GREENASPH4.0

NAVISP EL2-152

GNSS FOR DATA ACQUISITION & 3D MILLING AND ASPAHLT RECYCLING

GNSS FOR GREEN ASPHALT

WHAT YOU WILL SEE TODAY

EXACT STREET

OUR TEAM EXACT:

ROAD RESURFACING CHALLENGE:
CONSTANT-DEPTH MILLING VS. 3D MILLING VS. RECYCLING

CORE INNOVATION:
SELECTIVE MILLING + ON-BOARD 3D DATA ACQUISITION AND REAL-TIME MODELLING

DEVELOPMENT PROCESS:
SYSTEM ARCHITECTURE, COMPONENTS, WORK PACKAGES

VALIDATION:
TEST RESULTS AND FIELD DEMONSTRATIONS

TECHNOLOGY OUTLOOK:
PILOTS

LESSONS LEARNED

EXACT STREET HISTORY

EXACT STREET

„We have been teaching the machine control for more than 25 years.

1954 Exact founded - called „Bloms Oppmål

1954 – 2007 Over 20 offices were established across Sweden, Finland, Estonia and Czech Republic

2004 Trimble Machine control dealership

2008 3[th] project in the World of 3D milling and paving (Vidsel, Sweden) completed

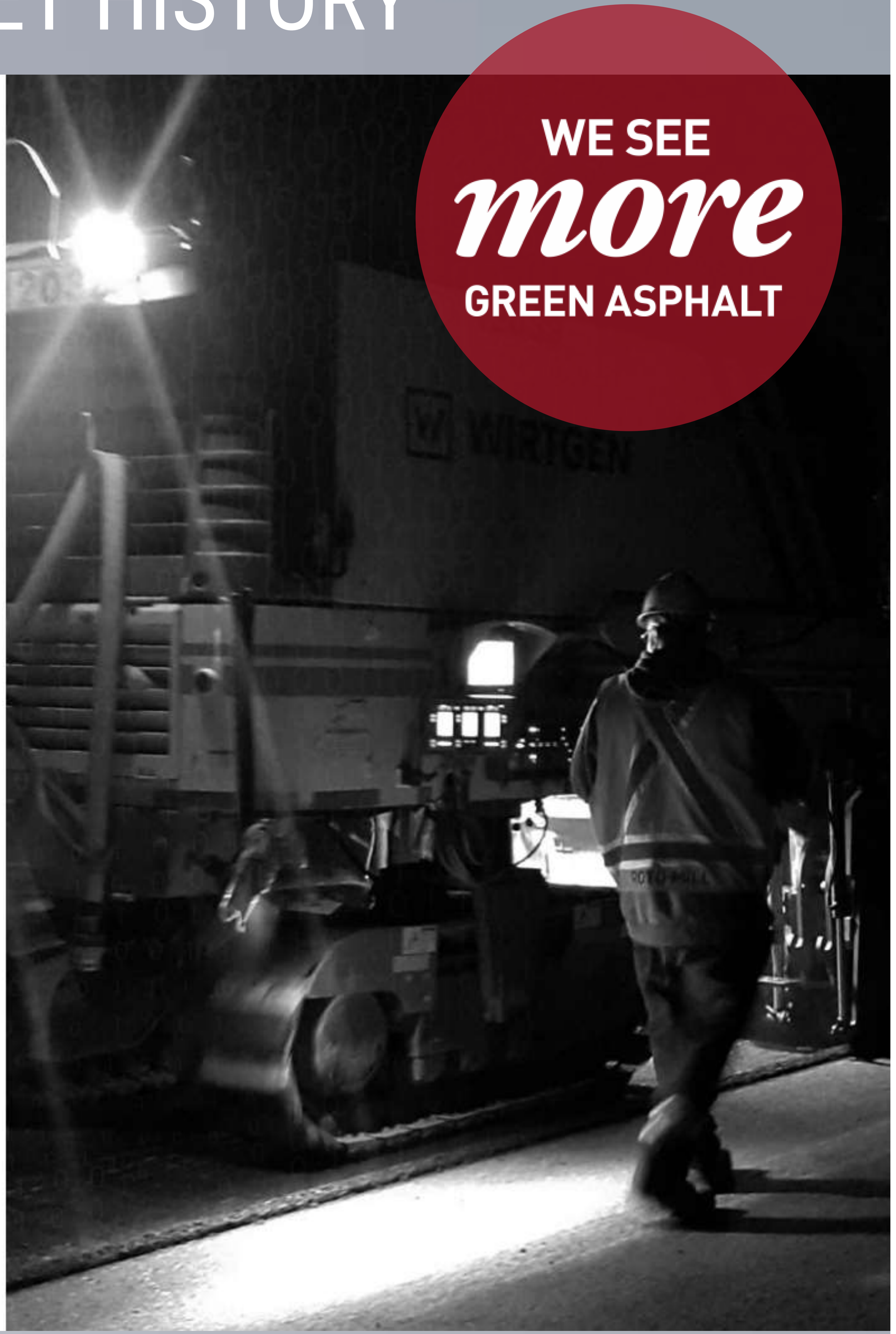
2011 Canadian subsidiary Control System CA founded

2017 Leica strategic partnership engaged

2019 Exact Street 3D milling innovative technology patented and approved in USA and EU

2020 Exact Street 3D differential milling unit certified by Wirtgen

2021 Wirtgen endorsed Exact Street as the top provider of accurate 3D data and models



EXACT STREET

EXACT TEAM

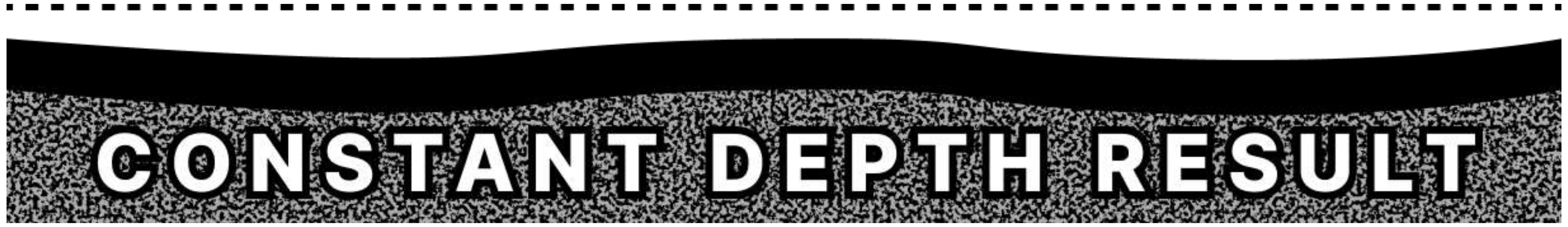
LEARNING AND DEVELOPMENT THROUGH YEARS OF EXPERIENCE

EXACT CONTROL SYSTEM A.S.
PAPÍRENSKÁ 113/3, 160 00 PRAHA 6 / CZECH REPUBLIC
WWW.EXACTSTREET.COM

ROAD RESURFACING CHALLENGE:

EXACT STREET

CONSTANT-DEPTH MILLING VS. 3D MILLING



STANDARD PROCESS WHICH COPIES THE EXISTING PROFILE, LEADS TO INCORRECT RESULTS.

RE-PROFILING ROAD = HIGHER
QUALITY & DURABILITY

3D MILLING CHALLENGE: RECYCLING

EXACT STREET

3D MILLING => REPROFILING

DIFFERENT DEPTH IN DIFFERENT LOCATION

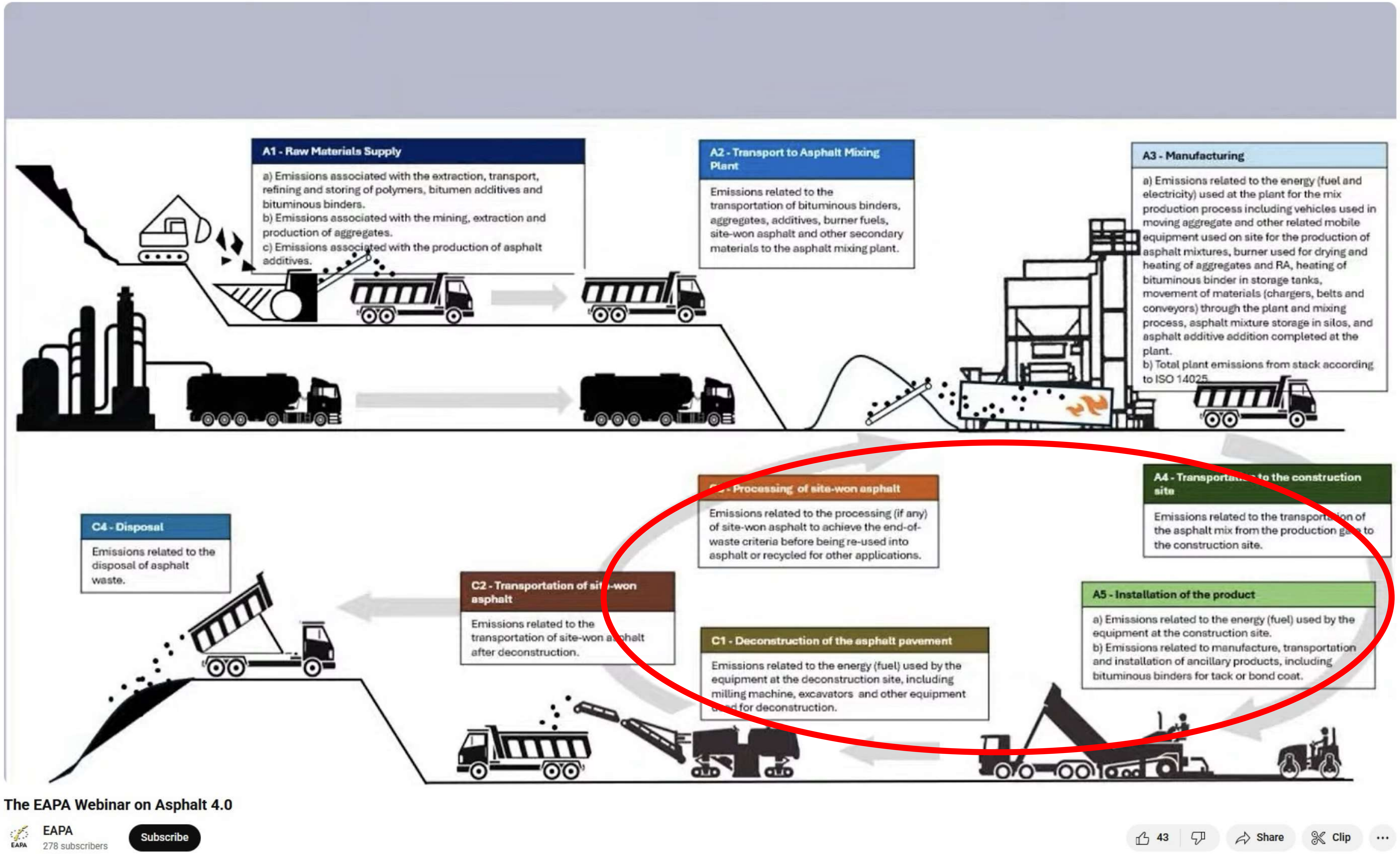
MIXING MATERIAL FROM
SURFACE + BINDER LAYER

NO RECYCLING !!!

