



### Recommended Construction Material Sources for District Bhimber

Sr.No	District	Sand Sources		Coarse Aggregate Source		Stone for masonry		Clay deposits for masonry	Stone soling of roads bed		Coarse aggregate for Asphalt/premix used in roads	
		Local sources have marginal use (<2000psi strength)	out of District	Local sources have marginal use (<2000psi strength)	out of district	Local	out of district		Local run or pit run	out of district	Local	Out of District
1	Bhimber	Bhimber Nala	Chinab sand	Panjari Nullah	Margalla Hill limestone	Panjari Nullah	Dhurya clay deposit and Study of other clay depo		Panjari Nullah			
		Bhring Nullah		Dandhar Nullah		Dandhar Nullah						
		Khadala Nullah		Chaprian		Chaprian						
		Samani Nullah	Lawrencepur / Qibla bandi sand deposit	.....		.....						
		Bhimber Samani road	.....	.....		.....						
4												
5												

- Note:
1. Recommended sources for coarse aggregate within district are from nullah bed/ alluvial deposit and Soan formation where proper size stone selection for masonry purpose is required which depends upon the size 10 " +.
  2. Ordinary Portland Cement (OPC) available in local market consist of 0.5 to 0.8% alkalis.
  3. To avoid the Alkali Silica Reaction (OPC) can be replaced with Pozolona, slag or low alkali cement which should meet the 10000psi strength (BS-12, ASTM C150).
  4. (i) Steel testing on each consignment is required to meet the ASTM 615A where for grade 40 steel required yield strength is 40,000psi and for grade 60 required yield strength is 60,000psi.  
(ii) Chemical tests of the steel should meet the ASTM 706A.
  5. Other local quarries material should be evaluated as per ranges provided in Table 4.1
  6. Material of fine & coarse aggregate not fulfill the evaluation criteria mentioned in Table 4.1 should be treated as rejected.
  7. For more detail visit our website www.pndajk.gov.pk

Geologist  
Rate Analysis Section  
22/7/2011

Chief Rate Analysis Section  
22-7-2011

# STUDY OF CONSTRUCTION MATERIAL SOURCES IN AJK

## Table 4.1

Criteria Used for Evaluating the Material Sources

PHYSICAL ENGINEERING PARAMETERS	ASTM C-33 SPECIFICATION LIMITS	*Tentative Limits									AASHTO	TRL	ASTM LIMITS	BS				
		Heavy Traffic Roadst			Medium Traffic Roadst			Light Traffic Roadst						Masonry Mortar	Floor Screed	External Rendering	Gypsum Plastering	
		All Unbound	Wearing Course	Bituminous Base/Sub-base	All Unbound	Wearing Course	Bituminous Base/Sub-base	All Unbound	Wearing Course	Bituminous Base/Sub-base								
Specific Gravity (not less than)	2.5																	
Water Absorption (not more than %)	1										12							
Sodium Sulfate Soundness (max. %)	12																	
Los Angeles Abrasion Value (max. %)	50	25	25	35	30	30	35	35	30	35	30	35						
Materials Passing (No.200 sieve) (% by wt.)	3												3					
Shale (% by wt.)	1																	
Clay Lumps and Friable Particles (% by wt.)	2												3					
Other Deleterious Substances (% by wt.)	1																	
Impact Value (max.)		23	23	30	27	27	30	30	27	30	25							
Crushing Value (max.)		23	23	30	27	30	30	30	27	30	25							
10% Fine Value KN (min.) Dry		130	130	100	115	100	100	100	115	100	150							
10% Fine Value KN (min.) Soaked		80	65	50	65	65	50	50	65	50								
Fleakness (max.)											45	35						
Sand Grading													ASTM C-33	BS-1200	BS-112	BS-1199	BS-1198	
Fineness Modulus													ASTM C-33					
Mortar Bar Expansion % (max.) at 14 days (ASTM 1260)	0.1												0.1					
Bitumen Adhesion (Not less than)											95	75						

CONCRETE  
COARSE  
AGGREGATES

ROAD AGGREGATE

FINE AGGREGATES



## Minimum Required Parameters for Brick Selection

S.No.	Class Of Brick	Weight Of Brick (lbs) (Bone Dry)	Size Of Brick (inch X inch X inch)	Water Absorption Ratio	Strength Of Brick (psi)
1	1 <sup>st</sup> Class	7	9 X 4-1/2 X 3	1/6 <sup>th</sup> of its dry Weight	1200 to 1500
2	2 <sup>nd</sup> Class	7	9 X 4-1/2 X 3	1/4 <sup>th</sup> of its dry Weight	900 to 1200
3	3 <sup>rd</sup> Class	6.75	9 X 4-1/2 X 3	1/3 <sup>rd</sup> of its dry Weight	500 to 900
4	4 <sup>th</sup> Class	7.2	9 X 4-1/2 X 3	1/2.5 of its dry Weight	Less than 500

*AK* *AV* *omul.*

Chief Rate Analysis 22/7/2011

Planning And Dev. Deptt

Govt. Of AJK M.abad