AV '17 KONFERENCE ASFALTOVÉ VOZOVKY 2017

INNOVATIVE TRIPLE SMA LAYER FOR HEAVY DUTY PAVEMENTS

from idea to realisation

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Asfaltové vozovky – bezpečná cesta k prosperitě
28. – 29. November 2017, České Budějovice

SDRUŽENÍ PRO VÝSTAVBU SILNIC
ČESKÁ SILNIČNÍ SPOLEČNOST CZECH ROAD SOCIETY
EAPA
PRAGOPROJEKT

Ageda

1. Introduction
2. New idea of asphalt pavements
3. Highly Modified Asphalt Binder (HiMA)
4. Triple SMA Layer for Heavy Duty Pavements
5. Realisation

TRIPLE SMA LAYER

from idea to realisation

MARCIN HERING, TPA SP. Z O.O.

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Roads for the Effective Refinement (EFRA) project

Construction site of EFRA Project.
General view on the units and roads under construction

517 mln EUR
Investment cost

STOP

Production of HFO

300 000 tons of PetCoke will be load and transport on the trucks outside the refinery.

CHALLENGE
SLOW SPEED

case study

CHALLENGE
HEAVY LOAD

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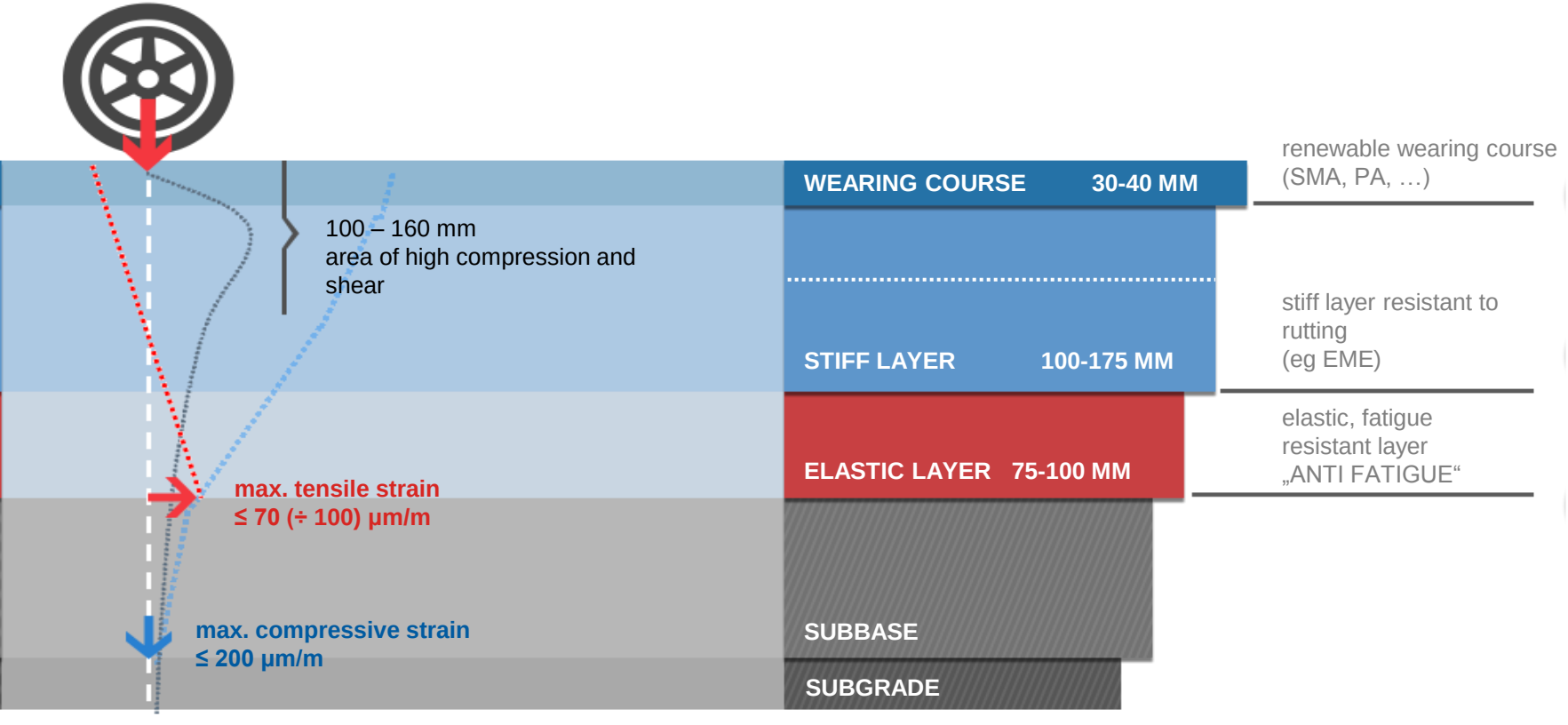
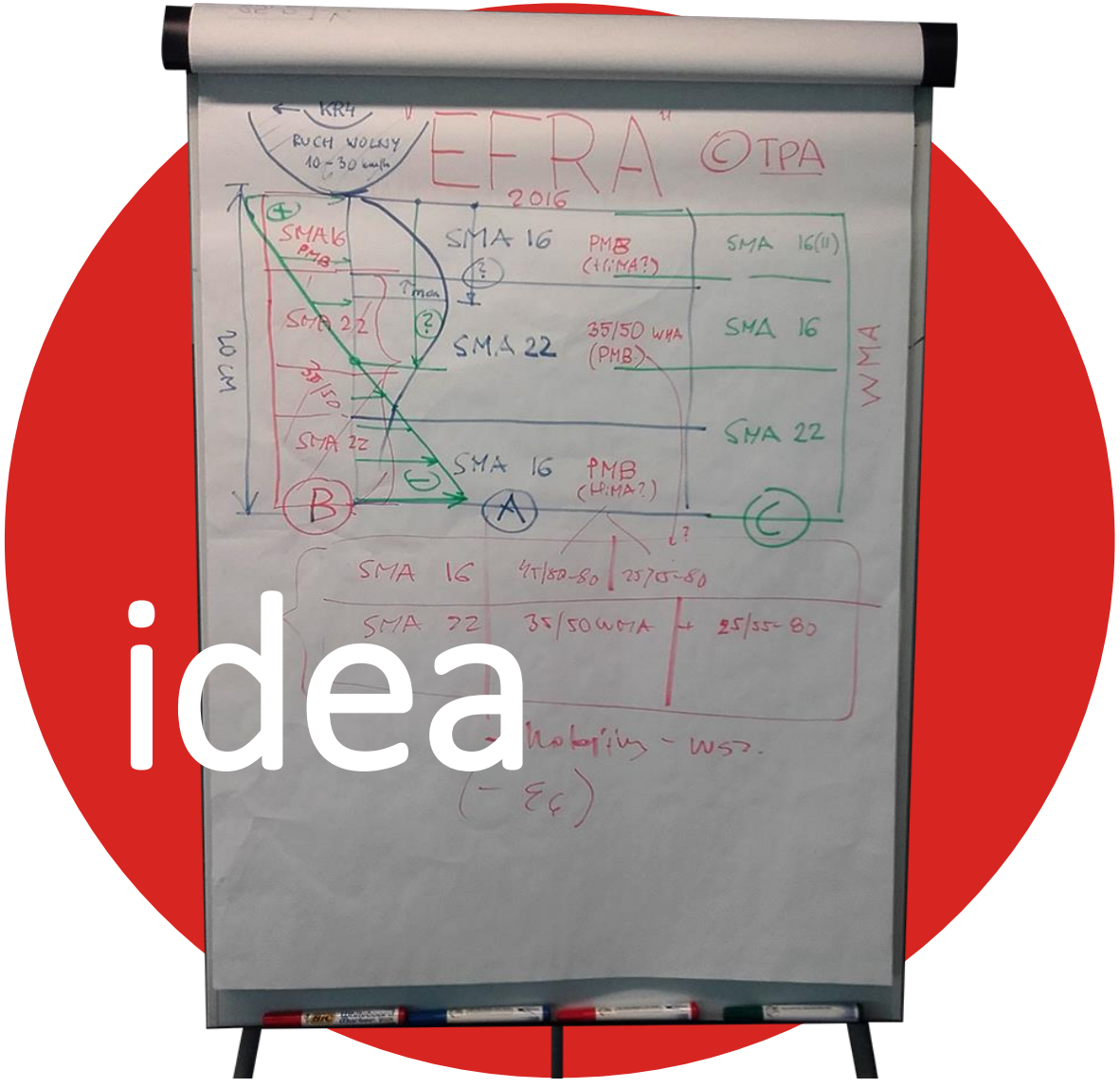
IDEA OF PERPETUAL ASPHALT PAVEMENTS