WE SEE *more* GREEN ASPHALT

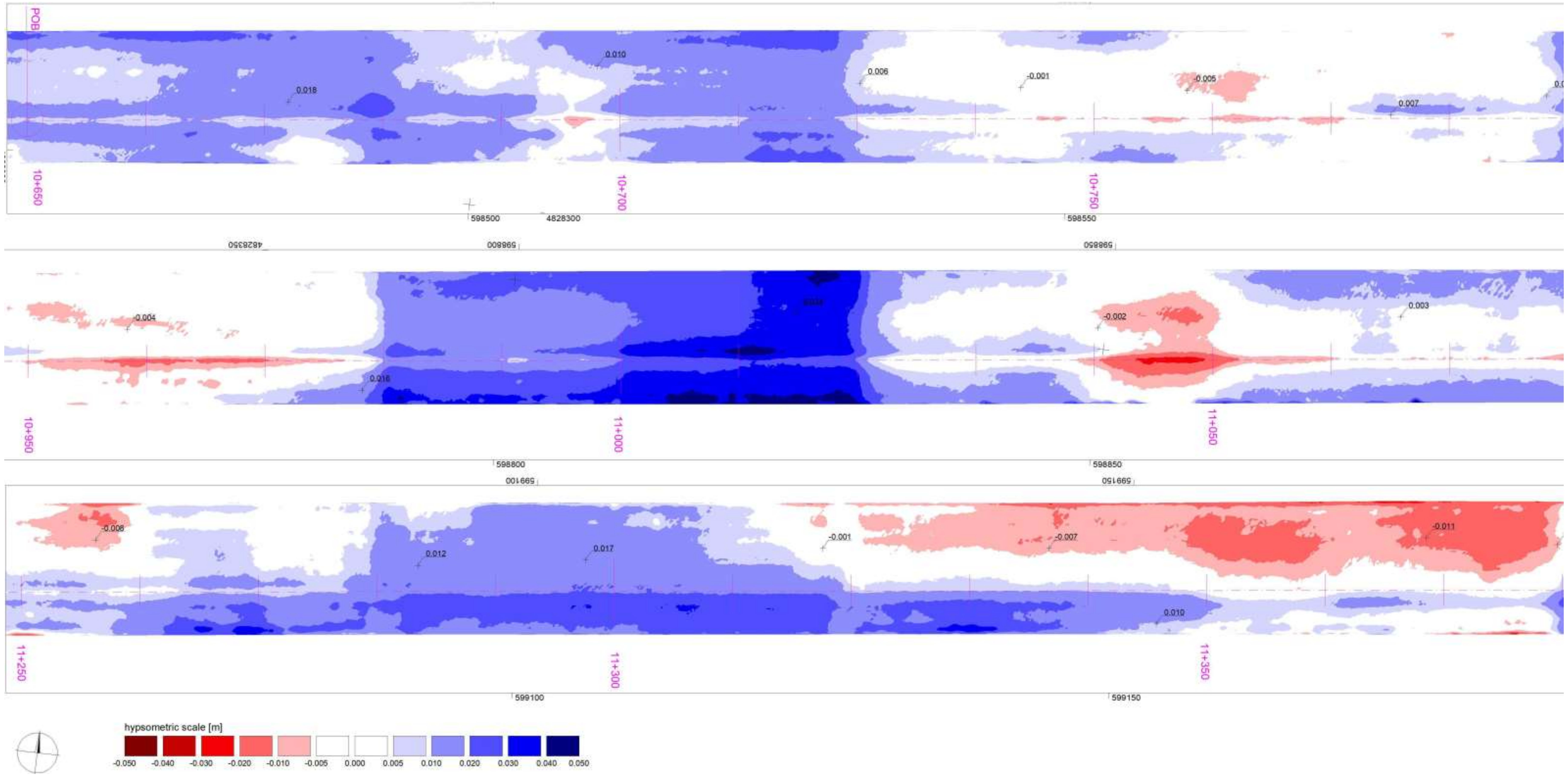
3D MILLING CHALLENGE: RECYCLING

EXACT STREET



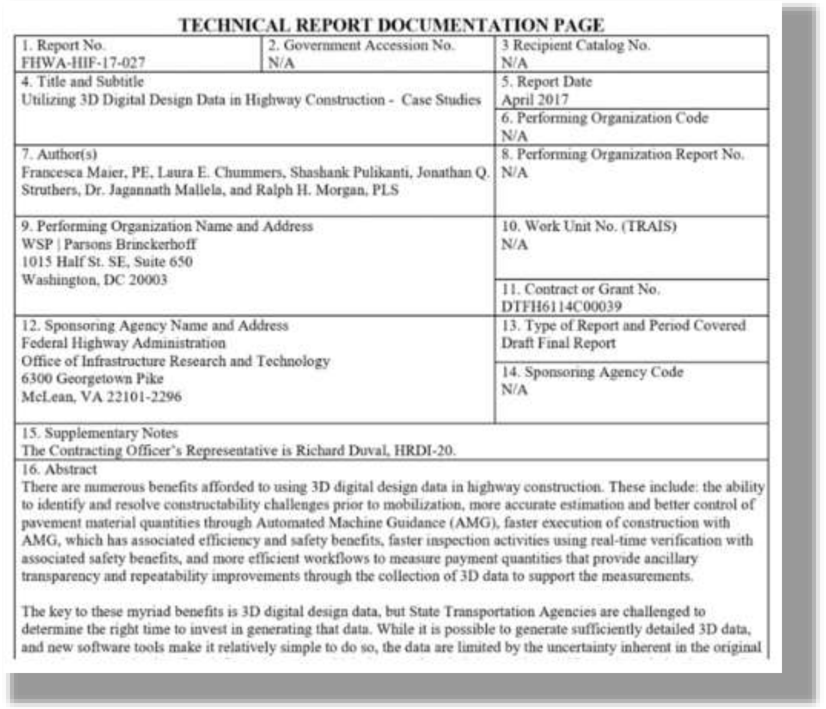
WE SEE more GREEN ASPHALT

MARKET CHALLENGE:
ACCURACY VS. SPEED OF SURVEY



MOBILE LIDAR
LOW ACCURACY ISSUE
(+/- 50 MM)

HWY 401 NEAR WELLINGTON ST. (ONTARIO, CANADA)



TECHNICAL REPORT DOCUMENTATION PAGE

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16. Abstract

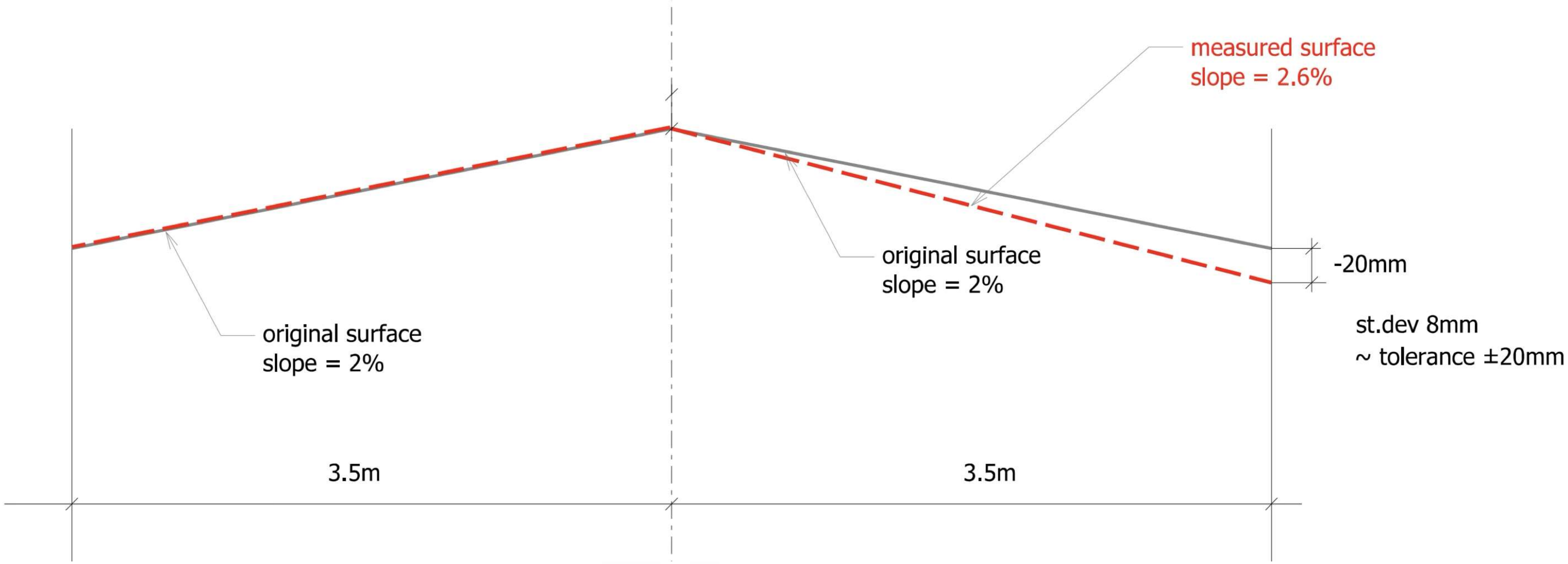
There are numerous benefits afforded to using 3D digital design data in highway construction. These include: the ability to identify and resolve constructability challenges prior to mobilization, more accurate estimation and better control of pavement material quantities through Automated Machine Guidance (AMG), faster execution of construction with AMG, which has associated efficiency and safety benefits, faster inspection activities using real-time verification with associated safety benefits, and more efficient workflows to measure payment quantities that provide ancillary transparency and repeatability improvements through the collection of 3D data to support the measurements.

