AZAD GOVERNMENT OF THE STATE OF JAMMU AND KASHMIR

PLANNING & DEVELOPMENT DEPARTMENT MUZAFFARABAD.

(Rate Analysis Section - M & E Wing)

No. P&DD/CSR & RA/ 24 - 68 /2012 Dated: January 23, 2012

1 The Secretary Works/ Communication
2 The Secretary Physical Planning & Housing
3 The Secretary Agriculture/ Animal Husbandry
4 The Secretary Tourism/ Information/ Wildlife/ Fisheries
5 The Secretary Local Government & Rural Development
6 The Secretary Electricity/ Hydro Electric Board/ Private Power Cell
7 The Secretary Education (Colleges)
8 The Secretary Education (Schools)
9 The Secretary Sports/ Culture/ Youth/ Transport
10 The Secretary SERRA

Govt. of AJ&K, Muzaffarabad

Subject: **Proposed change in Specifications of AJK-ICSR-2009 (Serial No. 3-12 & 3-13) for the item "Earth work" in Excavation of soil, hard strata and hard rocks.**

Sir,

I am directed to refer the circular/letter No. /P&DD/Admin/7778-7830/209 dated September 15, 2009 and to submit that the earth work specifications for excavation in soil, hard strata and hard rocks have been completed, which are now uploaded on P&DD website www.pndajk.gov.pk. The said specifications can be easily downloaded for calculation of earth work item involved in all development projects.

For further query/ information and valuable comments (within two weeks) please feel free to contact this office.

(Engr. Altaf Ahmad)

Chief Rate Analysis Section.

Copy to:

1. PS to the Additional Chief Secretary (Dev.)
2. PS to the Secretary Planning & Development Department
3. PA to the Director General (M&E), P&DD
4. The Chief Engineer PWD (Buildings/ PHE), South
5. The Chief Engineer PWD (Buildings/ PHE), North
6. The Chief Engineer PWD (Highways), South
7. The Chief Engineer PWD (Highways), North
8. The Chief Engineer Sudai Kawait Development Fund
9. The Director General CDO
10. The Director General, water resources/ Irrigation, Agri. Deptt.

Govt. of AJ&K, Muzaffarabad

Continue Page No. 2

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Excavation and strength properties of rocks

Grade	Material /rock type and name	UCS (unconfined compressive strength) MPa	Density dry t/m3	Field Properties of Rocks	Work type
I	Coal	2-100	1.4	Crumble under blolws break with hammer and hand.	Pick work/ Jumper work
	Gypsum	20-30	2.2	Dent by finger nail white in co	Jumper work
	Salt	5-20	2.1	show cubical cleavage ductile deformation in stress	Jumper work
	Clay (Cretoceous)	1-4	1.8	Mold by fingers, break by hammer if compacted	Pick work
II	Musdtone (Carboniferous)	10-50	2.3	Break by hammer crumble under pick blows. Break by hand.	Jumper work/ Pick work
	Shale (Carboniferous)	05-30	2.3		Pick work/ Jumper work
	Chalk (Cretoceous)	05-30	1.8		Jumper work
III	Limestone (Carboniferous)	50-150	2.6	moderately strong rock,	Jumper work/
	Dolomite	50-150	2.5	break by hammer lime stone.	Blasting work
IV	Gneiss	50-200	2.7	Strong rock break by hammer	Jumper work/
	Marble	60-200	2.6	moderately strong rock, break by hammer	
	Schist	20-100	2.7		
	Slate	20-250	2.7	Ripping needs to break.	Blasting work
V	Sandstone (Graywacke)	100-200	2.6	Blasting generally required to	Blasting work/ Chiseling
	Conglomerate	variable	variable	Ripping and blasting required	Jumper work/
	weathered sandstone	5-40	1.9	if cemented conglomerate.	Blasting work
VI	Granite	50-350	2.7	Blasting, Chisling and ripping required to break, very strong to strong rocks. Mostly rocks are igneous and metamorphic	Blasting work/ Chiseling
	Basalt	100-350	2.9		
	Quartzite	100-350	2.7		Blasting work

SOURCE Foundations of Engineering Geological 2/ed. By TONY WALTAAM, Civil Engineering Department, Nattingham Trent University, UK.

NOTES:

1 Selection of P/W, J/W, B/W and C/W depends upon the cementing material and matrix of the rock specially in the sedimentory rock. Fracture in stronger rocks occurs along the fault zone. In this case hard rock may be excavted by J/W, rather than B/W, see Fig. 2. Annex - A

2 Accurate confirmation is the job of Geologist/ Material Engineer after inspectiong of the site.

Awais Ahmed
Geologist
Rate Analysis Section
P&D Department AJ&K

Engr. Altaf Ahmed
Chief Rate Analysis Section
Ph. 05822-924117
P&D Department AJ&K

23/01/2012

"Annex - A"