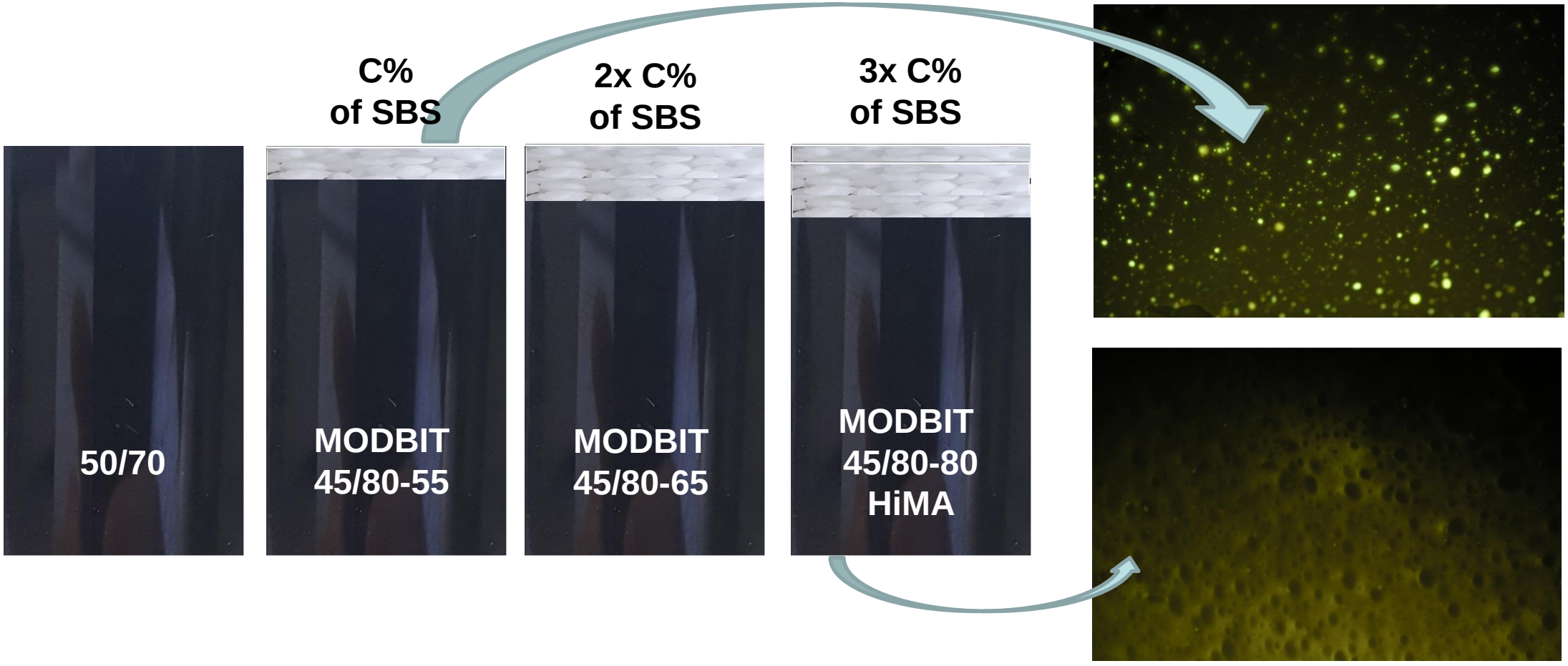
lit. e.g.: Newcomb at all, 2000

TPA LOTOS Asfalt


KR4
RUCH WOLNY
10 - 30 km/h
EFRA
2016
©TPA
SMA 16
PMB
SMA 22
35/50 WMA
(PMB)
SMA 16(II)
SMA 16
SMA 22
WMA
20 cm
SMA 16
PMB
(HiMA?)
SMA 22
35/50
SMA 16
PMB
(HiMA?)
A
B
C
SMA 16
SMA 22
35/50 WMA
25/55-80

idea

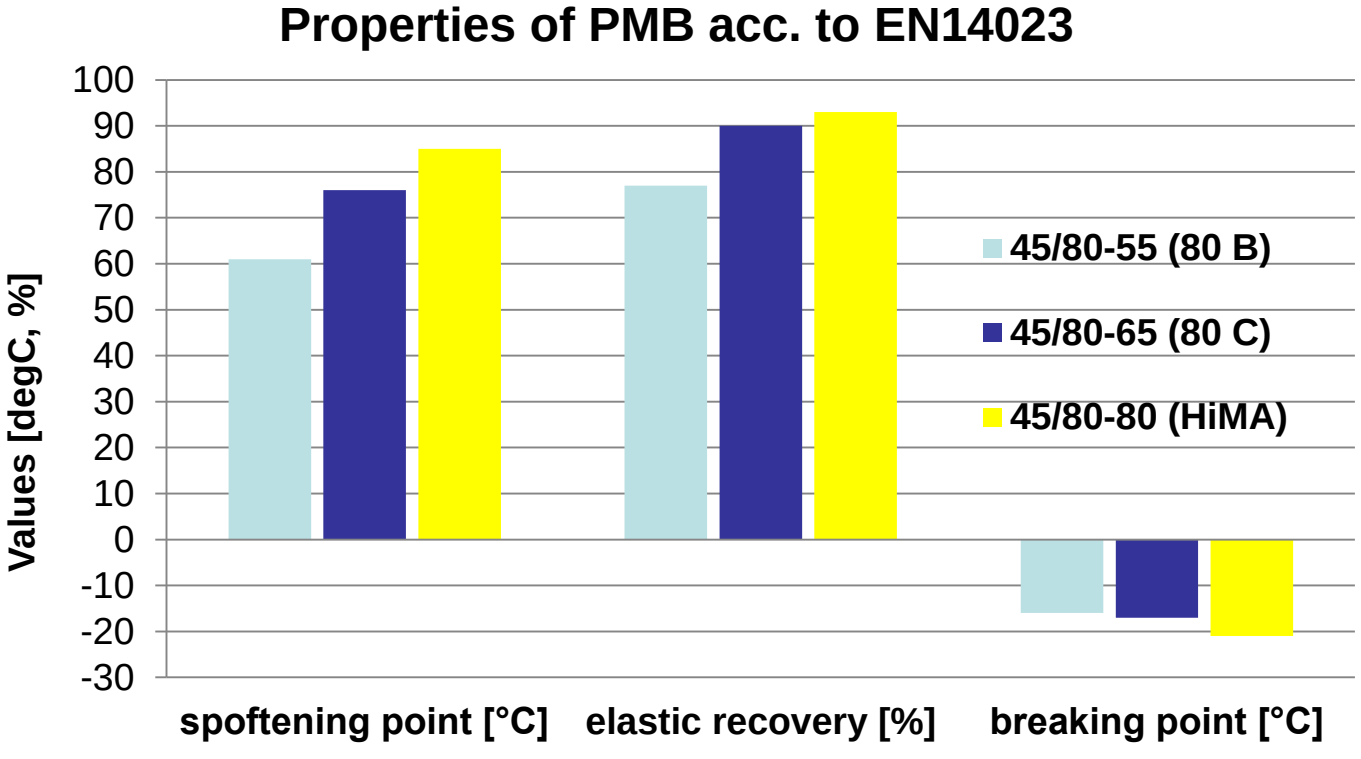
Binders used in the project.
Highly Modified Bitumen (MODBIT HiMA)



HiMA are producing in accordance with requirments of EN 14023

Why we have chosen HiMA to bulid new roads in Gdansk refinery?

