

## SPECIAL CONDITIONS – MEASUREMENT OF WORK BY CONTRACTORS IN WORKS CONTRACTS

### 1.0 GENERAL

- 1.1 New General Conditions of Contract, i.e, IRSGCC-2020 has been published in the month of July - 2020. Few of the conditions have been incorporated below for ready reference. However, intended bidders are requested to acquaint with all the conditions of IRSGCC-2020 before participation of tender. Copy of IRSGCC-2020 can be downloaded from the DOCUMENTS attached along with this tender.
- 1.2 The following special conditions are supplement to the Indian Railway Standard General Conditions of Contract read along with correction slips, IRU standard specifications for Formation works, Bridge works and P.Way works 2019 laid down by Indian Railway, CPWD specifications 2018 for Horticulture, Land scalping and CPWD specifications 2019 Volume 1 and Volume 2 laid down by Central Public Works Department, New Delhi and Notes appearing under the relevant chapters and sub-chapters should be considered as part of the tender papers. Where the provisions of Special Conditions are at variance with the IRS General Conditions of Contract and other documents mentioned above, these Special Conditions shall prevail.

### 2.0 Measurement of work by contractor in Works contract: (Applicable for a tender of value Rs.5.00 Cr. above)

- 2.1 The tenderer whether sole proprietor, a limited company or a partnership firm if they want to act through agent or individual partner(s) should submit along with the tender or at a later stage, a power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he /they be partner (s) of the firm or any other person specifically authorizing him/them to sign the agreement, receive money, co-ordinate measurements through contractor's authorized engineer, witness measurements, sign measurement books, compromise, settle, relinquish any claim(s) preferred by the firm and sign "No claim certificate" and refer all or any disputes to arbitration.

**Note:** Contractor's authorized Engineers shall mean a Graduate Engineer having more than 3 years experience in the relevant field of Construction work involved in the contract, duly approved by Dy.Chief Engineer.

- 2.2 **MEASUREMENT OF WORKS BY RAILWAY:** The contractor shall be paid for the works at the rates in the accepted schedule of rates and for extra works at rates determined under clause 39 of IRSGCC on the measurements taken by the Engineer or the Engineer's representative in accordance with the rules prescribed for the purpose by the Railway. The quantities for items the unit of which in the accepted Schedule of Rates is 100 or 1000 shall be calculated to the nearest whole number, any fraction below half being dropped and half and above being taken as one; for items the unit of which in the accepted Schedule of Rates is single, the quantities shall be calculated to two places of decimals. Such measurements will be taken of the work in progress from time to time and at such intervals as in the opinion of the Engineer shall be proper having regard to the progress of works. The date and time on which 'on account' or 'final' measurements are to be made shall be communicated to the contractor who shall be present at the site and shall sign the results of the measurements (which shall also be signed by the Engineer or the Engineer's representative) recorded in the official measurements book as an acknowledgement of his acceptance of the accuracy of the measurements. Failing the Contractor's attendance, the work may be measured up in his absence and such measurements shall, notwithstanding such absence, be binding upon the contractor whether or not he shall have signed the measurements books provided always that any objection made by him to measurement shall be duly investigated and considered in the manner set out below:

- a) It shall be open to the contractor to take specific objection to any recorded measurements or classification on any ground within seven days of the date of such measurements. Any re-measurement taken by the Engineer or the Engineer's

representative in the presence of the Contractor or in his absence after due notice has been given to him in consequence of objection made by the Contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurements.

- b) If an objection raised by the contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.

**2.3 Measurement of works by Contractor's Authorized Representative (In case the contractor opts for the same) (The detailed procedure shall be as per para No.1316A of IREC enclosed):**

- a) The Contractor shall be paid for the works at the rates in the accepted Schedule of Rates and for extra works at rates determined under clause 39 of IRSGCC of these conditions on the measurements taken by the contractor's authorized engineer in accordance with the rules prescribed for the purpose by the Railway. The quantities for items the unit of which in the accepted Schedule of Rates is 100 or 1000 shall be calculated to the nearest whole number, any fraction below half being dropped and half and above being taken as one; for items the unit of which in the accepted Schedule of Rates is single, the quantities shall be calculated to two places of decimals. Such measurements will be taken of the work in progress from time to time. The date and time on which 'on account' or 'final' measurements are to be made shall be communicated to the Engineer.