The key to these myriad benefits is 3D digital design data, but State Transportation Agencies are challenged to determine the right time to invest in generating that data. While it is possible to generate sufficiently detailed 3D data, and new software tools make it relatively simple to do so, the data are limited by the uncertainty inherent in the original

THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) FHWA-HIF-17-027

3D MILLING CHALLENGE:
ACCURACY VS. SPEED OF SURVEY

EXACT STREET



LOW ACCURACY HAS A PARTICULARLY NEGATIVE IMPACT ON THE CROSS SLOPE.

3D MILLING CHALLENGE:
ACCURACY VS. SPEED OF SURVEY

EXACT STREET

STA	MTO drawing terrain slope [%]					Exact Street terrain slope [%]				
	shoulder	lane	lane	lane	shoulder	shoulder	lane	lane	lane	shoulder
	<----	<----	<----	---->	---->	<----	<----	<----	---->	---->
11000	-5.0	-2.6	-2	2.1	5	-5.1	-2.8	-1.9	2.5	5.1
11500	-6.9	-3.5	-3.4	1.7	6.3	-6.5	-3.6	-1.9	2	5.1
12000	-5.7	-1.8	-1.4	2.2	6.0	-5.6	-2.4	-1.4	1.3	5.7
12500	-5.3	-2.2	-1.9	2.7	4.9	5.0	-2.5	-1.5	2.3	4.8
13000	-5.6	-2.4	-1.8	1.7	6.0	5.0	-3.1	-1.5	1.6	5.6
13500	-6.9	-1.8	-1.6	1.2	5.7	5.0	-2.1	-1.5	0.8	4.1
14000	-2.3	-3.1	-1.6	-1.5	1.1	-1.9	-2.7	-2.2	-1.8	0.9
14500	-5.1	-3.3	-1.8	-1.7	5.0	-3.1	-2.4	-1.7	1.3	5.6
15000	-2.1	1.1	2.4	1.7	4.9	-1.8	1.0	2.3	1.5	4.7
15500	-4.5	-2.1	-1.8	1.9	5.2	-3.7	-2.0	-1.7	1.7	4.7
16000	-5.6	-4.0	-3.7	-3.2	2.1	-3.8	-4.6	-3.7	-3.9	1.8
16500	-5.6	-4.0	-3.7	-3.2	2.1	-5.8	-4.2	-3.6	-3.4	2.0
17000	-2.6	-0.3	0.4	2.0	7.2	-2.3	-0.4	0.4	2.0	6.5
17500	-1.2	2.6	3.8	3.8	8.2	-1.1	2.5	3.6	3.4	7.8
18000	-4.3	-3.2	-3.2	-1.5	4.2	-4.4	-3.4	-1.5	2.0	6.8
18500	-4.3		-2.4	-1.7	0.6	-3.9		-1.8	-1.6	-0.7

MTO vs. Exact Street terrain slope [%]				
shoulder	lane	lane	lane	shoulder
<----	<----	<----	---->	---->
0	0.2	-0.1	**-0.4**	-0.1
-0.4	0.1	**-1.5**	-0.2	**1.2**
-0.1	**0.6**	0	**0.8**	0.2
-0.2	0.3	**-0.4**	**0.5**	0.1
-0.6	**0.6**	-0.3	0.2	**0.4**
-1.9	0.3	-0.1	**0.4**	**1.5**
-0.4	**-0.4**	**0.7**	0.2	0.2
-2.0	**-0.9**	-0.1	**-2.9**	**-0.6**
-0.3	0.1	0.1	0.2	0.2
-0.9	-0.1	-0.1	0.2	**0.5**
-1.8	**0.5**	0.1	**0.8**	0.3
0.3	0.1	0	0.2	0.1
-0.2	0.2	0	0.1	**0.7**
-0.1	0.1	0.3	**0.4**	**0.4**
0	0.2	**-1.7**	**-3.5**	**-2.6**
-0.3		**-0.7**	-0.1	**1.3**

HWY 404 (MINISTRY OF TRANSPORTATION ONTARIO-MTO, CANADA, 2024-2012) THE 3D MODEL OF THE MTO SURFACE DIFFERS FROM THE ACTUAL SURFACE BY MORE THAN 0.3% IN 14 OF THE 16 CONTROL SECTIONS PERFORMED

MAIN OBJECTIVES:

INCREASE QUALITY OF ROAD REPAIR:
LONGITUDINAL SMOOTHENING (IRI)
ACCURATE CORRECTION OF CROSSFALL
EXTEND THE SERVICE LIFE OF THE PAVEMENT

MINIMIZE PREPARATORY WORK:
BUILDING 3 FUNCTIONS INTO MILLING PROCESS.

ENABLE EFFICIENT RECYCLING:
SUPPORT TRUE TWO-LAYER SELECTIVE MILLING

STREAMLINE THE ENTIRE WORKFLOW:
AUTOMATIZATION

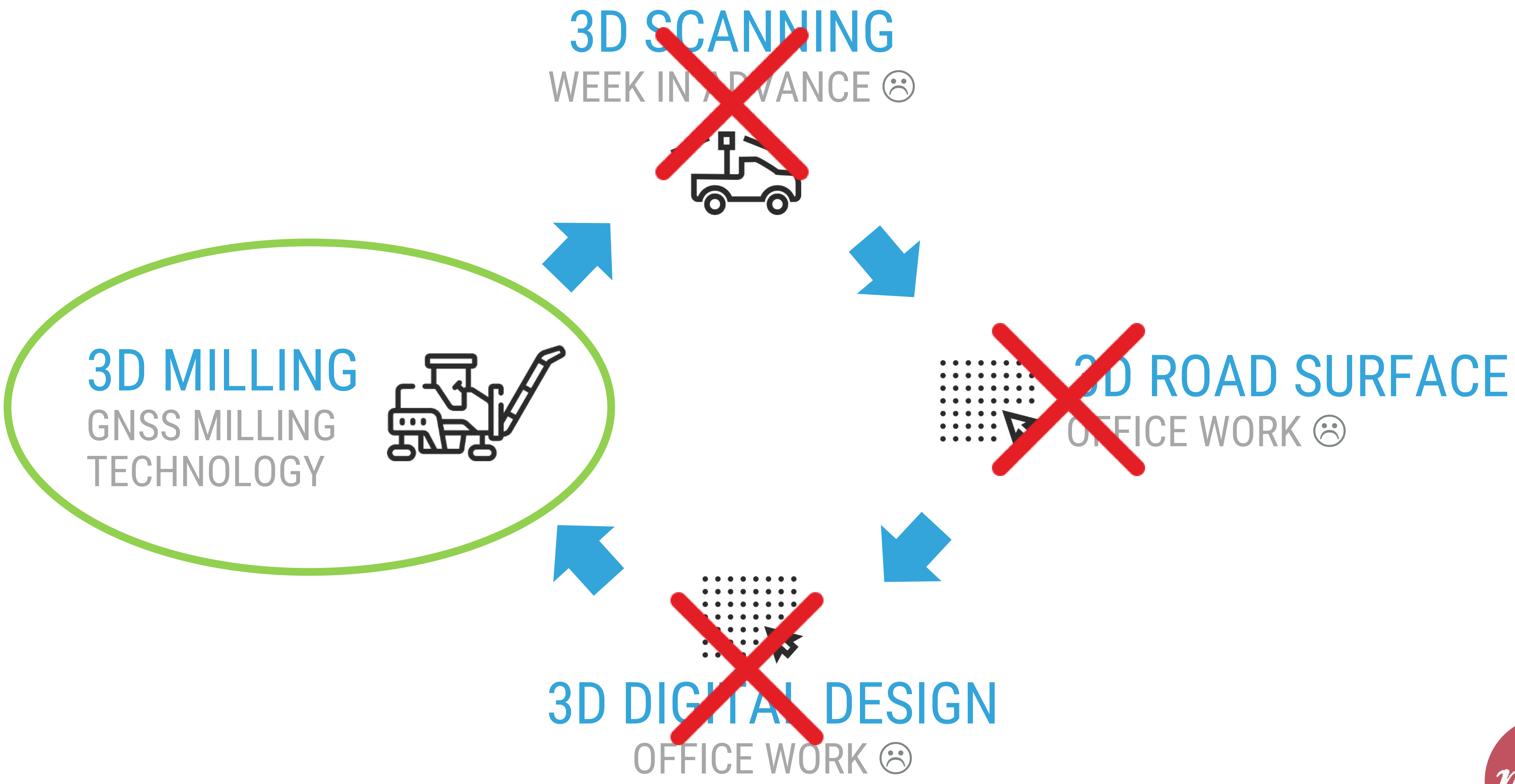
EXACT STREET 3D DIFFERENTIAL MILLING UNIT
IS ALL HW YOU NEED

SOLUTION: EXACT STREET ON-SITE (GREEN ASPH4.0)

