

BUREAU OF INDIAN STANDARDS
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भारतीय मानक मसौदा
नदी घाटी परियोजनाओं में कार्य मापन की पद्धति
(बाँध और संबंध संरचनाएं)
भाग 9 लाइनिंग
(IS 9401 भाग 9 का पहला पुनरीक्षण)

Draft Indian Standard

METHOD OF MEASUREMENT OF WORKS IN RIVER VALLEY PROJECTS
(DAMS AND APPURTENANT STRUCTURES)

PART 9 LINING

[First Revision of IS 9401 (Part 9)]

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

Last date for Comments:
29 March 2025

FOREWORD

(Formal clauses of the foreword will be added later)

In measurement of quantities in construction of river valley projects, a large diversity of methods exist at present according to local practices. This lack of uniformity creates complication regarding measurements and payments. This standard is intended to provide guidance regarding a uniform basis for measurement of lining of canals and other structures in river valley projects.

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 for 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.

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1 SCOPE

This standard covers the method of measurement of lining of canals and other structures in river valley projects works.

2 GENERAL RULES

2.1 Clubbing of Items — Items may be clubbed together provided these are on the basis of the detailed description of items stated in this standard.

2.2 Booking of Dimensions — In booking dimensions, the order shall be consistent and generally in the sequence of length, breadth or width and height or depth or thickness.

2.3 Description of Items — The description of each item shall, unless stated otherwise, be had to include where necessary, conveyance and delivery, handling, loading, unloading, storing, hoisting, lowering, all labour for finishing to required shape and size.

2.4 Dimensions — All works shall be measured net in decimal system as fixed in its place as given in **2.4.1** and **2.4.2**.

2.4.1 Dimensions shall be measured to the nearest 0.01 m except membrane which shall be measured to the nearest 0.001 m.

2.4.2 Areas shall be worked out to the nearest 0.01 m².

2.5 Work to be Measured Separately — Work executed in the following conditions shall be measured separately:

- a) Work in normal dry condition, that is, the condition in which lining can be laid without dewatering;
- b) Work under water;
- c) Work in liquid mud; and
- d) Work interrupted by tides.

2.5.1 The dewatering to be done in items (b) to (d) shall be measured separately as per IS 9401 (Part 2).

2.6 Bill of Quantities — The bills of quantities shall fully describe the materials and workmanship, and accurately represent the work to be executed.

2.7 The work in beds and sides shall be measured separately.

3 METHOD OF MEASUREMENT

3.1 The brick/tile/stone/rubble/concrete/membrane lining shall be fully described and include the following items (whichever applicable):

- e) Preparation of sub-grade to exact level including watering and fine dressing according to detailed specifications;
- f) Removal of waste; and
- g) Laying of lining according to detailed specifications and curing.

3.2 All types of lining shall be measured in square metres on exposed surface stating the thickness.

3.3 Sleeper beams, fillets, lip and coping shall be measured in cubic metres.

3.4 Iron work like fixing iron rungs in lined slopes shall be measured separately.

3.5 If fillers, bitumen paper or any other fill are used, they shall be fully described and measured in square metre stating thickness.

3.6 All types of valves and porous blocks shall be fully described and measured in numbers.

3.7 On-cross and longitudinal drain (where required), shall be fully described and measured in running metres stating cross section or diameter.