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Initial Findings From the First Cold In-situ Recycling Trial in Latvia

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LATVIJAS VALSTS CEĻI

OVERVIEW OF THE PRESENTATION

01 **ABOUT LVC**

Background information about our company

02 **PLANNING**

Planning process behind the project

03 **MIX DESIGN**

Laboratory investigation and mix design

04 **CONSTRUCTION**

Construction process and lessons learned

05 **RESULTS**

Gathered data and comparison of costs and CO2

06 **WHAT'S NEXT FOR BSM**

Possible next projects and future outlook

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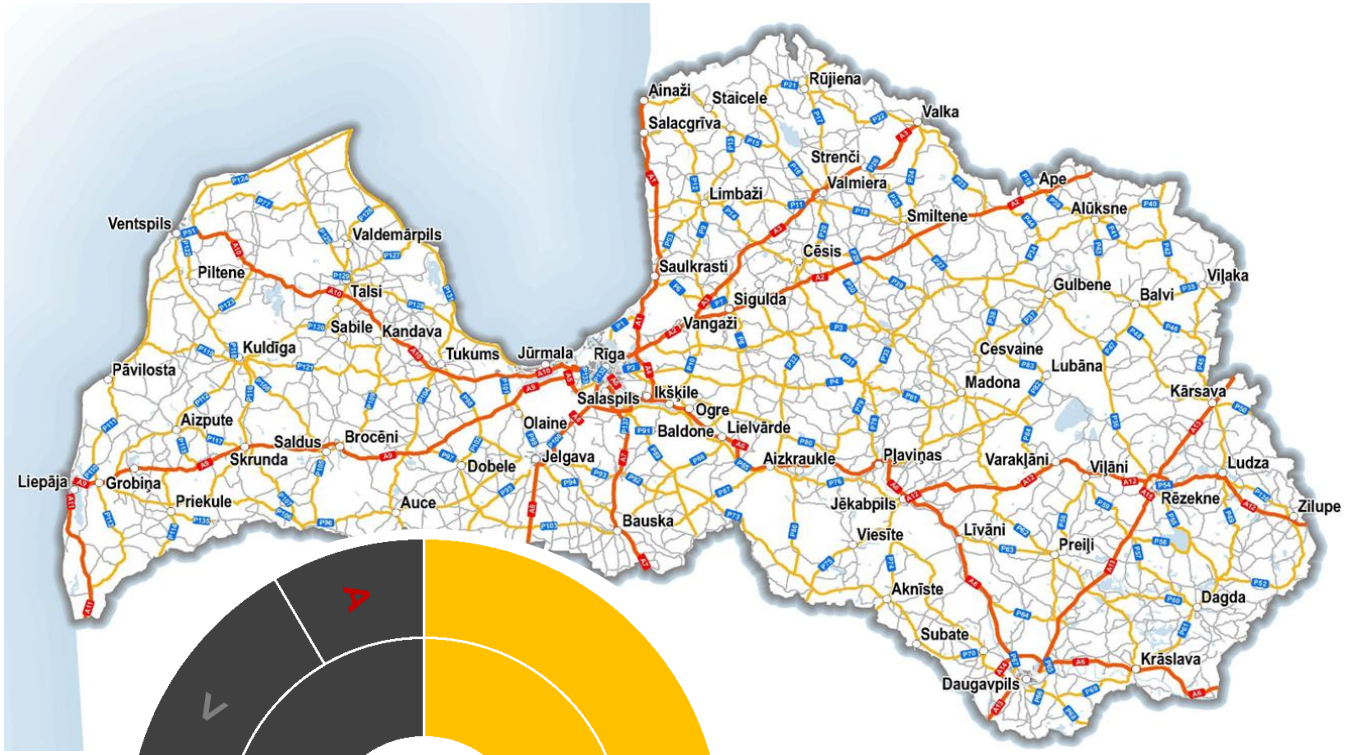
ABOUT LATVIAN STATE ROADS (LVC)

- State-owned LLC under the Ministry of Transport
- National road authority and policy implementer
- Manages state & EU-funded infrastructure programs
- Coordinates and procures planning, design, construction & maintenance
- Operates a road laboratory for quality control and research



