PROFORMA FOR ADOPTION OF DRAFT INDIAN STANDARD

BUREAU OF INDIAN STANDARDS

Subject: Approval of Draft Indian Standard

Sl. No.	Doc. No.	TITLE
1	WRD/23/16703	Estimating Unit Rate of Random Rubble Masonry Used in Construction of River Valley Projects — Proforma (*Third Revision*)

In accordance with Part II,sub-rule (2) of rule 22 of BIS Rules 2018, I enclose a copy of the draft Indian Standard mentioned above finalized by the Sectional Committee WRD 23 and its Chairperson, in the light of comments received from important stake holders.

It is requested that this note and its enclosures may be returned to this office as early as possible recording your approval of the above draft Indian Standard.

Encl.: As above.

05/10/23

R. Bhanu Prakash
Scientist E/ Director and Head
(Water Resources Department)

Chairman,Water Resources Division Council
BIS U.O. No. WRD 23/T - 02
Dated:

APPROVED

20/11/24

(Chairperson)
Water Resources Division Council

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अध्यक्ष/Chairman
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जल शक्ति मंत्रालय/Ministry of Jal Shakti
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Deptt. of Water Resources, RD & GR
भारत सरकार/Govt. of India
नई दिल्ली/New Delhi

भारतीय मानक

Indian Standard

IS 4852 : 2023

नदी घाटी परियोजनाओं के निर्माण में प्रयुक्त अक्रमत रबल चिनाई की इकाई दर का आकलन — प्रपत्र

(तीसरा पुनरीक्षण)

Estimating Unit Rate of Random Rubble Masonry Used in Construction of River Valley Projects — Proforma

(Third Revision)

ICS 93.160

भारतीय मानक ब्यूरो
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August 2023 **Price Group 4**

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Measurement and Cost Analysis of Works for River Valley Projects Sectional Committee had been approved by the Water Resources Division Council.

Unit rates of masonry available from various river valley projects in the country differ so widely in their structure that comparison of rates becomes impracticable. The variation in the unit rate of random rubble masonry occurs due to several factors, such as situation of work, wages of labor, specifications of materials, cost of machinery and their repair charges, productivity, etc. It was, therefore, felt necessary to prepare a proforma for the estimation of the unit rate of masonry in such a manner as to take into account all the elements of costs that are expected to go into the item rate and present them in a uniform pattern so that the rates obtained in different projects can be compared and the item/items of operation difference is/are identified and understood.

The unit rate of masonry varies with the type of work and its specifications viz, masonry work in dams, cross-drainage works (CD works), structures less than one meter thick, course rubble masonry, uncoursed rubble masonry, foundations, superstructure, etc. Separate proforma should be prepared for each type of these works.

The proforma has been drawn up operation wise and as such, the depreciation of machinery, wages of labour including supervisory labour, etc, have been considered in the costs of various operations indicated in the proforma.

The proforma presents the cost of different operations in their final shape. It does not show the details of the break-up of the costs of each operation. Besides this final proforma, a number of other proforma would be required to estimate and work out the costs of the different operation and elements that are indicated here in the final proforma. These supporting proforma should be drawn up by the concerned project authorities or construction agencies according to their requirements. Same proforma can be used for working out unit rates for other types of masonry by making suitable provisions for additional work involved. For example, for face work, additional items to be accounted for are dressing and pointing.

This standard was first published in 1968 and was first revised in 1978 to incorporate certain modifications in Table 1 with a view to rationalize the major operational characteristics. The second revision of this standard was brought out in 1987 wherein, Annex A and Annex B of the standard were excluded.

