
**PENSWASTAAN PENYENGGARAAN
JALAN PERSEKUTUAN
SEMENANJUNG MALAYSIA**

**PROJECT QUALITY PLAN
ROAD SHOULDERS**

Lokasi :



CAWANGAN SENGGARA FASILITI JALAN
IBU PEJABAT JKR ALAYSIA
KUALA LUMPUR

LOGO
SYARIKAT
KONSESI

ALAMAT SYARIKAT

	PROJECT QUALITY PLAN	Reference No.:
	WORK INSTRUCTION MANUAL ROAD SHOULDERS	Revision No.:

1.0 OBJECTIVE

To outline the procedure by which road shoulder treatment works shall be carried out as per JKR standard specification.

2.0 SCOPE

This section covers the work necessary for:

- i) Regrading or topping up unpaved shoulders with suitable materials within 50mm drop.
- ii) Reinstatement of paved shoulders.
- iii) Construction of paved shoulders in accordance with the approved drawings.

3.0 DEFINITION

Road shoulder treatment refers to activities involved to ensure that the road shoulder;

- i) Has smooth running surface.
- ii) Has minimum loose materials for unpaved shoulders.
- iii) Has sufficient strength to support wheel loads.
- iv) Has adequate slope for drainage.
- v) Is within 50mm drop in relation to the pavement edge for unpaved shoulders or has a surface flush with the pavement edge for paved shoulders.
- vi) Shall be uniformly free draining away from the carriageway towards the road side drains.

4.0 PROCEDURES

4.1 Upon receiving Work Order from the S.O., the Project Manager shall prepare and submit the Project Quality Plan (PQP) to the S.O. for approval.

4.2 Upon approval of the PQP, the Project Manager shall proceed with site possession, mobilization of plants and machineries, site demarcation and reinstatement/construction of the road shoulder.

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4.3 Traffic control at worksite shall be in accordance with the Traffic Management Plan (TMP) as approved by the S.O.

4.4 All required tests shall be carried out in accordance to the Inspection and Test Plan (ITP) as approved by the S.O.

a) Unpaved Shoulders

4.5 Shoulder reinstatement shall be carried out at the locations where the drop is lower than 50mm from the edge of the road and/or as directed by the S.O.


4.6 Unpaved shoulders shall be constructed within 50mm tolerance of the finished surface of the pavement edge.

4.7 Prior to placing any shoulder material, removal of all unsuitable materials including vegetation shall be carried out.

4.8 Material for unpaved shoulders shall be placed to the required width and thickness as shown on the drawings or as directed by the S.O. in one layer or more. Earth shoulders materials shall be suitable material as described in Section 4.3 of Standard Specification for Road Works JKR/SPJ/1988. Each layer shall not exceed 200mm of compacted thickness.

4.9 Each layer of shoulder materials shall be processed as necessary to bring its moisture content to a uniform level throughout the material suitable for compaction, and shall be compacted using suitable compaction equipment to not less than 95% of the maximum dry density determined in the B.S. 1377 Compaction Test (4.5kg rammer method).

4.10 Compaction shall be carried out in a longitudinal direction along the shoulder and shall generally begin at the outer edge and progress uniformly towards the carriageway, except on super-elevated curves where rolling shall begin at lower edge and progress uniformly towards the higher edge.

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b) Paved Shoulders

- 4.11 Excavation to the required level shall be carried out in accordance to dimensions as shown on the drawings.
- 4.12 Further excavation for soft materials shall be carried out as directed by the S.O.
- 4.13 Material for backfilling shall be from approved source and compacted using suitable compactor.
- 4.14 Crushed aggregate materials for roadbase shall be from an approved quarry and in accordance to JKR/SPJ/1988 Sec. 4.1.4.2.
- 4.15 Material for roadbase shall be placed and compacted to the required width and thickness as shown on the drawings, which each layer shall not exceed 200mm compacted thickness.
- 4.16 Bituminous material for prime coat shall be as per Section 4.2.1 of JKR Standard Specification for Road Works JKR/SPJ/1988. Prime coat shall be applied on to the cleaned roadbase surface by means of a pressure distributor at the rate as directed by the S.O.
- 4.17 Asphaltic concrete binder course and/or wearing course shall be laid on the roadbase in accordance to section 4.2.4 Standard Specification for Road Works JKR/SPJ/1988 and the lines, levels, grades, dimensions and cross-sections as shown on the drawings and/or as directed by the S.O.
- 4.18 Existing guardrails shall be removed, and re-installed upon completion of the work, or as instructed otherwise by the S.O. to facilitate the execution of the Work on the shoulders.
- 4.19 Upon completion of the Work, final inspection and measurement shall be carried out jointly with the S.O. representative.

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4.20 Refer to Flow Chart on page 5.

5.0 PLANT AND EQUIPMENT

- i. Motor Grader
- ii. Backpusher
- iii. Compactor
- iv. Paver
- v. Roller

6.0 REFERENCES

- i. Standard Specification for Road Works (JKR/ SPJ/ 1988), Section 4.3 - Shoulders.
- ii. Arahan Teknik (Jalan) 2C/85 - Manual on Traffic Control Devices; Temporary Signs and Work Zones Control.