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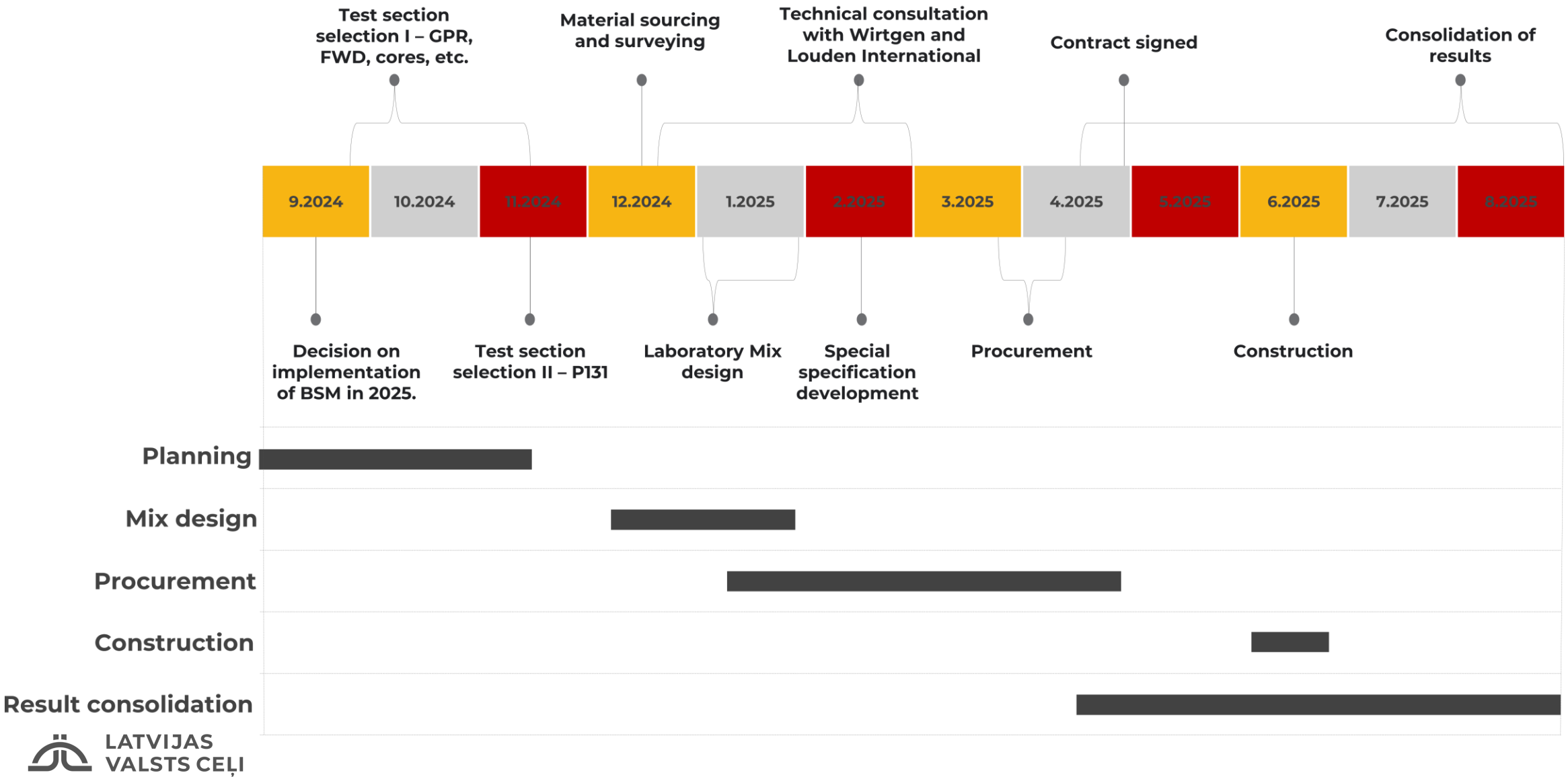
PROJECT DEVELOPMENT



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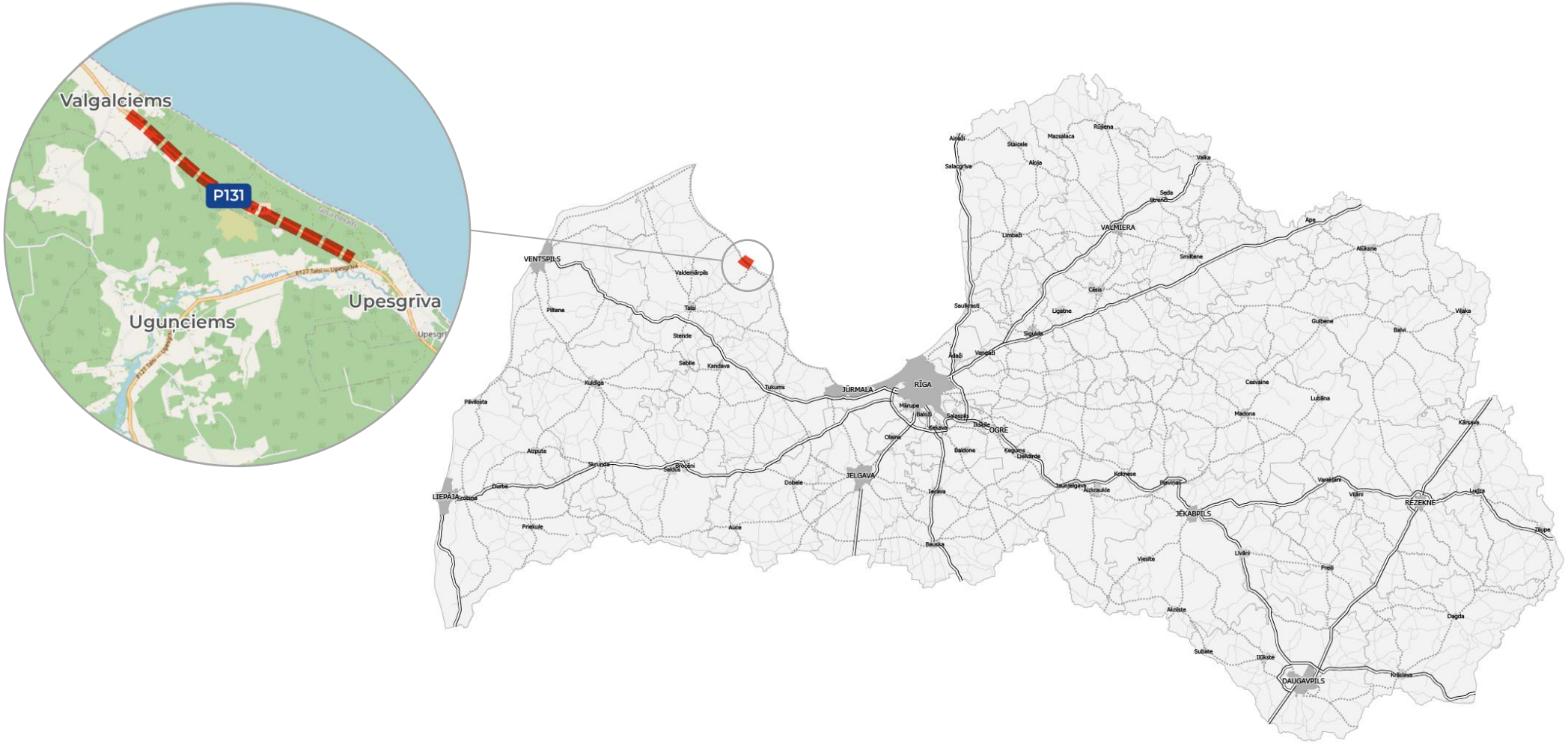
PLANNING