This third revision of the standard has been brought out to bring the standard in the latest style and format of the Indian Standards and updating the proforma in the light of the experience gained during the use of this standard. This major changes incorporated in this revision of the standard are:

a) Quarrying/collection of aggregate form river deposits/shoals or excavated materials;
b) Transport of sand to stockpiles;
c) Recommended losses in transit, storage, handling of cement;
d) Contingencies, compensation, retrenchment compensation and bonus etc have been excluded from field charges;
e) Relevant taxes and duties, wherever applicable, have been updated in calculation of unit rates to include building and other construction works (BOCW) Cess and GST; and
f) Provisions for contractor's overheads and profits have been indicated.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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 : 2022 'Rules of rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ESTIMATING UNIT RATE OF RANDOM RUBBLE MASONRY USED IN CONSTRUCTION OF RIVER VALLEY PROJECTS — PROFORMA

(Third Revision)

1 SCOPE

This standard lays down the proforma for estimating unit rate of random rubble masonry work in the construction of river valley projects.

2 REFERENCES

The standard given below contain provisions which through reference in this text constitute provisions 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 edition of the standard:

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

3 PROFORMA

The Table 1 gives the proforma for estimating unit rate of random rubble masonry used in construction of river valley projects.

Table 1 Proforma for Estimating Unit Rate of Random Rubble Masonry

(*Clause* 3)

Sl No.	Item	Unit	Quantity	Rate	Amount	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Rubble					
	a) Royalty and other fees for quarrying					
	b) Removal of overburden					
	c) Quarrying/collection of aggregate from river deposits/shoals or excavated materials					
	1) Drilling					
	2) Blasting					
	3) Dewatering (if required)					
	d) Breaking and sorting					
	e) Transport to the stockyard					
	f) Losses in transit, storage, handling etc (in percent)					
ii)	Sand (fine aggregates)					
	a) Royalty and other fees for quarrying					
	b) Removal of overburden					
	c) Quarrying/collection of aggregate from river deposits/shoals or excavated materials					
	d) Grading and washing					
	e) Transport to stockpiles					

Table 1 (*Continued*)

Sl No.	Item	Unit	Quantity	Rate	Amount	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	f) Transport from stockpiles to batching plant					
	g) Losses in transit, storage, handling, etc (in percent)					
iii)	Cement					
	a) Cost at ex-factory					
	b) Rail or road transport and handling to site of work					
	c) Storage and handling up to batching plant					
	d) Losses in transit, storage, handling, etc (in percent)					
iv)	Lime					
	a) Cost at source of supply					
	b) Transport to site of work					
	c) Storage and handling up to mills					
	d) Quenching and sieving					
	e) Losses in transit, storage, handling, etc (in percent)					
v)	Admixtures					
	a) Cost at ex-factory					
	b) Rail or road transport and handling to site of work					
	c) Storage and handling up to batching plant					
	d) Losses in transit, storage, handling, etc (percent)					
vi)	Mixing of mortar					
	a) Cost of manufacturing mortar					
vii)	Lead and lift					
viii)	Laying and curing					
	a) Scaffolding					
	b) Slurry					
	c) Laying					
	d) Curing					
ix)	Overheads (proportional cost of the following overheads should be added on the item of unit rate random rubble masonry)					
	a) Field set up					
	1) Buildings					
	2) Water supply, lighting,					
	3) Sanitary and drainage service road					
	4) Temporary constructions					

Table 1 (*Concluded*)

Sl No.	Item	Unit	Quantity	Rate	Amount	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	b) Field Charges					
	1) Establishment expenditure (salary and office expenditure, inspection, vehicles, etc					
	2) Worksite amenities (medical, education recreation, etc)					
	3) Survey					
	4) Testing					
	5) Small T&P					
	6) Maintenance					
	7) Carriage and freight of machinery					
	c) Head office and financial expenses					
	1) Dividend/return on capital					
	2) Interest charges					
	3) Head office charges including subordinate controlling office					
	4) Profit envisaged					
x)	Taxes and duties:					
	a) BOCW CESS					
	b) GST					
xi)	Total all-in rate					

NOTES

1 The overhead expenses may be included as percentage of prime cost. Contractors overhead and profits may be decided suitably in the project, which is generally taken as percentage of prime cost [Items (i) to (vi)].

