1 / 2

Pass :

| For Column Rows: 1 |                |        | For Column Rows: 2 |                |        |
|--------------------|----------------|--------|--------------------|----------------|--------|
| Dimension          | As per Drawing | Actual | Dimension          | As per Drawing | Actual |
| L1                 |                |        | L1                 |                |        |
| L2                 |                |        | L2                 |                |        |
| L3                 |                |        | L3                 |                |        |
| L4                 |                |        | L4                 |                |        |
| L5                 |                |        | L5                 |                |        |
| L6                 |                |        | L6                 |                |        |
| L7                 |                |        | L7                 |                |        |
| L8                 |                |        | L8                 |                |        |
| L9                 |                |        | L9                 |                |        |
| L10                |                |        | L10                |                |        |
| For Column Row: 3  |                |        | For Column Row: 4  |                |        |
| Dimension          | As per Drawing | Actual | Dimension          | As per Drawing | Actual |
| L1                 |                |        | L1                 |                |        |
| L2                 |                |        | L2                 |                |        |
| L3                 |                |        | L3                 |                |        |
| L4                 |                |        | L4                 |                |        |
| L5                 |                |        | L5                 |                |        |
| L6                 |                |        | L6                 |                |        |
| L7                 |                |        | L7                 |                |        |
| L8                 |                |        | L8                 |                |        |
| L9                 |                |        | L9                 |                |        |
| L10                |                |        | L10                |                |        |
| For Column Row: 5  |                |        | Dimension          | As per Drawing | Actual |
| Dimension          | As per Drawing | Actual |                    |                |        |
| L1                 |                |        |                    |                |        |
| L2                 |                |        |                    |                |        |
| L3                 |                |        |                    |                |        |
| L4                 |                |        |                    |                |        |
| L5                 |                |        |                    |                |        |
| L6                 |                |        |                    |                |        |
| L7                 |                |        |                    |                |        |
| L8                 |                |        |                    |                |        |
| L9                 |                |        |                    |                |        |
| L10                |                |        |                    |                |        |

Note:

- Measurements from axis passing through fixed support as reference.
  - The axes passing through the fixed support are perpendicular to each other.
- All dimensions are in mm.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-01           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 2 / 7                    |

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INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### SPACING OF FOUNDATION PEDESTALS

Tolerance on spacing:  $\pm 10$  mm (including over all)

ESP No : 1 / 2

Pass :

| For Column Rows: EA |                |        | For Column Rows: EB |                |        |
|---------------------|----------------|--------|---------------------|----------------|--------|
| Dimension           | As per Drawing | Actual | Dimension           | As per Drawing | Actual |
| S1                  |                |        | S1                  |                |        |
| S2                  |                |        | S2                  |                |        |
| S3                  |                |        | S3                  |                |        |
| S4                  |                |        | S4                  |                |        |
| S5                  |                |        | S5                  |                |        |
| For Column Row: EC  |                |        | For Column Row: ED  |                |        |
| Dimension           | As per Drawing | Actual | Dimension           | As per Drawing | Actual |
| S1                  |                |        | S1                  |                |        |
| S2                  |                |        | S2                  |                |        |
| S3                  |                |        | S3                  |                |        |
| S4                  |                |        | S4                  |                |        |
| S5                  |                |        | S5                  |                |        |
| For Column Row: EE  |                |        | For Column Row: EF  |                |        |
| Dimension           | As per Drawing | Actual | Dimension           | As per Drawing | Actual |
| S1                  |                |        | S1                  |                |        |
| S2                  |                |        | S2                  |                |        |
| S3                  |                |        | S3                  |                |        |
| S4                  |                |        | S4                  |                |        |
| S5                  |                |        | S5                  |                |        |
| For Column Row: EG  |                |        | For Column Row: EH  |                |        |
| Dimension           | As per Drawing | Actual | Dimension           | As per Drawing | Actual |
| S1                  |                |        | S1                  |                |        |
| S2                  |                |        | S2                  |                |        |
| S3                  |                |        | S3                  |                |        |
| S4                  |                |        | S4                  |                |        |
| S5                  |                |        | S5                  |                |        |

Note:

- Measurements from axis passing through fixed support as reference.
  - The axes passing through the fixed support are perpendicular to each other.
- All dimensions are in mm.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-01           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 3 / 7                    |



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INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

**SPACING OF FOUNDATION PEDESTALS AND DIAGONALS**Tolerance on spacing:  $\pm 10$  mm (including over all)

ESP No : 1 / 2

Pass :

| For Column Rows: EJ                          |                |            | For Column Rows: EK      |                |            |
|----------------------------------------------|----------------|------------|--------------------------|----------------|------------|
| Dimension                                    | As per Drawing | Actual     | Dimension                | As per Drawing | Actual     |
| S1                                           |                |            | S1                       |                |            |
| S2                                           |                |            | S2                       |                |            |
| S3                                           |                |            | S3                       |                |            |
| S4                                           |                |            | S4                       |                |            |
| S5                                           |                |            | S5                       |                |            |
| For Column Rows: EL                          |                |            |                          |                |            |
| Dimension                                    | As per Drawing | Actual     | Dimension                | As per Drawing | Actual     |
| S1                                           |                |            |                          |                |            |
| S2                                           |                |            |                          |                |            |
| S3                                           |                |            |                          |                |            |
| S4                                           |                |            |                          |                |            |
| S5                                           |                |            |                          |                |            |
| DIAGONAL MEASUREMENTS- TOL.: 1mm/M, Max:10mm |                |            |                          |                |            |
| Between Column Rows: 1&2                     |                |            | Between Column Rows: 2&3 |                |            |
| Diagonal Between                             | Measurement    | Difference | Diagonal Between         | Measurement    | Difference |
| EA1&EB2                                      |                |            | EA2&EB3                  |                |            |
| EA2&EB1                                      |                |            | EA3&EB2                  |                |            |
| EB1&EC2                                      |                |            | EB2&EC3                  |                |            |
| EB2&EC1                                      |                |            | EB3&EC2                  |                |            |
| EC1&ED2                                      |                |            | EC2&ED3                  |                |            |
| EC2&ED1                                      |                |            | EC3&ED2                  |                |            |
| ED1&EE2                                      |                |            | ED2&EE3                  |                |            |
| ED2&EE1                                      |                |            | ED3&EE2                  |                |            |
| EE1&EF2                                      |                |            | EE2&EF3                  |                |            |
| EE2&EF1                                      |                |            | EE3&EF2                  |                |            |
| EF1&EG2                                      |                |            | EF2&EG3                  |                |            |
| EF2&EG1                                      |                |            | EF3&EG2                  |                |            |
| EG1&EH2                                      |                |            | EG2&EH3                  |                |            |
| EG2&EH1                                      |                |            | EG3&EH2                  |                |            |
| EH1&EJ2                                      |                |            | EH2&EJ3                  |                |            |
| EH2&EJ1                                      |                |            | EH3&EJ2                  |                |            |
| EJ1&EK2                                      |                |            | EJ2&EK3                  |                |            |
| EJ2&EK1                                      |                |            | EJ3&EK2                  |                |            |
| EK1&EL2                                      |                |            | EK2&EL3                  |                |            |
| EK2&EL1                                      |                |            | EK3&EL2                  |                |            |

Note:

1. Measurements from axis passing through fixed support as reference.
  2. The axes passing through the fixed support are perpendicular to each other.
- All dimensions are in mm.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-01           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 4 / 7                    |

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DATE OF INSPECTION

DRAWING / DOCUMENT REF.

**DIAGONAL MEASUREMENTS**Tolerance : **1mm/M;10mm Max**

ESP No : 1 / 2

Pass :

| <b>DIAGONAL MEASUREMENTS- TOL.: 1mm/M, Max:10mm</b> |              |            |                          |              |            |
|-----------------------------------------------------|--------------|------------|--------------------------|--------------|------------|
| Between Column Rows: 3&4                            |              |            | Between Column Rows: 4&5 |              |            |
| Diagonal Between                                    | Measure ment | Difference | Diagonal Between         | Measure ment | Difference |
| EA3&EB4                                             |              |            | EA4&EB2                  |              |            |
| EA4&EB3                                             |              |            | EA5&EB1                  |              |            |
| EB3&EC4                                             |              |            | EB4&EC2                  |              |            |
| EB4&EC3                                             |              |            | EB5&EC4                  |              |            |
| EC3&ED4                                             |              |            | EC4&ED5                  |              |            |
| EC4&ED3                                             |              |            | EC5&ED4                  |              |            |
| ED3&EE4                                             |              |            | ED4&EE5                  |              |            |
| ED4&EE3                                             |              |            | ED5&EE4                  |              |            |
| EE3&EF4                                             |              |            | EE4&EF5                  |              |            |
| EE4&EF3                                             |              |            | EE5&EF4                  |              |            |
| EF3&EG4                                             |              |            | EF4&EG5                  |              |            |
| EF4&EG3                                             |              |            | EF5&EG4                  |              |            |
| EG3&EH4                                             |              |            | EG4&EH5                  |              |            |
| EG4&EH3                                             |              |            | EG5&EH4                  |              |            |
| EH3&EJ4                                             |              |            | EH4&EJ5                  |              |            |
| EH4&EJ3                                             |              |            | EH5&EJ4                  |              |            |
| EJ3&EK4                                             |              |            | EJ4&EK5                  |              |            |
| EJ4&EK3                                             |              |            | EJ5&EK4                  |              |            |
| EK3&EL4                                             |              |            | EK4&EL5                  |              |            |
| EK4&EL3                                             |              |            | EK5&EL4                  |              |            |

All dimensions are in mm.

|          |  |              |      |                  |                                      |
|----------|--|--------------|------|------------------|--------------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: <b>PP-QBE-2401-HD-QA-204</b> |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: <b>00</b>                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: <b>L-01</b>           |
| RATING   |  | CUSTOMER     |      |                  | PAGE <b>5 / 7</b>                    |

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INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### ELEVATION OF FOUNDATION PEDESTALS

Elevation of foundation pedestal as per drawing: \_\_\_\_ mm

Tolerance on measurements:  $\pm 10$  mm.

ESP No : 1 / 2

Pass :

|          |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Location | EA1 | EB1 | EC1 | ED1 | EE1 | EF1 | EG1 | EH1 | EJ1 | EK1 | EL1 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA2 | EB2 | EC2 | ED2 | EE2 | EF2 | EG2 | EH2 | EJ2 | EK2 | EL2 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA3 | EB3 | EC3 | ED3 | EE3 | EF3 | EG3 | EH3 | EJ3 | EK3 | EL3 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA4 | EB4 | EC4 | ED4 | EE4 | EF4 | EG4 | EH4 | EJ4 | EK4 | EL4 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA5 | EB5 | EC5 | ED5 | EE5 | EF5 | EG5 | EH5 | EJ5 | EK5 | EL5 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |

All dimensions are in mm.

|          |  |              |      |                     |                               |
|----------|--|--------------|------|---------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE<br>& DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                     | LOG SHEET NO.: L-01           |
| RATING   |  | CUSTOMER     |      |                     | PAGE 6 / 7                    |

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INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### ELEVATION OF BOTTOM OF BASE PLATE

Elevation of bottom of base plate as per drawing : \_\_\_\_ mm

Tolerance on measurements :  $\pm 10$  mm.

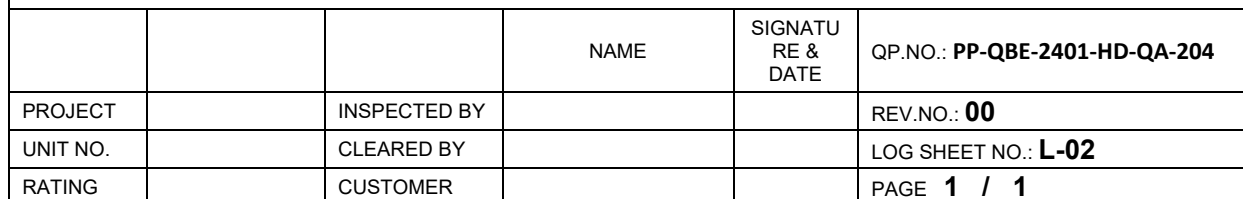
ESP No : 1 / 2

Pass :

|          |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Location | EA1 | EB1 | EC1 | ED1 | EE1 | EF1 | EG1 | EH1 | EJ1 | EK1 | EL1 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA2 | EB2 | EC2 | ED2 | EE2 | EF2 | EG2 | EH2 | EJ2 | EK2 | EL2 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA3 | EB3 | EC3 | ED3 | EE3 | EF3 | EG3 | EH3 | EJ3 | EK3 | EL3 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA4 | EB4 | EC4 | ED4 | EE4 | EF4 | EG4 | EH4 | EJ4 | EK4 | EL4 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA5 | EB5 | EC5 | ED5 | EE5 | EF5 | EG5 | EH5 | EJ5 | EK5 | EL5 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |

All dimensions are in mm.

|          |  |              |      |                     |                               |
|----------|--|--------------|------|---------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE<br>& DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: 00                   |
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| RATING   |  | CUSTOMER     |      |                     | PAGE 7 / 7                    |



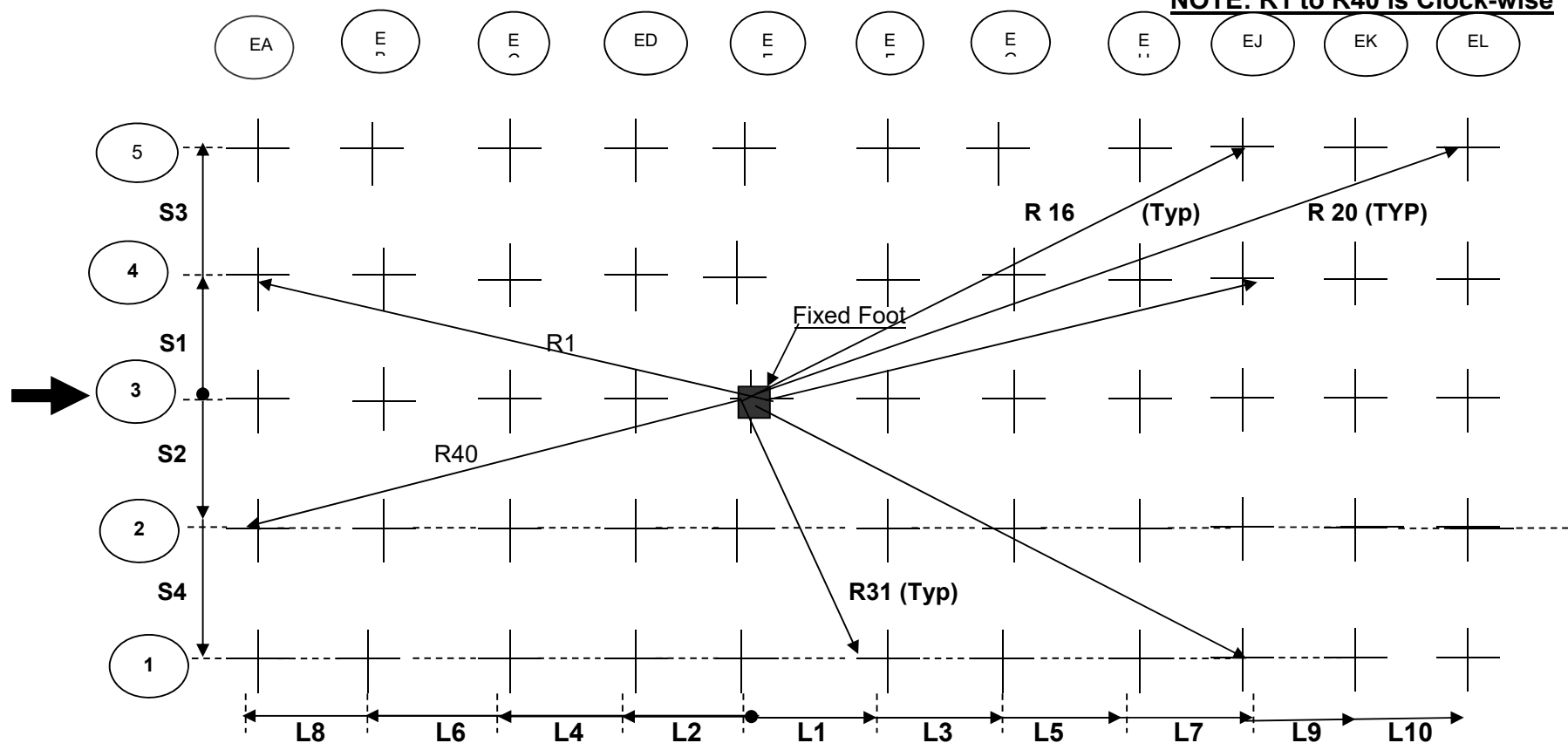
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INSTRUMENT REGN.NO.

