

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:-----

Mr. Syed Azhar Hussain
Resident Engineer,
PRSWSS Project,
Noor Pur Thal City, District Khushab.

Subject: **Testing of Coarse Aggregate** (White Crush) Quarry Site at Quaid Abad,
District Khushab
Punjab Rural Sustainable Water Supply and Sanitation Project (PRSWSSP),
Tehsil Noor Pur Thal, District Khushab

Dear Sir,

It is with reference to your letter No. TCI/PRSESSP-NORTH/PHASE-III/NPT-04/015 dated 07-08-2024. Please find below the results for the tests conducted on the coarse aggregate sample provided to this laboratory through your representative.

1. Sieve Analysis (ASTM C-136)

Sieve Size	3/4"	1/2"	3/8"	#4
%age Passing	100	95.67	55.84	3.43

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

Specific Gravity (oven dried condition)	2.72
Specific Gravity (saturated surface dry condition)	2.73
Apparent Specific Gravity	2.77
Water Absorption (%)	0.69

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"	1003.0	988.9	1.41	0.62
	Total = 0.62%			

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

Grading Used	Los Angeles Abrasion Value (%)
B	24.47

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

Loose Unit Weight (g/cm ³)	1.40
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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TEL UET

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Ref.:-----

Date:-----

Mr. Syed Ahmed Raza Naqvi
A. Resident Engineer,
Syedwala Project.

Subject: **Testing of Stone Sample**

Construction of 2.25 km Missing Link Road on Okara Side to Connect Rai Mansab Ali Khan Kharal Bridge, Approach Road with Existing Provincial Highway Network

Dear Sir,

It is with reference to your letter No. RE(ML)/Techno/2024/046 dated 30-07-2024.

Please find below the results for the tests conducted on the stone sample provided to this laboratory on 08-08-2024 through your representative.

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

Specific Gravity (oven dried condition)	2.83
Specific Gravity (saturated surface dry condition)	2.84
Apparent Specific Gravity	2.87
Water Absorption (%)	0.46

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

Grading Used	Los Angeles Abrasion Value (%)
A	18.00

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Ref.:-----

Date:-----

Engr. Shahzad Hasan
Resident Engineer (ECSP),
ADP Projects, District Khanewal.

Subject: **Testing of Cores (Asphalt Wearing Course)**
Widening/Improvement/Rehabilitation/Reconstruction of Kabirwala Jhang Road upto District Boundary Khanewal Including Link to Motorway M-4, Length = 61.57 km, Taken Up Length = 11.00 km, Tehsil Kabirwala, District Khanewal

Dear Sir,

It is with reference to your letter No. ECSP/RE/ADP/365/127 dated 14-06-2024.
Please find below the results for the tests conducted on the cores provided to this laboratory on 26-07-2024 through your representative.

BULK SPECIFIC GRAVITY OF COMPACTED ASPHALT (ASTM D2726):

Core #	Description/ Chainage/ Location	Mean Thickness (cm)	Mean Diameter (cm)	Bulk Specific Gravity
1	Sample-1, 4+50, Center	11.820	10.000	2.456
2	Sample-2, 17+00, R/S	11.750	10.000	2.421
3	Sample-3, 36+10, L/S	11.370	10.000	2.461
4	Sample-4, 55+70, R/S	12.930	10.000	2.452
5	Sample-5, 63+20, Center	10.237	10.000	2.461
6	Sample-6, 80+00, L/S	12.320	10.000	2.440
7	Sample-7, 115+00, R/S	12.380	10.000	2.501
8	Sample-8, 85+00, Center	13.283	10.000	2.446
9	Sample-9, 102+00, L/S	10.273	10.000	2.484
10	Sample-10, 119+00, Center	13.220	10.000	2.497

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Date:-----

Engr. Shahzad Hasan
Resident Engineer (ECSP),
ADP Projects, District Khanewal.