EXACT STREET

REGULAR 3D MILLING WORK-FLOW

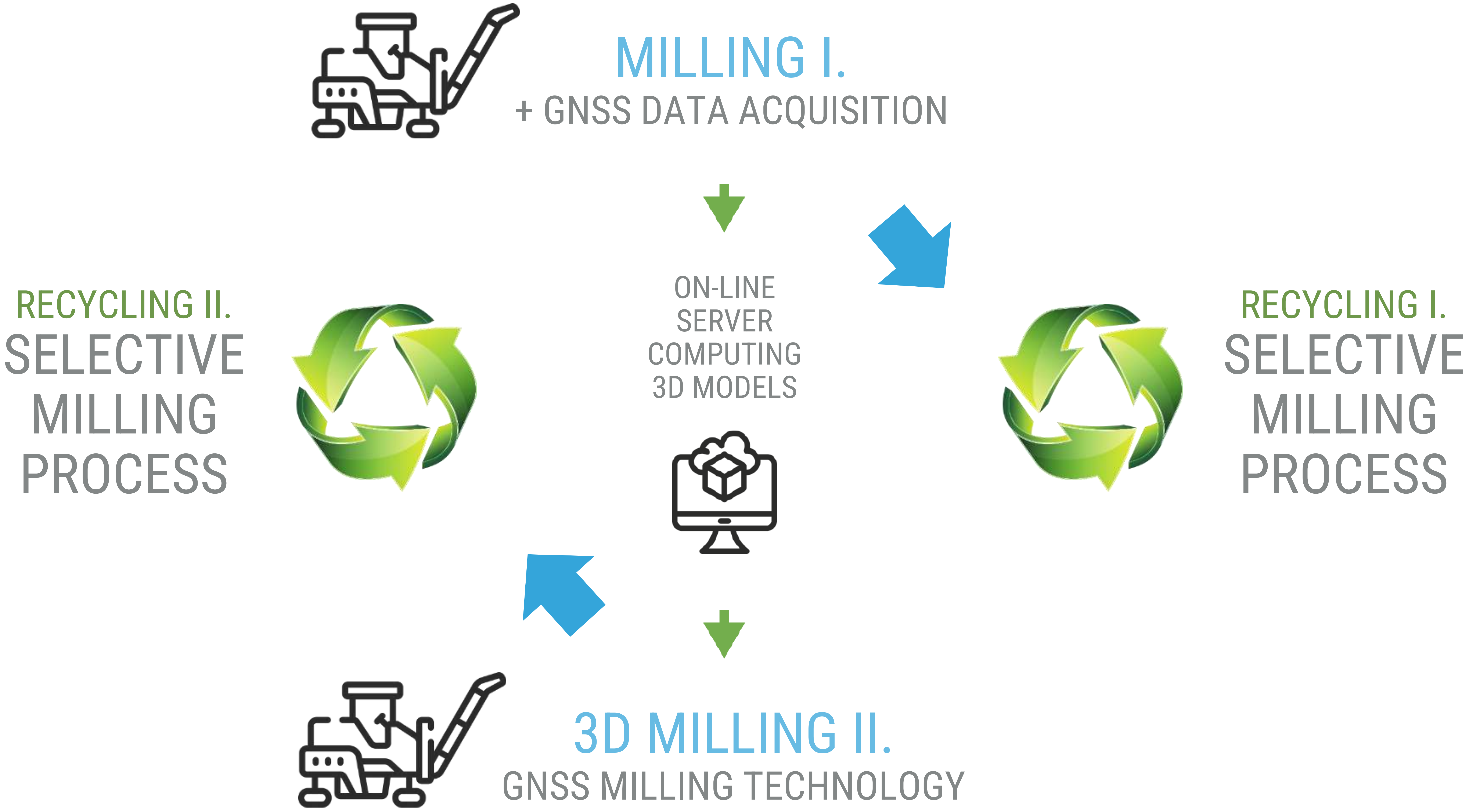
EXACT STREET



WE SEE *more* GREEN ASPHALT

PRINCIPLE OF THE SOLUTION

EXACT STREET



WE SEE more GREEN ASPHALT

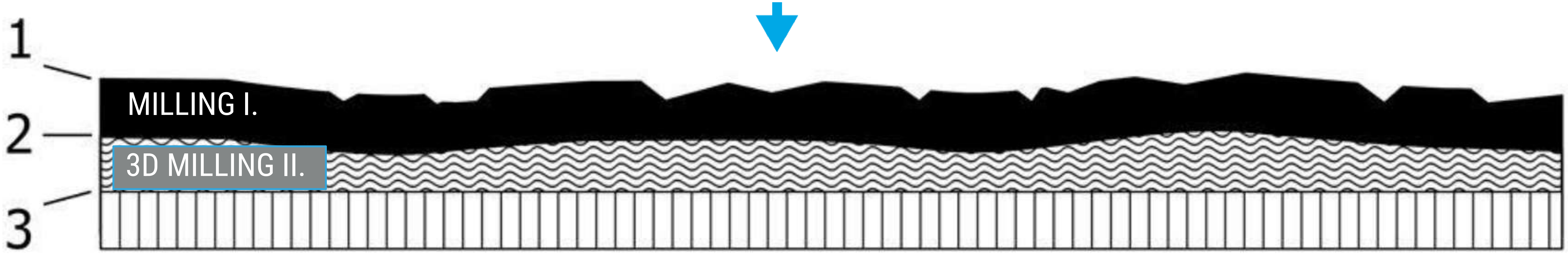
SOLUTION: EXACT STREET ON-SITE (GREEN ASPH4.0)

EXACT STREET

PRINCIPLE OF THE SOLUTION:
MILLING IN AT LEAST 2 LAYERS

EXACT STREET

MILLING I.
+ GNSS DATA ACQUISITION



3D MILLING II.
GNSS MILLING TECHNOLOGY

WE SEE *more* GREEN ASPHALT

EXACT STREET ON-SITE:
SOLUTION REQUIREMENTS

EXACT STREET

- INNOVATIVE GNSS ALGORITHM TO SOLVE MILLING TRAJECTORY
- MILLING IN AT LEAST 2 LAYERS
- GNSS DATA ACQUISITION OF MILLING TRAJECTORY
- CROSS-SLOPE OF THE MILLING DRUM
- ON-LINE CALCULATIONS OPTIMAL MILLING PARAMETERS FOR 3D MILLING OF SUBSEQUENT LAYERS
- MILLING SUBSEQUENT LAYERS USING GNSS 3D DIFFERENTIAL MILLING TO OPTIMIZE SMOOTHNESS AND **CROSS-SLOPE**

WE SEE more GREEN ASPHALT

DEVELOPMENT METHODOLOGY

EXACT STREET

WORK PACKAGES:

WP01: DATA PREPARATION AND SIMULATION

PROCESSING OF HISTORICAL DATASETS FROM 100+ COMMERCIAL PROJECTS;
DEVELOPMENT OF SIMULATION ENVIRONMENT

WP02: DEVELOPMENT OF DATA PROCESSING MODULES

02.1: ADJUSTMT – TRAJECTORY ALIGNMENT MODULE FOR COMPACTION PASSES

02.2: GENDRSM2 – GENERATION OF POST-MILLING SURFACE MODEL

02.3: REMOTE PP2 – REMOTE DATA TRANSFER AND ASSISTED COMPUTATION OF DDM

02.4: DDM AUTHORIZATION – VISUALIZATION AND APPROVAL OF MILLING DESIGN MODEL

02.5: DMU-DC – COMPILATION OF 3D MILLING DATA STRUCTURE

WP03: PROTOTYPE DEVELOPMENT AND FIELD VALIDATION

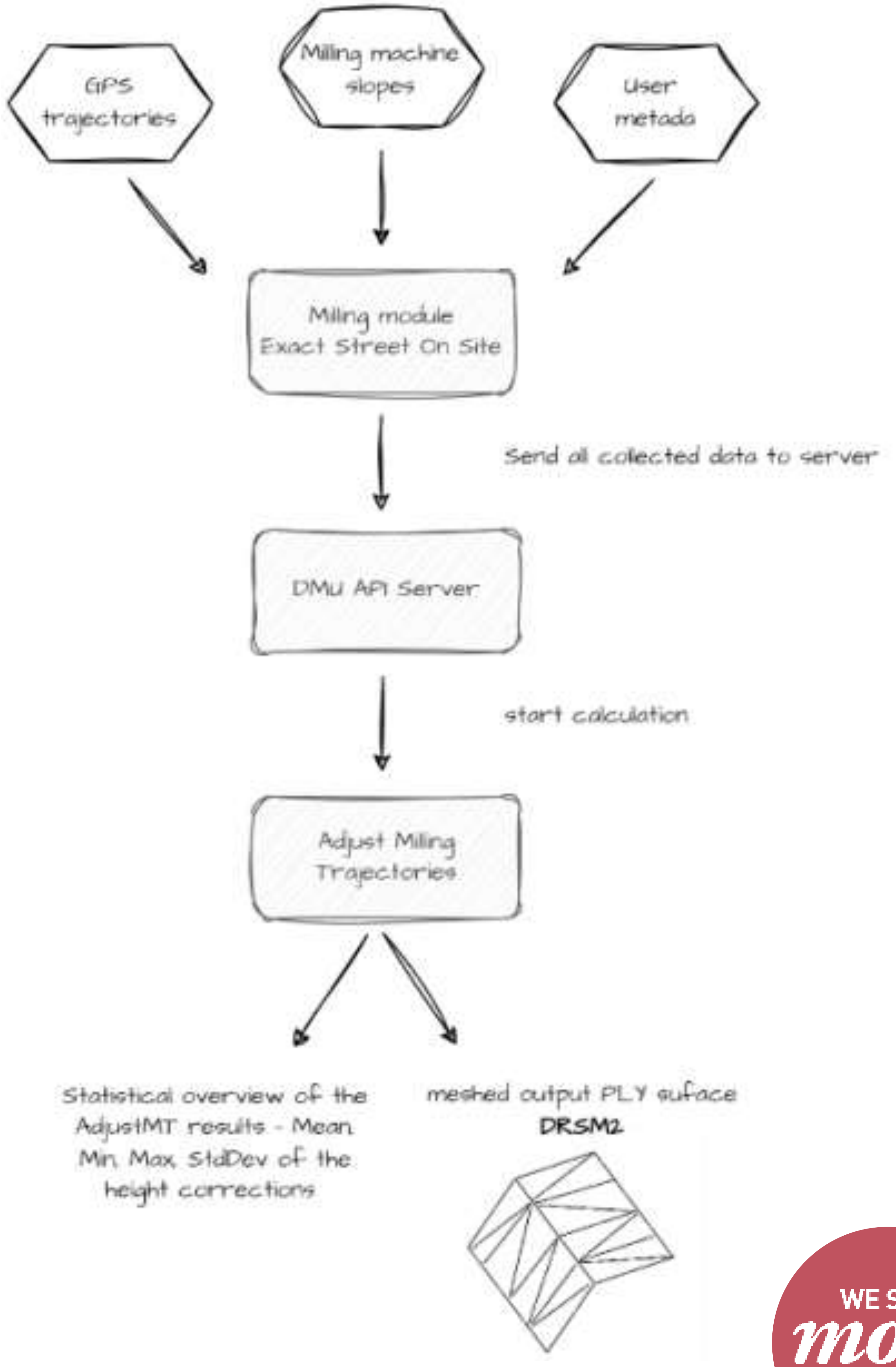
03.1: VIRTUAL PROTOTYPE (VPT) – BASED ON HISTORICAL DATA AND SIMULATION

03.2: REAL PROTOTYPE (RPT) – VALIDATION ON REAL PROJECTS WITH ON-SITE ACQUISITION

03.3: ITERATIVE TESTING AND OPTIMIZATION UNDER VARYING GNSS SIGNAL CONDITIONS

WP04: EVALUATION & UI REFINEMENT

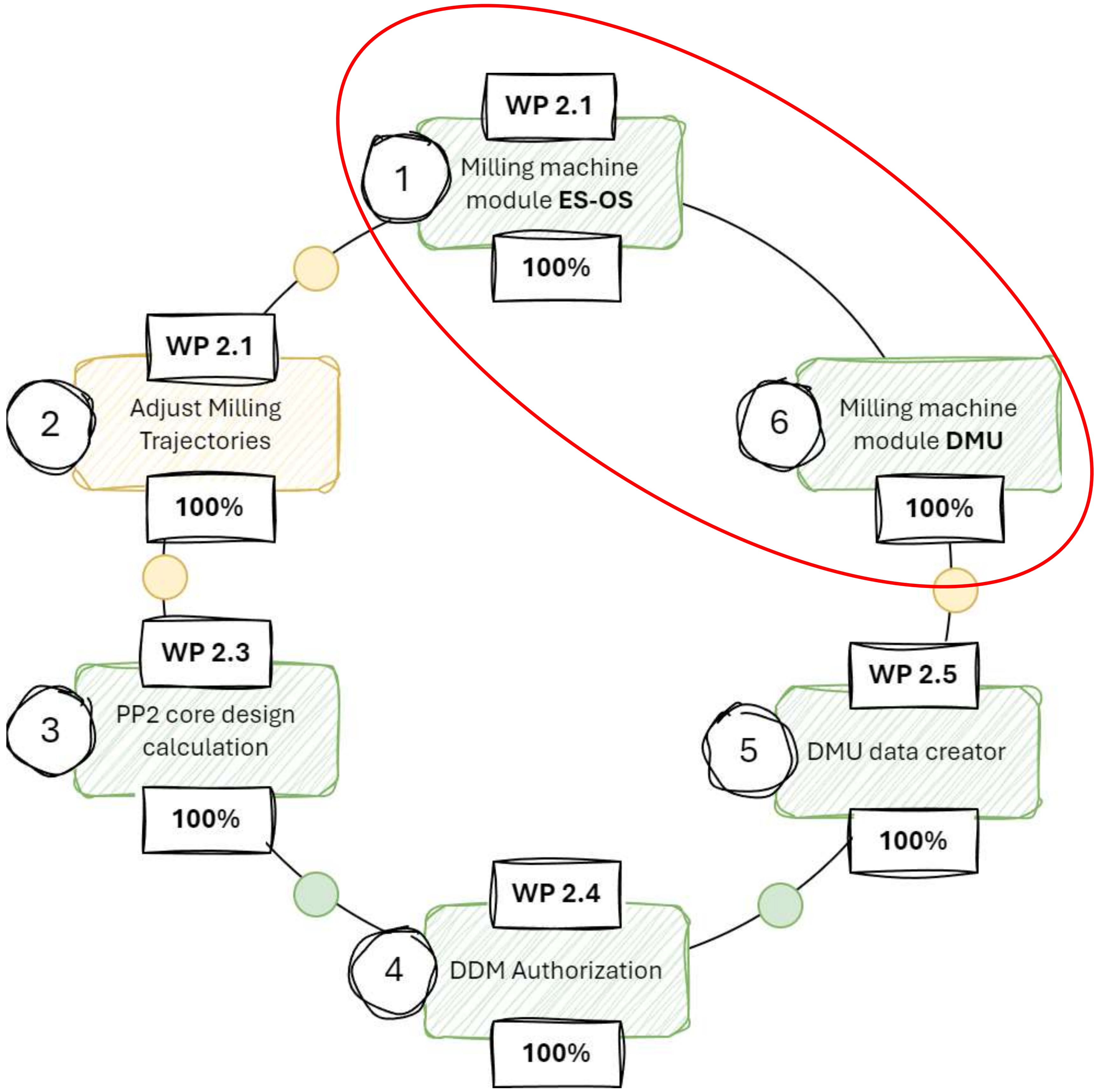
CONTINUOUS FEEDBACK COLLECTION AND INTERFACE OPTIMISATION DURING PILOT DEPLOYMENTS



DEVELOPMENT METHODOLOGY

EXACT STREET

WORK PACKAGES: CLOUD SERVER & DMU



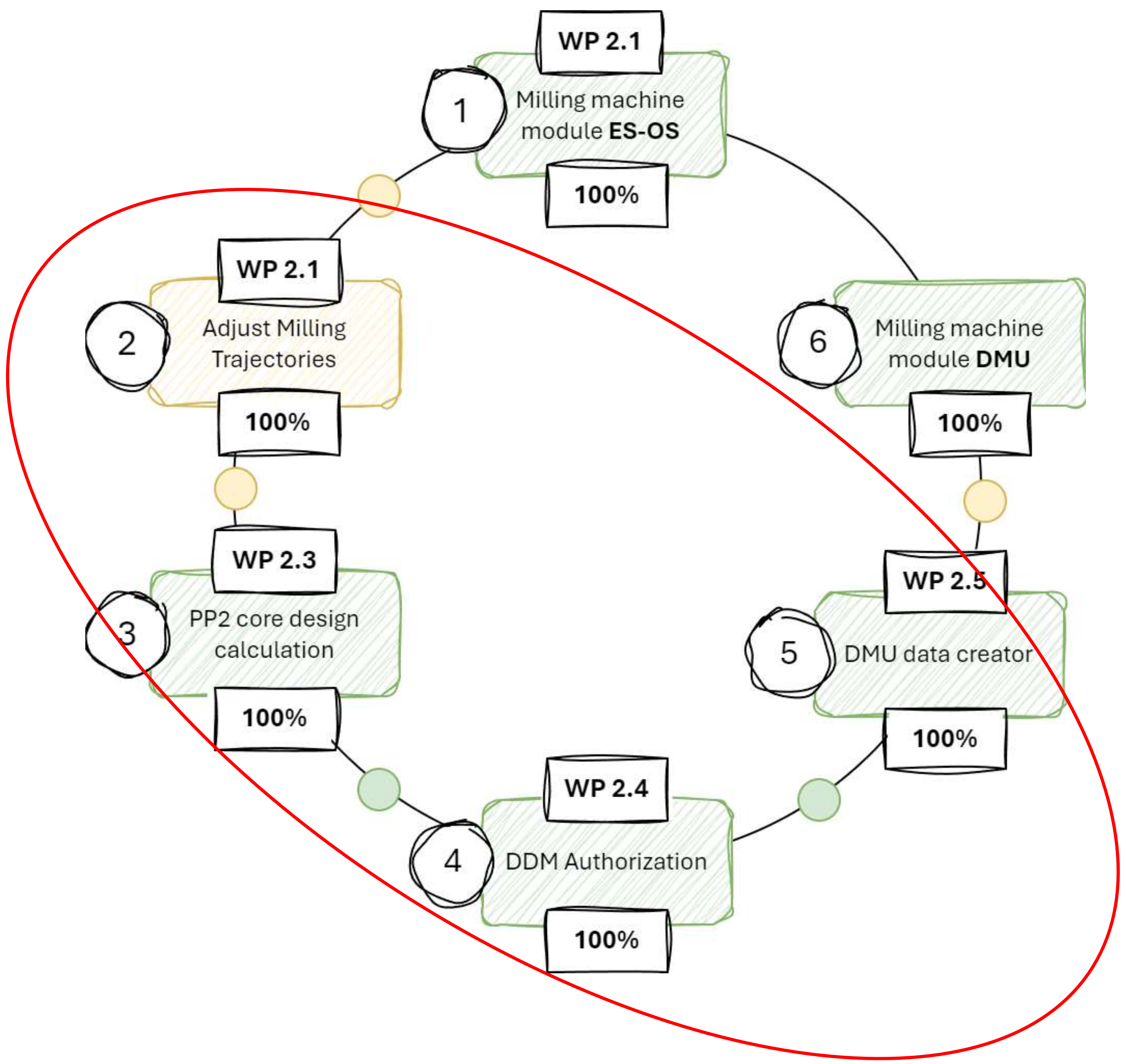
HW ON MILLING MACHINE: CONTROL COMPUTER + 2X GNSS

WE SEE more GREEN ASPHALT

DEVELOPMENT METHODOLOGY

EXACT STREET

WORK PACKAGES: CLOUD SERVER & DMU



SW-MODULES ON COMPUTING SERVER: MICROSOFT AZURE CLOUD

- CLOUD MICROSERVICE SCALEABLE SOLUTION
- RUNNING ON AZURE CLOUD - SECURE, PERFORMANT AND HIGHLY AVAILABILE
- OPERATING IN EU, USA AND CA