DATE OF INSPECTION

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**Disposition of Slide supports & Radial Measurements****NOTE: R1 to R40 is Clock-wise**

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-03           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 1 / 3                    |

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DATE OF INSPECTION

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### Disposition of Slide Supports

Tolerance on spacing:  $\pm 5$  mm Max.

ESP No : 1 / 2

Pass :

As per Drg. :

| SPACING/<br>ROW | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 |
|-----------------|----|----|----|----|----|----|----|----|----|-----|
| 1               |    |    |    |    |    |    |    |    |    |     |
| 2               |    |    |    |    |    |    |    |    |    |     |
| 3               |    |    |    |    |    |    |    |    |    |     |
| 4               |    |    |    |    |    |    |    |    |    |     |
| 5               |    |    |    |    |    |    |    |    |    |     |

#### AS PER DRG.

| ROW /<br>SPACING | EA | EB | EC | ED | EE | EF | EG | EH | EJ | EK | EL |
|------------------|----|----|----|----|----|----|----|----|----|----|----|
| S1               |    |    |    |    |    |    |    |    |    |    |    |
| S2               |    |    |    |    |    |    |    |    |    |    |    |
| S3               |    |    |    |    |    |    |    |    |    |    |    |
| S4               |    |    |    |    |    |    |    |    |    |    |    |

#### NOTE :

1. Maintain the absolute level of top plate of support within  $\pm 5$  mm.
2. The verticality of supporting column shall be within **10 mm Max.**
3. Align the centre line of column w.r.t. bench mark.
4. Check the orientation of free guided slide supports.
5. Locate slide supports on centre line of column top plate.
6. Ensure the correct orientation of all bearings and log in the plan bottom and plan top dimensions of each bearing as per drawing.
7. All dimensions are in mm.
8. For each ESP, separate log sheet to be made.

|          |  |              |      |                     |                                   |
|----------|--|--------------|------|---------------------|-----------------------------------|
|          |  |              | NAME | SIGNATURE &<br>DATE | QP.NO.: PP-QBE-2401-HD-<br>QA-204 |
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| RATING   |  | CUSTOMER     |      |                     | PAGE 2 / 3                        |

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### LEVEL OF TOP PLATE OF SUPPORTS & RADIAL MEASUREMENTS

Tolerance on level:  $\pm 5$  mm Max.

ESP No : 1 / 2

Pass :

|          |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Location | EA1 | EB1 | EC1 | ED1 | EE1 | EF1 | EG1 | EH1 | EJ1 | EK1 | EL1 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA2 | EB2 | EC2 | ED2 | EE2 | EF2 | EG2 | EH2 | EJ2 | EK2 | EL2 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA3 | EB3 | EC3 | ED3 | EE3 | EF3 | EG3 | EH3 | EJ3 | EK3 | EL3 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA4 | EB4 | EC4 | ED4 | EE4 | EF4 | EG4 | EH4 | EJ4 | EK4 | EL4 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |
| Location | EA5 | EB5 | EC5 | ED5 | EE5 | EF5 | EG5 | EH5 | EJ5 | EK5 | EL5 |
| Actual   |     |     |     |     |     |     |     |     |     |     |     |

### Radial measurements (between fixed & individual supports)

Tolerance:  $\pm 5$  mm Max.

|        |     |     |     |     |     |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | R1  | R2  | R3  | R4  | R5  | R6  | R7  | R8  | R9  | R10 |
| Actual |     |     |     |     |     |     |     |     |     |     |
|        | R11 | R12 | R13 | R14 | R15 | R16 | R17 | R18 | R19 | R20 |
| Actual |     |     |     |     |     |     |     |     |     |     |
|        | R21 | R22 | R23 | R24 | R25 | R26 | R27 | R28 | R29 | R30 |
| Actual |     |     |     |     |     |     |     |     |     |     |
|        | R31 | R32 | R33 | R34 | R35 | R36 | R37 | R38 | R39 | R40 |
| Actual |     |     |     |     |     |     |     |     |     |     |

All dimensions are in mm.

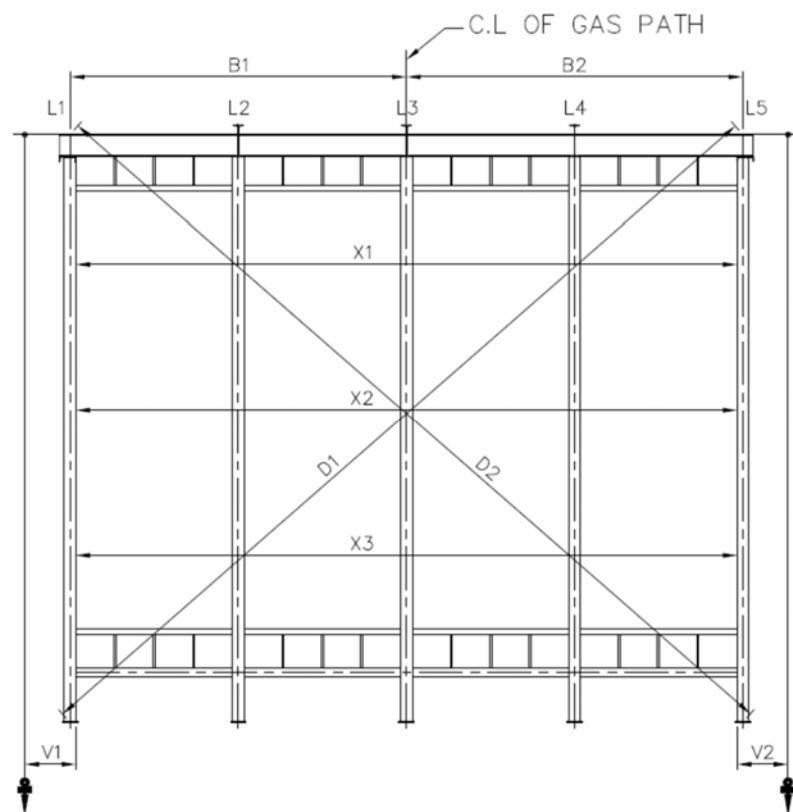
|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
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|  |                        |  |  |
|--|------------------------|--|--|
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|  | DATE OF INSPECTION     |  |  |
|  | DRAWING / DOCUMENT NO. |  |  |

### Inlet / Outlet & Intermediate frames of 5 column arrangement



| Sl. No. | Check and log                                         | Permissible Deviation | Dimension   |
|---------|-------------------------------------------------------|-----------------------|-------------|
| 1       | The level of bottom flange of longitudinal roof beam. | 3 mm                  | L1 to L5    |
| 2       | Verticality of panels.                                | 10 mm                 | V1 & V2     |
| 3       | The opening along the gas flow.                       | ± 10 mm               | X1, X2 & X3 |
| 4       | The centre line of gas path chamber.                  | ± 2 mm                | B1 & B2     |
| 5       | Diagonal Difference                                   | 15 mm                 | D1~D2       |

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-04           |
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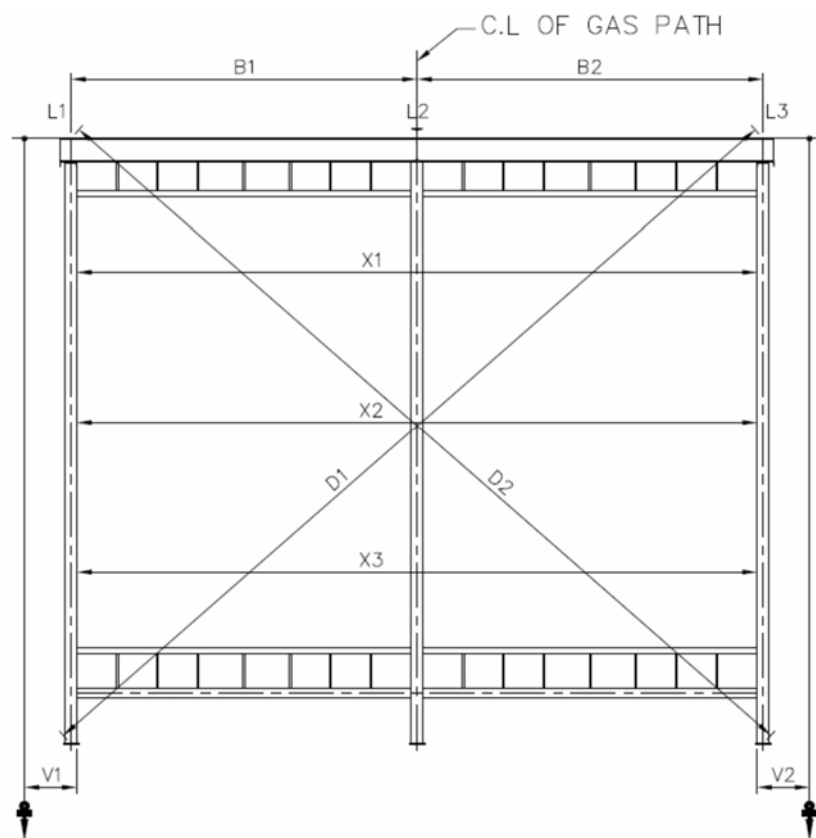


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### Inlet / Outlet & Intermediate frames of 3 column arrangement



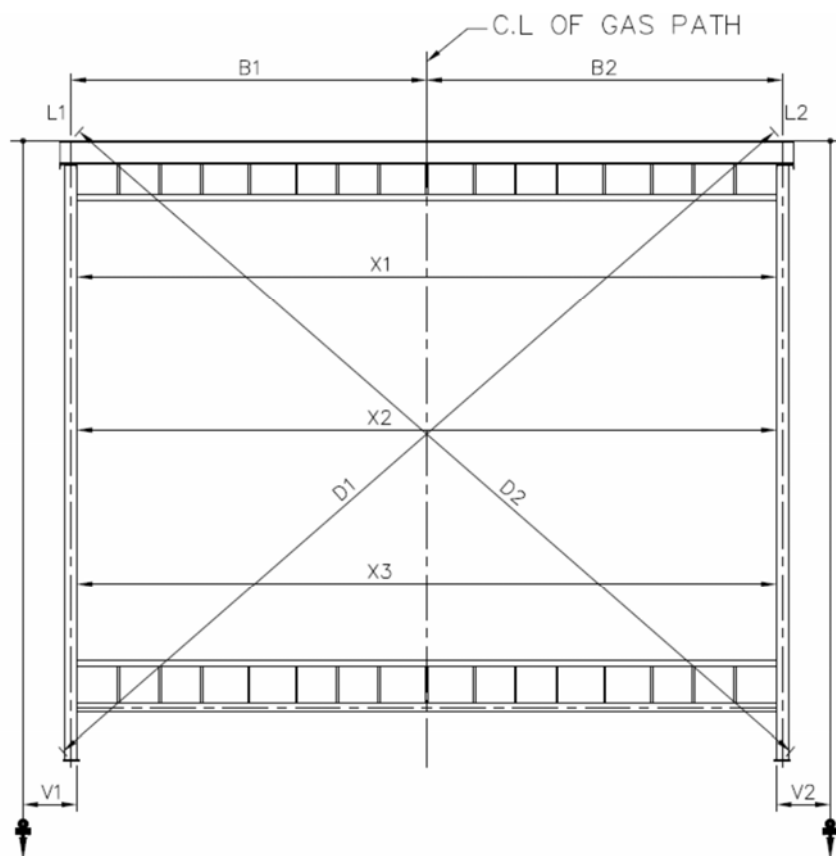
| Sl. No. | Check and log                                         | Permissible Deviation | Dimension   |
|---------|-------------------------------------------------------|-----------------------|-------------|
| 1       | The level of bottom flange of longitudinal roof beam. | 3 mm                  | L1 to L3    |
| 2       | Verticality of panels.                                | 10 mm                 | V1 & V2     |
| 3       | The opening along the gas flow.                       | ± 10 mm               | X1, X2 & X3 |
| 4       | The centre line of gas path chamber.                  | ± 2 mm                | B1 & B2     |
| 5       | Diagonal Difference                                   | 15 mm                 | D1~D2       |

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-04           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 2 / 5                    |

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|                                                                                   |                        |  |  |
|-----------------------------------------------------------------------------------|------------------------|--|--|
|  | INSTRUMENT REGN.NO.    |  |  |
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|                                                                                   | DRAWING / DOCUMENT NO. |  |  |

### Inlet / Outlet & Intermediate frames of 2 column arrangement



| Sl. No. | Check and log                                         | Permissible Deviation | Dimension   |
|---------|-------------------------------------------------------|-----------------------|-------------|
| 1       | The level of bottom flange of longitudinal roof beam. | 3 mm                  | L1 & L2     |
| 2       | Verticality of panels.                                | 10 mm                 | V1 & V2     |
| 3       | The opening along the gas flow.                       | ± 10 mm               | X1, X2 & X3 |
| 4       | The centre line of gas path chamber.                  | ± 2 mm                | B1 & B2     |
| 5       | Diagonal Difference                                   | 15 mm                 | D1~D2       |

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
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|          | Sl.No. | L1 | L2 | L3 | L4 | L5 | V1 | V2 | B1 | B2 | X1 | X2 | X3 | D1 ~ D2 |
|----------|--------|----|----|----|----|----|----|----|----|----|----|----|----|---------|
| ESP - I  | 1      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 2      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 3      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 4      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 5      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 6      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 7      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 8      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 9      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 10     |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 11     |    |    |    |    |    |    |    |    |    |    |    |    |         |
| ESP - II | 1      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 2      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 3      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 4      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 5      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 6      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 7      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 8      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 9      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 10     |    |    |    |    |    |    |    |    |    |    |    |    |         |
|          | 11     |    |    |    |    |    |    |    |    |    |    |    |    |         |

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
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|           | Sl.No. | L1 | L2 | L3 | L4 | L5 | V1 | V2 | B1 | B2 | X1 | X2 | X3 | D1 ~ D2 |
|-----------|--------|----|----|----|----|----|----|----|----|----|----|----|----|---------|
| ESP - III | 1      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 2      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 3      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 4      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 5      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 6      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 7      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 8      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 9      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 10     |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 11     |    |    |    |    |    |    |    |    |    |    |    |    |         |
| ESP - IV  | 1      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 2      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 3      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 4      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 5      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 6      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 7      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 8      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 9      |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 10     |    |    |    |    |    |    |    |    |    |    |    |    |         |
|           | 11     |    |    |    |    |    |    |    |    |    |    |    |    |         |

