

# Transportation Engineering Laboratory (TEL)

Department of Civil Engineering (CED)

UNIVERSITY OF ENGINEERING & TECHNOLOGY (UET)

LAHORE – 54890 (PAKISTAN)



Phone: 092-42-9929202 Cable: UNIVENGTECH Fax: 092-42-9922566

Ref:-----

Date:-----

The Deputy Director (Engg.),  
LDA.

Subject: **Testing of Sub-base Material**  
Sustainable Development of Gulberg Scheme Block B-III, Lahore

Dear Sir,

It is with reference to your letter No. DD(Engg.)/LDA/23 dated 17-02-2024.  
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 09-04-2025 through your representative.

## 1. Sieve Analysis (ASTM C-136)

Sieve Size	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4
%age Passing	100	100	83.38	65.55	51.91	42.63	36.21

## 2. Specific Gravity & Water Absorption (ASTM C-127)

Specific Gravity (oven dried condition)	2.69
Specific Gravity (saturated surface dry condition)	2.72
Apparent Specific Gravity	2.77
Water Absorption (%)	0.99

## 3. Sodium Sulphate Soundness (ASTM C-88)

Sieve Size	Weight of Fraction Before Test (gm)	Weight of Fraction After Test (gm)	Percentage Passing Designated Sieve After Test	Weighted Percentage Loss
1" + 3/4"	1501.3	1476.2	1.67	0.58
	<b>Total = 0.58%</b>			

## 4. Los Angeles Abrasion Value Test (ASTM C-131/535)

Grading Used	Los Angeles Abrasion Value (%)
A	27.50

## 5. Flakiness Index (BS 812: Part 105)

Sieve Size		Individual Flakiness Index (%)	Weighted Flakiness Index (%)
Passing (in.)	Retained (in.)		
1 ½	1	29.33	7.64
1	¾	33.16	9.27
¾	½	24.87	5.32
½	3/8	18.67	2.72
3/8	¼	9.20	0.93
<b>Flakiness Index = 25.88%</b>			

If you have further query, please do not hesitate to contact the undersigned.

Best Regards,

Director  
Transportation Engineering Laboratory

**Note:**

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Ref:-----

Date:-----

Mr. Muhammad Saleem  
Material Engineer NESPAK,  
ADP WASA,  
Lahore.

Subject: **Testing of Materials (Coarse and Fine Aggregates)**  
Annual Development Program-WASA (ADP 2024-25)  
Rainwater Management – Drainage Arrangement for Sore Point at Garden Town,  
Lahore

Dear Sir,

It is with reference to your letter No. NESPAK/WASA/ADP/UGWT/TC/ME/04 dated 17-03-2025. Please find below the results for the tests conducted on the aggregate samples provided to this laboratory on 15-04-2025 through your representative.

## Coarse Aggregate

### 1. Sieve Analysis (ASTM C-136)

Sieve Size	1"	3/4"	1/2"	3/8"	#4
%age Passing	100	100	47.76	14.73	0.49

### 2. Specific Gravity & Water Absorption (ASTM C-127)

Specific Gravity (oven dried condition)	2.84
Specific Gravity (saturated surface dry condition)	2.85
Apparent Specific Gravity	2.86
Water Absorption (%)	0.32

### 3. Sodium Sulphate Soundness (ASTM C-88)

Sieve Size	Weight of Fraction Before Test. (gm)	Weight of Fraction After Test. (gm)	Percentage Passing Designated Sieve After Test.	Weighted Percentage Loss.
1/2" + 3/8"	1004.3	993.4	1.09	0.93
	<b>Total = 0.93%</b>			

#### 4. Los Angeles Abrasion Value Test (ASTM C-131/535)

Grading Used	Los Angeles Abrasion Value (%)
B	15.59

### Fine Aggregate

#### 1. Sieve Analysis (ASTM C-136)

Sieve Size	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
%age Passing	100	98.70	95.30	90.60	79.40	63.20	26.50	5.20	1.00

#### 2. Fineness Modulus (ASTM C-142)

Fineness Modulus (%)	2.41
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#### 3. Specific Gravity & Water Absorption (ASTM C-128)

Specific Gravity (OD)	2.68
Specific Gravity (SSD)	2.70
Apparent Specific Gravity	2.74
Water Absorption (%)	0.79

#### 4. Organic Impurities (ASTM C-40)

Organic Impurities	Nil
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If you have further query, please do not hesitate to contact the undersigned.