TEST SECTION



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KEY PARAMETERS

- Regional road P131
- 3 km section (54.7 – 57.7 km)
- AADT – 855 (6% heavy traffic)
- ESALs – 0.23 million
- Average width – 6.50 m
- Decent subbase ~CBR 14
- Homogeneous structure

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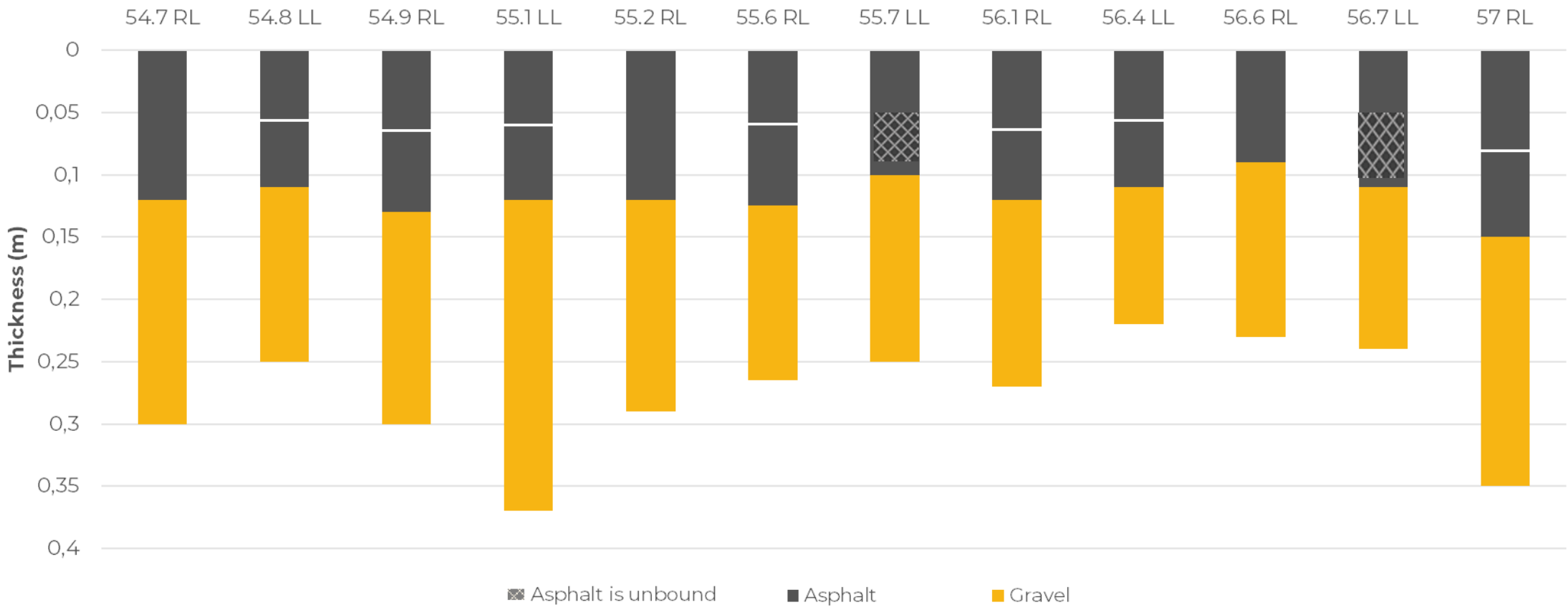
EXISTING PAVEMENT