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
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| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
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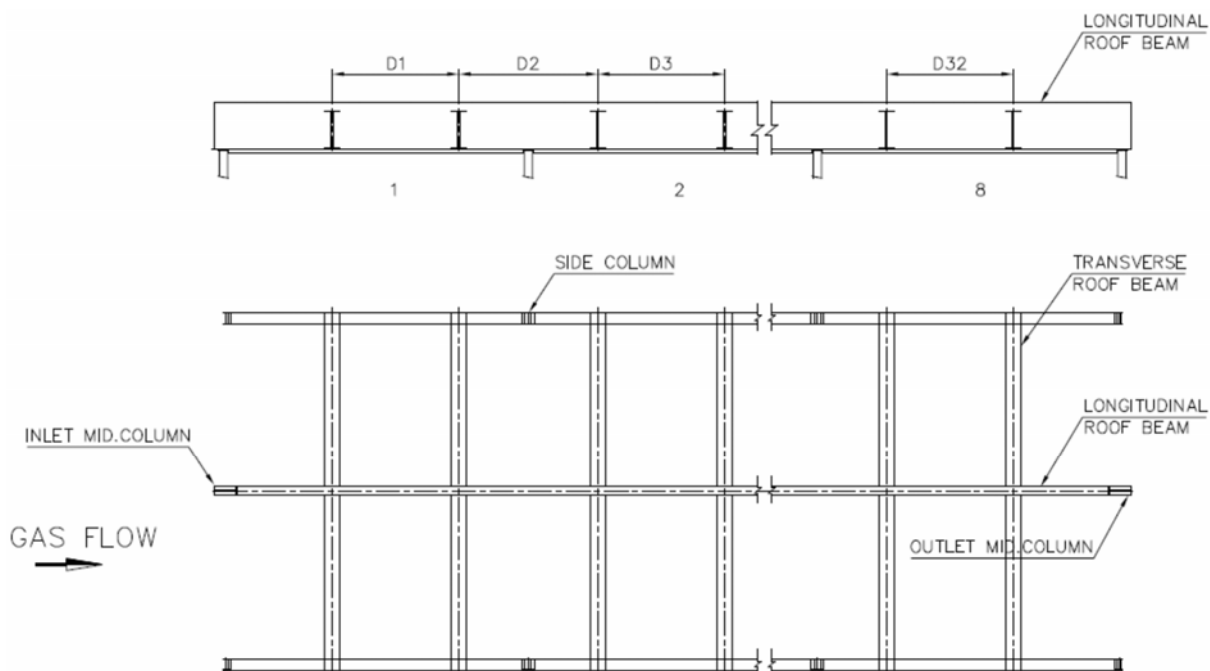


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### Location of Transverse Roof Beams



#### NOTE :

1. Take measurements of transverse roof beams location at three places as shown within **5 mm Max.**
2. Ensure the level of the bottom flange of the transverse roof beam within **5 mm Max.**
3. All dimensions are in mm.
4. Separate log sheet to be made for each pass of ESP.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
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| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
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### SPACING OF TRANSVERSE ROOF BEAMS

ESP No.:

Pass :

| Location | As per Drawing | Measurements |   |   |
|----------|----------------|--------------|---|---|
|          |                | 1            | 2 | 3 |
| D1       |                |              |   |   |
| D2       |                |              |   |   |
| D3       |                |              |   |   |
| D4       |                |              |   |   |
| D5       |                |              |   |   |
| D6       |                |              |   |   |
| D7       |                |              |   |   |
| D8       |                |              |   |   |
| D9       |                |              |   |   |
| D10      |                |              |   |   |
| D11      |                |              |   |   |
| D12      |                |              |   |   |
| D13      |                |              |   |   |
| D14      |                |              |   |   |
| D15      |                |              |   |   |
| D16      |                |              |   |   |
| D17      |                |              |   |   |
| D18      |                |              |   |   |
| D19      |                |              |   |   |
| D20      |                |              |   |   |
| D21      |                |              |   |   |
| D22      |                |              |   |   |
| D23      |                |              |   |   |
| D24      |                |              |   |   |
| D25      |                |              |   |   |
| D26      |                |              |   |   |
| D27      |                |              |   |   |
| D28      |                |              |   |   |
| D29      |                |              |   |   |
| D30      |                |              |   |   |
| D31      |                |              |   |   |
| D32      |                |              |   |   |

All dimensions are in mm.

Separate log sheet to be made for each ESP.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
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|                                                                                   |                         |  |  |
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### LEVEL OF TRANSVERSE ROOF BEAMS

ESP No.: 1 / 2

Pass :

| Roof<br>Beam<br>No. | Location |   |   | Roof<br>Beam<br>No. | Location |   |   |
|---------------------|----------|---|---|---------------------|----------|---|---|
|                     | 1        | 2 | 3 |                     | 1        | 2 | 3 |
| 1                   |          |   |   | 17                  |          |   |   |
| 2                   |          |   |   | 18                  |          |   |   |
| 3                   |          |   |   | 19                  |          |   |   |
| 4                   |          |   |   | 20                  |          |   |   |
| 5                   |          |   |   |                     |          |   |   |
| 6                   |          |   |   |                     |          |   |   |
| 7                   |          |   |   |                     |          |   |   |
| 8                   |          |   |   |                     |          |   |   |
| 9                   |          |   |   |                     |          |   |   |
| 10                  |          |   |   |                     |          |   |   |
| 11                  |          |   |   |                     |          |   |   |
| 12                  |          |   |   |                     |          |   |   |
| 13                  |          |   |   |                     |          |   |   |
| 14                  |          |   |   |                     |          |   |   |
| 15                  |          |   |   |                     |          |   |   |
| 16                  |          |   |   |                     |          |   |   |

For each ESP separate log sheet to be made.

All dimensions are in mm.

|          |  |              |      |                     |                                   |
|----------|--|--------------|------|---------------------|-----------------------------------|
|          |  |              | NAME | SIGNATURE &<br>DATE | QP.NO.: PP-QBE-2401-HD-<br>QA-204 |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: 00                       |
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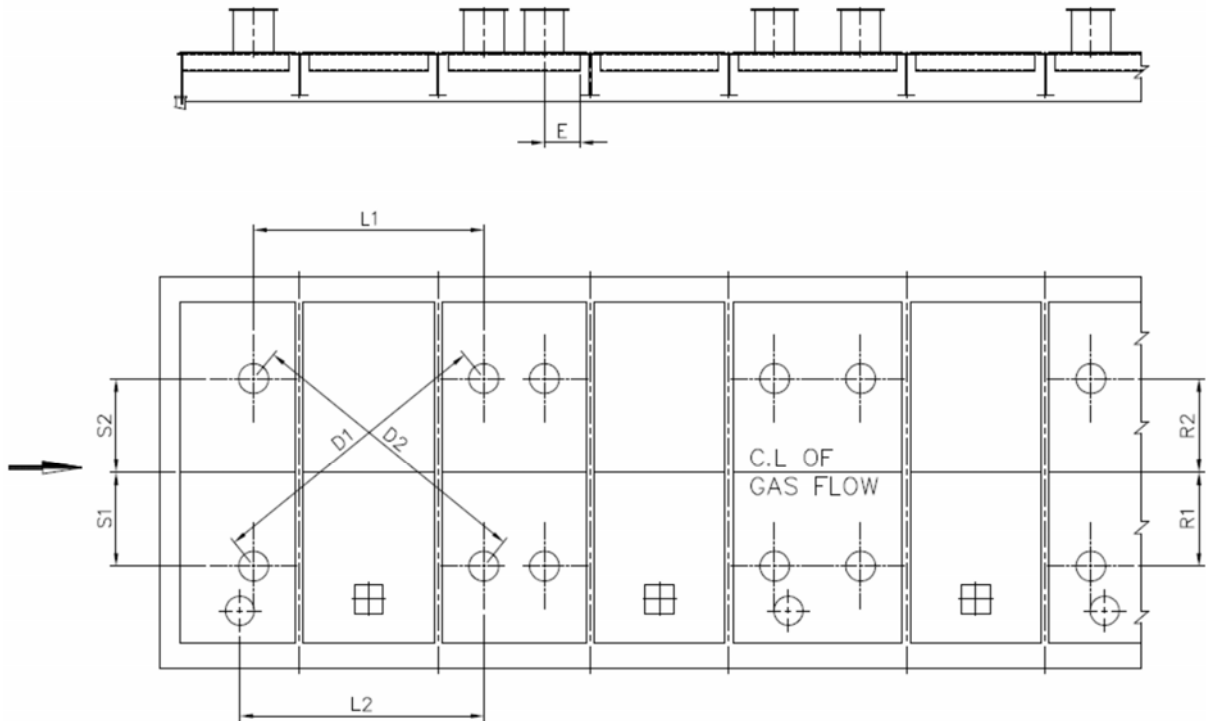
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### INSULATOR SUPPORT PANEL MEASUREMENTS

ESP No.: 1 / 2

Pass :



#### Permissible variation:

1. The positioning of the opening for support insulators w.r.t. GPCL =  $\pm 2$  mm. (S1, S2, R1 & R2)
2. The diagonal deviation of the opening for the support of emitting system = **5 mm Max.** (D1 & D2)
3. Distance between the end hook to centre line of suspension tube =  $\pm 5$  mm. (E)
4. Spacing =  $\pm 2$  mm. (L1 & L2)

#### **NOTE:**

1. Refer Roof panel drawing.
2. S1, S2, R1 & R2 indicates front & rear readings of a field.
3. All dimensions are in mm.
4. Separate log sheet to be made for each pass of ESP.

|          |  |              |      |                  |                                  |
|----------|--|--------------|------|------------------|----------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD<br>QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                      |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-06              |
| RATING   |  | CUSTOMER     |      |                  | PAGE 1 / 2                       |

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### INSULATOR SUPPORT PANEL MEASUREMENT

ESP No. : 1 / 2

Pass :

| Location | ESP FIELD NUMBER |   |   |   |   |   |   |   |   |    |
|----------|------------------|---|---|---|---|---|---|---|---|----|
|          | 1                | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| S1       |                  |   |   |   |   |   |   |   |   |    |
| S2       |                  |   |   |   |   |   |   |   |   |    |
| R1       |                  |   |   |   |   |   |   |   |   |    |
| R2       |                  |   |   |   |   |   |   |   |   |    |
| L1       |                  |   |   |   |   |   |   |   |   |    |
| L2       |                  |   |   |   |   |   |   |   |   |    |
| E        |                  |   |   |   |   |   |   |   |   |    |
| E        |                  |   |   |   |   |   |   |   |   |    |
| E        |                  |   |   |   |   |   |   |   |   |    |
| E        |                  |   |   |   |   |   |   |   |   |    |
| D1 ~ D2  |                  |   |   |   |   |   |   |   |   |    |

All dimensions are in mm.

Separate log sheet to be made for each ESP.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-0A-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLCEARED BY  |      |                  | LOG SHEET NO.: L-06           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 2 / 2                    |

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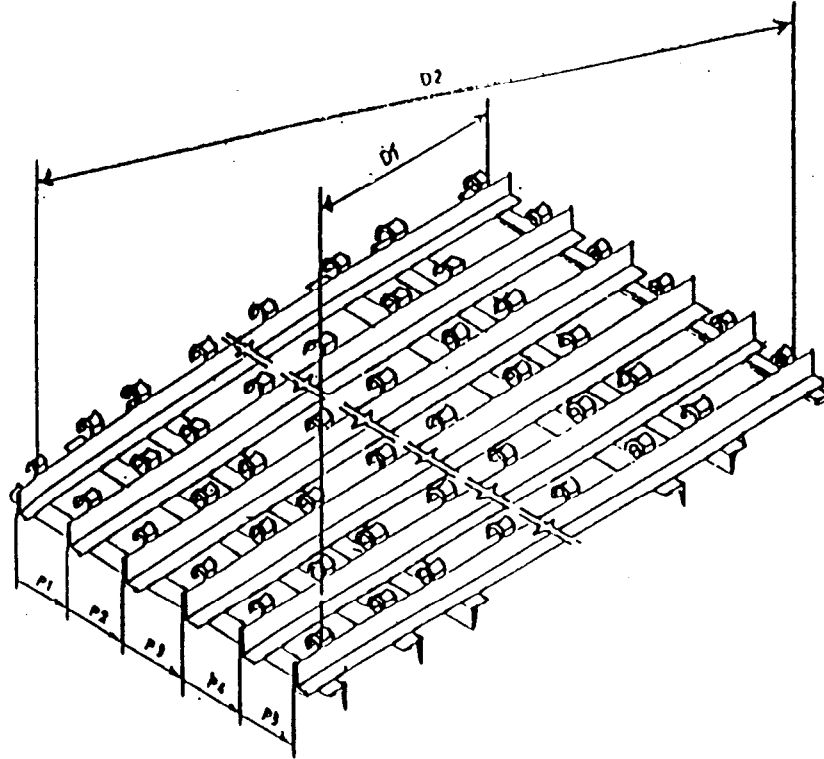
DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### SUSPENSION FRAME OF COLLECTING ELECTRODES

ESP No.: 1 / 2

Pass :



#### NOTE :

1. Diagonal difference between corner hooks = **7 mm Max.**
2. Tolerance on cumulative pitch between angles = **± 3 mm Max.**
3. Log the measurements in sheet 2 / 2.

|          |  |              |      |                     |                                   |
|----------|--|--------------|------|---------------------|-----------------------------------|
|          |  |              | NAME | SIGNATURE &<br>DATE | QP.NO.: PP-QBE-2401-HD-QA-<br>204 |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: 00                       |
| UNIT NO. |  | CLEARED BY   |      |                     | LOG SHEET NO.: L-07               |
| RATING   |  | CUSTOMER     |      |                     | PAGE 1 / 2                        |

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DATE OF INSPECTION

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### **SUSPENSION FRAME OF COLLECTING ELECTRODES - MEASUREMENTS**

ESP No.: 1 / 2

Pass :

| DU NO. | FRAME NO. | P1 | P2 | P3 | P4 | P5 | P6 | P7 | D1 | D2 | LOCATION |
|--------|-----------|----|----|----|----|----|----|----|----|----|----------|
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |

All dimensions are in mm.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-07           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 2 / 2                    |

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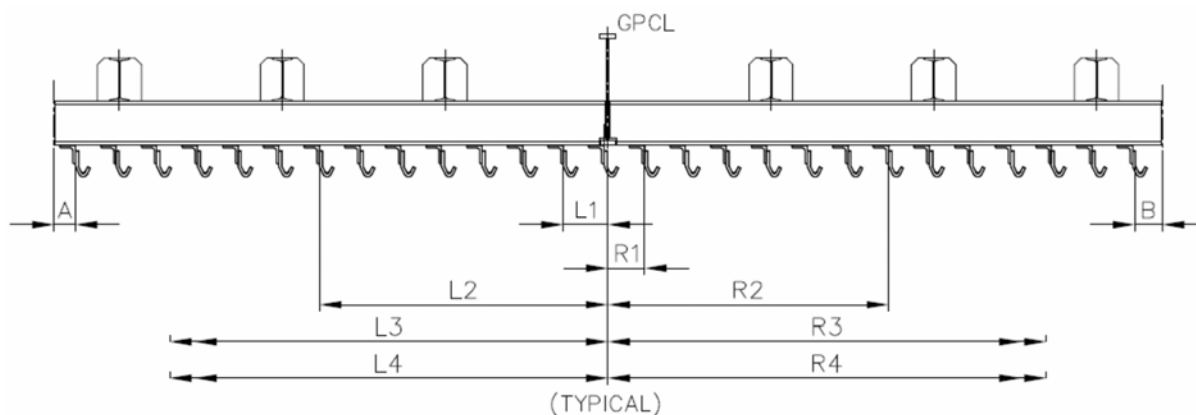


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### COLLECTING ELECTRODE SUSPENSION ARRANGEMENT



| DIMENSION | 1 <sup>st</sup> FIELD | OTHER FIELDS |
|-----------|-----------------------|--------------|
| A         | 74                    | 126          |
| B         | 126                   | 74           |

#### NOTE :

Take all measurements from GPCL.