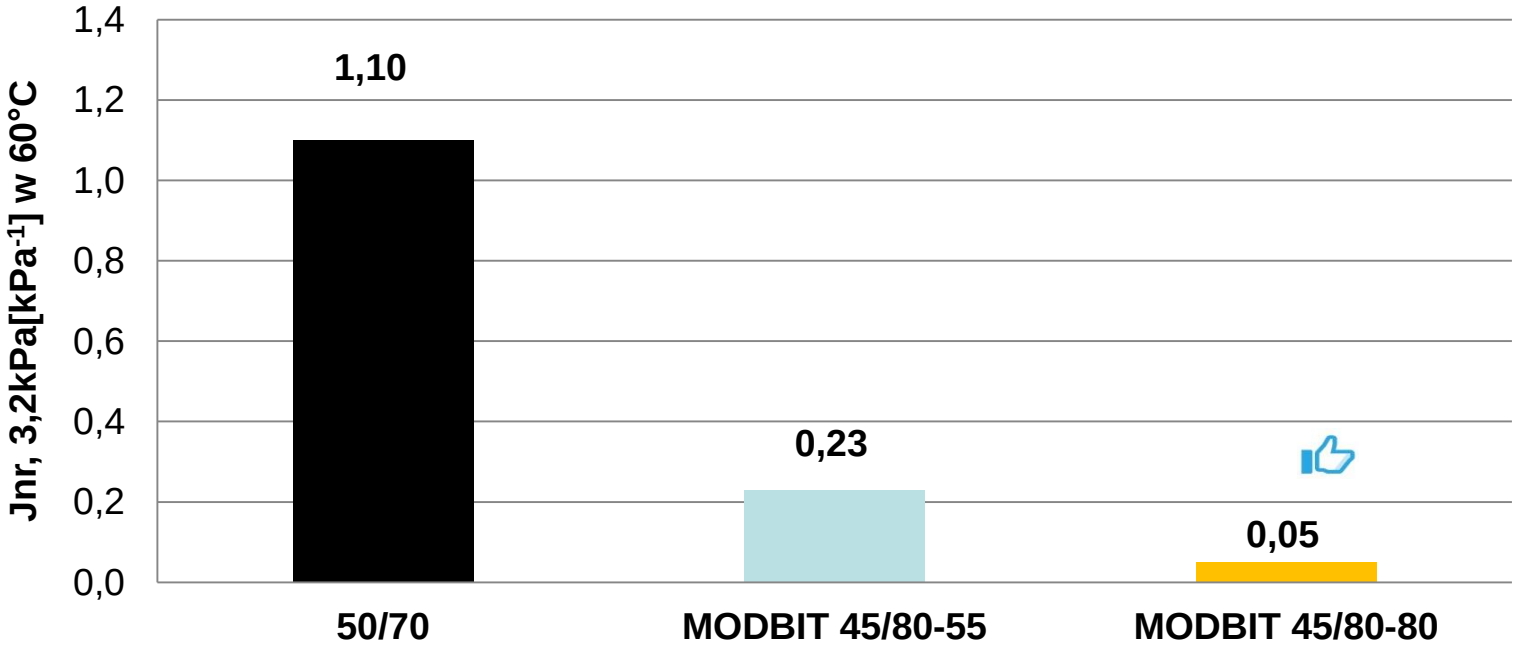
In case of durability of asphalt pavements one of key acpect is to use the proper bituminous binder.



The difference of HiMA performance is especially well proven by testing the asphalt mix,

or by using the performance related bitumen test method.

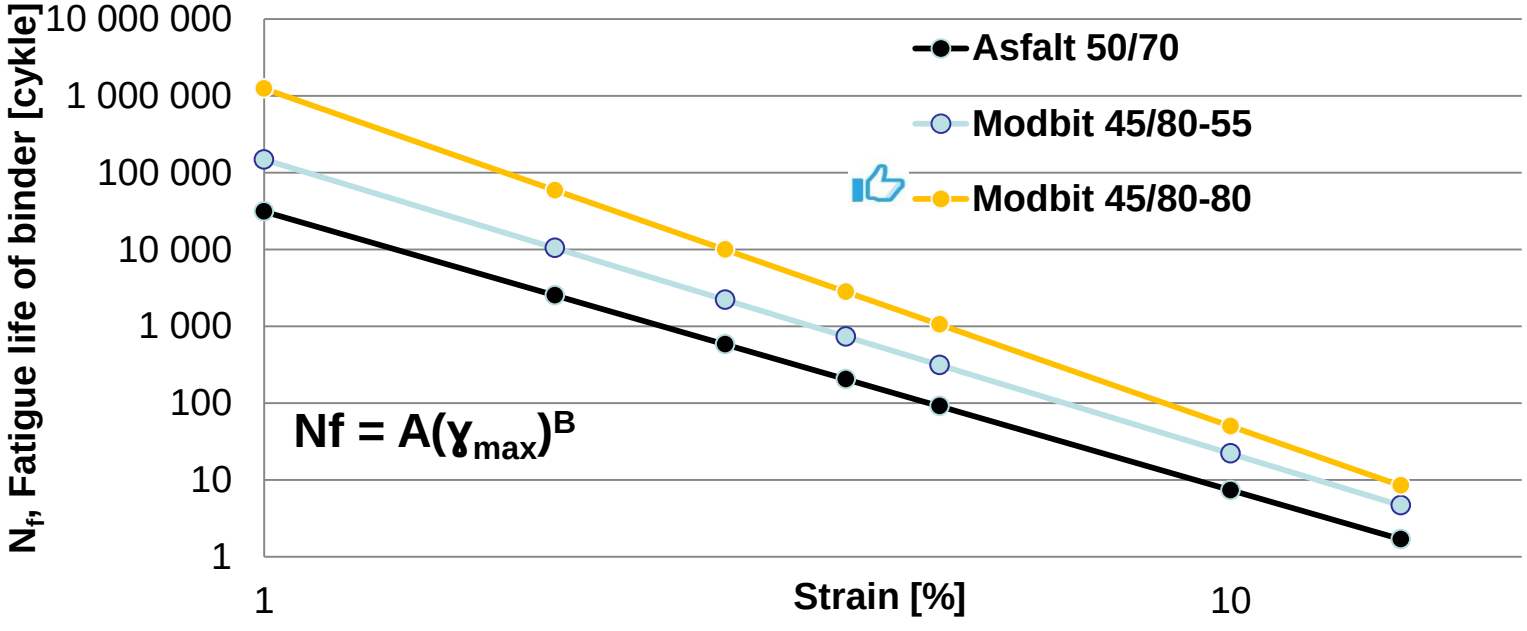
Perforamance related properties of bitumen - rutting