Measurement recorded by the contractor shall be test checked by Railway within 45 days of submission of measurements.

The date and time of test checks shall be communicated to the contractor who shall be present at the site and shall witness the test checks, failing the contractor's attendance the test checks may be conducted in his absence and such test checks shall not withstanding such absence be binding upon contractor provided always that any objection made by contractor to test check shall be duly investigated and considered in the manner set out below:

- (i) It shall be open to the contractor to take specific objection to test checks of any recorded measurement within 7 days of date of such test checks. Any re-test check done by the concerned Railway's authority in the presence of the Contractor or in his absence after due notice given to him in consequent of objection made by the Contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurements.
- (ii) If an objection raised by the Contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.

**b) Incorrect measurements, actions to be taken:**

If in case during test check or otherwise, it is detected by the Engineer that agency has claimed any exaggerated measurement or has claimed any false measurement for the works which have not been executed ;amounting to variation of 5% or more of claimed gross bill amount, action shall be taken as following:

- (i) On first occasion of noticing exaggerated /false measurement, Engineer shall impose a penalty of 10% of claimed gross bill value.
- (ii) On any next occasion of noticing any exaggerated /false measurement, railway shall impose penalty of 15% of claimed gross bill value. In addition the facility of recording of measurements by contractor as well as release of provisional payment shall be withdrawn. Once withdrawn, measurements shall be done by railway as per para 50.2 above.

- 2.4 **“On Account” payments:** The contractor shall be entitled to be paid from time to time by way of “On-Account” payment only for such works as in the opinion of the Engineer he has executed in terms of the contract. All payments due on the Engineer’s / Engineer’s Representative’s certificates of measurements or Engineer’s certified “contractor’s authorized engineer’s measurements” shall be subject to any deductions which may be made under these presents and shall further be subject to, unless otherwise required by para 50.1 of these conditions, a retention of ten percent by way of Security Deposits, until the amount of Security Deposit by way of retained earnest money and such retentions shall amount to 10% of the total value of the contract provided always that the Engineer may by any certificate make any correction or modification in any previous certificate which shall have been issued by him and that the Engineer may withhold any certificate, if the works or any part thereof are not being carried out to his satisfaction.
- 2.5 **On Account Payments not Prejudicial to Final Settlement:** “On-Account” payments made to the Contractor shall be without prejudice to the final making up of the accounts (except where measurements are specifically noted in the Measurement Book as “Final Measurements” and as such have been signed by the Contractor and Engineer’s/Engineers’ Representative) and shall in no respect be considered or used as evidence of any facts stated in or to be inferred from such accounts nor of any particular quantity of work having been executed nor of the manner of its execution being satisfactory.
- 2.6 **FINAL PAYMENT:** On the Engineer’s certificate of completion in respect of the works, adjustment shall be made and the balance of account based on the Engineer’s/Engineer’s Representative’s certified measurements or Engineer’s certified “Contractor’s authorized Engineer’s measurements” of the total quantity of work executed by the Contractor up to the date of completion and on the accepted Schedule or Rates and for extra works on rates determined under clause 39 of IRSGCC shall be paid to the Contractor subject always to any deduction which may be made under these presents and further subject to the Contractor having delivered to the Engineer either a full account in detail of all claims he may have on the Railway in respect of the works or having delivered “No Claim Certificate” and the Engineer having after the receipt of such account given a certificate in writing that such claims are correct, that the whole of the works to be done under the provisions of the Contracts have been completed, that they have been inspected by him since their completion and found to be in good and substantial order, that all properties, works and things, removed, disturbed or injured in consequence of the works have been properly replaced and made good and all expenses and demands incurred by or made upon the Railway for or in the respect of damage or loss by from or in consequence of the works, have been satisfied agreeably and in conformity with the contract.