The cumulative measurements between GPCL and collecting electrode suspension frame shall be within  $\pm 3$  mm.

Maintain the end hook of support angle in one line and perpendicular to GPCL within  $\pm 3$  mm.

Refer suspension frame of collecting electrode detail drawing.

All dimensions are in mm.

Separate log sheet to be made for each pass of ESP.

|          |  |              |      |                  |                                  |
|----------|--|--------------|------|------------------|----------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD<br>QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                      |
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DATE OF INSPECTION

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### COLLECTING ELECTRODE SUSPENSION ARRANGEMENT

ESP No.: 1 / 2

Pass :

| Dimension | ESP FIELD NUMBERS |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
|-----------|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|
|           | 1                 |   | 2 |   | 3 |   | 4 |   | 5 |   | 6 |   | 7 |   | 8 |   | 9 |   | 10 |   |
|           | F                 | R | F | R | F | R | F | R | F | R | F | R | F | R | F | R | F | R | F  | R |
| L1        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| R1        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| L2        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| R2        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| L3        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| R3        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| L4        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| R4        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| L5        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| R5        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| L6        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| R6        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| L7        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| R7        |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| A         |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| B         |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |

All dimensions are in mm.

Separate log sheet to be made for each ESP.

F - refers to Front side of ESP

R - Refers to Rear side of the suspension arrangement of the respective field.

|          |  |              |      |                  |                                   |
|----------|--|--------------|------|------------------|-----------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-<br>QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                       |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-08               |
| RATING   |  | CUSTOMER     |      |                  | PAGE 2 / 2                        |

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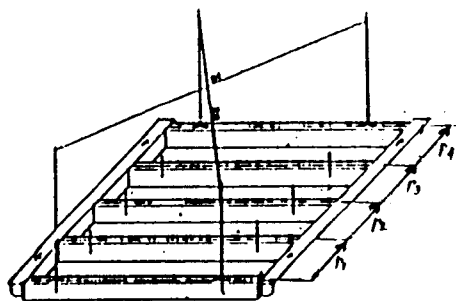
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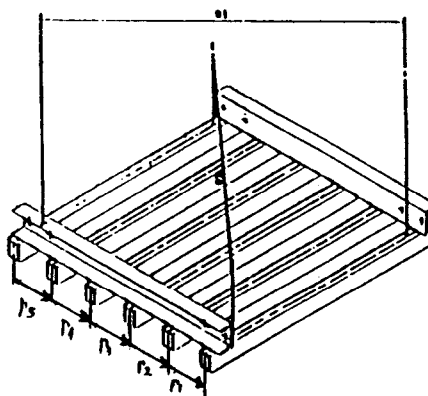
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### SUSPENSION FRAMES OF EMITTING SYSTEM

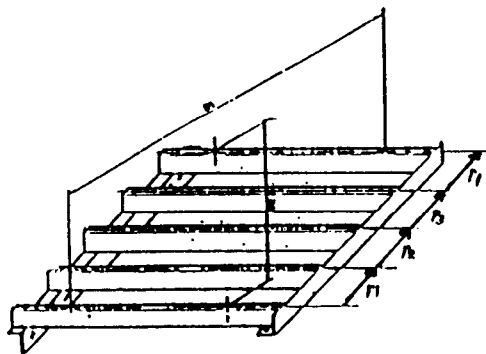
EMITTING FRAME - TOP



EMITTING FRAME - BOTTOM



EMITTING FRAME - MIDDLE



#### NOTE :

1. Diagonal difference between corner hooks = **7 mm Max.**
2. Tolerance on cumulative pitch between angles =  **$\pm 3$  mm Max.**
3. Log the measurements in sheet 2 / 2.

|          |  |              |      |                  |                                  |
|----------|--|--------------|------|------------------|----------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD<br>QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                      |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-09              |
| RATING   |  | CUSTOMER     |      |                  | PAGE 1 / 2                       |

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DATE OF INSPECTION

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### SUSPENSION FRAME OF EMITTING ELECTRODES - MEASUREMENTS

ESP No.: 1 / 2

Pass :

| DU NO. | FRAME NO. | P1 | P2 | P3 | P4 | P5 | P6 | P7 | D1 | D2 | LOCATION |
|--------|-----------|----|----|----|----|----|----|----|----|----|----------|
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |
|        |           |    |    |    |    |    |    |    |    |    | FRONT    |
|        |           |    |    |    |    |    |    |    |    |    | MIDDLE   |
|        |           |    |    |    |    |    |    |    |    |    | REAR     |

All dimensions are in mm.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-09           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 2 / 2                    |



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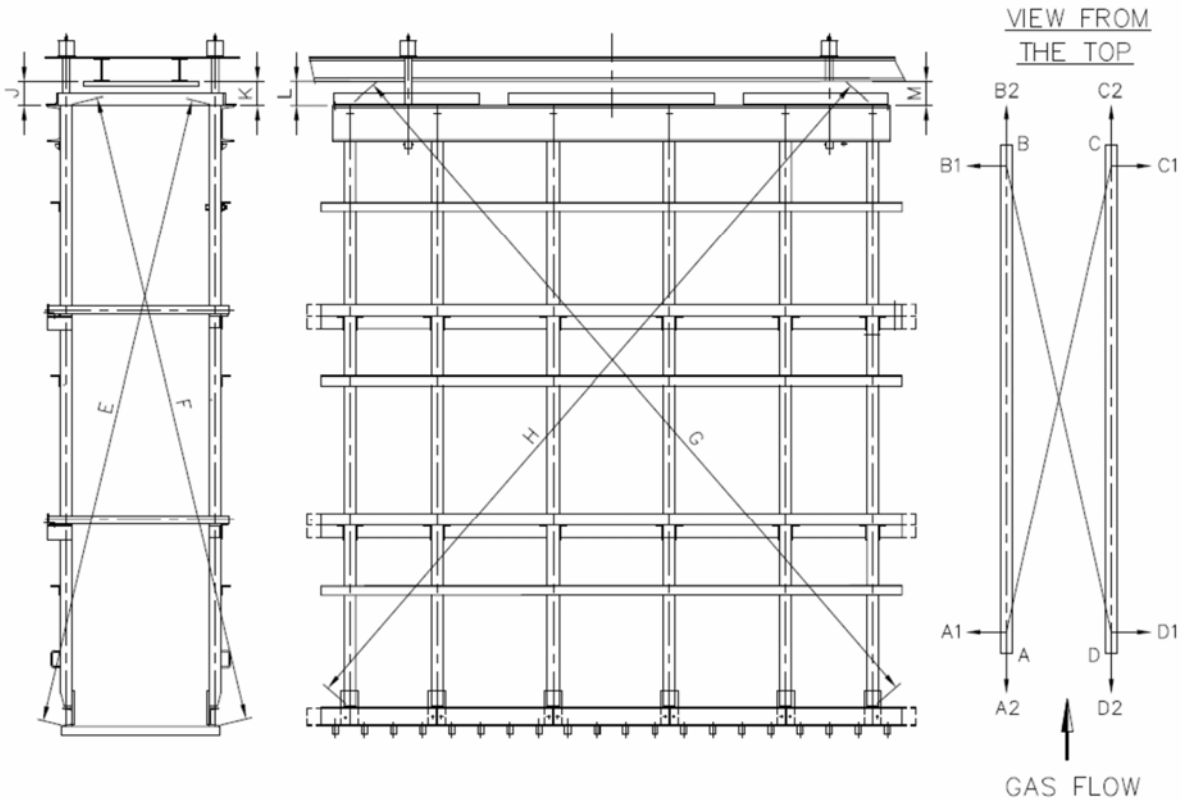


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## EMITTING SYSTEM FRAME WORK ASSEMBLY



### Permissible variation :

The distance between bottom of roof beam and top of supporting beam (J,K,L,M ) ...  $\pm 5$  mm.

The verticality of frame work in both the axes by plumbing on four outer most corner holders. (A1, A2, B1, B2, C1, C2, D1, D2) .... **5 mm Max.**

The diagonals of the emitting system after assembly on extreme corner. (E, F,G,H) ..... **10 mm Max.**

**LEGEND:** A1, A2 ...D2 refers plumb line.

### NOTE :

Separate log sheet to be made for each pass of ESP.

All dimensions are in mm.

|          |  |              |      |                  |                                  |
|----------|--|--------------|------|------------------|----------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD<br>QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                      |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-10              |
| RATING   |  | CUSTOMER     |      |                  | PAGE 1 / 4                       |

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**EMITTING SYSTEM FRAME WORK ASSEMBLY**

ESP No.: 1 / 2

Pass :

| Dimension   | ESP FIELD NUMBERS |   |   |   |   |   |   |   |   |    |
|-------------|-------------------|---|---|---|---|---|---|---|---|----|
|             | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| A1          |                   |   |   |   |   |   |   |   |   |    |
| A2          |                   |   |   |   |   |   |   |   |   |    |
| B1          |                   |   |   |   |   |   |   |   |   |    |
| B2          |                   |   |   |   |   |   |   |   |   |    |
| C1          |                   |   |   |   |   |   |   |   |   |    |
| C2          |                   |   |   |   |   |   |   |   |   |    |
| D1          |                   |   |   |   |   |   |   |   |   |    |
| D2          |                   |   |   |   |   |   |   |   |   |    |
| E ~ F (LS)  |                   |   |   |   |   |   |   |   |   |    |
| E ~ F (RS)  |                   |   |   |   |   |   |   |   |   |    |
| G ~ H (FS)  |                   |   |   |   |   |   |   |   |   |    |
| G ~ H (RRS) |                   |   |   |   |   |   |   |   |   |    |
| J           |                   |   |   |   |   |   |   |   |   |    |
| K           |                   |   |   |   |   |   |   |   |   |    |
| L           |                   |   |   |   |   |   |   |   |   |    |
| M           |                   |   |   |   |   |   |   |   |   |    |

All dimensions are in mm.

Separate log sheet to be made for each pass of ESP.

**LEGEND** : RS : Right side      LS : Left side      FS : Front side      RRS : Rear side.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-10           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 2 / 4                    |

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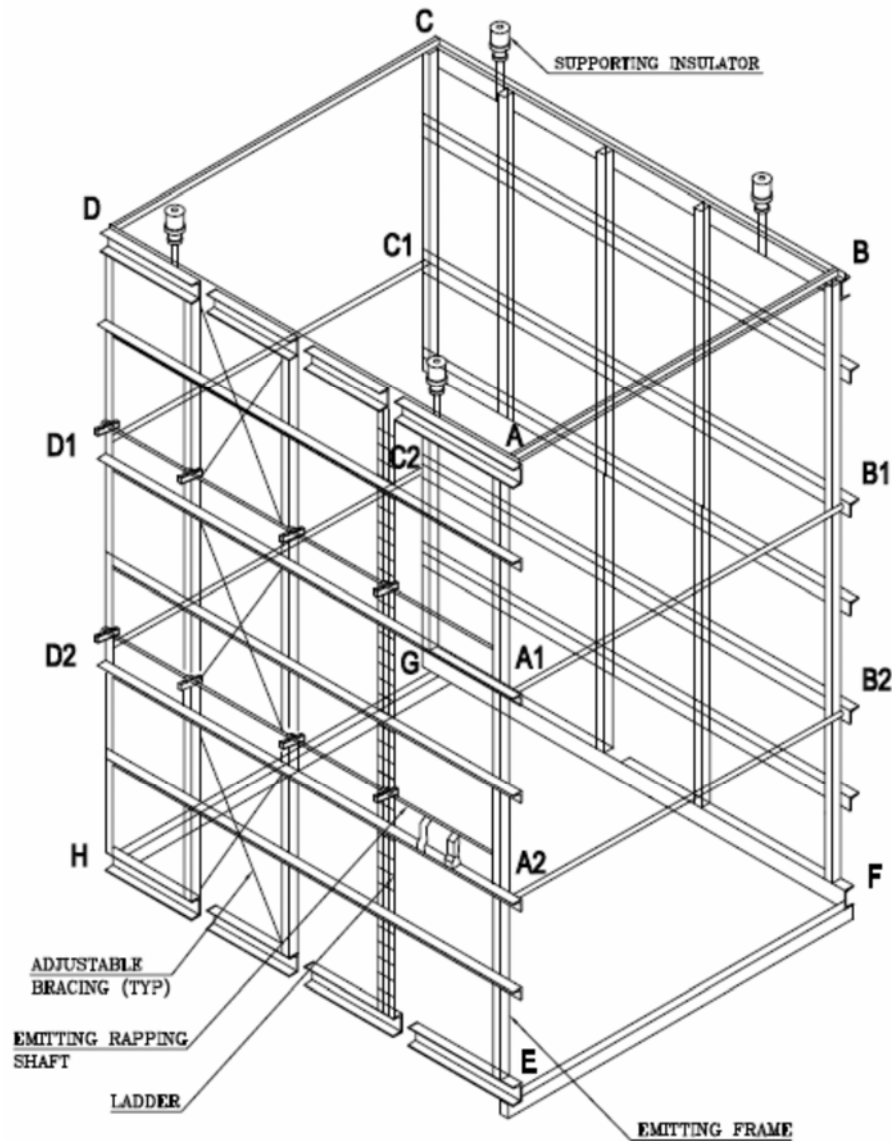


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### EMITTING SYSTEM FRAME WORK ASSEMBLY



|          |  |              |      |                     |                               |
|----------|--|--------------|------|---------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE<br>& DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: 00                   |
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| RATING   |  | CUSTOMER     |      |                     | PAGE 3 / 4                    |