The results from DSR correlates with WTS rut rate (EN 12697-22)

Highly Modified Bitumen **45/80-80**
is showing the best values related to resistance to permanent deforamtion

Perforamance related properties of bitumen - fatigue

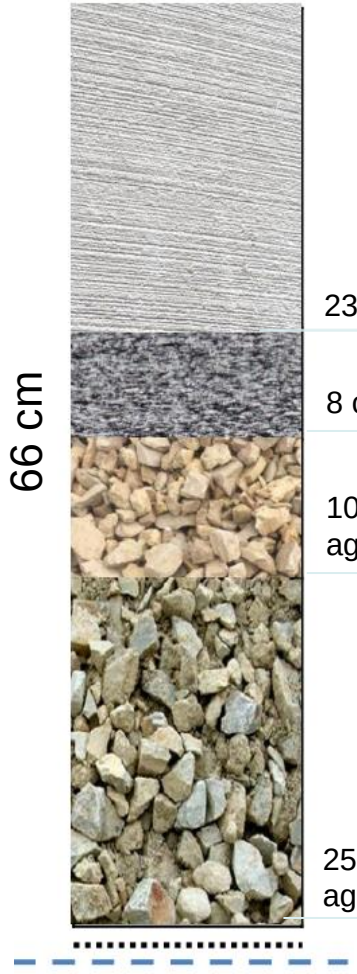


The results from DSR correlates with fatigue data recived from asphalt test 4PBB (EN 12697-24)

Highly Modified Bitumen **45/80-80** was found as the best binder in case of resistance to fatigue

ORIGINAL ASPHALT PAVEMENT
ROADS

ORIGINAL CONCRETE PAVEMENT
SQUARES



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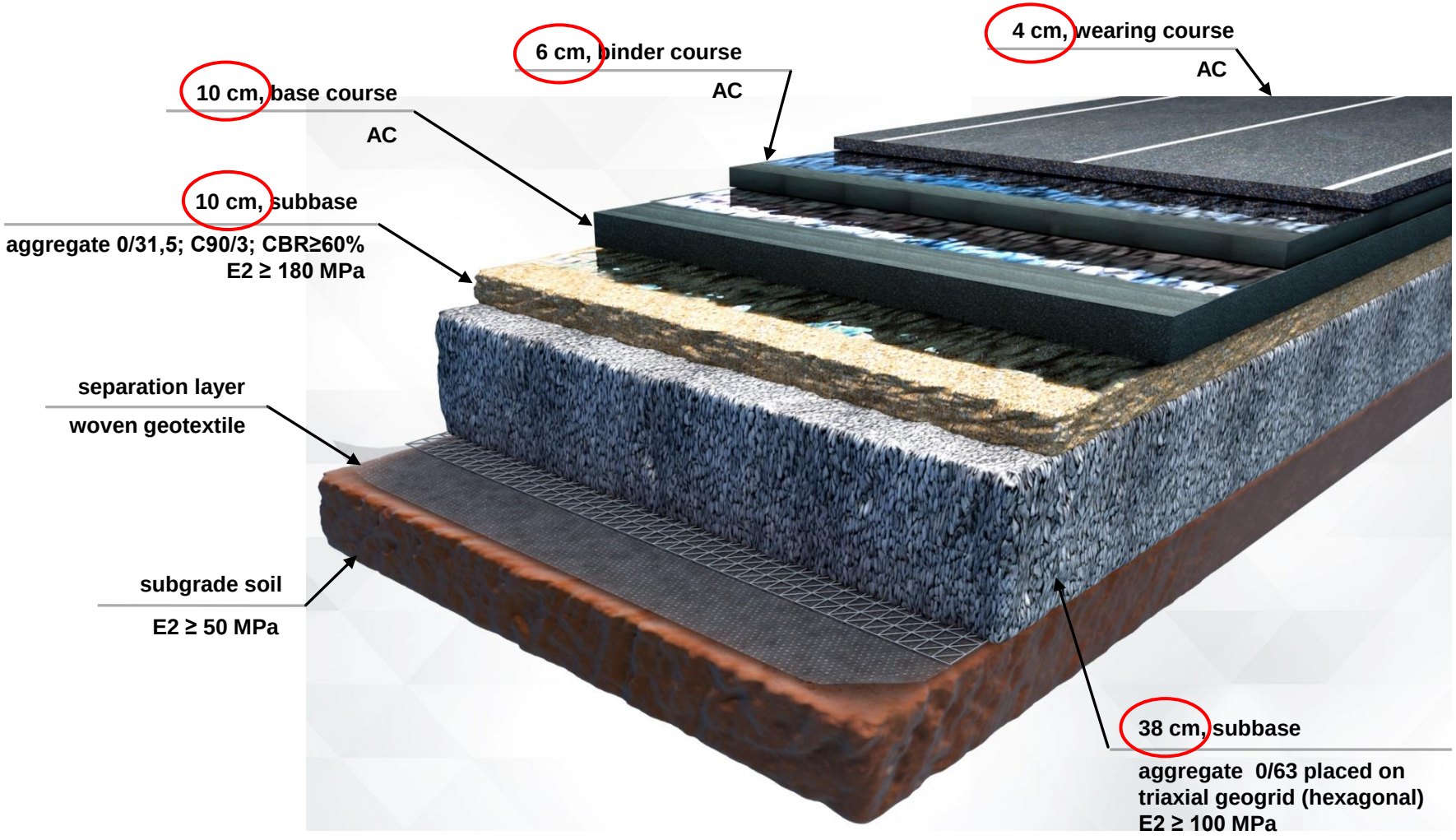
PAVEMENT STRUCTURE – ORIGINAL PROJECT