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MIX DESIGN

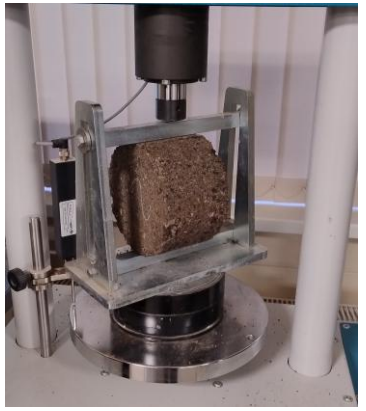
THE LAB PROCESS

Portioning

Mixing, adding cement and bitumen

Forming

Prepared samples



Testing

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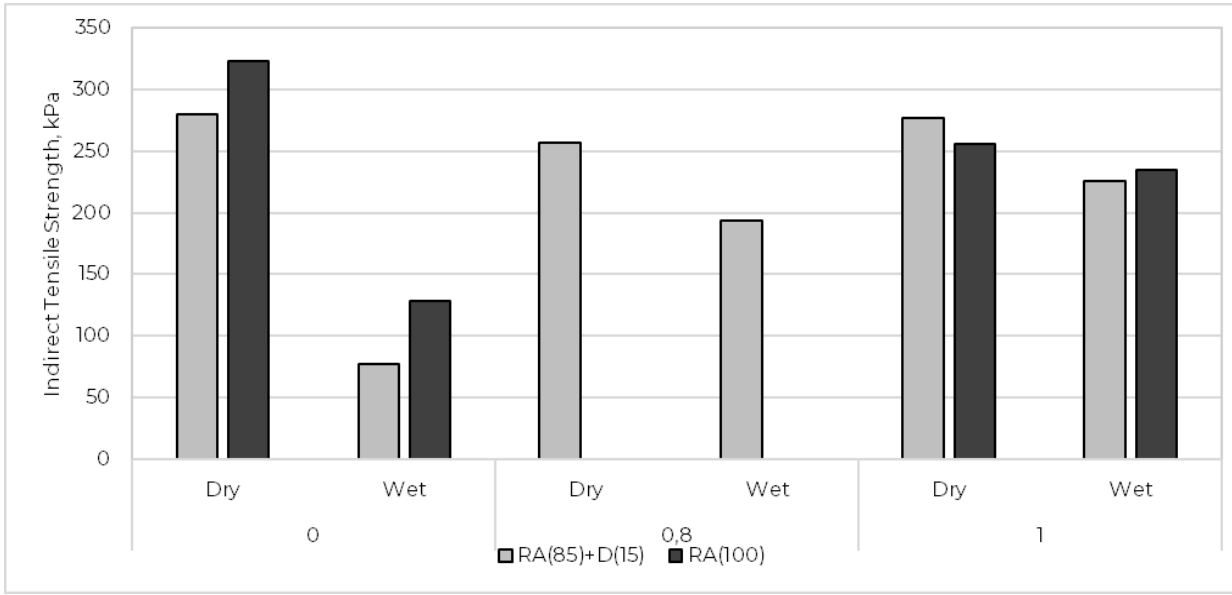
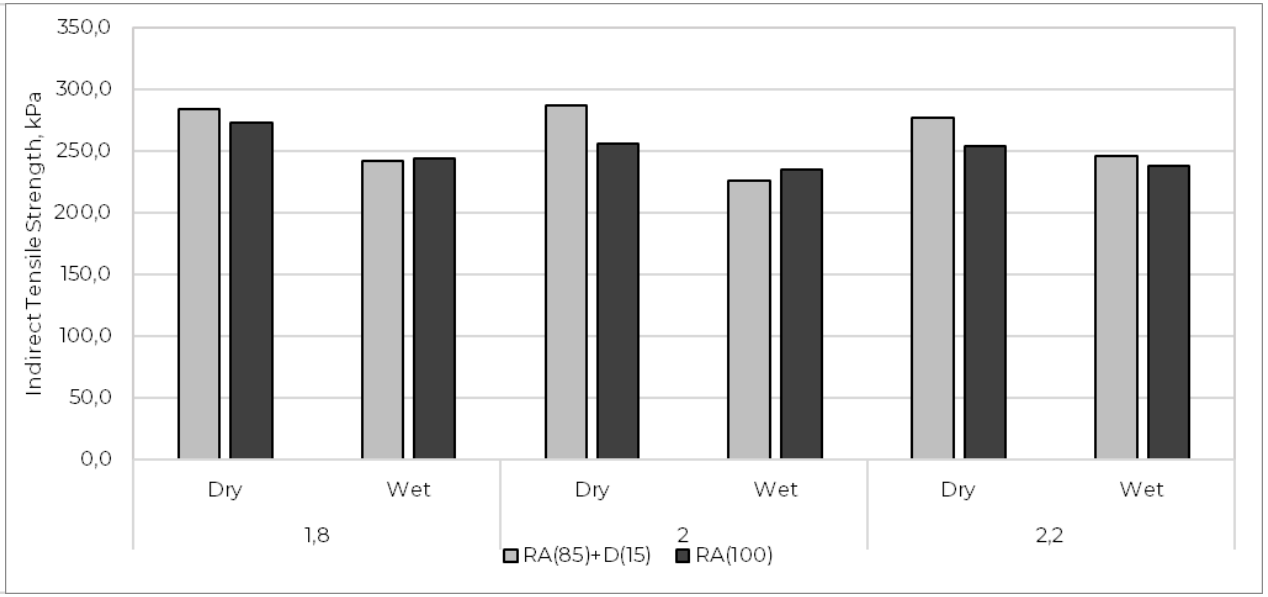
BINDER CONTENT