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ACTIVITY	RESPONSIBILITY	REFERENCE
<p>A) Pre-Construction</p> <pre> graph TD Start([Start]) --> WO[Receive Work Order from S.O.] WO --> PQP[Prepare PQP and submit to S.O. for approval which shall consist of :- 1. Work Program. 2. Layout plan and design (if required). 3. Traffic Management Plan. 4. Plant and equipment checklist. 5. Method Statement. 6. Inspection and Test Plan. 7. Bills of Quantities.] PQP --> Approv1{Approved by S.O.} Approv1 -- NO --> PQP Approv1 -- YES --> B </pre> <p>B) Construction</p> <pre> graph TD B[Site Possession & Mobilisation] --> Prep[Preparation of Shoulder Treatment] Prep --> Reinst[Shoulder Reinstatement/Reconstruction] Reinst --> Insp[Inspection and Testing] Insp --> Approv2{Approved by S.O.} Approv2 -- NO --> B Approv2 -- YES --> End([End]) </pre>	<p>Project Manager</p> <p>Project Manager</p> <p>Project Manager S.O.</p> <p>Project Manager</p> <p>Project Manager</p> <p>Project Manager</p> <p>Project Manager S.O.</p> <p>Project Manager S.O.</p>	<p>Work Order</p> <p>Project Quality Plan</p> <p>Inspection and Test Plan</p>



PROJECT QUALITY PLAN

Reference No.:

INSPECTION AND TEST PLAN

ROAD SHOULDERS (UNPAVED)

Revision No.:

LEGEND

W	WITNESSED
A	APPROVED
C	CONFIRMED
V	VERIFIED
P	PREPARED

ITEM	DESCRIPTION	REQUIREMENT / STANDARD	INSPECTION	TEST	COMPLIANCE / CRITERIA	FREQUENCY OF TEST	LAB TECHNICIAN / SUPERVISOR	TECHNICAL EXECUTIVE / ENGINEER	PROJECT MANAGER	S.O.	
1.0	Traffic Management										
1.1	Traffic control at worksite	Arahan Teknik (Jalan) 2C/85	Visual		Approved TMP						
2.0	Demarcation										
2.1	Setting out and demarcation		Visual		Approved Layout Plan		P	V	C	W	
3.0	Excavation Works										
3.1	Excavation to the required depth	Construction Drawings	Measurement	Thickness	± 10mm in accordance to drawings	At 10m intervals	P	V	C	W	
4.0	Material	JKR/SPJ/1988 Sub-Section 2.2.1(e) BS1377 Parts 2&3	Property	Plasticity	a	Liquid Limit <80%	1 test per site	P	V	C	W
					b	Plasticity Index <55%					
5.0	Placement of material	JKR/SPJ/1988 Sub-Section 4.3.3 Table 4.13 of JKR/SPJ/1988 BS 1377 Compaction Test	Finish level	Compaction	CBR >80% when compacted to 95% of MDD	At 10m intervals	P	V	C	W	

NOTE : PLEASE REFER TO RELEVANT INSPECTION AND TEST PLAN (ITP) FOR SUBSEQUENT ACTIVITIES.



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Reference No.:

INSPECTION AND TEST PLAN

ROAD SHOULDERS (PAVED)

Revision No.:

LEGEND

W	WITNESSED
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V	VERIFIED
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ITEM	DESCRIPTION	REQUIREMENT / STANDARD	INSPECTION	TEST	COMPLIANCE / CRITERIA	FREQUENCY OF TEST	LAB TECHNICIAN / SUPERVISOR	TECHNICAL EXECUTIVE / ENGINEER	PROJECT MANAGER	S.O.
1.0	Traffic Management									
	Traffic control at worksite	Arahan Teknik (Jalan) 2C/85	Visual		Approved TMP					
2.0	Demarcation									
2.1	Setting out and demarcation		Visual		Approved Layout Plan		P	V	C	W
3.0	Excavation Works									
3.1	Excavation to the required depth	Construction Drawings	Measurement	Thickness	Within 10mm in accordance to drawings	At 10m intervals	P	V	C	W
4.0	Crushed aggregate	JKR/SPJ/1988 Sub-Section 4.1.4.2	Measurement	Material Properties	a. Plasticity Index < 6 b. Crushing Value < 30	1 test per site	P	V	C	W
5.0	Prime coat	a. JKR/SPJ/1988 Sub-Section 4.2.1 & 4.2.2 b. MS 161 (emulsion)	Measurement	Spray rate	0.5 - 1.0 liter/sq.m @ 25°C - 45°C during spraying	1 test per 200 liter	P	V	C	W
6.0	Asphaltic concrete	JKR/SPJ/1988 Sub-Section 4.2.4	Measurement	a. Temperature b. Composition c. Marshall properties d. Compaction	As stated in JKR/SPJ/1988 Sub-Section 4.2.4	As stated in JKR/SPJ/1988 Sub-Section 4.2.4	P	V	C	W

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