WE SEE more GREEN ASPHALT

DEVELOPMENT METHODOLOGY

EXACT STREET

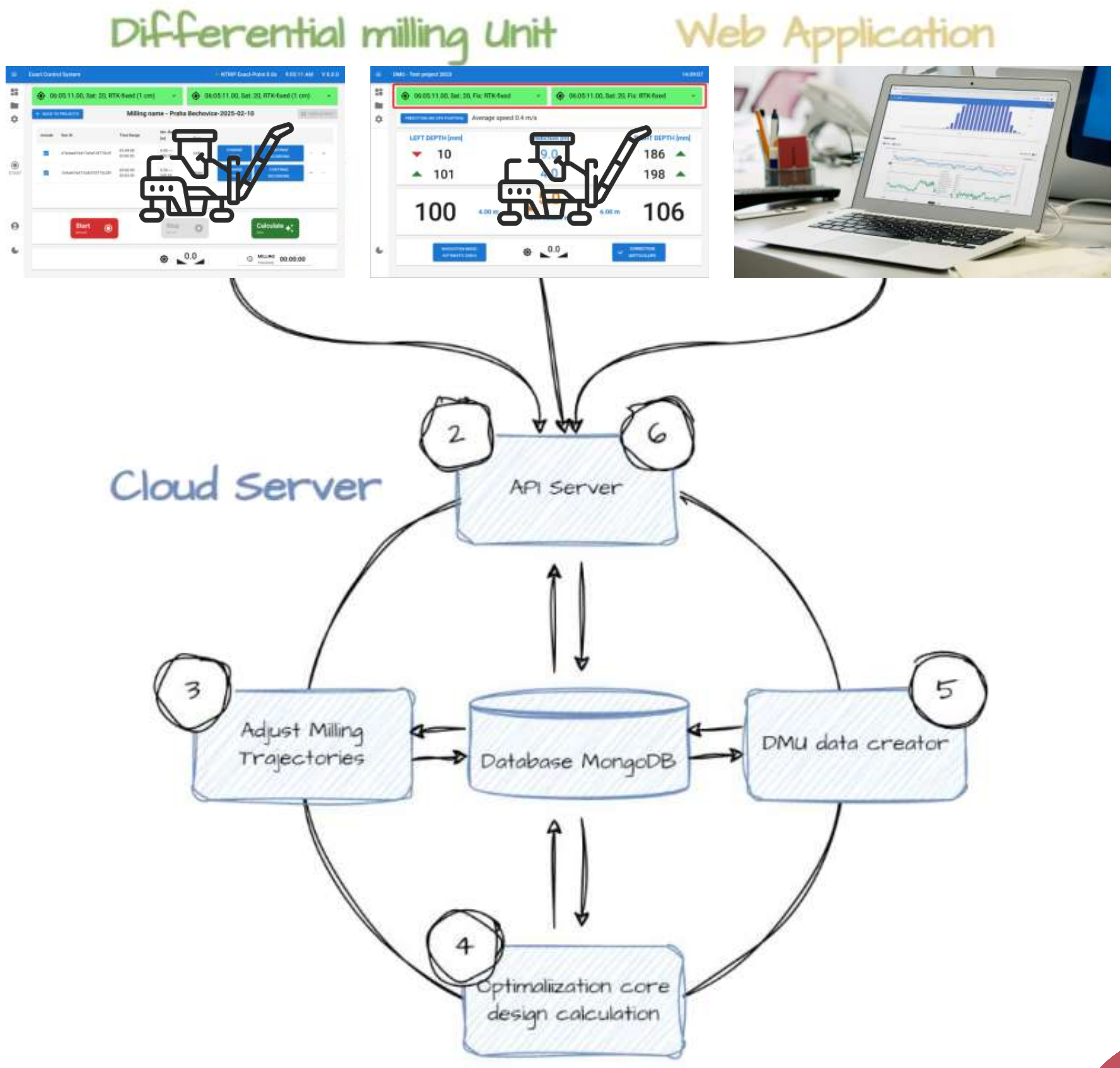
SYSTEM ARCHITECTURE OVERVIEW:

•**Scalable Microservice Design**
– Built on asynchronous microservices orchestrated by Kubernetes
– Enables flexible and efficient resource management

•**Horizontal Scalability**
– Components like servers, workers, and databases can scale independently
– Supports parallel data processing from hundreds of milling machines

•**High Performance & Flexibility**
– Handles simultaneous workloads efficiently
– Suitable for both on-premise and cloud deployments (e.g., Microsoft Azure)

•**Simplified Maintenance & Upgrades**
– Modular architecture streamlines updates and system management

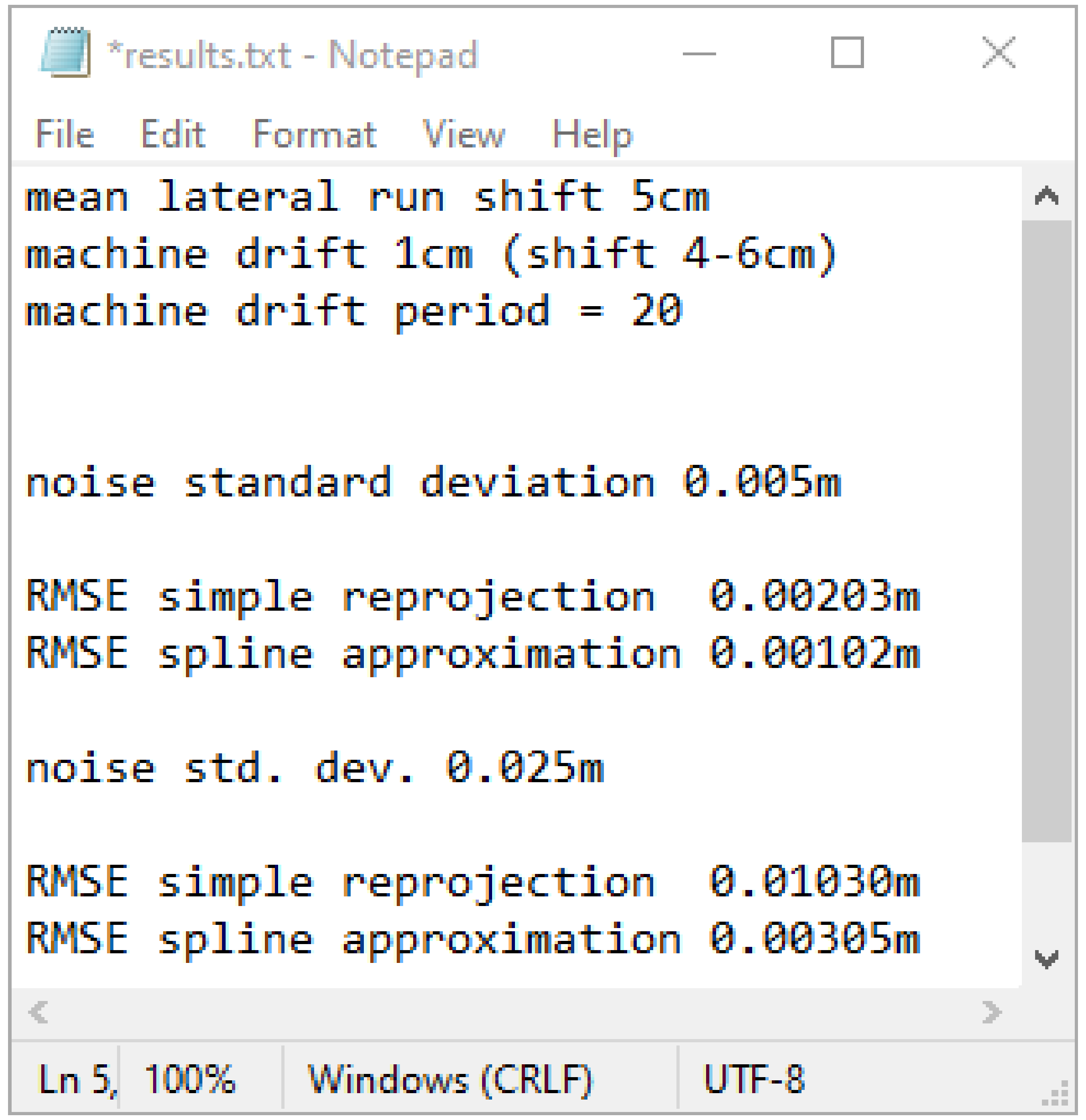


WE SEE more GREEN ASPHALT

TESTING AND VALIDATION

EXACT STREET

WP 03.1: VIRTUAL PROTOTYPE (VPT): – BASED ON HISTORICAL DATA AND SIMULATION


*results.txt - Notepad

File Edit Format View Help

mean lateral run shift 5cm
machine drift 1cm (shift 4-6cm)
machine drift period = 20