Subject: **Testing of Cores (Asphalt Wearing Course)**
Rehabilitation of Metalled Road from Kabirwala to Adda Khaliqabad via M-4
Makhdoom Pur Interchange, Length = 27.00 km, Tehsil & District Khanewal, ADP
No. 3310 for the Year 2022-23

Dear Sir,

It is with reference to your letter No. ECSP/RE/ADP/365/125 dated 14-06-2024.
Please find below the results for the tests conducted on the cores provided to this laboratory on 26-07-2024 through your representative.

BULK SPECIFIC GRAVITY OF COMPACTED ASPHALT (ASTM D2726):

Core #	Description/ Chainage/ Location	Mean Thickness (cm)	Mean Diameter (cm)	Bulk Specific Gravity
1	Sample-1, 9+35, R/S	6.503	9.920	2.406
2	Sample-2, 22+50, Center	5.217	9.920	2.375
3	Sample-3, 40+00, L/S	5.473	9.920	2.384
4	Sample-4, 456+80, R/S	4.877	9.920	2.387
5	Sample-5, 471+90, Center	5.660	9.920	2.424
6	Sample-6, 492+50, L/S	5.623	9.920	2.432
7	Sample-7, 514+00, R/S	7.700	9.920	2.368
8	Sample-8, 698+20, Center	6.447	9.920	2.376
9	Sample-9, 709+00, L/S	6.053	9.920	2.450
10	Sample-10, 718+90, Center	6.357	9.920	2.378

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Date:-----

Engr. Shahzad Hasan
Resident Engineer (ECSP),
ADP Projects, District Khanewal.

Subject: **Bitumen Extraction Tests on Asphalt Wearing Course Samples**
Widening/Improvement/Rehabilitation/Reconstruction of Kabirwala Jhang Road upto District Boundary Khanewal Including Link to Motorway M-4, Length = 61.57 km, Taken Up Length = 11.00 km, Tehsil Kabirwala, District Khanewal

Dear Sir,

It is with reference to your letter No. ECSP/RE/ADP/365/128 dated 14-06-2024.

Please find below the results for the tests conducted on the samples provided to this laboratory on 26-07-2024 through your representative.

BITUMEN EXTRACTION TEST:

Sample-1 (From 20+70 to 35+50, AWC, Abdul Hakim Link Road)

Bitumen Extraction Value (ASTM D-2172)							4.40%		
Gradation Analysis									
Sieve No.	1"	¾"	½"	3/8"	#4	#8	#50	#200	
% Passing	100	94.99	65.99	58.99	38.98	23.96	9.32	3.97	

Sample-2 (From 82+00 to 100+00, AWC, Main Shorkot Road)

Bitumen Extraction Value (ASTM D-2172)							4.39%		
Gradation Analysis									
Sieve No.	1"	¾"	½"	3/8"	#4	#8	#50	#200	
% Passing	100	96.00	67.00	54.01	42.00	26.00	11.01	3.02	

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Subject: **Bitumen Extraction Tests on Asphalt Wearing Course Samples**
Rehabilitation of Metalled Road from Kabirwala to Adda Khaliqabad via M-4
Makhdoom Pur Interchange, Length = 27.00 km, Tehsil & District Khanewal, ADP
No. 3310 for the Year 2022-23

Dear Sir,

It is with reference to your letter No. ECSP/RE/ADP/365/126 dated 14-06-2024.

Please find below the results for the tests conducted on the samples provided to this laboratory on
26-07-2024 through your representative.

BITUMEN EXTRACTION TEST:

Sample-1 (From 16+50 to 32+00, AWC)

Bitumen Extraction Value (ASTM D-2172)							4.41%		
Gradation Analysis									
Sieve No.	1"	¾"	½"	3/8"	#4	#8	#50	#200	
% Passing	100	95.40	68.00	54.99	40.00	25.35	11.36	4.02	

Sample-2 (From 498+00 to 512+00, AWC)

Bitumen Extraction Value (ASTM D-2172)							4.43%		
Gradation Analysis									
Sieve No.	1"	¾"	½"	3/8"	#4	#8	#50	#200	
% Passing	100	94.00	64.99	52.99	38.99	24.00	9.61	2.99	

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