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**Annexure**

Addendum & Correction Slip (ACS) No. 50 to Indian Railways Code for Engineering Department for introduction of Measurement and Recording of 'Executed Works' by the Contractor in Railway Construction works

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**1316A (Applicable for contracts wherein the measurement of work by contractor is permitted):** Para 1316 of Engineering Code shall not be applicable for these contracts. For such contracts, contractor shall be responsible for carrying out measurements of work executed and recording of measurements for the release of on account/final payment. In such cases, the detailed procedure for recording of measurements, provisional payment, test check and final payment shall be as follows:

**Contractor's Measurement Book:**

1. Railway shall arrange contractor's measurement book (CMB), each having sheet No. 1 A to 4A (Form E 1313), followed by 100 machine number pages (Form E 1313, sheet No. 5A). On the top of each sheet of CMB, there shall be provision for recording the name of the work, agreement number, name of contractor and CMB number.
2. CMBs shall be printed in such a way so as to keep a clear margin of 50 mm on the left side of page. Further, the left side shall have pinhole tear line at a distance of 15 mm from edge for ease of taking out sheets from these books. The binding shall be within 15mm of the margin available between edge and pinhole tear line. This shall ensure availability of minimum 35 mm clear margin to re-bind measurement books later on.

**Movement and upkeep of Contractor's Measurement Book:**

3. Dy Chief Engineer in charge of contract (Dy CE/C) shall hand over required No. of CMBs to Assistant/Executive Engineer in-charge of contract (AEN/XEN) after taking receipt of the same on sheet No. 2A (Form E.1313) for further issuance to contractor time to time as per progress of work.
4. CMB shall be registered with unique No. in the Register of Measurement Books (Form E.1314) maintained in the office of Dy CE/C. Separate accountal of CMBs for each agreement shall be maintained in the office of Dy CE/C and AEN/XEN.
5. In case of change of 'contractor's authorized engineer', fresh approval shall be taken from Dy CE/C before recording of measurement.
6. While issuing the CMB to contractor, AEN/XEN shall take out sheet No. 2A to 4A from the CMB, take receipt of CMB from contractor on sheet No. 3A (Form E 1313), and keep the same in safe custody.
7. Similar system as for CMB, shall be followed for issuing Field Book/ Level Book (E.1317/A) to contractor for recording of levels in the field book/level book.

**Measurements**

8. The contractor's authorized engineer shall record the measurements in CMB neatly in his own handwriting, without any use of eraser/overwriting, without use of any typing fluid or any such thing. All cuttings shall be initialed. No page shall be damaged/destroyed. No page shall be kept blank in between the measurements.
9. The Contractor shall communicate the date of measurement to AEN/XEN in sufficient advance to witness any measurement. Witnessing of measurement by railways is not compulsory except for initial levels in case of earthwork and hidden measurements. Initial levels of earthwork and hidden measurements are to be recorded in the presence of railway officials and test checked as prescribed.
10. In on account contract certificate, measurement shall be recorded for the items and quantities to be paid in the concerned on account contract certificate.
11. However, in every 4th on account contract certificate and final contract certificate, the recording of measurement for works executed shall include all the items and their quantity included in

previous on account contract certificates, irrespective of whether to be paid or not in the current On Account Contract Certificate/ Final Contract Certificate.