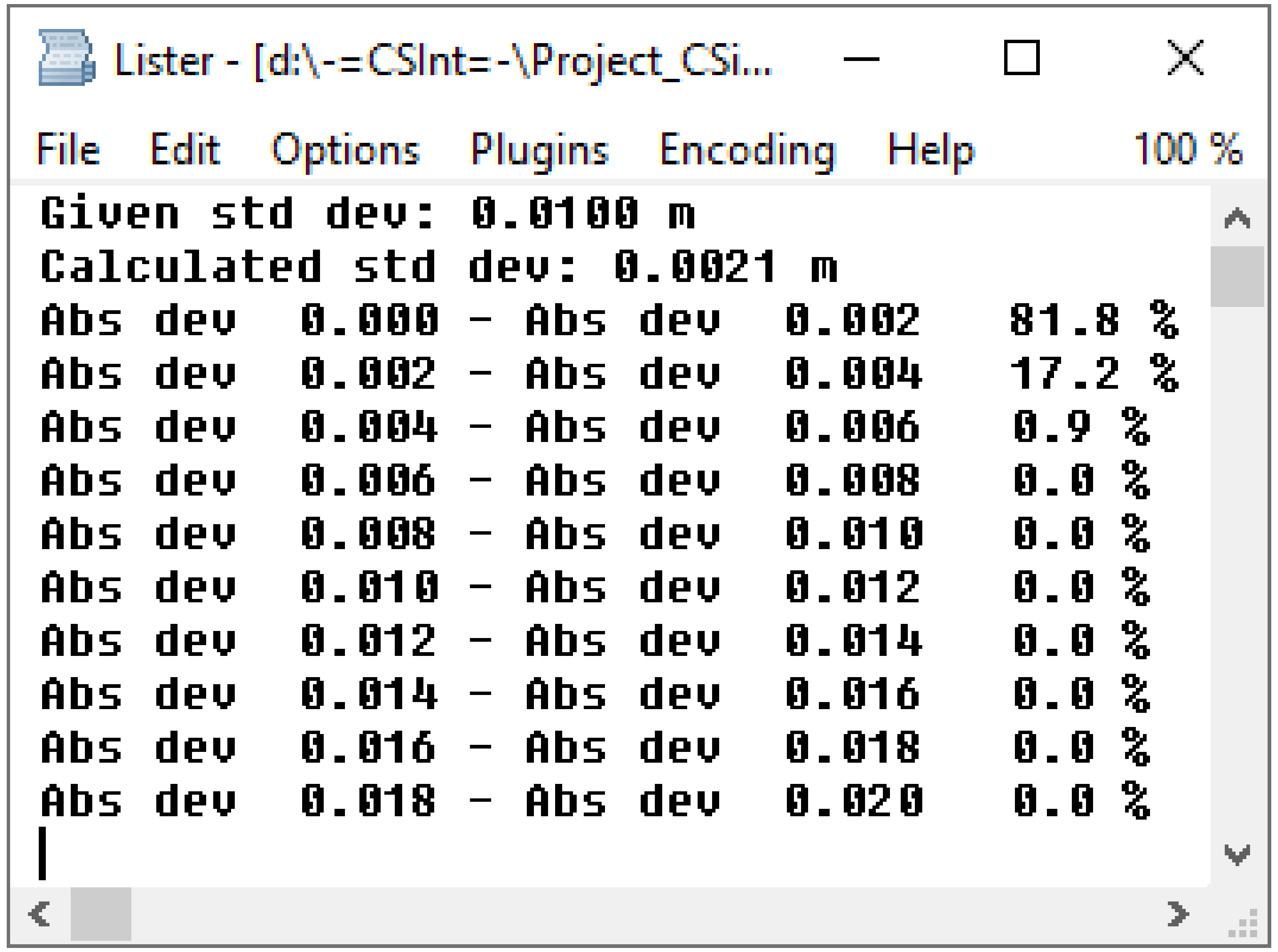
noise standard deviation 0.005m

RMSE simple reprojection 0.00203m
RMSE spline approximation 0.00102m

noise std. dev. 0.025m

RMSE simple reprojection 0.01030m
RMSE spline approximation 0.00305m

Ln 5, 100% Windows (CRLF) UTF-8


Lister - [d:\-=CSInt=-\Project_CSi...

File Edit Options Plugins Encoding Help 100 %

Given std dev: 0.0100 m
Calculated std dev: 0.0021 m

Abs dev 0.000	Abs dev 0.002	81.8 %
Abs dev 0.002	Abs dev 0.004	17.2 %
Abs dev 0.004	Abs dev 0.006	0.9 %
Abs dev 0.006	Abs dev 0.008	0.0 %
Abs dev 0.008	Abs dev 0.010	0.0 %
Abs dev 0.010	Abs dev 0.012	0.0 %
Abs dev 0.012	Abs dev 0.014	0.0 %
Abs dev 0.014	Abs dev 0.016	0.0 %
Abs dev 0.016	Abs dev 0.018	0.0 %
Abs dev 0.018	Abs dev 0.020	0.0 %

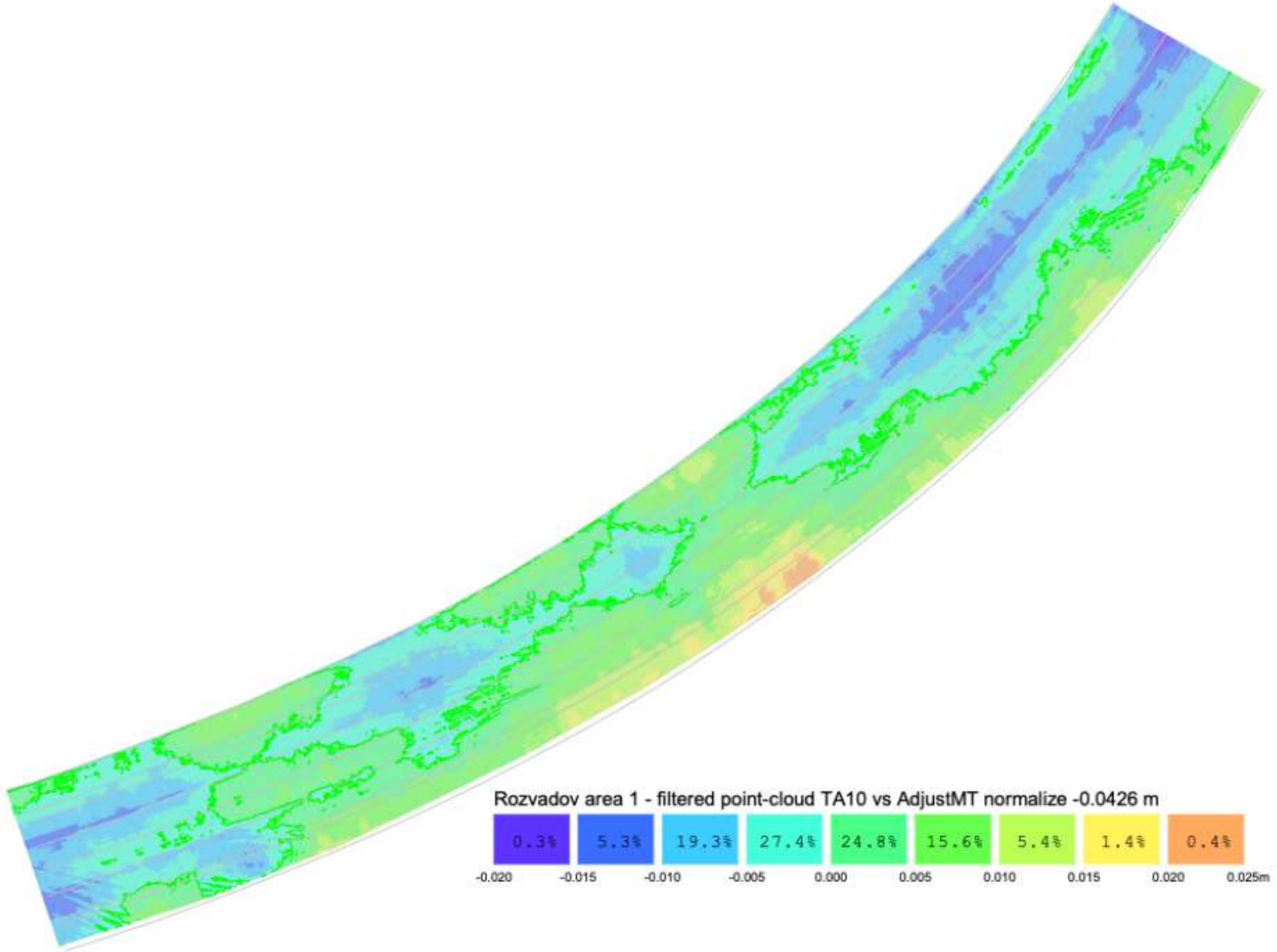
SIMULATION CONFIRMED 5×–10× ACCURACY IMPROVEMENT WITH 4 OVERLAPPING PASSES:
GNSS MEAN ERROR REDUCED FROM 20 MM TO 2–4 MM IN MILLING TRAJECTORY.