Cement – 1%



Bitumen – 1.8%



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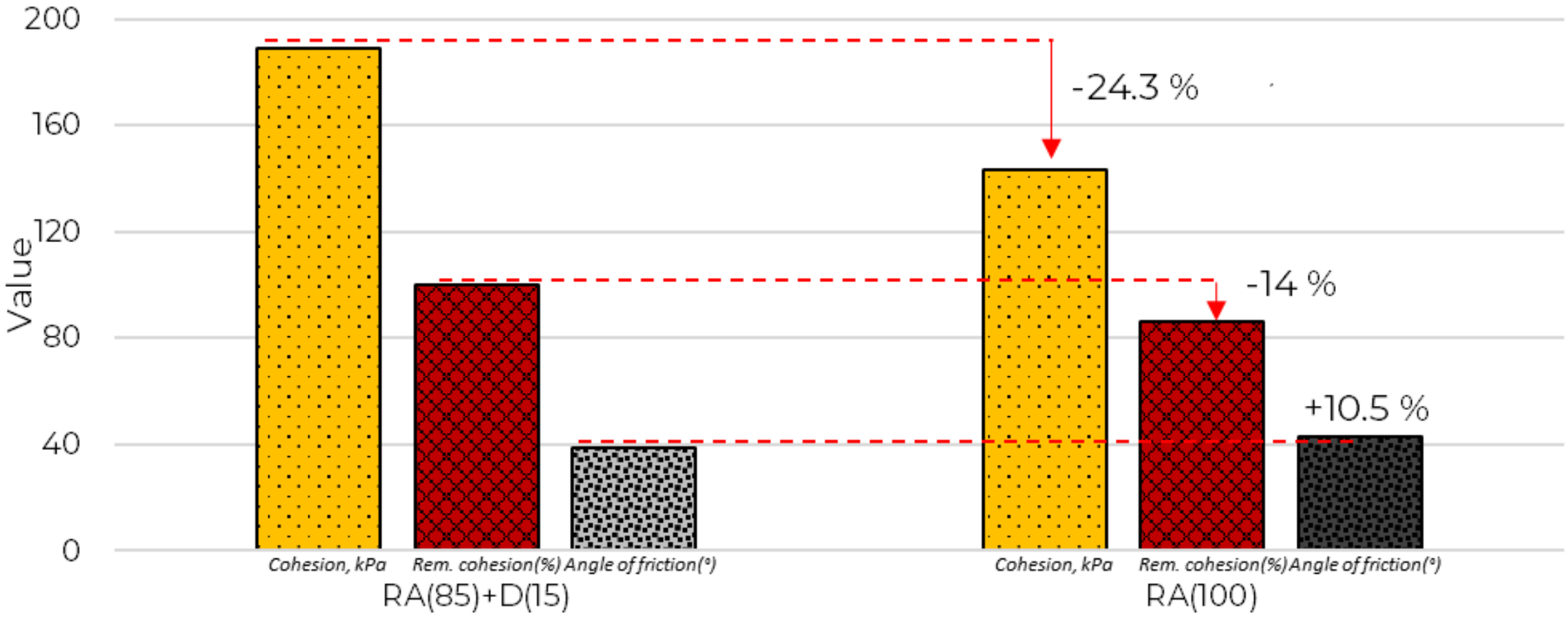
SHEAR PROPERTIES



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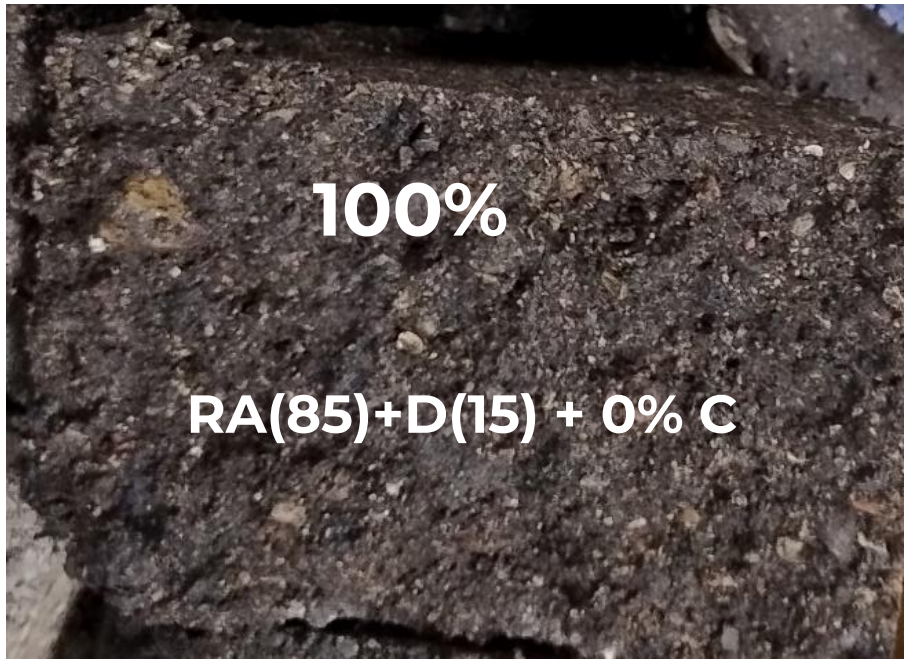
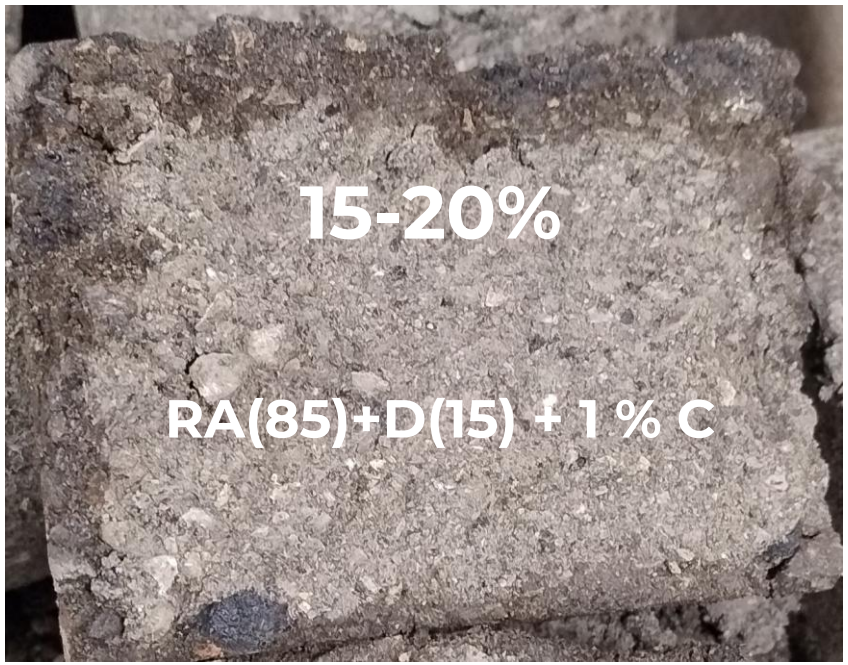
INFLUENCE OF CEMENT