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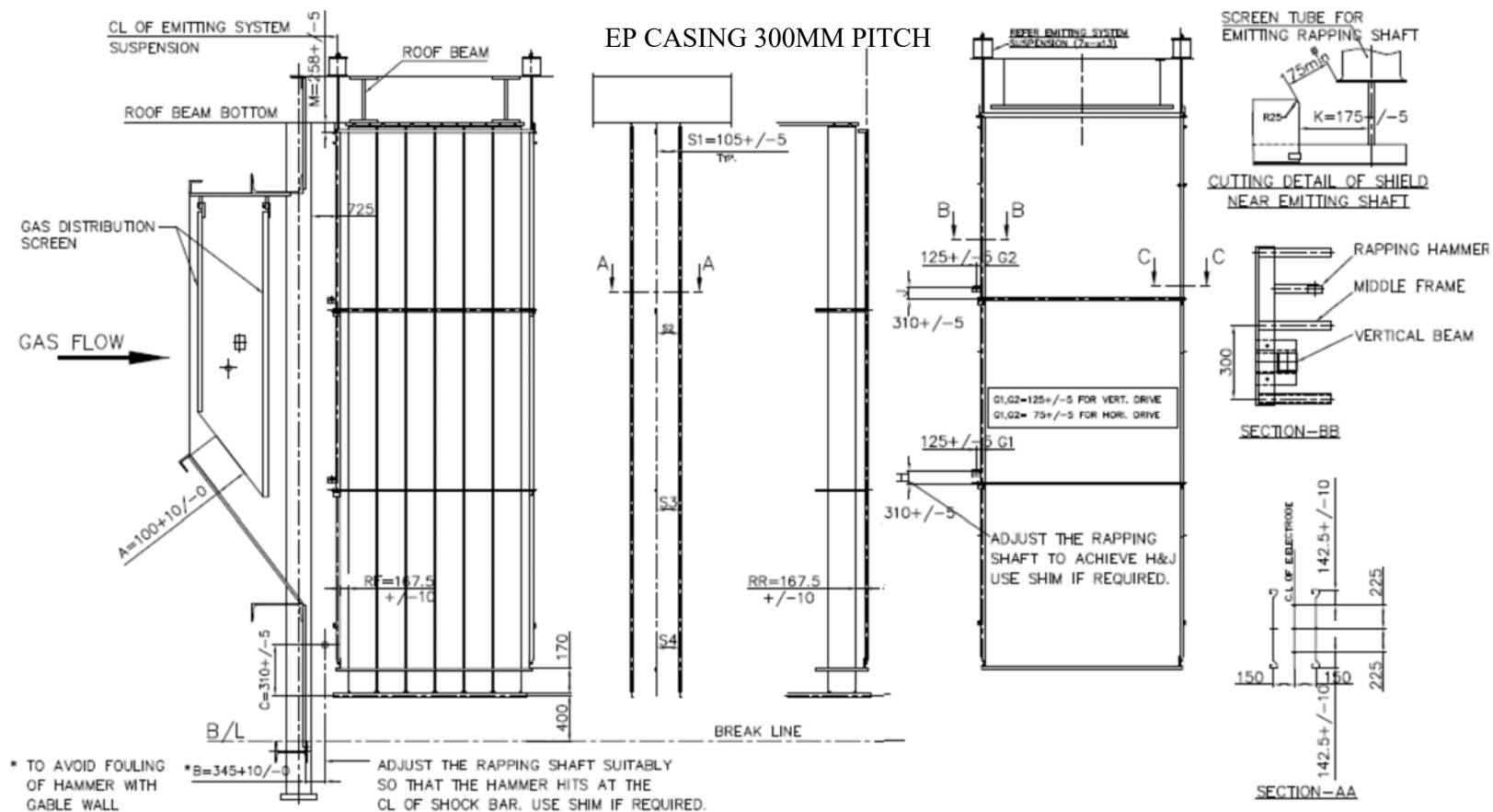
### EMITTING SYSTEM FRAME WORK ASSEMBLY

| Measure-<br>ment | FIELD NUMBERS |   |   |   |   |   |   |   |   |    |
|------------------|---------------|---|---|---|---|---|---|---|---|----|
|                  | 1             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AB               |               |   |   |   |   |   |   |   |   |    |
| A1B1             |               |   |   |   |   |   |   |   |   |    |
| A2B2             |               |   |   |   |   |   |   |   |   |    |
| EF               |               |   |   |   |   |   |   |   |   |    |
| CD               |               |   |   |   |   |   |   |   |   |    |
| C1D1             |               |   |   |   |   |   |   |   |   |    |
| C2D2             |               |   |   |   |   |   |   |   |   |    |
| GH               |               |   |   |   |   |   |   |   |   |    |
| AC               |               |   |   |   |   |   |   |   |   |    |
| A1C1             |               |   |   |   |   |   |   |   |   |    |
| A2C2             |               |   |   |   |   |   |   |   |   |    |
| EG               |               |   |   |   |   |   |   |   |   |    |
| BD               |               |   |   |   |   |   |   |   |   |    |
| B1D1             |               |   |   |   |   |   |   |   |   |    |
| B2D2             |               |   |   |   |   |   |   |   |   |    |
| FH               |               |   |   |   |   |   |   |   |   |    |
| AD1              |               |   |   |   |   |   |   |   |   |    |
| DA1              |               |   |   |   |   |   |   |   |   |    |
| BC1              |               |   |   |   |   |   |   |   |   |    |
| CB1              |               |   |   |   |   |   |   |   |   |    |
| A1D2             |               |   |   |   |   |   |   |   |   |    |
| D1A2             |               |   |   |   |   |   |   |   |   |    |
| B1C2             |               |   |   |   |   |   |   |   |   |    |
| C1B2             |               |   |   |   |   |   |   |   |   |    |
| HA2              |               |   |   |   |   |   |   |   |   |    |
| ED2              |               |   |   |   |   |   |   |   |   |    |
| FC2              |               |   |   |   |   |   |   |   |   |    |
| GB2              |               |   |   |   |   |   |   |   |   |    |
| AD               |               |   |   |   |   |   |   |   |   |    |
| A1D1             |               |   |   |   |   |   |   |   |   |    |
| A2D2             |               |   |   |   |   |   |   |   |   |    |
| EH               |               |   |   |   |   |   |   |   |   |    |
| BC               |               |   |   |   |   |   |   |   |   |    |
| B1C1             |               |   |   |   |   |   |   |   |   |    |
| B2C2             |               |   |   |   |   |   |   |   |   |    |
| FG               |               |   |   |   |   |   |   |   |   |    |

|          |  |              |      |                     |                               |
|----------|--|--------------|------|---------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE<br>& DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: 00                   |
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| RATING   |  | CUSTOMER     |      |                     | PAGE 4 / 4                    |

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|                                                                                   |                        |  |
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|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 1 / 20                   |





**BHEL**

[illegible]

|          |  |              |      |                  |                                      |
|----------|--|--------------|------|------------------|--------------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: <b>PP-QBE-2401-HD-QA-204</b> |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: <b>00</b>                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: <b>L-11</b>           |
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**DISPOSITION OF ESP INTERNALS**

| Field No. | A                | B        | C       | RF       | RR       | S1     | S2     | S3     | S4     | G1      | G2      | H       | J       | K       | M       |
|-----------|------------------|----------|---------|----------|----------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
|           | 100 + 10<br>- 00 | 350 Min. | 310 ± 5 | 217.5± 7 | 217.5± 7 | 155± 5 | 155± 5 | 155± 5 | 155± 5 | 125 ± 5 | 125 ± 5 | 310 ± 5 | 310 ± 5 | 225 ± 5 | 298 ± 5 |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |
|           |                  |          |         |          |          |        |        |        |        |         |         |         |         |         |         |

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 4 / 20                   |



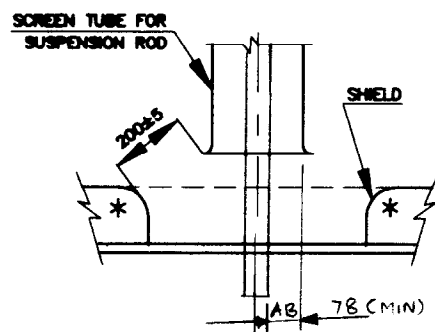
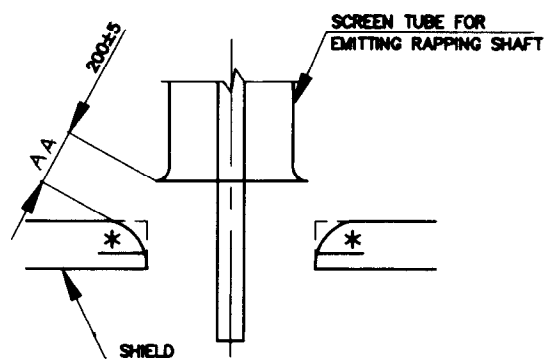
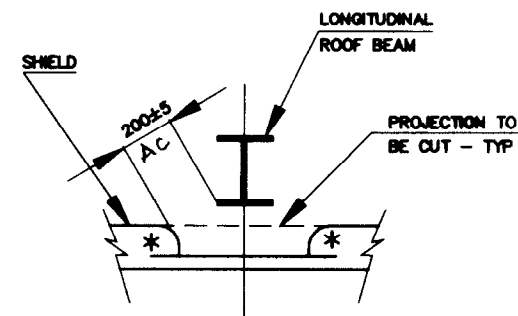
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DATE OF INSPECTION

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**DISPOSITION OF ESP INTERNALS****FIG-1****FIG-2****FIG-3****\* CORNERS ARE TO BE ROUNDED OFF**

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 5 / 20                   |

Ramesh

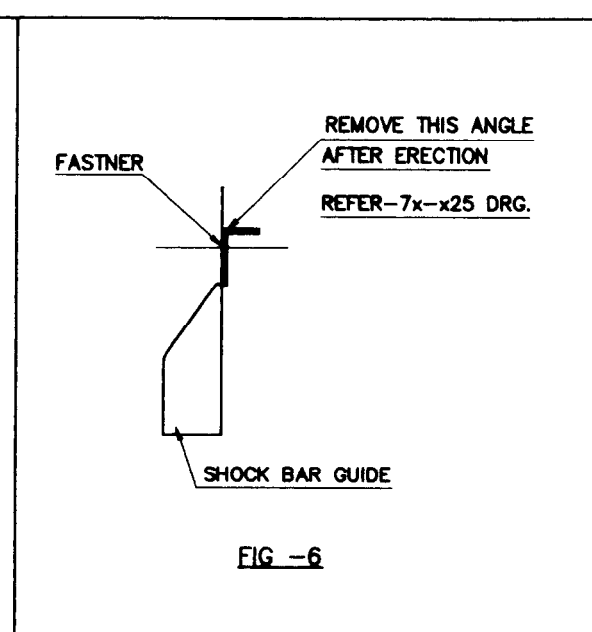
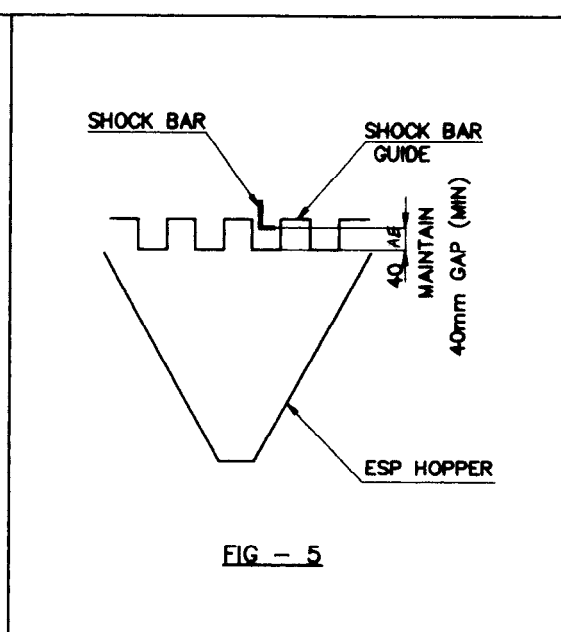
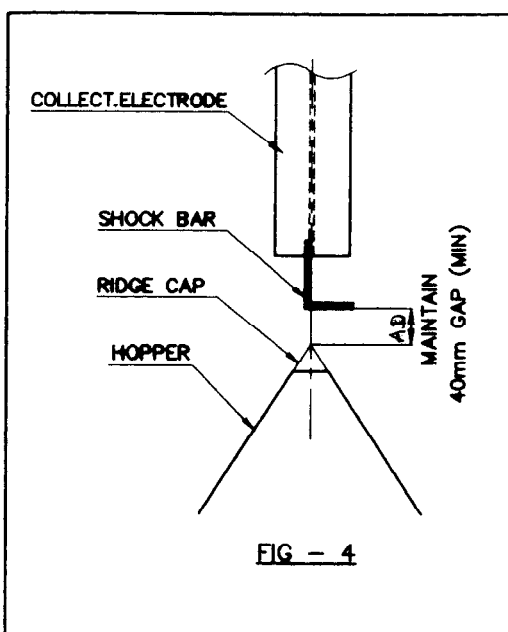


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DATE OF INSPECTION

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### DISPOSITION OF ESP INTERNALS



|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 6 / 20                   |

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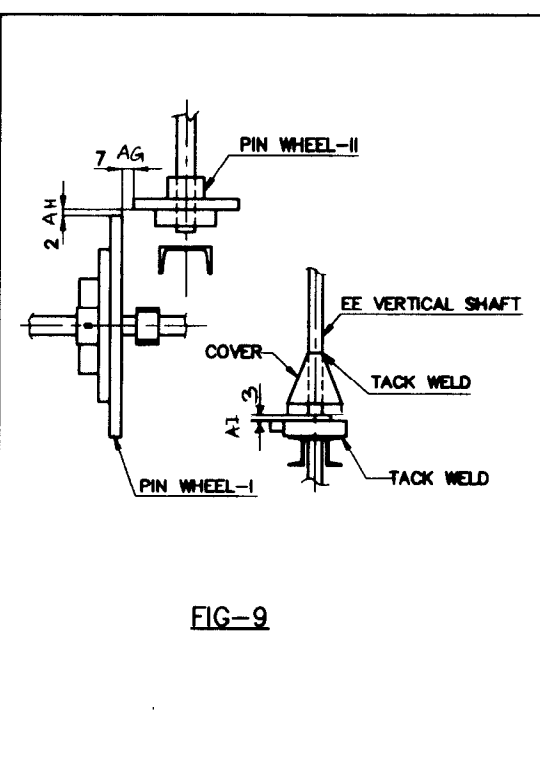
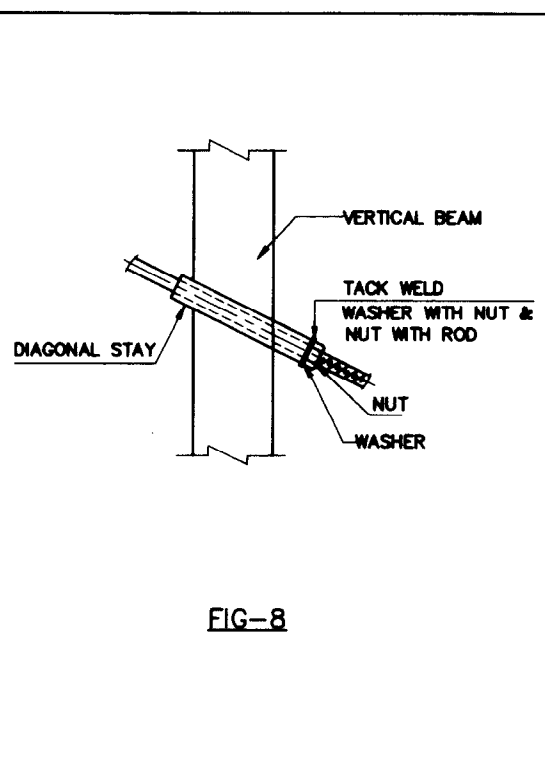
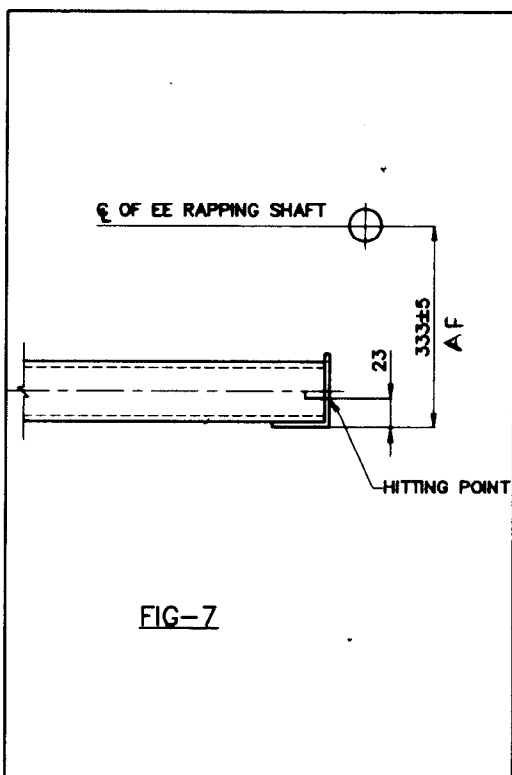


INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT NO.