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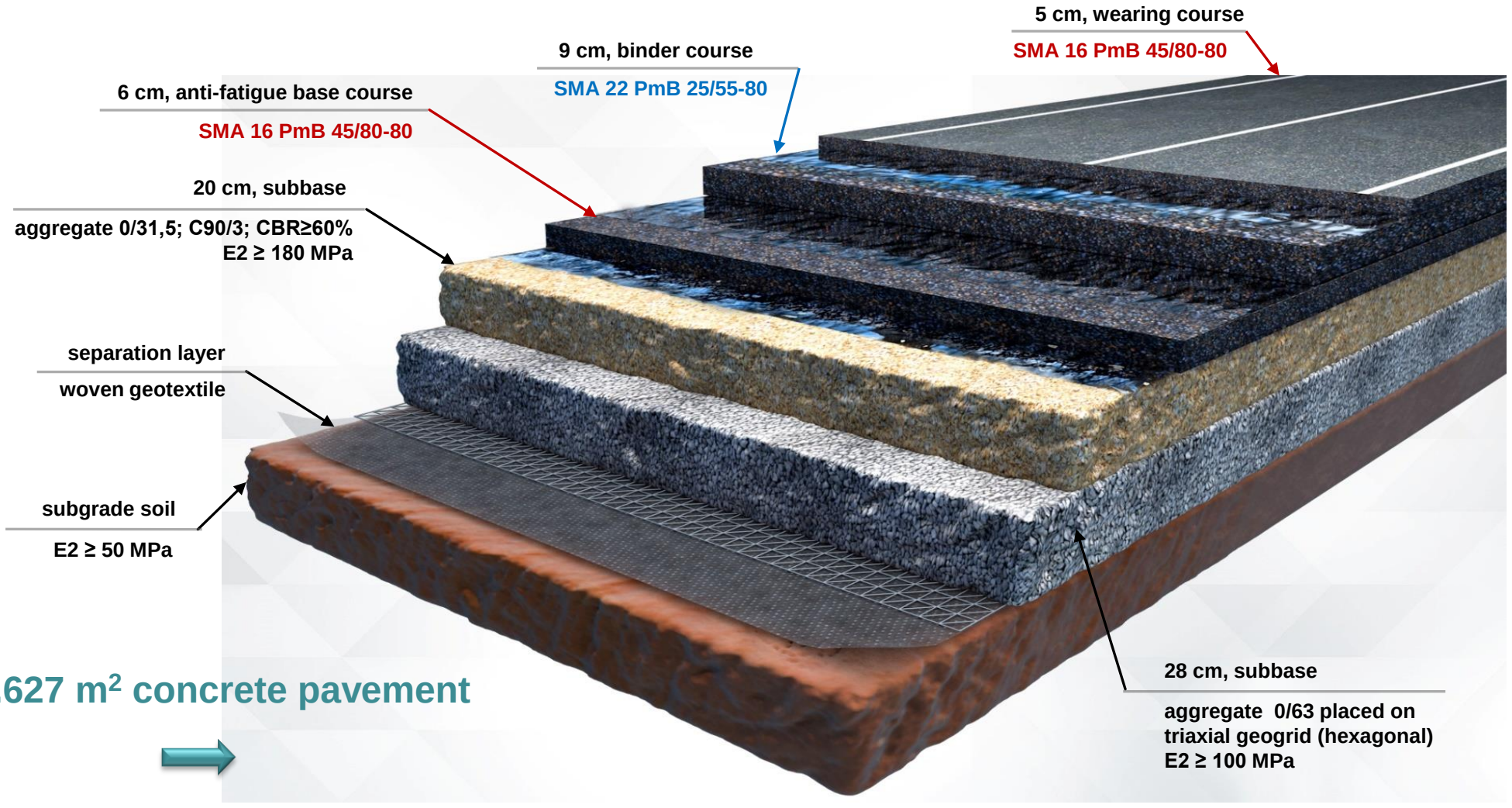
PAVEMENT STRUCTURE - TRIPLE SMA LAYER