Water penetration





CONSTRUCTION

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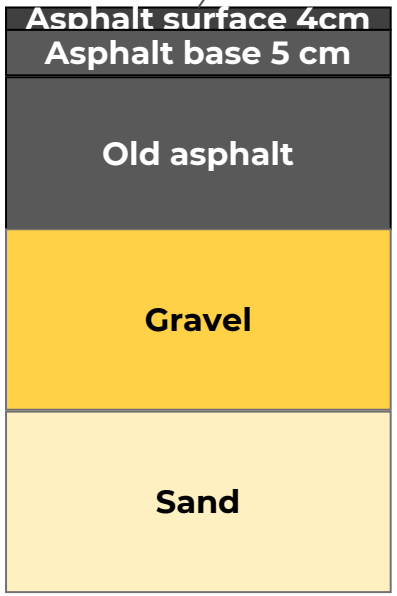
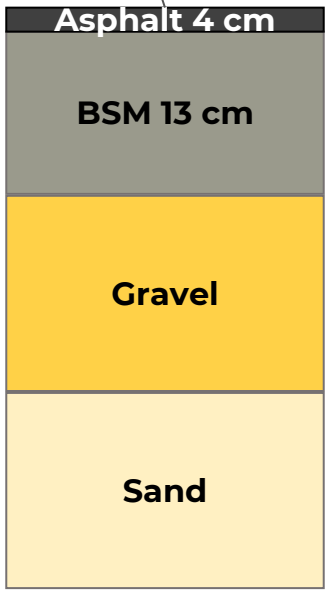
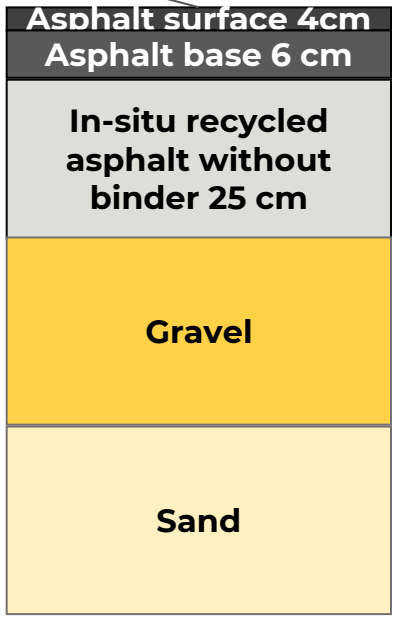
TEST SECTION LAYOUT







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THE SETUP


HAMM
HAMM


Cement spreader
Mill 1.2 m
New material mm 0/5
Water tank
Bitumen tank
Recycler 2.35 m
Paver
Compact rollers

LESSONS FROM CONSTRUCTION CHALLENGES

Large chunks from milled asphalt

Cement spread too fast

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LESSONS FROM CONSTRUCTION CHALLENGES

Recycled too deep into the shoulder

Insufficient drainage

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LESSONS FROM CONSTRUCTION CHALLENGES

Inaccurate binder dosage

Cold bitumen clogging

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RESULTS

FINISHED OBJECT

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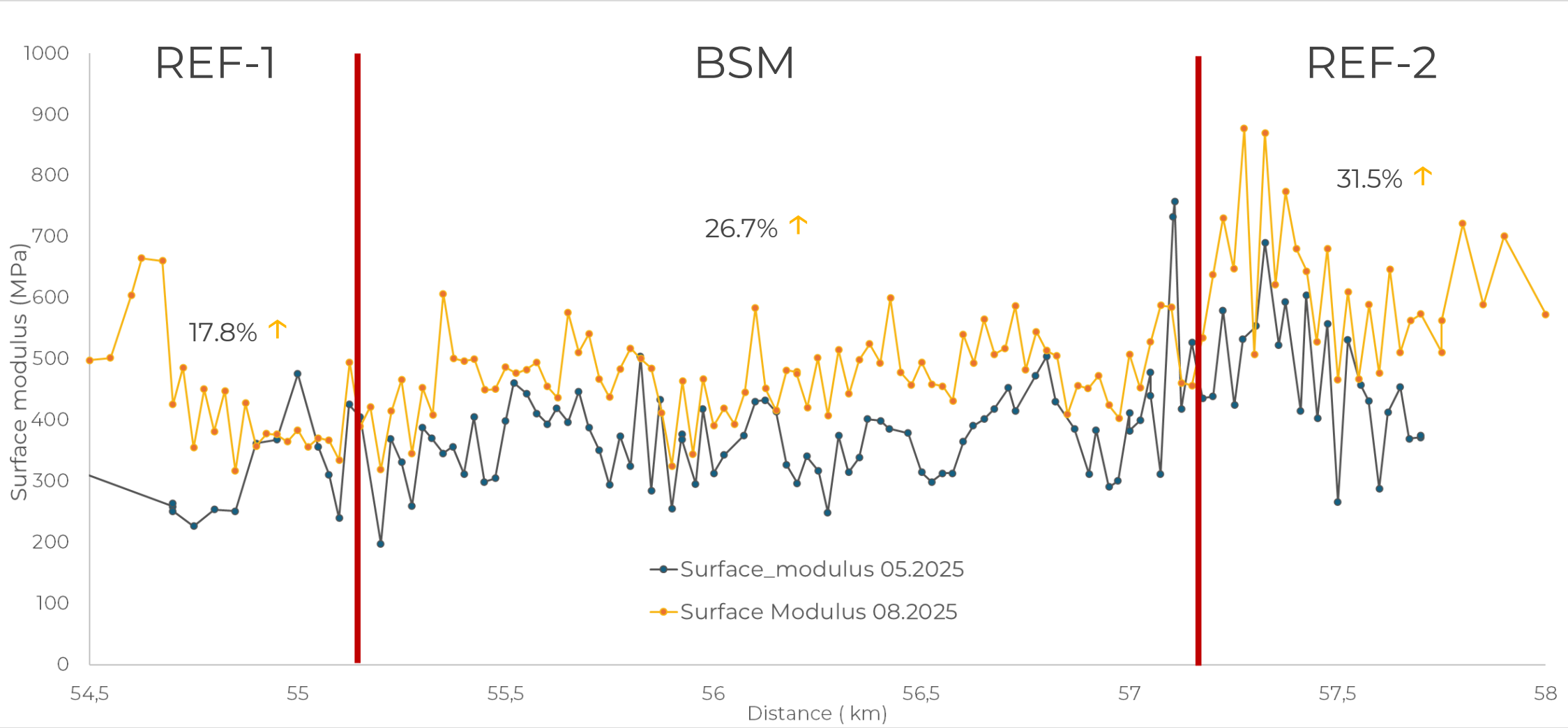
FWD RESULTS



