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:----------

Ms. Mahwish Rana
Material Engineer,
DHA Lab.,
Multan.

Subject: **Testing of Bitumen – AASHTO Standard (M-20)**
Project: Infrastructure Work of Sector-O (M/s NLC)
Source: PARCO

Dear Sir,

It is with reference to your letter No. 701/13/Lab/61/DHA dated 15-07-2025.
Please find below the results of tests conducted on the bitumen sample provided to this laboratory through your representative.

Sr.#	Laboratory Tests	Results
1	Penetration (ASTM D-5)	69 Units
2	Penetration of Residue (ASTM D-5)	62 Units
3	Ductility (ASTM D-113)	Above 100 cm
4	Ductility of Residue (ASTM D-113)	Above 100 cm
5	Softening Point (ASTM D-36)	49.8°C
6	Flash Point (ASTM D-92)	298°C
7	Fire Point (ASTM D-92)	325°C
8	Solubility (ASTM D-2042)	99.80%
9	Specific Gravity Value (ASTM D-70)	1.035
10	Thin Film Oven Test Value (ASTM D-1754)	0.475%
11	Loss on Heating Value (ASTM D-6)	0.438%

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

Best Regards,

Director
Transportation Engineering Laboratory

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Ref.---------- Date:----------

The Executive Officer,
ZEEZAK General Contracting, Lahore.

Subject: **Testing of Aggregates** (Coarse and Fine Aggregates)
Project: JS House, 72-H Lahore Cantt.

Dear Sir,
It is with reference to your letter No. Nil dated 21-07-2025.
Please find below the results for the tests conducted on the aggregate samples provided to this laboratory through your representative.

Crush (Sargodha)

Specific Gravity & Water Absorption (ASTM C-127)

Specific Gravity (oven dried condition)	2.81
Specific Gravity (saturated surface dry condition)	2.82
Apparent Specific Gravity	2.84
Water Absorption (%)	0.33

Fine Aggregate (Chenab Sand)

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

Sieve Size	3/8"	#4	#8	#16	#30	#50	#100	#200
%age Passing	100	99.43	98.60	97.26	95.89	80.90	10.53	2.06

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

Fineness Modulus (%)	1.20

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

Best Regards,

Director
Transportation Engineering Laboratory

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Ref.---------- Date:----------

Engr. Ahmed Hussain Shah
Resident Engineer,
New Vision Consultants, Lahore.

Subject: **Testing of Crush** ¾" (Source: Kirana Hills, Sargodha)
Construction of Auditorium Building (Block-F) at University of Child Health Sciences, Lahore

Dear Sir,

It is with reference to your letter No. NEWVISION/UCHS/AUD/09 dated 11-08-2025.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory through your representative.

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

Sieve Size	1"	¾"	½"	3/8"	#4
%age Passing	100	76.20	12.15	2.10	0.11

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

Specific Gravity (oven dried condition)	2.82
Specific Gravity (saturated surface dry condition)	2.83
Apparent Specific Gravity	2.84
Water Absorption (%)	0.33

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.
$1/2" + 3/8"$	1002.4	993.1	0.93	0.69
	Total = 0.69%			

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

Grading Used	**Los Angeles Abrasion Value (%)**
B	15.60

5. 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	$^3/_4$	0	0	7.89	1.88
$^3/_4$	$^1/_2$	8.15	5.22	12.75	8.17
$^1/_2$	$^3/_8$	6.99	0.70	13.84	1.39
$^3/_8$	$^1/_4$	0	0	22.54	0.45
		Flakiness Index = 5.92%		**Elongation Index = 11.89%**	

6. Unit Weight *(Loose & Rodded)*; (ASTM C 29/C 29M)

Loose Unit Weight (g/cm^3)	1.43
Rodded Unit Weight (g/cm^3)	1.53

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

Best Regards,

Director
Transportation Engineering Laboratory

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Ref.---------- Date:----------

Engr. Ahmed Hussain Shah
Resident Engineer,
New Vision Consultants, Lahore.

Subject: **Testing of Fine Aggregate** (Source: Lawrencepur)
Construction of Auditorium Building (Block-F) at University of Child Health Sciences, Lahore

Dear Sir,

It is with reference to your letter No. NEWVISION/UCHS/AUD/06 dated 08-08-2025.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory through your representative.

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

Sieve Size	½"	3/8"	#4	#8	#16	#30	#50	#100	#200
%age Passing	100	98.78	95.98	90.99	79.95	63.80	27.03	5.39	1.05

2. **Percentage of Fines (ASTM D-1140)** ***Wet Sieving***

Material Finer than #200 Sieve (%)	1.78

3. **Specific Gravity & Water Absorption (ASTM C-128)**

Specific Gravity (OD)	2.66
Specific Gravity (SSD)	2.68
Apparent Specific Gravity	2.71
Water Absorption (%)	0.71

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

Organic Impurities	Nil

5. **Clay Lumps and Friable Particles (ASTM C-142)**

Clay Lumps and Friable Particles (%)	0.28

6. **Unit Weight *(Loose & Rodded)*; (ASTM C 29/C 29M)**

Loose Unit Weight (g/cm^3)	1.61
Rodded Unit Weight (g/cm^3)	1.71

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Ref.---------- Date:----------

Engr. Ahmed Hussain Shah
Resident Engineer,
New Vision Consultants, Lahore.

Subject: **Testing of Crush** ½" (Source: Kirana Hills, Sargodha)
Construction of Auditorium Building (Block-F) at University of Child Health Sciences, Lahore

Dear Sir,

It is with reference to your letter No. NEWVISION/UCHS/AUD/09 dated 11-08-2025.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory through your representative.

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

Sieve Size	¾"	½"	3/8"	#4
%age Passing	100	37.85	7.47	0.25

2. **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.)**				
3/4	1/2	5.91	3.67	7.05	4.38
1/2	3/8	5.57	1.69	7.23	2.20
3/8	1/4	5.02	0.36	9.93	0.72
		Flakiness Index = 5.72%		**Elongation Index = 7.30%**	

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

Best Regards,

Director
Transportation Engineering Laboratory

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Ref.---------- Date:----------

Mr. Muhammad Arfan Asif
Resident Engineer,
NESPAK, Lahore.

Subject: **Testing of Sample** (Sub-base Material)
Restoration of Road Cut for Rain Water Management/Drainage Arrangement for Sore Point at Waris Road, Lahore

Dear Sir,

It is with reference to your letter No. 2830/MAA/WR/03/02 dated 23-07-2025.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 20-08-2025 through your representative.

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

Sieve Size	2”	1 ½”	1”	¾”	½”	3/8”	#4
%age Passing	100	98.23	81.63	62.85	49.67	39.11	31.70

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

Specific Gravity (oven dried condition)	2.63
Specific Gravity (saturated surface dry condition)	2.66
Apparent Specific Gravity	2.71
Water Absorption (%)	1.08

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

Grading Used	**Los Angeles Abrasion Value (%)**
A	28.15

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

Best Regards,

Director
Transportation Engineering Laboratory

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