2.627 m² concrete pavement

TRIPLE SMA LAYER

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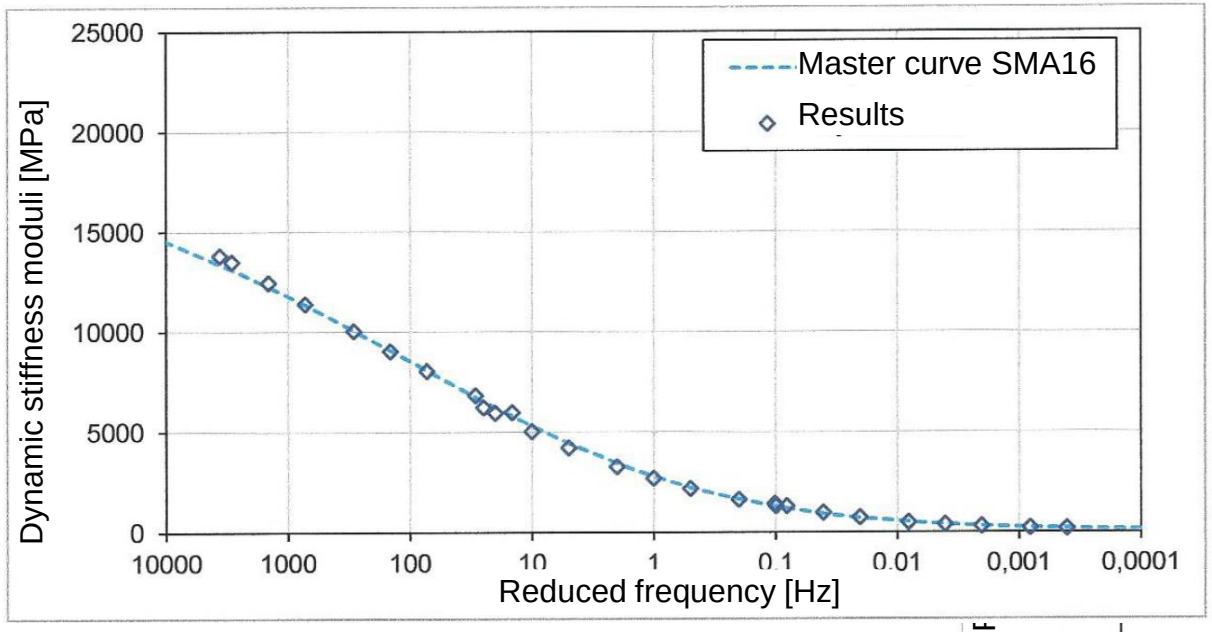
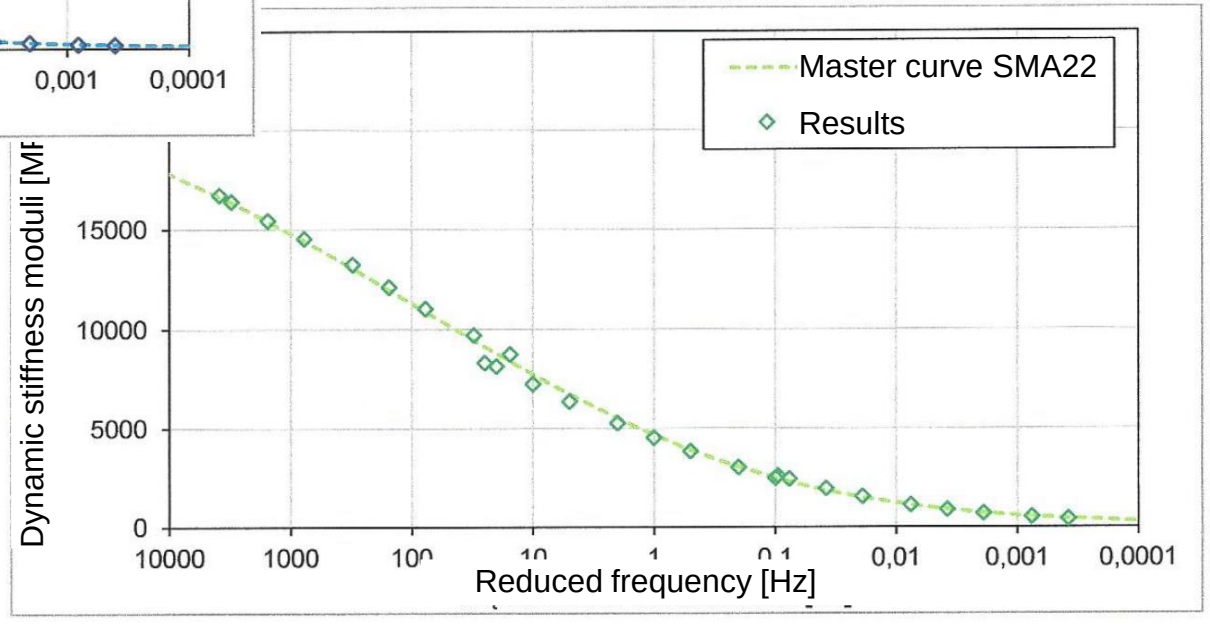
MASTER CURVES