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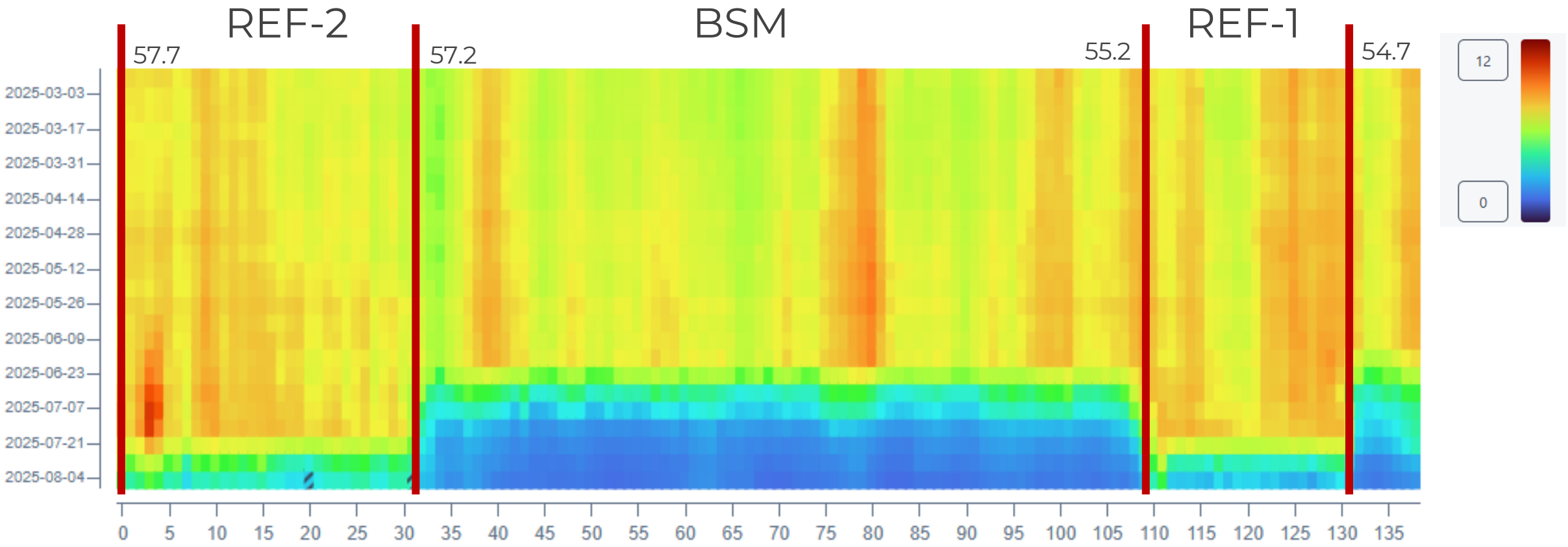
FCD RESULTS



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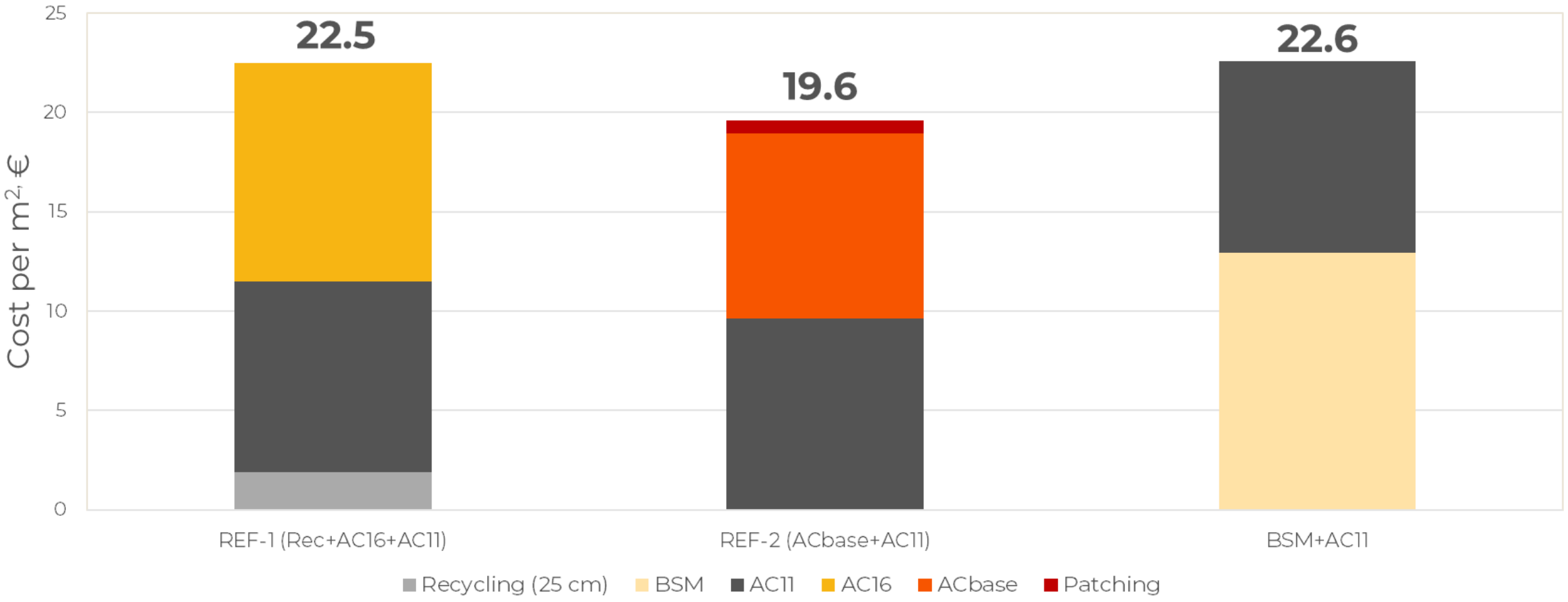
COST COMPARISON