Stable Cutting Slopes in Rocks

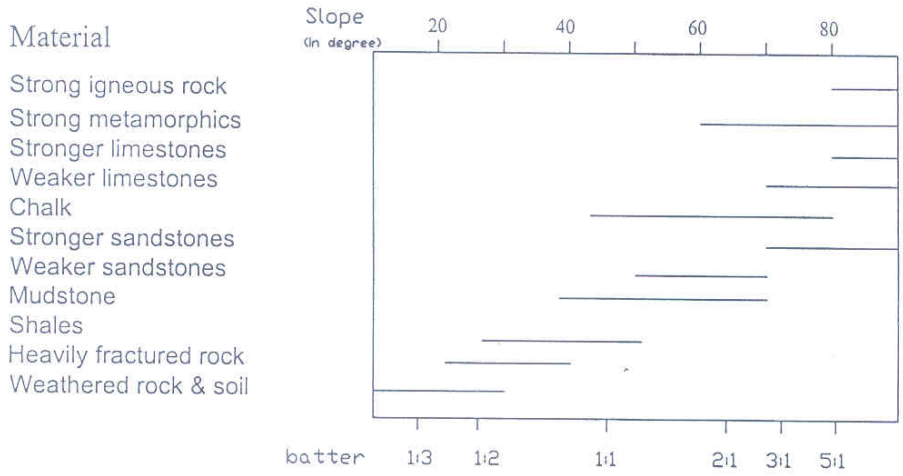

Fig. 1: Parameters for stable cutting slopes in rocks & soil.

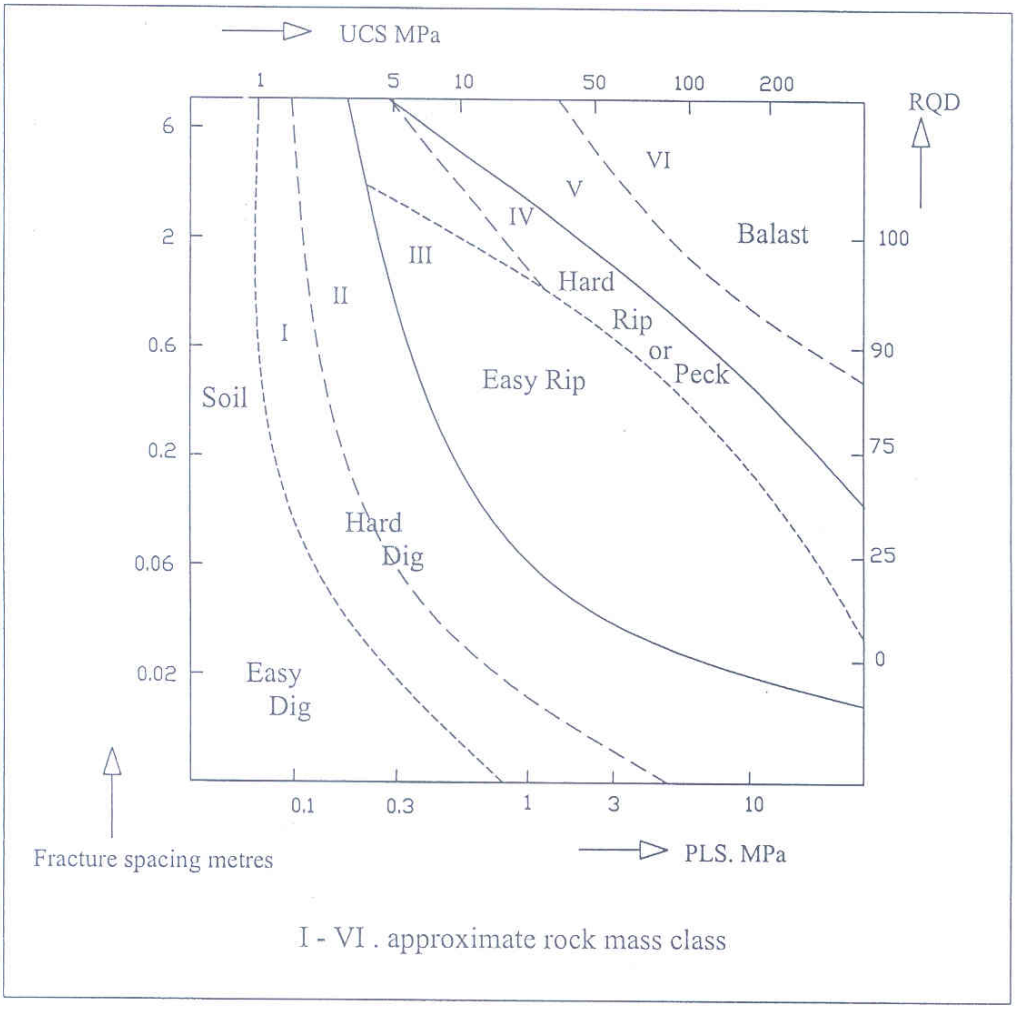

Fig. 2: Diagram shows ranges of different material with respect to UCS fracture spacing.

SOURCE
Foundations of Engineering Geological 2/ed. By TONY WALTAAM, Civil Engineering Department, Natingham Trent University, UK.

Engr. Ishfaq Bashir
Research Officer

Awais Ahmed
Geologist

Engr. Altaf Ahmed
Chief R.A. Section P&DD

23/01/2012