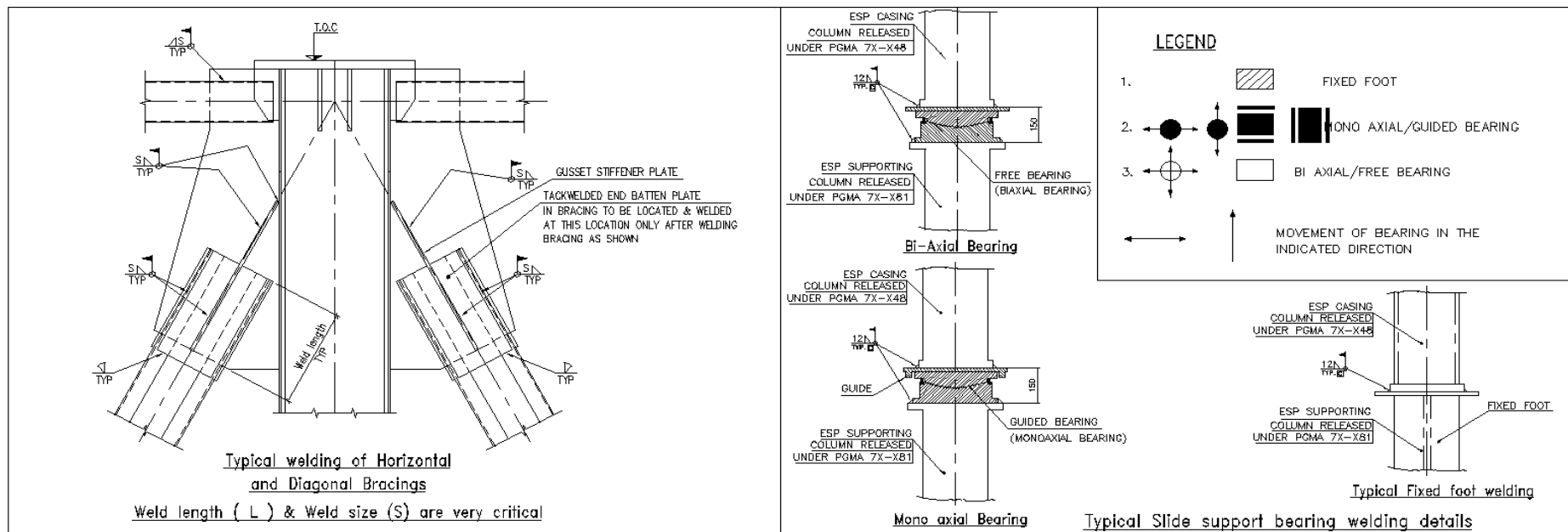
### DISPOSITION OF ESP INTERNALS



|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 7 / 20                   |

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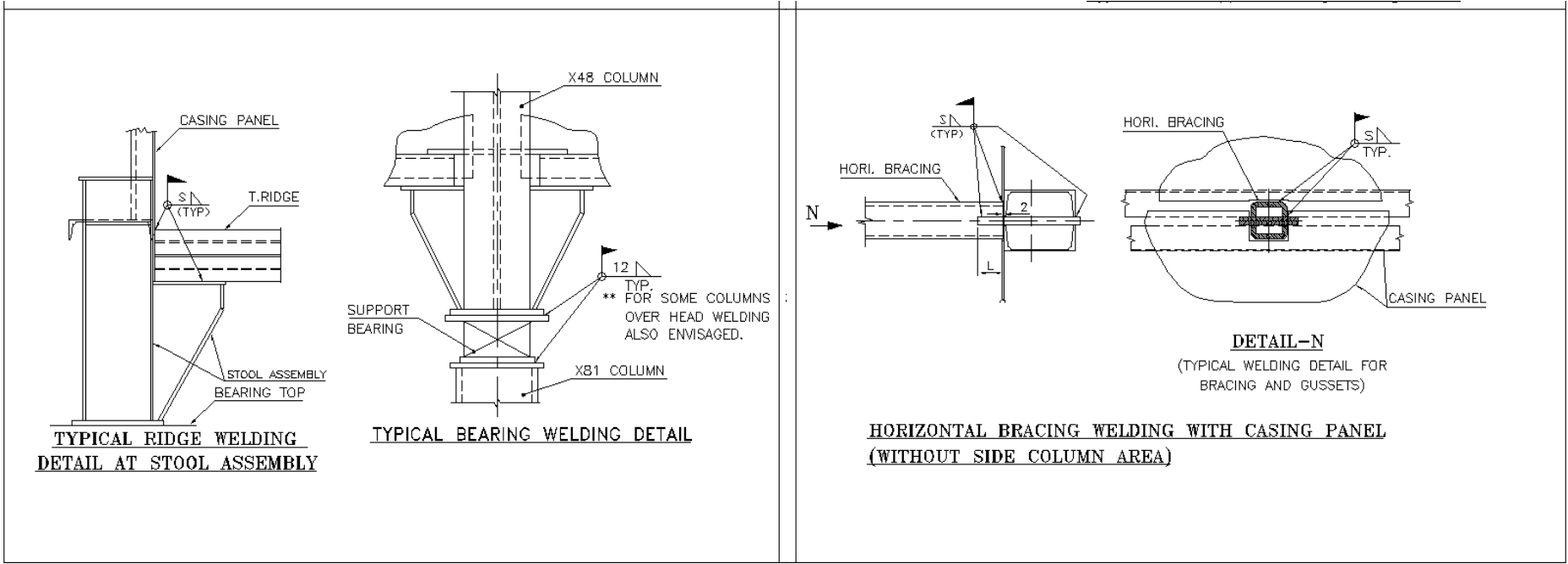
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|-----------------------------------------------------------------------------------|------------------------|--|--|
|  | INSTRUMENT REGN.NO.    |  |  |
|                                                                                   | DATE OF INSPECTION     |  |  |
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|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 8 / 20                   |

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|  |                        |  |  |
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|  | INSTRUMENT REGN.NO.    |  |  |
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|  | DRAWING / DOCUMENT NO. |  |  |



|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
|----------|--|--------------|------|------------------|-------------------------------|
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 9 / 20                   |

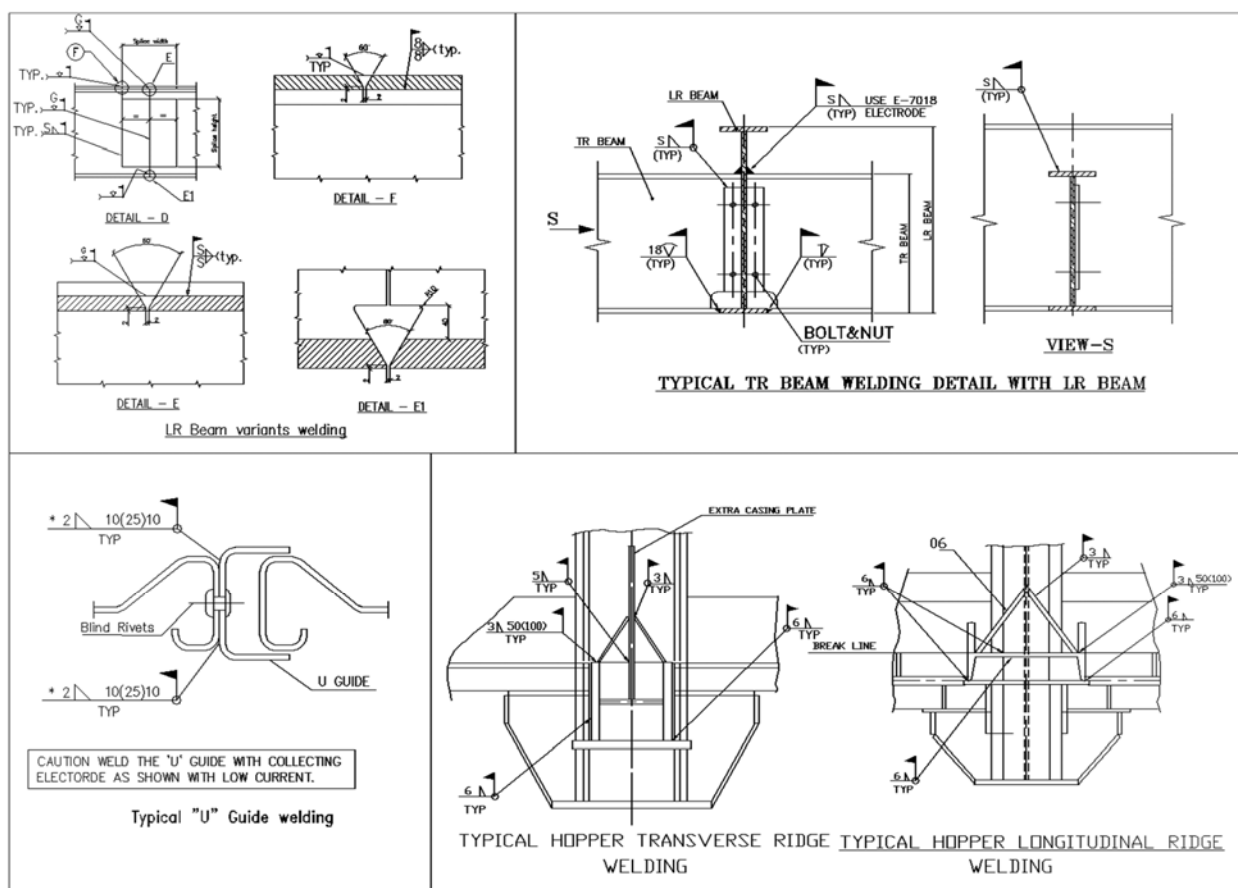
Ramesh



INSTRUMENT REGN.NO.

DATE OF INSPECTION

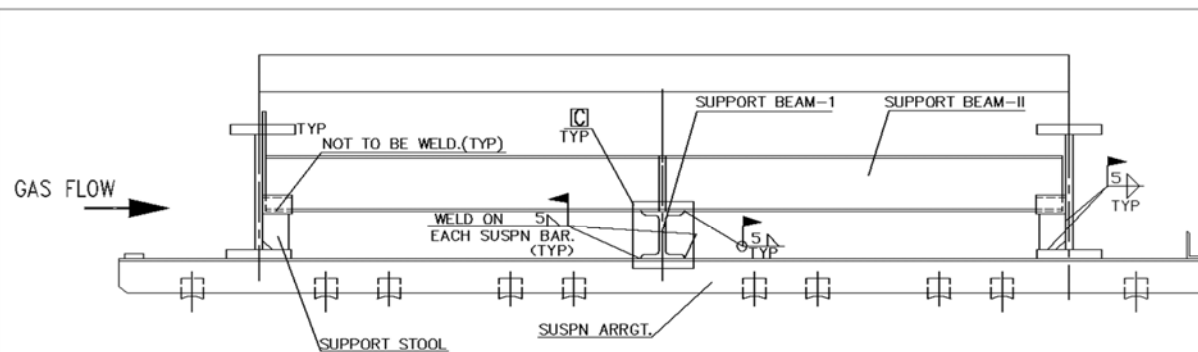
DRAWING / DOCUMENT NO.



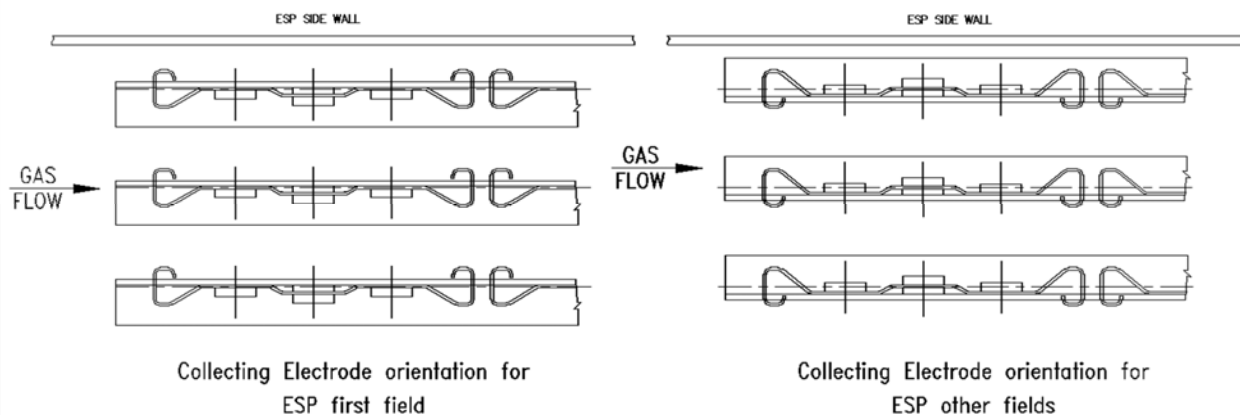
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
|----------|--|--------------|------|------------------|-------------------------------|
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 10 / 20                  |

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|                                                                                   |                        |  |  |
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COLLECTING SUSPENSION FRAME WELDING



|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 11 / 20                  |

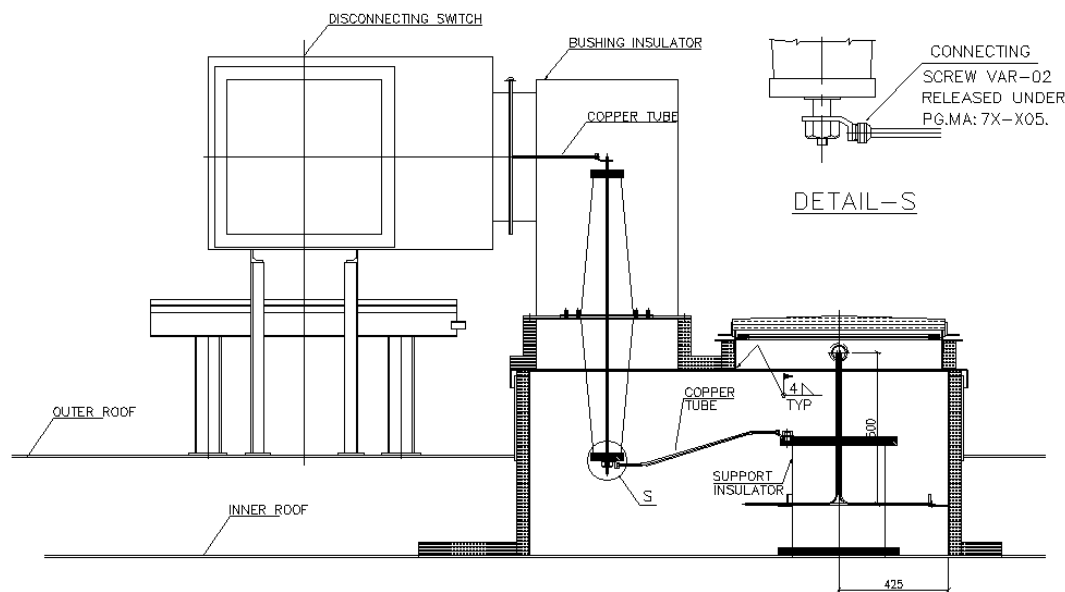
Ramesh



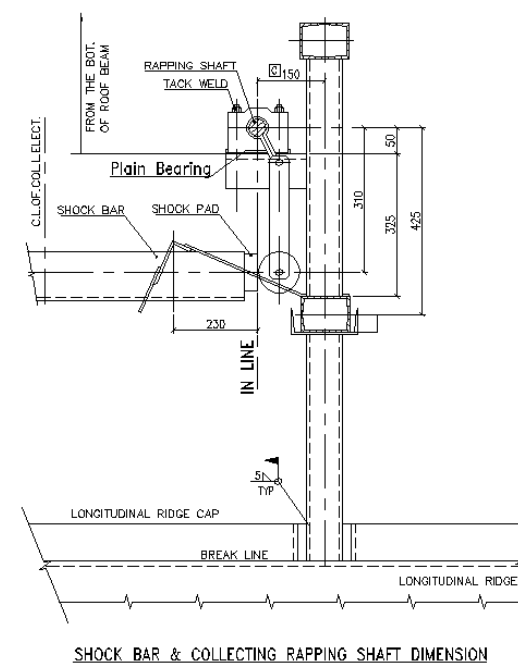
INSTRUMENT REGN.NO.