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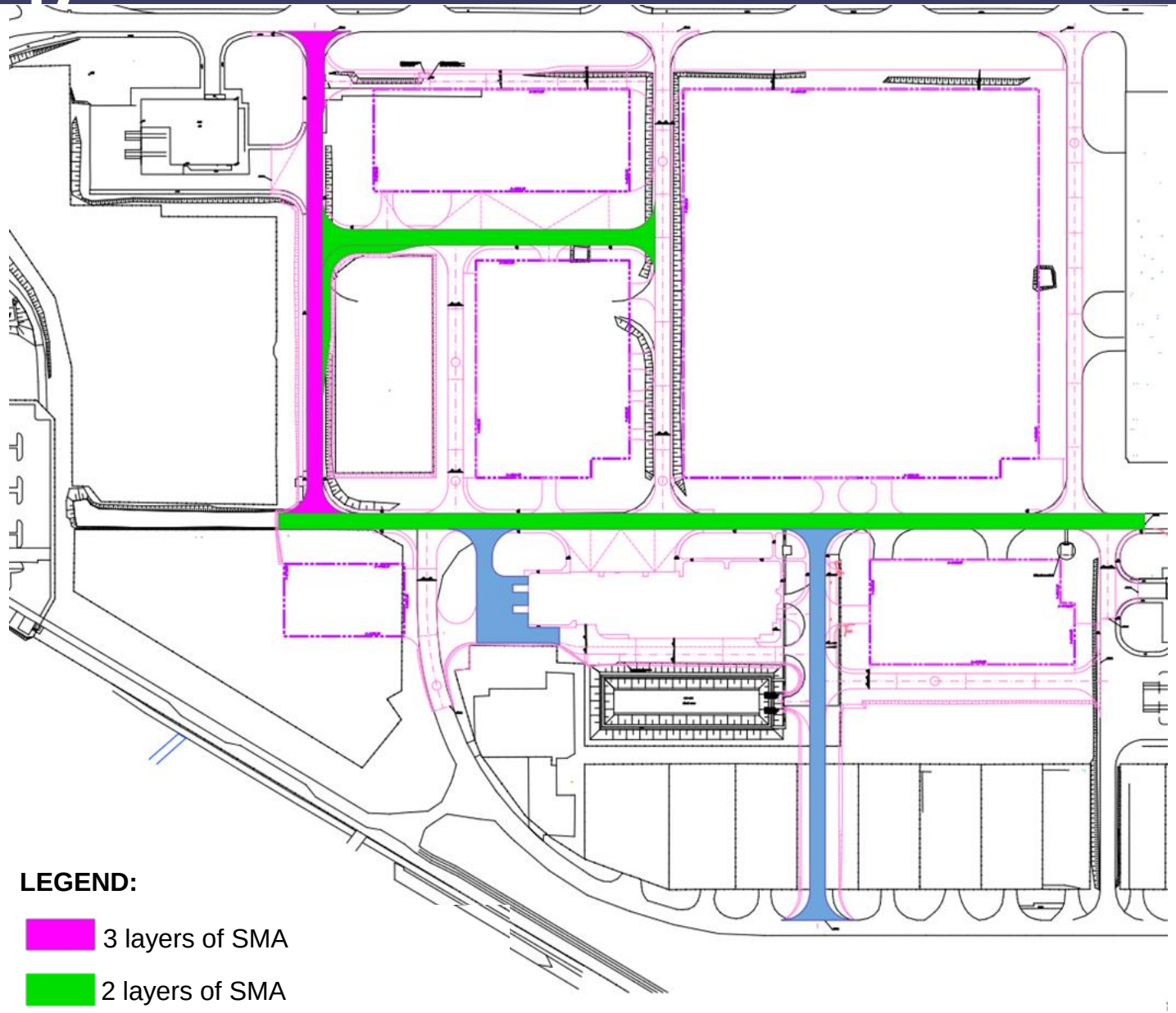

PROGRESS OF EFRA

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EFRA

PROJECT REALISATION

Fig 1., Fig.2. Paving of SMA 16 PMB 45/80-80 anti-fatigue base course

Fig 3. Paving control on site by using PQI sonde

EFRA

PROJECT REALISATION

Fig 4. Asphalt emulsion application

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Fig 5. Paving of SMA 22 PMB 25/55-80

EFRA

PROJECT REALISATION

Fig 6. Layer of SMA 22 PMB 25/55-80

TRIPLE SMA LAYER FOR HEAVY DUTY PAVEMENTS

transpot on binder course

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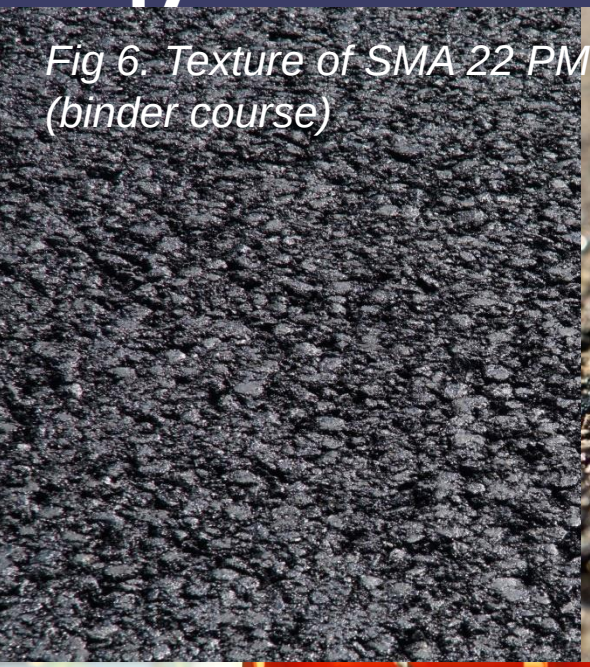

Fig 6. Texture of SMA 22 PMB 25/55-80 (binder course)

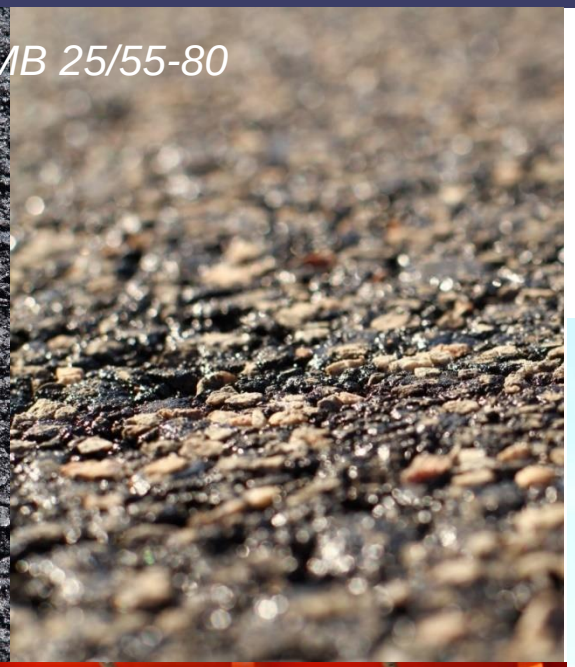

Fig 7. Roughening of SMA 16 PmB 45/80-80 (wearing course)

EFRA

PROJECT REALISATION

Fig 8. End of paving Triple SMA Layer

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