2 All the items mentioned above shall include depreciation, erection, operation and repairs, maintenance and dismantling of machinery where used. Unit rates of these can be estimated as per IS 11590.

3 The cement losses in transit, storage handling are generally taken up to 5 percent of quantities if handles in bags and 2 percent where handled in bulk transport.

4 The taxes and duties given in the standard are indicative. However, it is suggested that taxes may be charged on total estimated amount instead of analyzed rate.

5 Indirect charges on labour component shall be incorporated suitably so as to avoid duplicity of entries.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Measurement and Cost Analysis of Works for River Valley Projects Sectional Committee, WRD 23

Organization	*Representative(s)*
National Hydroelectric Power Corporation, Faridabad	SHRI LALITENDU KUMAR TRIPATHI (***Chairperson***)
Bhakra Beas Management Board, Chandigarh	SHRI RAJESH GUPTA (*Alternate*)
Central Electricity Authority, New Delhi	SHRI MANOJ TRIPATHI SHRI BALWAN KUMAR (*Alternate*)
Central Water Commission, New Delhi	SHRI RAJIV KUMAR SHRI AJAY SHIV LAL BANODE (*Alternate*)
Department of Water Resources, Government of Punjab	SHRI KULDIP SINGH TAKSHI SHRI JATINDER PALSINGH (*Alternate*)
Energy Infratech, Gurgaon	SHRI MANOJ KUMAR GUPTA SHRI PRAMOD CHAND TEWARI (*Alternate*)
Ferro Concrete Co (I) Pvt Ltd, Indore	DR MAHAVIR BIDASARIA SHRI ANUPAM BIDASARIA (*Alternate*)
Indian Institute of Technology of Roorkee (WRDM)	PROF GOPAL CHAUHAN
Irrigation & Water Resources Department, Government of Haryana	SHRI PRADEEP YADAV
Irrigation Department Government of Kerala	SHRI K. A. JOSHY
Irrigation Research Institute, Roorkee	SHRI DINESH CHANDRA SHRI SHANKAR KUMAR SAHA (*Alternate*)
Karnataka Power Corporation Limited, Bangalore	SHRI CHINNA SOMAIAH
L&T (ECC), Faridabad	SHRI K. K. GUPTA SHRI SANTANU MAJUMDAR (*Alternate*)
National Hydroelectric Power Corporation, Faridabad	MS SWATI GARG SHRI SOM NATH (*Alternate* I) MS RENU BHADRASEN (*Alternate* II)
National Thermal Power Corporation Limited, Noida	SHRI SHAILENDRA KUMAR PANDEY SHRI JAGAT SINGH YADAV (*Alternate*)
Sardar Sarovar Narmada Nigam Ltd, Gandhi Nagar	SHRI K. B. PARMAR SHRI V. K. GUPTA (*Alternate*)

Organization	*Representative(s)*
Satluj Jal Vidyut Nigam Limited, New Shimla	SHRI M. C. VERMA SHRI V. K. GUPTA (*Alternate*)
Tehri Hydro Development Corporation Limited, Rishikesh	SHRI ATUL KUMAR SINGH SHRI P. K. VISHNOI (*Alternate*)
Water and Power Consultancy Services Ltd, New Delhi	SHRI ANUPAM MISHRA SHRI AMITABH TRIPATHI (*Alternate*)
Water Resources Department Government of Madhya Pradesh	SHRI DEEPAK SATPUTE
In Personal Capacity (*Flat No-207, Bhagirathi Apartment, B-9/14, Sector-62, Noida*)	SHRI H. L. ARORA
BIS Directorate General	SHRI R. BHANU PRAKASH, SCIENTIST 'E'/DIRECTOR AND HEAD (WATER RESOURCES) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI DUSHYANT PRAJAPATI
SCIENTIST 'D'/JOINT DIRECTOR
(WATER RESOURCES), BIS

Bureau of Indian Standards

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