**PRELIMINARY**
**DRAFT CIRCULATION NOTICE**

| Our Ref: | Date |
|---|---|
| WRD 23/T-31 | 28th Dec 2020 |

**TECHNICAL COMMITTEE:** Measurement and Cost Analysis of Works for River Valley Projects Sectional Committee, WRD 23

**ADDRESSED TO:** All Members of Measurement and Cost Analysis of Works for River Valley Projects Sectional Committee, WRD 23

Dear Sir,

As per the decision taken in the 19th meeting of the sectional committee held on 18th Feb. 2020, we are posting the draft standard as mentioned below on our website **www.bis.gov.in** for comments. The additions in the text are underlined and the deletions are also suitably marked.

| | | |
|---|---|---|
| **1.** | **Doc. WRD 23 (16773 )** | **Proforma for analysis of unit rate of shotcreting/ guniting used in river valley projects (first revision of IS 13419)** |

Kindly examine the above mentioned preliminary draft and kindly provide your specific suggestions for revising the same in view of latest technology.

**Last date for comments: 28th Jan 2021**

Comments, if any, may please be made in the format attached herewith and mailed to the undersigned at the above address. Comments will be appreciated in electronic form at the email address mentioned below. In case you have any difficulty in accessing the document at our website, please write to us for a hard copy.

**Thanking you,**

**Yours faithfully,**

**Sd/-**

**(Lalthan Pari )**
**Scientitst 'E' (Water Resources)**

**Encl : as above**

## Sending Comments

| | |
|---|---|
| **P-Draft** | **Doc WRD 23 (16773)** |
| | **Title:** Proforma for analysis of unit rate of shotcreting/ guniting used in river valley projects (first revision of IS 13419) |

| Sl. No. | Name of the commenter/ Commenting organization | Clause/ Subclause Paragraph Figure/Table | Type Of Comment<br><br>General/ Technical/ Editorial | Comments<br><br>(Justification For Change) | Proposed Change | Observations of the Secretariat |
|---|---|---|---|---|---|---|
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |

*For official use only*

**Doc. WRD 23(16773)**

*December 2020*

**BUREAU OF INDIAN STANDARDS**

**PRELIMINARY**

*Indian Standard*

# PROFORMA FOR ANALYSIS OFUNIT RATE OF SHOTCRETING/GUNITING USED IN RIVER VALLEY PROJECTS

*(First Revision of IS 13419)*

(Not to be reproduced without the permission of BIS or used as a STANDARD)

Last date for receipt of comments is 28th Jan 2021

## FOREWORD

(Formal clauses will be added later)

Shotcreting and guniting are versatile construction techniques proven for several decades. They are used without shuttering for horizontal, vertical and overhead surfaces of free shape. Shotcreting and guniting are two of the elements of modern underground excavation. Shotcreting and guniting are extensively used in river valley projects and as such it is essential that practices relating to their cost estimation are harmonious and uniform.

First published in 1992, this standard lays down a proforma for working out analysis of unit rate of guniting/shotcreting. In view of the experiences gained while using the standard, this revision is being undertaken to bring the existing clauses in sync with the practices in the field. Relevant taxes and duties, wherever applicable, have been added in calculation of unit rates. This standard is one of a series of standards already published which lay down proforma for analysis of rates of concrete, masonry, cyclic drilling and blasting, earthwork, shuttering/formwork, rock excavation and embankment construction.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**Doc. WRD 23(16773)**

*December 2020*

**BUREAU OF INDIAN STANDARDS**

**PRELIMINARY**

*Indian Standard*

**PROFORMA FOR ANALYSIS OFUNIT RATE OF SHOTCRETING/GUNITING USED IN RIVER VALLEY PROJECTS**

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## 1 SCOPE

**1.1** This standard lays down proforma for analysis of unit rate of guniting/shotcreting used in River Valley Projects

## 2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

| IS No. | Title |
|---|---|
| 11590:1995 | Guidelines for working out unit rate cost of the construction equipment used for river valley projects (first revision) |

## 3 PROFORMA

**3.1** The proforma recommended for use in analysis of unit rate of guniting/shotcreting is as given in Table 1. For evaluating unit rate of construction equipment reference should be made to IS 11590 ( Part 1 ) :1986.

**Table 1 Proforma for Analysis of Unit Rates for Guniting/Sbotcreting**

*(Clause 3.1)*

| Sl. No. | Item | Unit | Quantity | Rate | Amount | Remarks |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| I | **EQUIPMENT** | | | | | |
| | 1 Shotcreting machine | Hrs | | | | |
| | 2 Compressed air | Hrs | | | | |
| | 3 Batching and mixing plant | Hrs | | | | |
| | 4 Mix conveying equipment | Hrs | | | | |
| | 5 Water pump | Hrs | | | | |
| | 6 Remote controlled spray (where applicable) | Hrs | | | | |
| | 7 Mixing tanks and reciprocating Pump | Hrs | | | | |

| | | | |
|---|---|---|---|
| | for mixing of liquid additives (where applicable) | | |
| | 8 Labour | Man Hrs | |
| | Total Cost | | $C_E$ |
| **II** | **MATERIAL** | | |
| | 1 Cement | kg | |
| | 2 Fine aggregate | kg | |
| | 3 Coarse aggregate | kg | |
| | 4 Water | kg | |
| | 5 Additives | kg | |
| **III** | **CURING** | | |
| | 1 Membrane | Lump sum | |
| | 2 Water | kg | |
| | 3 Labour | Man Hrs | |
| | Total Cost | | $C_c$ |
| **IV)** | **OVERHEAD** | | |
| | Proportional cost of the following: | | |
| | 1 Water supply, lighting, sanitation and drainage | | |
| | 2 Temporary construction | | |
| | 3 Testing and supervision | | |
| | 4Carriage and freight of machinery | | |
| | 5 Contingencies | | |
| | 6 Hidden cost of labour | | |
| | 7 Taxes and duties: This list is just indicative<br>1) Sales Tax on works<br>2) Services tax<br>3) Labour cess<br>4) VAT<br>5) Entry tax | | |
| | Total Cost | | $C_O$ |
| **V** | **ANALYSIS** | | |
| | 1 Total quantity of shotcrete = Q cum. (should include anticipated rebound and additional quantity beyond payline) | | |
| | 2 ~~Total c~~ Cost = $C_E + C_M + C_c + C_o$ = $C_T$ Rupees | | |
| | 3 Add for rebound $C_R$ (in %) ~~3 Cost per cum. of shotcrete = $\frac{C_T}{Q}$ Rupees~~ | | |

4 Cost per cum. of shotcrcte = $\frac{C_T + C_R}{Q}$

NOTES

1 While comparing rates similarity of application of shotcrete, type, strength, etc are necessary.

2 Reinforcement mesh, if used, shall be evaluated separately alongwith materials and labour required for the same.

3 Contractors Overhead and profits are generally taken as 20% of prime cost.