Best Regards,

Director  
Transportation Engineering Laboratory

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Phone: 092-42-9929202 Cable: UNIVENGTECH Fax: 092-42-9922566

Ref.:-----

Date:-----

Mr. Imran Hafeez Khan  
Resident Engineer,  
NESPAK.

Subject: **Testing of Aggregate (for Concrete works)**  
Project: Restoration/Improvement of Road from G. T. Road to Jodha via Domeli Station,  
Length = 9.20 km, Tehsil Sohawa, District Jhelum

Dear Sir,

It is with reference to your letter No. NESPAK/RE/JH/JD/25/13 dated 16-02-2025.  
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 25-04-2025 through your representative.

## 1. Specific Gravity & Water Absorption (ASTM C-127)

Specific Gravity (oven dried condition)	2.85
Specific Gravity (saturated surface dry condition)	2.86
Apparent Specific Gravity	2.87
Water Absorption (%)	0.23

## 2. Sodium Sulphate Soundness (ASTM C-88)

Sieve Size	Weight of Fraction Before Test (gm)	Weight of Fraction After Test (gm)	Percentage Passing Designated Sieve After Test	Weighted Percentage Loss
1/2" + 3/8"	1001.9	992.8	0.91	0.33
	<b>Total = 0.33%</b>			

## 3. Los Angeles Abrasion Value Test (ASTM C-131/535)

Grading Used	Los Angeles Abrasion Value (%)
A	15.18

## 4. Clay Lumps and Friable Particles (ASTM C-142)

Clay Lumps and Friable Particles (%)	0.30
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**5. Unit Weight (*Loose & Rodded*); (ASTM C 29/C 29M)**

Loose Unit Weight (g/cm <sup>3</sup> )	1.48
Rodded Unit Weight (g/cm <sup>3</sup> )	1.57

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Transportation Engineering Laboratory

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TEL UET

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Ref.:-----

Date:-----

Mr. Nazar Hussain  
Resident Engineer,  
HA Consulting,  
Lahore.

Subject: **Testing of Aggregate Base Course**  
Establishment/Construction of Model Bazaar Sharqpur District, Sheikhpura

Dear Sir,

It is with reference to your letter No. 25/HAC-MAS/RE/Sharqpur-141 dated 25-06-2025.  
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 08-07-2025 through your representative.

### 1. Sieve Analysis (ASTM C-136)

Sieve Size	2"	1"	3/8"	#4	#10	#40	#200
%age Passing	100	79.00	44.00	36.00	32.00	17.00	6.00

### 2. Sodium Sulphate Soundness (ASTM C-88)

Sieve Size	Weight of Fraction Before Test (gm)	Weight of Fraction After Test (gm)	Percentage Passing Designated Sieve After Test	Weighted Percentage Loss
1/2" + 3/8"	1004.4	982.4	2.19	0.71
	<b>Total = 0.71%</b>			

### 3. Los Angeles Abrasion Value Test (ASTM C-131/535)

Grading Used	Los Angeles Abrasion Value (%)
A	28.30

#### 4. Flakiness & Elongation Index (BS 812: Part 105)

Sieve Size		Individual Flakiness Index (%)	Weighted Flakiness Index (%)	Individual Elongation Index (%)	Weighted Elongation Index (%)
Passing (in.)	Retained (in.)				
1 ½	1	7.22	2.11	9.51	2.77
1	¾	9.37	2.94	9.37	2.94
¾	½	7.77	1.54	7.77	1.54
½	¾	7.96	1.00	7.96	1.00
¾	¼	10.13	0.71	10.13	0.71
<b>Flakiness Index = 8.30%</b>			<b>Elongation Index = 8.96%</b>		

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Ref.:-----

Date:-----

Mr. M. Hassan Khan  
Resident Engineer,  
NESPAK.

Subject: **Testing of WBM Material**  
Scheme # 12; Rehabilitation/Improvement of Bilal Road to Chah Miran, PP-148,  
Shalamar Zone MCL

Dear Sir,

It is with reference to your letter No. 4084/103/LDP/SMZ(S-12)/04/23 dated 15-05-2025.  
Please find below the results for the test conducted on the aggregate sample provided to this  
laboratory on 04-08-2025 through your representative.

## Sieve Analysis (ASTM C-136)

Sieve Size	3"	2 1/2"	2"	1 1/2"	3/4"
%age Passing	100	91.00	50.00	8.00	3.00

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