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Copper Tubes are to be fixed with insulators ensuring firm connection without any looseness



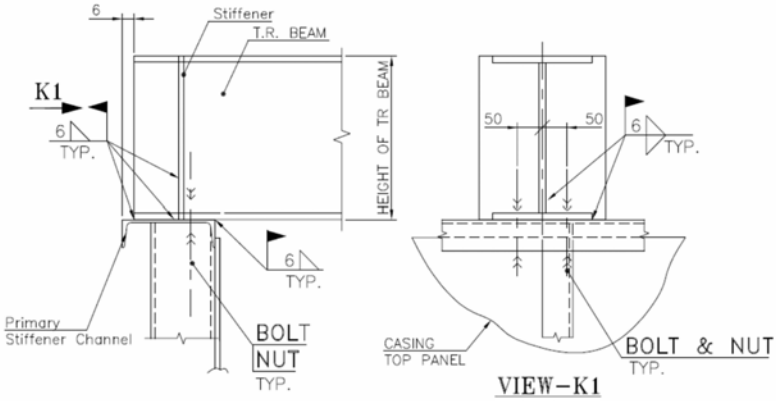
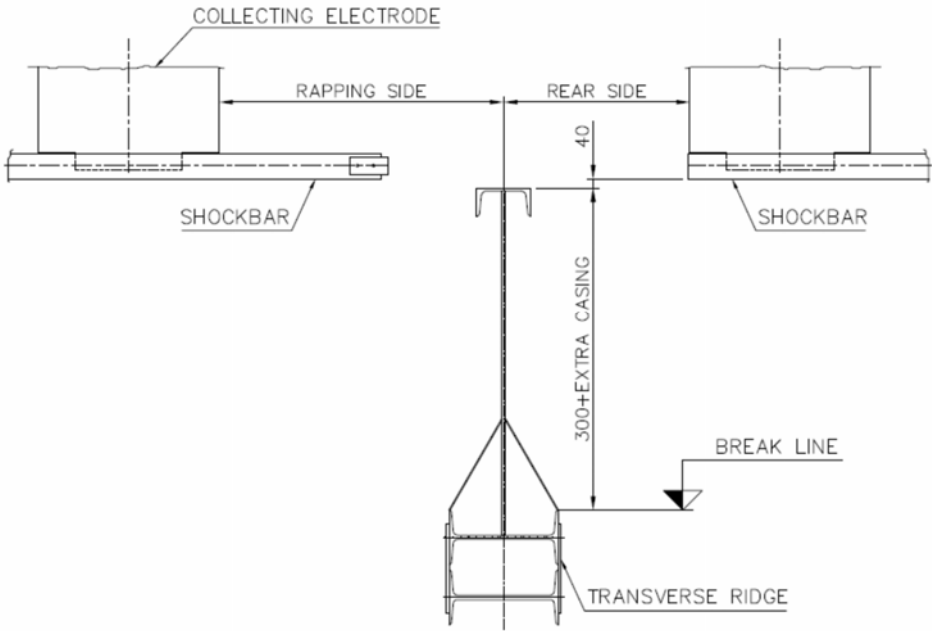
SHOCK BAR &amp; COLLECTING RAPPING SHAFT DIMENSION

|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
|----------|--|--------------|------|------------------|-------------------------------|
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 12 / 20                  |



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|                                                                                   |                        |  |  |
|-----------------------------------------------------------------------------------|------------------------|--|--|
|  | INSTRUMENT REGN.NO.    |  |  |
|                                                                                   | DATE OF INSPECTION     |  |  |
|                                                                                   | DRAWING / DOCUMENT NO. |  |  |



|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 13 / 20                  |

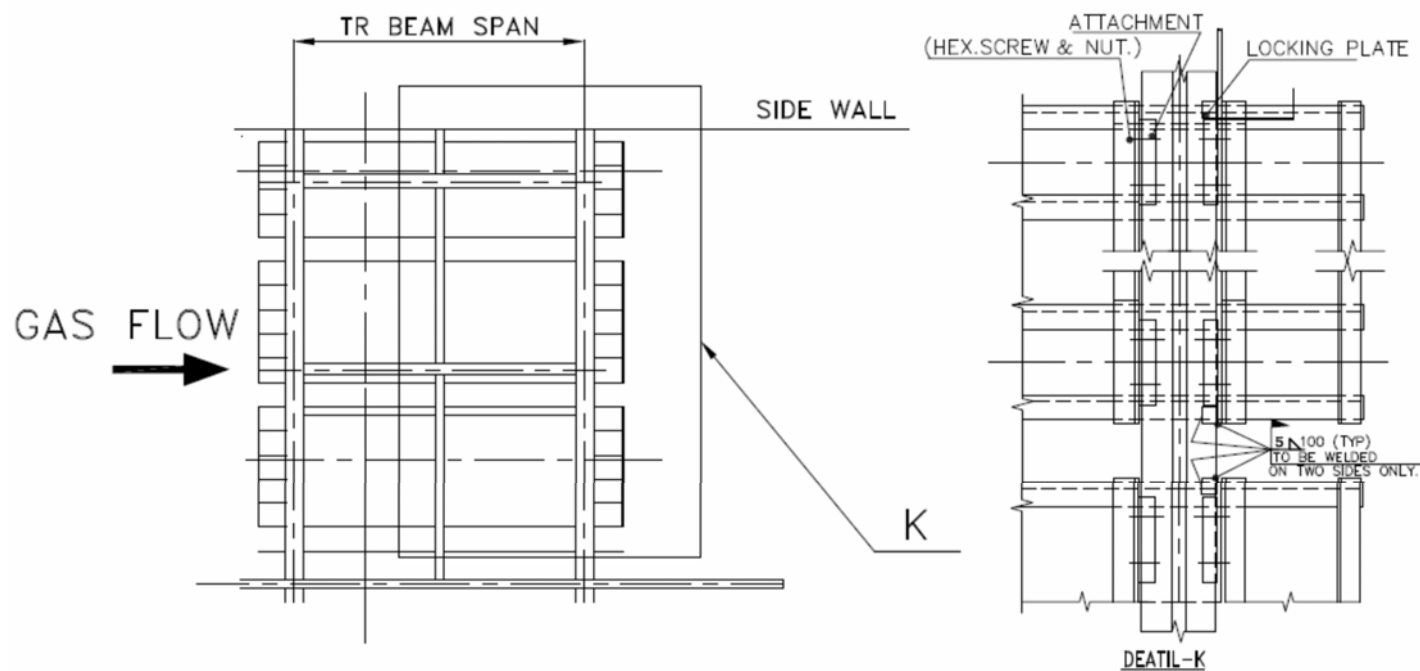
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DATE OF INSPECTION

DRAWING / DOCUMENT NO.



SUSPENSION ARRANGEMENT FOR COLLECTING ELECTRODE

|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
|----------|--|--------------|------|------------------|-------------------------------|
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 14 / 20                  |

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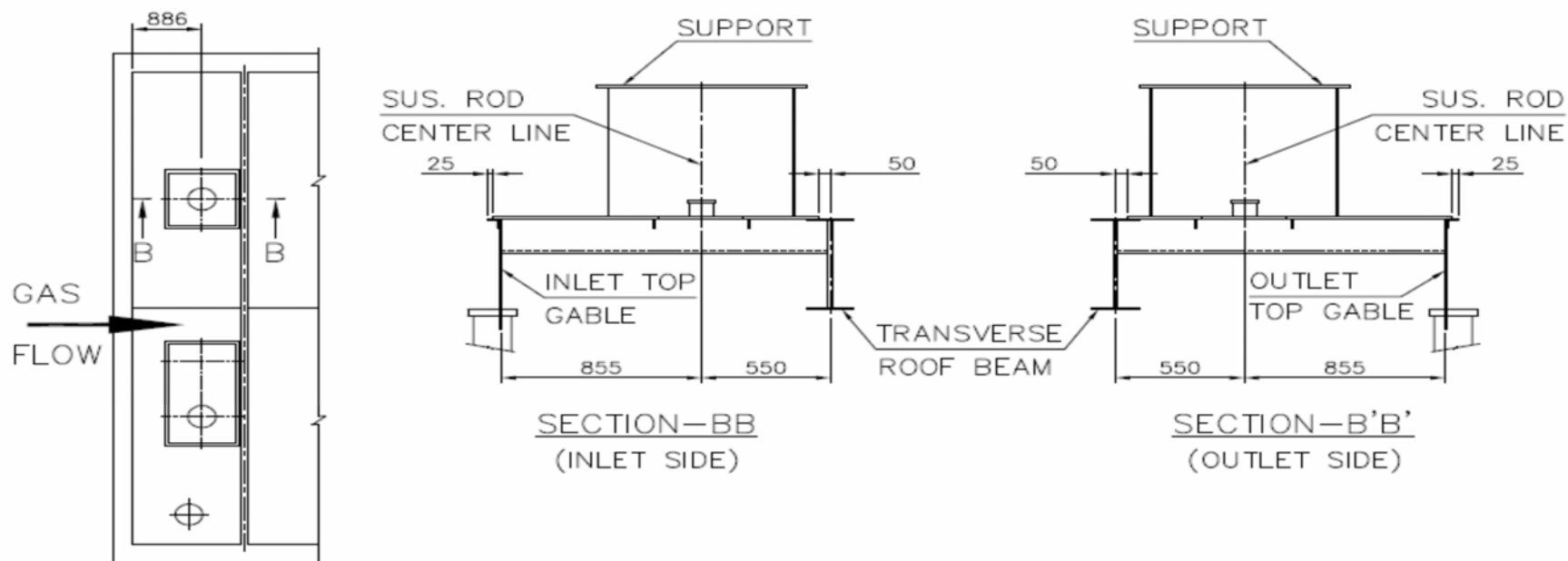


INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT NO.

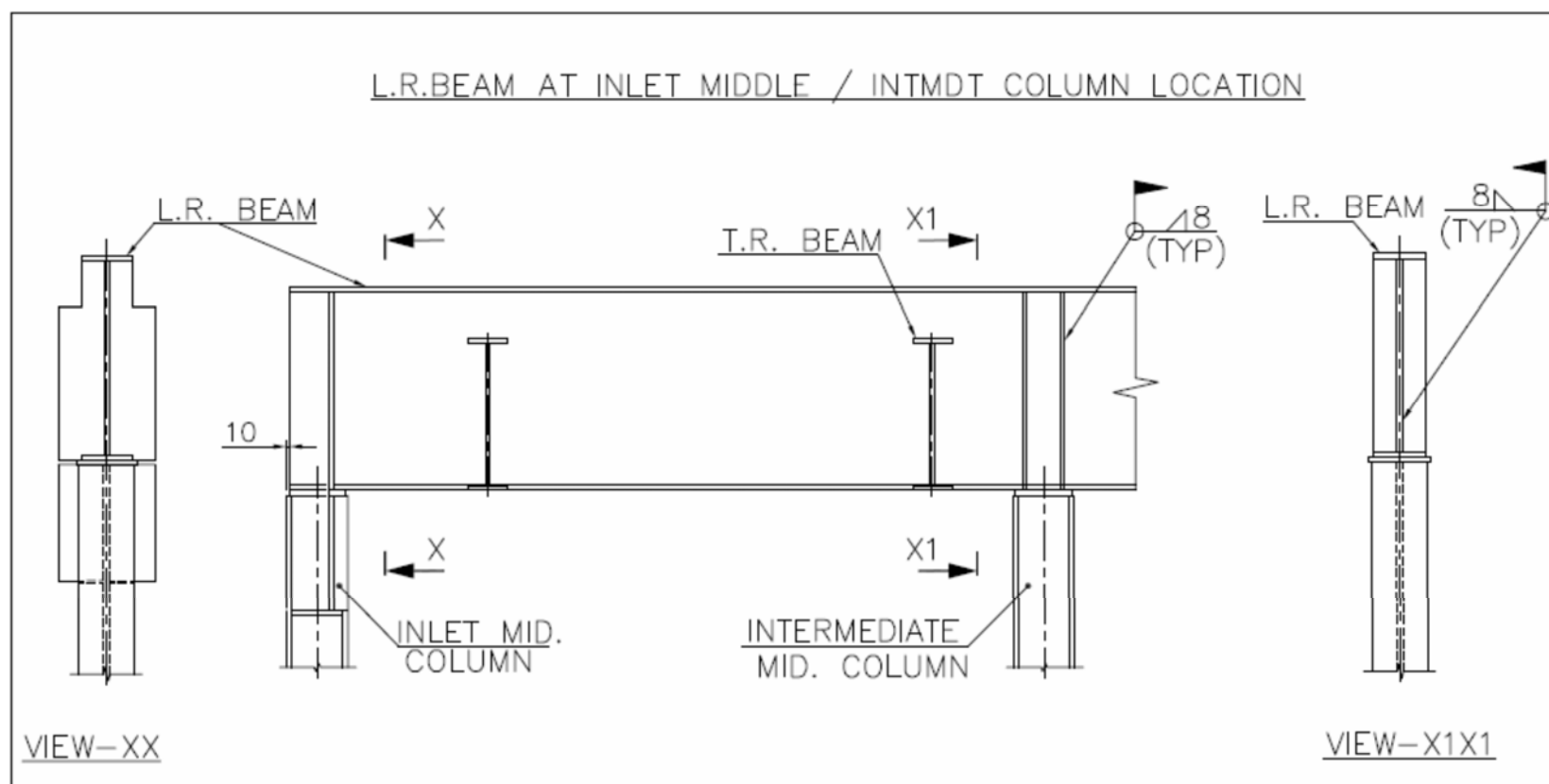
## LOCATION OF FIRST & LAST ROW SUSPENSION ROD



|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
|----------|--|--------------|------|------------------|-------------------------------|
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 15 / 20                  |

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|                                                                                   |                        |  |  |
|-----------------------------------------------------------------------------------|------------------------|--|--|
|  | INSTRUMENT REGN.NO.    |  |  |
|                                                                                   | DATE OF INSPECTION     |  |  |
|                                                                                   | DRAWING / DOCUMENT NO. |  |  |



|          |  |              | NAME | SIGNATURE / DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
|----------|--|--------------|------|------------------|-------------------------------|
| PROJECT  |  | INSPECTED BY |      |                  | REV. NO.: 00                  |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 16 / 20                  |



INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### DISPOSITION OF ESP INTERNALS

| LOCATION     | ESP FIELD NUMBERS |   |   |   |   |   |   |   |   |    |
|--------------|-------------------|---|---|---|---|---|---|---|---|----|
|              | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AA = 200± 5  |                   |   |   |   |   |   |   |   |   |    |
| AB = 78 Min. |                   |   |   |   |   |   |   |   |   |    |
| AC = 200± 5  |                   |   |   |   |   |   |   |   |   |    |
| AD = 40 Min. |                   |   |   |   |   |   |   |   |   |    |
| AE = 40 Min. |                   |   |   |   |   |   |   |   |   |    |
| AF = 333± 5  |                   |   |   |   |   |   |   |   |   |    |
| AG = 7 Min.  |                   |   |   |   |   |   |   |   |   |    |
| AH = 2 Min.  |                   |   |   |   |   |   |   |   |   |    |
| AI = 3 Min.  |                   |   |   |   |   |   |   |   |   |    |

#### NOTE :

All dimensions are in mm.