12. No payment shall be processed on Lump sum measurement taken by contractor's authorized engineer except for earthwork. For earthwork, every 4<sup>th</sup> bill shall be based on actual levels taken and detailed calculations carried out for the work done.
13. The contractor shall take out carefully from CMB the used pages of CMB with one extra blank page for processing the bill; staple them for submission to AEN/XEN along with bill, duly signing the measurements. The contractor shall keep a photocopy of the measurements with him for future reference.
14. At the time of submission of final bill, the contractor shall submit all the remaining CMBs (unused as well as partially used) with him along with bill to AEN/XEN.
15. The contractor shall submit required copies of invoice and on account contract certificate / final contract certificate (similar to form E.1337 and Form E.1338) to the AEN/XEN duly marking them - original or duplicate copy. Original shall be used for release of payment whereas duplicate copies shall be used for record purpose in different offices.
16. In case contractor requires provisional payment of on-account bill, the contractor shall submit his invoice and provisional on account contract certificate for 75% of amount of work done (before deduction of taxes). The contractor shall write 'For Provisional Payment' on top of such on-account contract certificate.
17. AEN/XEN while issuing receipt of stapled sheets of CMB to contractor shall clearly record the same in sheet 4 (E.1314) of concerned CMB, kept in the office of AEN/XEN.

#### **Release of Provisional Payment**

18. Senior Section Engineer / 'Junior Engineer with 5 year experience' (SSE/JE) and AEN/XEN shall sign & record a certificate on the original provisional 'on account contract certificate' as under:  
*"Certified that the payment being made is less than the amount due for the quantities of works executed by the contractor".*  
 In case of payment of earthwork items in any contract, calculation of quantity of such items along with field book / level book must be enclosed. This shall be cross checked, as considered appropriate by SSE/JE & AEN/XEN, to ensure that no excess payment is being made.  
 At this stage no test check of measurements by railway is required.
19. AEN/XEN shall keep a copy of contractor's invoice & provisional on account contract certificate in his office, and submit original invoice & original provisional on account contract certificate along with required number of duplicate copies, and used sheets of CMB to the Dy CE/C unit for passing the bill and release of payment.
20. The provisional on account contract certificate shall be passed by Dy CE/C and payment shall be released by associate finance based on above certification of SSE/JE and AEN/XEN. After release of payment, blank sheet of CMB (if any) shall be crossed by Dy CE/C before sending the measurement sheets back to AEN/XEN for carrying out required test checks. At this stage measurements shall not be crossed.
21. No provisional payment shall be allowed in final contract certificate. Further, once provisional payment has been released in any on-account contract certificate, the next on account contract certificate can be raised by contractor only when accounts of previous on account certificate (Provisional as well as remaining payment) has been finalised.

#### **Test Check**

22. Necessary test checks shall be carried out by the SSE/JE and AEN/XEN for the works done before full payment of on-account contract certificate/final contract certificate. SSE/JE and AEN/XEN shall communicate the date of test checks to contractor in advance. The contractor can accompany during test check. The contractor shall provide support staff and all required tools & plants to facilitate test check by railway officials.
23. The stipulated test checks for AEN/XEN and SSE/JE Level is tabulated as under:

S. No.	Description of Works	Test Check in terms of % of value by	
		SSE / JE	AEN/XEN
(a)	Measurement of Ballast, pitching stone, Earth work and hidden items	100%	100%
(b)	Measurement of all other items	100%	20%
(c)	Initial and Final levels along centre line for earthwork in embankment and cutting	100%	100%
(d)	Intermittent levels along centre line for earth work in embankment and cutting	100%	20%
(e)	Initial, intermittent and final levels except centre line for earth work in embankment	100%	20%

Note: The check regarding levels of earthwork invariably shall be carried out in cross sections having heavy cross slopes.

24. Contractor's recorded measurement sheets shall be checked for any corrections/over writing during test check. All the corrections/over writing shall be initialed by SSE/JE.
25. The discrepancy noted (if any) during test check of recorded measurement shall be communicated by AEN/XEN to the contractor.
26. In case of discrepancy noticed during test check, the contractor shall submit original and required copies of fresh invoice of amount corrected for discrepancy, and in case provisional payment has been released earlier, the required copies of fresh invoice of remaining amount corrected for discrepancy (if any), along with on account/final contract certificate to AEN/XEN.