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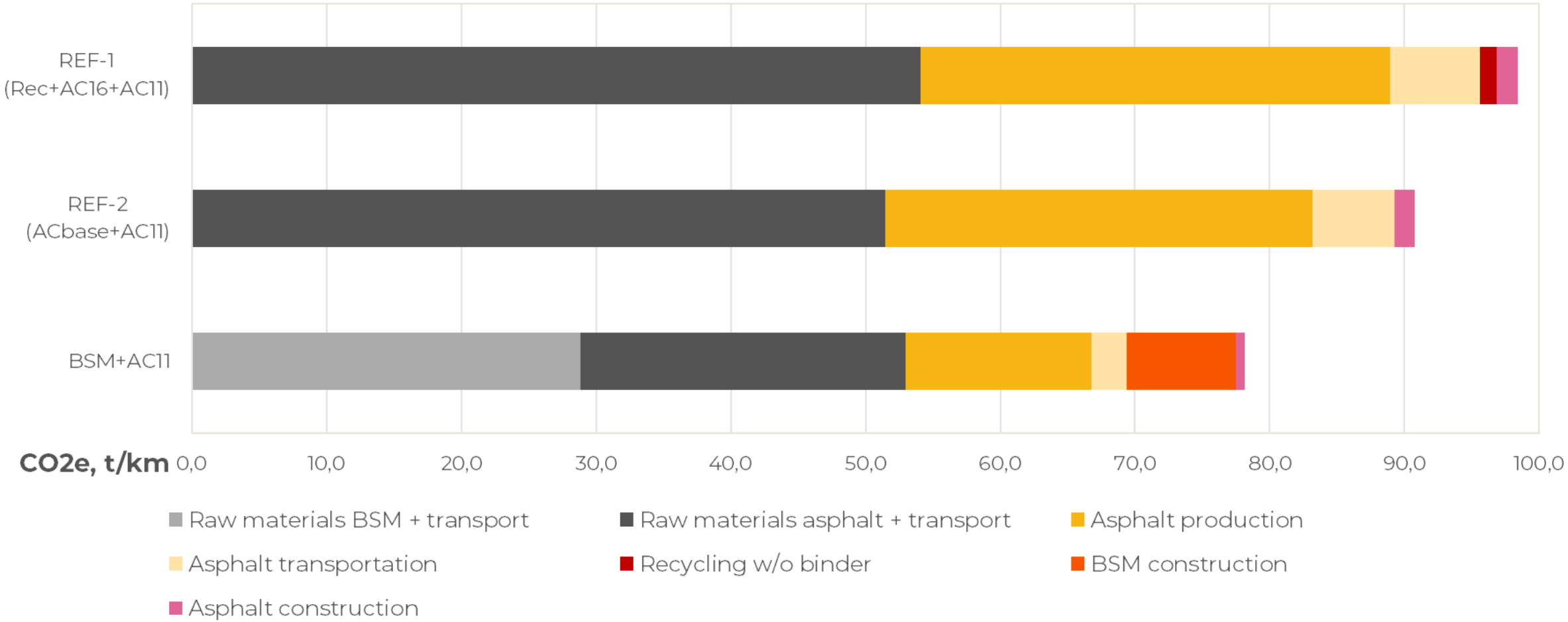
CO^2 COMPARISON



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WHAT'S NEXT FOR BSM IN LATVIA?

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FUTURE OUTLOOK

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POTENTIAL PLANS FOR 2026

P113

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CONCLUSIONS

Successful execution

- Successful trial with proper laying, compaction, and achieved mechanical properties
- Clear communication between all parties is essential to avoid errors and ensure efficiency

Cost comparison

- BSM is economically competitive with conventional methods
- Offers added benefits through reduced asphalt thickness and lower material transport needs

Environmental Impact

- BSM shows the lowest greenhouse gas emissions among rehabilitation options
- Lower asphalt use and transport demands enhance long-term sustainability

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FUTURE CONSIDERATIONS

- Mix design – keep in-house or hand to industry?
- Mobile plant or recycler – set selection criteria
- Pavement structure design – decide on approach
- BSM on gravel roads – assess feasibility
- Train industry on BSM technicalities
- Include BSM in life cycle planning – define parameters
- Absence of required specialized machinery locally

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