Separate log sheet to be made for each ESP.

|          |  |              |      |                     |                                      |
|----------|--|--------------|------|---------------------|--------------------------------------|
|          |  |              | NAME | SIGNATURE<br>& DATE | QP.NO.: <b>PP-QBE-2401-HD-QA-204</b> |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: <b>00</b>                   |
| UNIT NO. |  | CLEARED BY   |      |                     | LOG SHEET NO.: <b>L-11</b>           |
| RATING   |  | CUSTOMER     |      |                     | PAGE <b>17 / 20</b>                  |

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INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

**WELDING COMPLETION**

ESP No.: 1/ 2

Pass :

| Description                                                                              | ESP FIELD NUMBERS |   |   |   |   |   |   |   |   |    |
|------------------------------------------------------------------------------------------|-------------------|---|---|---|---|---|---|---|---|----|
|                                                                                          | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Welding of X81 diagonal & horizontal bracing.                                            |                   |   |   |   |   |   |   |   |   |    |
| Welding of X48 diagonal & horizontal bracing.                                            |                   |   |   |   |   |   |   |   |   |    |
| Welding of top & bottom plates of support bearing.                                       |                   |   |   |   |   |   |   |   |   |    |
| Welding of hopper ridge.                                                                 |                   |   |   |   |   |   |   |   |   |    |
| Welding of hopper wall.                                                                  |                   |   |   |   |   |   |   |   |   |    |
| TR beam to LR beam welding.                                                              |                   |   |   |   |   |   |   |   |   |    |
| LR Beam to LR Beam welding, and splice plate welding.                                    |                   |   |   |   |   |   |   |   |   |    |
| Tack welding of all fasteners of inner arms are completed.                               |                   |   |   |   |   |   |   |   |   |    |
| Tack welding of all fasteners of collecting electrodes / shock bar fixing are completed. |                   |   |   |   |   |   |   |   |   |    |
| Tack welding of plain bearing fasteners are done in both rapping mechanism.              |                   |   |   |   |   |   |   |   |   |    |
| Diagonal stays are properly positioned and tack welded.                                  |                   |   |   |   |   |   |   |   |   |    |
| All fasteners in emitting frames are tack welded.                                        |                   |   |   |   |   |   |   |   |   |    |
| Set rings are positioned & tack welded with a gap of 2 mm in all rapping shafts.         |                   |   |   |   |   |   |   |   |   |    |
| Shock bar angle of Fig.06 has been removed.                                              |                   |   |   |   |   |   |   |   |   |    |

**NOTE :**

All the above welding are critical.

For activity completion indicate by tick (√) mark in the appropriate boxes against each field numbers.

Separate log sheet to be made for each ESP.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 18 / 20                  |

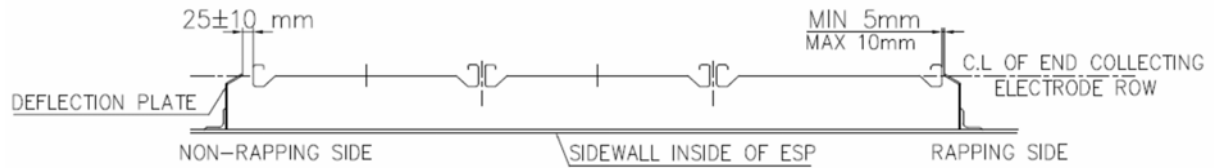


INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### MOUNTING ARRANGEMENT OF DEFLECTION PLATE



ESP NO.: 1 / 2

Pass :

| Corner | ESP FIELD NUMBERS |   |   |   |   |   |   |   |   |    |
|--------|-------------------|---|---|---|---|---|---|---|---|----|
|        | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| A      |                   |   |   |   |   |   |   |   |   |    |
|        |                   |   |   |   |   |   |   |   |   |    |
| B      |                   |   |   |   |   |   |   |   |   |    |
|        |                   |   |   |   |   |   |   |   |   |    |
| C      |                   |   |   |   |   |   |   |   |   |    |
|        |                   |   |   |   |   |   |   |   |   |    |
| D      |                   |   |   |   |   |   |   |   |   |    |
|        |                   |   |   |   |   |   |   |   |   |    |

#### NOTE :

Check the four corners of each field and log the measurements A, B, C &amp; D.

Separate log sheet to be made for each pass of ESP.

All dimensions are in mm.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-11           |
| RATING   |  | CUSTOMER     |      |                  | PAGE 19 / 20                  |

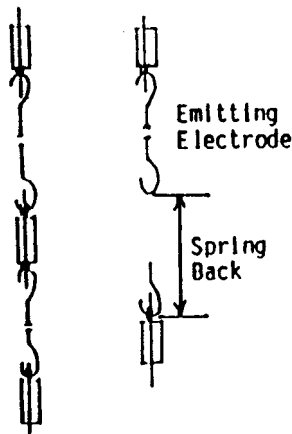


INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### SPRING BACK CHECK ON EMITTING ELECTRODES



Select the emitting electrodes at random for the spring back check.

Enter field number, row number and number of emitting electrode etc. along with spring back values.

Choose minimum 5 numbers / field / tier of emitting electrodes for checking.

Minimum spring back value is **350 mm**.

Erection by stretching device & avoid over stretching of electrodes.

ESP No.: 1/ 2

| Sl. No. | Field No. | Row No. of EE frame from nearest side wall | No. of EE in the concerned row | Level Top / Bottom | Spring back value (mm) |
|---------|-----------|--------------------------------------------|--------------------------------|--------------------|------------------------|
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |
|         |           |                                            |                                |                    |                        |

**NOTE :** EE – Indicates Emitting Electrode

All dimensions are in mm.

|          |  |              |      |                  |                                      |
|----------|--|--------------|------|------------------|--------------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: <b>PP-QBE-2401-HD-QA-204</b> |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: <b>00</b>                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: <b>L-11</b>           |
| RATING   |  | CUSTOMER     |      |                  | PAGE <b>20 / 20</b>                  |



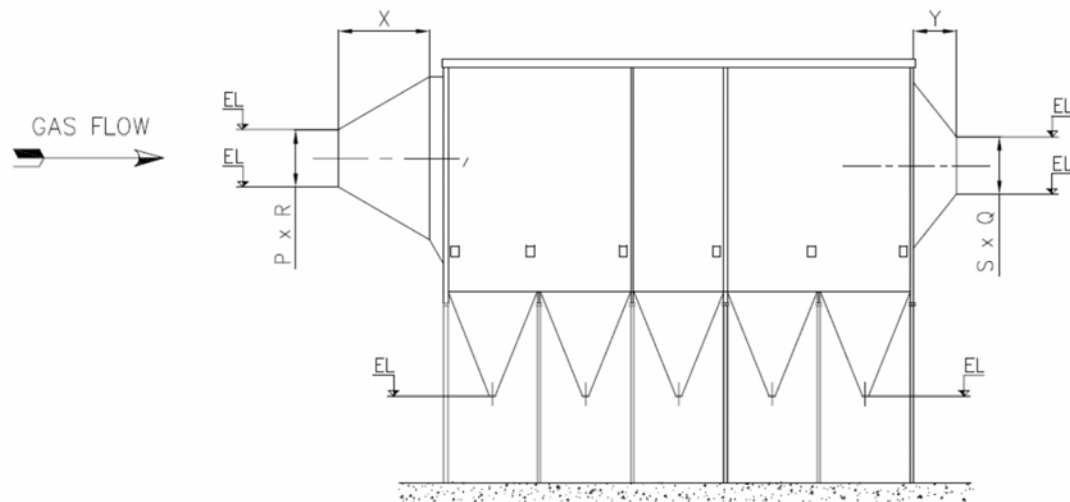


INSTRUMENT REGN.NO.

DATE OF INSPECTION

DRAWING / DOCUMENT REF.

### INTERFACE MEASUREMENTS ON FUNNELS



ESP No. :

Pass :

**Measurement of Funnels :**Funnel Elevation Tolerance :  $\pm 5$  mm.

| Location                | As per drawing | Actual |
|-------------------------|----------------|--------|
| Inlet funnel elevation  |                |        |
|                         |                |        |
| Outlet funnel elevation |                |        |
|                         |                |        |

Funnel disposition tolerance :  $\pm 5$  mm.

| As per drawing |   |   |   |   |   |   |
|----------------|---|---|---|---|---|---|
| Location       | X | P | R | S | Q | Y |
| Pass – A       |   |   |   |   |   |   |
| Pass - B       |   |   |   |   |   |   |
| Pass - C       |   |   |   |   |   |   |
| Pass – D       |   |   |   |   |   |   |
| Pass – E       |   |   |   |   |   |   |
| Pass – F       |   |   |   |   |   |   |

All dimensions are in mm.

Separate log sheet to be made for each ESP.

|          |  |              |      |                  |                                  |
|----------|--|--------------|------|------------------|----------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD<br>OA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                      |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-12              |
| RATING   |  | CUSTOMER     |      |                  | PAGE 1 / 3                       |

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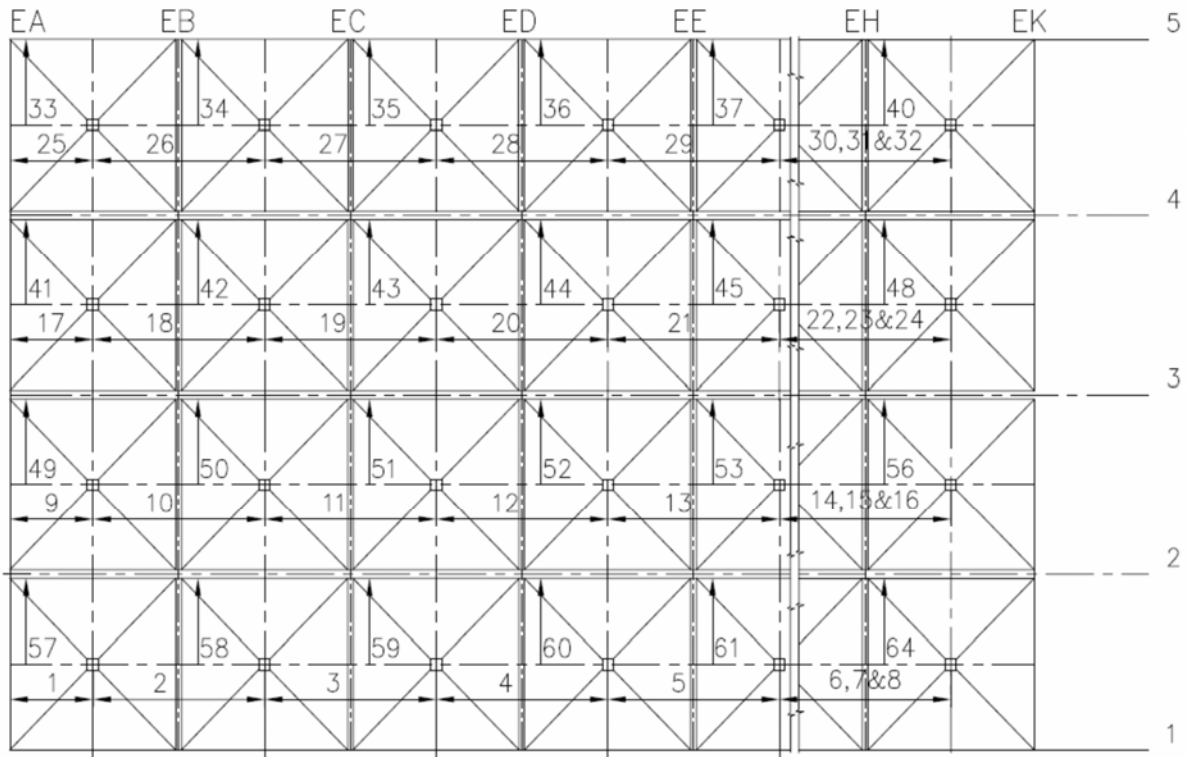
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### INTERFACE MEASUREMENTS ON HOPPER

ESP No.: 1 / 2

Elevation as per drawing : \_\_\_\_\_ mm

Tolerance :  $\pm 2$  mm.

| HOPPER<br>NUMBER | ESP FIELD NUMBERS |   |   |   |   |   |   |   |   |    |
|------------------|-------------------|---|---|---|---|---|---|---|---|----|
|                  | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1                |                   |   |   |   |   |   |   |   |   |    |
| 2                |                   |   |   |   |   |   |   |   |   |    |
| 3                |                   |   |   |   |   |   |   |   |   |    |
| 4                |                   |   |   |   |   |   |   |   |   |    |

#### NOTE :

All dimensions are in mm.

Separate log sheet to be made for each ESP.

|          |  |              |      |                  |                               |
|----------|--|--------------|------|------------------|-------------------------------|
|          |  |              | NAME | SIGNATURE & DATE | QP.NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                   |
| UNIT NO. |  | CLEARED BY   |      |                  | LOG SHEET NO.: L-12           |
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### INTER FACE MEASUREMENTS ON HOPPER

ESP No.: 1 / 2

Hopper spacing - Tolerance: **10 mm Max.**

|           |    |    |    |    |    |    |    |    |    |    |
|-----------|----|----|----|----|----|----|----|----|----|----|
| Dimension | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
| Actual    |    |    |    |    |    |    |    |    |    |    |
| Dimension | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Actual    |    |    |    |    |    |    |    |    |    |    |
| Dimension | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| Actual    |    |    |    |    |    |    |    |    |    |    |
| Dimension | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| Actual    |    |    |    |    |    |    |    |    |    |    |
| Dimension | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| Actual    |    |    |    |    |    |    |    |    |    |    |
| Dimension | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| Actual    |    |    |    |    |    |    |    |    |    |    |
| Dimension | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| Actual    |    |    |    |    |    |    |    |    |    |    |
| Dimension | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| Actual    |    |    |    |    |    |    |    |    |    |    |

|          |  |              |      |                     |                                       |
|----------|--|--------------|------|---------------------|---------------------------------------|
|          |  |              | NAME | SIGNATURE<br>& DATE | FQP.NO.: <b>PP-QBE-2401-HD-QA-204</b> |
| PROJECT  |  | INSPECTED BY |      |                     | REV.NO.: <b>00</b>                    |
| UNIT NO. |  | CLEARED BY   |      |                     | LOG SHEET NO.: <b>L-12</b>            |
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## Minimum General Storage and Preservation Requirement

01. Emitting electrode boxes shall be kept in a closed storage and shall be opened only when erection is taken up.

02. Collecting electrodes are to be kept in a semi closed storage to protect against rust and damage. Not more than 3 packages are to be stacked one over the other.

Both collecting and emitting electrodes are critical components of ESP. Any damage will affect the performance of ESP.

03. Keep the insulators over soft material to avoid any damage. Do not stack any other material over the insulator.

04. Electrical components are to be kept in a closed storage to avoid rusting due to moisture and to protect against pilferage.

05. Protect the machined components like support bearings against rusting and damage during storage.

For detailed storage instructions for ESP components refer Erection Manual Chapter 4.0.

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|          |  |                                       |
|----------|--|---------------------------------------|
| PROJECT  |  | FQP.NO.: <b>PP-QBE-2401-HD-QA-204</b> |
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## PROTOCOL

|          |  |              |      |                  |                                |
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|          |  |              | NAME | SIGNATURE & DATE | FQP NO.: PP-QBE-2401-HD-QA-204 |
| PROJECT  |  | INSPECTED BY |      |                  | REV.NO.: 00                    |
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