**Full payment of On Account Contract Certificate/Final Contract Certificate;**

27. AEN/XEN shall submit original copy of invoice and on account contract certificate of remaining amount/ Final Contract Certificate, along with required number of duplicate copies and used sheets of CMB (all used/blank CMBs in case of final contract certificate), duly signed by SSE/JE and AEN/XEN to the Dy CE/C for passing the bill and release of payment.
28. Once the payment is released, Dy CE/C shall return back the used sheets of CMB to AEN/XEN for safe custody, duly crossing of measurements by finance officer.
29. Once all used sheets of a particular CMB is received back by AEN/XEN from Dy CE/C, the AEN/XEN shall re-bind all 100 pages of CMB along with sheet No. 1 A to 4A for submission of CMB to Dy CE/C office. Dy CE/C office shall record the receipt of same in sheet No. 2A of CMB and Register of Measurement Books (Form E1314).
30. The final contract certificate shall be passed by Dy CE/C only after receipt of all CMBs (used/blank) from AEN/XEN.
31. The provisions of this para 1316A shall be applicable to all the departments of Indian railways and to be executed through equivalent authorities of respective departments.

Railway.....

CMB No.....

**CONTRACTOR'S MEASUREMENT BOOK**

Department .....

Division/Construction Unit. ....

Name of Work.....

Agreement No.....

Name of Agency .....

Name to Whom Issued .....

Designation .....

Date of issue.....

Date of return .....

(Title page)

**E.1313**  
(Sheet 2A)

Initial C)Bidding Space

Initial C)Bidding Space

Railway .....

CMB No. ....

**CONTRACTOR'S MEASUREMENT BOOK**

Department .....

Division/Construction Unit .....

Name of Work .....

Agreement No .....

Name of Agency .....

Issued to .....

(Name &amp; designation)

on .....

(station)

(date)

Received by .....

(Signature)

(Designation)

(Station)

on .....

(date)

Date of first entry .....

Date of last entry .....

Date received back in Division/Const.Unit office after  
completion of bookCertified that this Measurement Book contains 100 machine numbered pages  
from..... to  
are correct.

Signature .....

Date ..... Designation .....

**E.1313**

(Sheet 3A)

Railway CMB No. .... <b>CONTRACTOR'S MEASUREMENT BOOK</b> Name of Work ..... Agreement No. .... Name of Agency ..... Issued to ..... <div style="text-align: center; margin-top: 10px;">             (Contractor's name)              on .....  <div style="display: flex; justify-content: space-between; width: 80%; margin: 0 auto;"> <span>(station)</span> <span>(date)</span> </div> </div> <p>Certified that this Measurement Book contains 100 machine numbered pages from .....to ..... (both pages inclusive) which have been counted by me and are correct. No sheet is torn.</p> <p>I understand that the measurement book is very important document and hence 1 shall ensure its proper upkeep and safe custody.</p> <p>Received by.....</p> <div style="text-align: center; margin-top: 10px;">             (Signature of contractor)  <div style="display: flex; justify-content: space-between; width: 80%; margin: 0 auto;"> <span>(Name)</span> <span>(Station)</span> <span>(Date)</span> </div> </div> <p>Date of first entry .....</p> <p>Date of last entry.....</p> <p>Certified that this Contractor's Measurement Book pages returned by contractor have been counted by me and are correct. The details of pages received by me is as under:</p>					
S. No,	On Account Bill No.	Page No. From .... To	No. of Pages	Date of receipt in AEN/XEN office	Sign & Designation Of Railway official
1					
2					
3					
4					
5					
6					
7					

Railway  
.....

CMB No. ....

**CONTRACTOR'S MEASUREMENT BOOK**Name ..... of ..... Work  
.....Agreement ..... No  
.....Name ..... of ..... Agency  
.....**INDEX OF M.B**

S.No.	Particulars of entries – running or final	Agreement or work order ref.	Page		Remarks
			From	To	

(Sheet 5A)

## CONTRACTOR'S MEASUREMENT BOOK

## INDEX OF M.B

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