WE SEE more GREEN ASPHALT

TESTING AND VALIDATION

EXACT STREET

WP 03.1: VIRTUAL PROTOTYPE (VPT) – BASED ON REAL MEASUREMENT PROJECT ROZVADOV: COMPARISON WITH CONTROL SCAN REGISTRED BY TS: σZ=6.4 MM



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EXACT STREET ON-SITE PILOT PROJECTS

03.2: REAL PROTOTYPE (RPT) – VALIDATION ON REAL PROJECTS WITH ON-SITE 3D DATA ACQUISITION AND DESIGN

PIPELINE OF PILOT PROJECTS

No.	**Project Name** (opportunity)	**Customer**	**Partner**	**Status**	**Order value**	**Sales resp**	Quotation (	Date Q/CN	**Statu**	Close Date
1	ESOS Exact Street pilot	RSD JHL		1		MP	CN250104	10.01.2025		
2	ESOS pilot	TSK		2	1900000	MP	CN250106	21.01.2025		
3	ESOS D1 km230,0-km237,3, kontrolni mereni pilotu	RSD		1	996614	MP	CN250109	22.01.2025		
4	ESOS Mladých Běchovic	STRABAG		3	579500	MP	CN250111	29.01.2025		04.03.2025
5	ESOS pilot	RSD		2		MP	CN250114	31.01.2025		
6	ESOS 3D Cínovecká	TSK		2		MP	CN250204	18.02.2025		
7	ESOS D3	RSD		1		MP	CN250404	11.04.2025		
8	ESOS	KSUS		1		MP	CN250414	25.04.2025		
9	ESOS, II-405 Okříšky	KSUSV		1		MP	CN250415	25.04.2025		
10	ESOS, I-132 Žirovnice hr.kraje	KSUSV		1		MP	CN250416	25.04.2025		
11	ESOS	SUSPK.cz		1		MP	CN250501	05.05.2025		
12	ESOS	SUSPK.eu		1		MP	CN250502	05.05.2025		
13	ESOS Dablicka	STRABAG		3	477000	MP	CN250504	20.05.2025		20.06.2025
14	ESOS II-180 Černice – Štěnovice, PDPS	Pontex, SUSPK.eu		1		MP	CN250505	20.05.2025		
15	ESOS Prestice 1,3km	Silnice Klatovy		1		MP	CN250602	12.06.2025		
16	ESOS Cinovecka	PORR		2	1100800	MP	CN250607	24.06.2025		**2026**
17	ESOS 3D Paving	CS CA/Pioneer		1		VO	CN250608	27.06.2025		
18	ESOS 3 piloty RSD a OptiMill test	Sudop		1		MP	CN250701	08.07.2025		
19	ESOS Trhanov	Silnice Klatovy		3		TK/SH	CN250705	28.07.2025		23.07.2025
20	ESOS D Brno	RSD		1		MP	CN250706	28.07.2025		
21	ESOS DE	Strabag		1		MP	CN250707	28.07.2025		

SOLUTION: EXACT STREET ON-SITE (GREEN ASPH4.0)

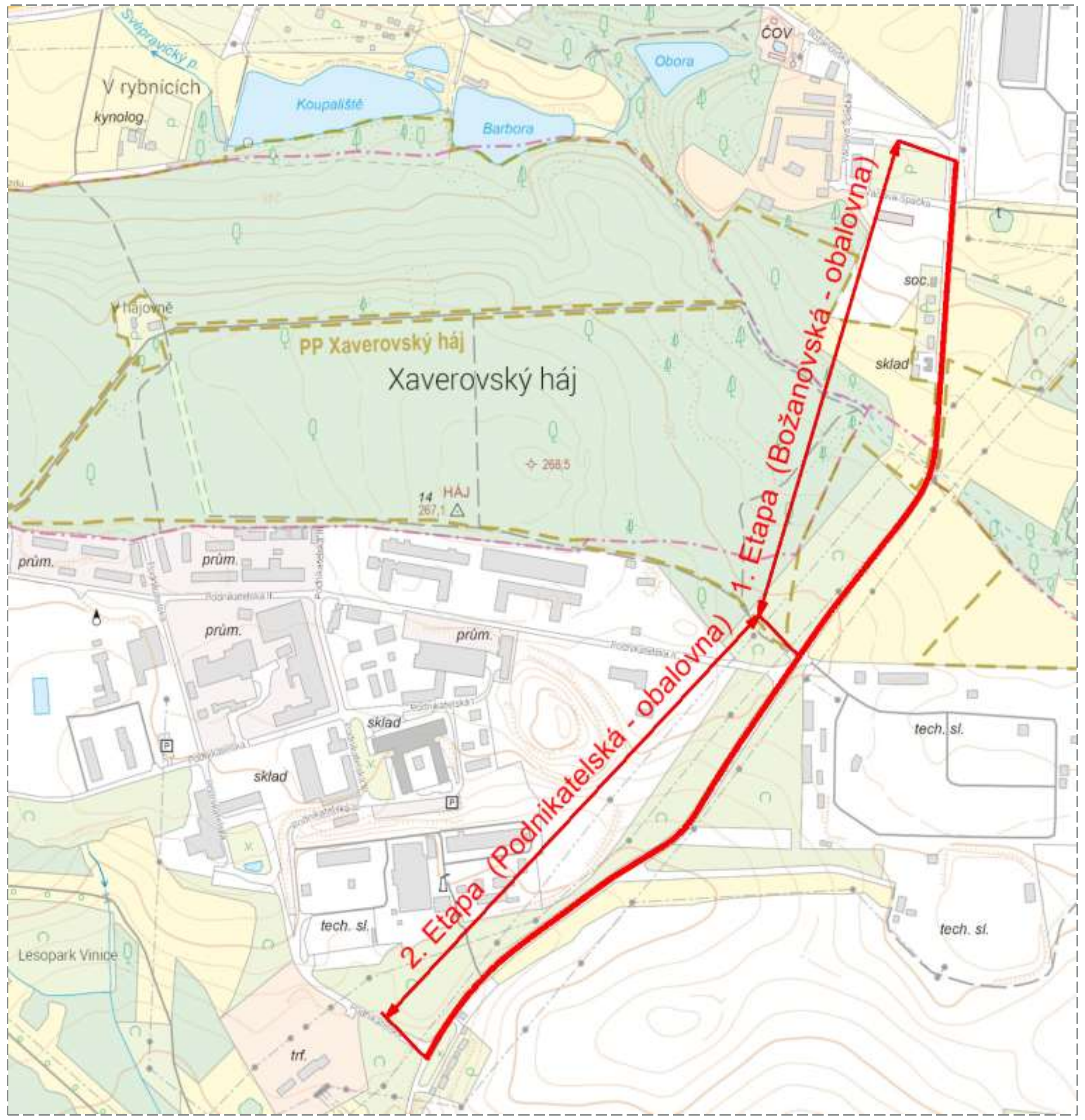
EXACT STREET

EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

TSK (ROAD ADMINISTRATION OF PRAGUE)
PROJECT: URBAN ROAD MLADYCH BECHOVIC

TSK



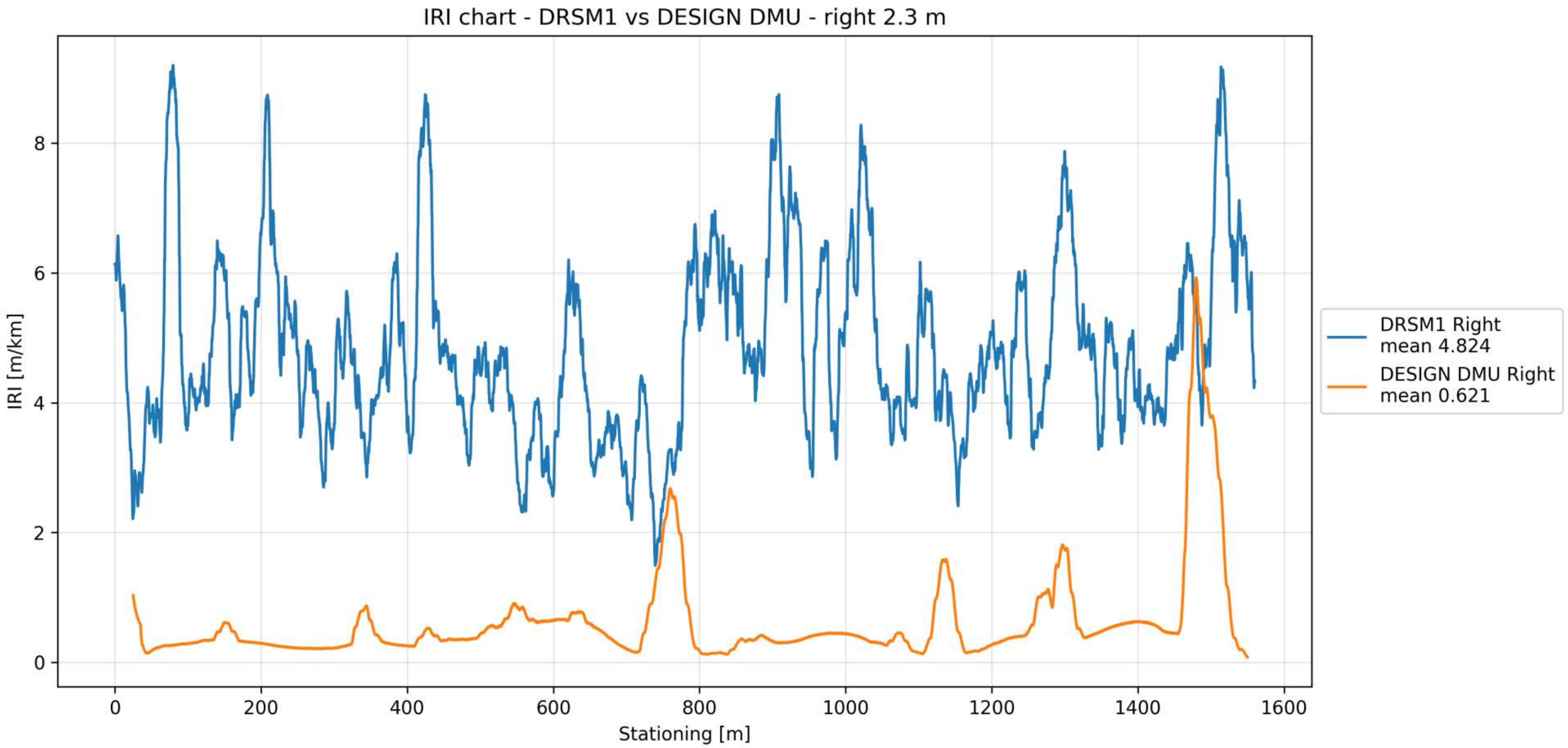
WE SEE more GREEN ASPHALT

EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

IRI IMPROVEMENT

5 M/KM => 0.6 M/KM



WE SEE more GREEN ASPHALT

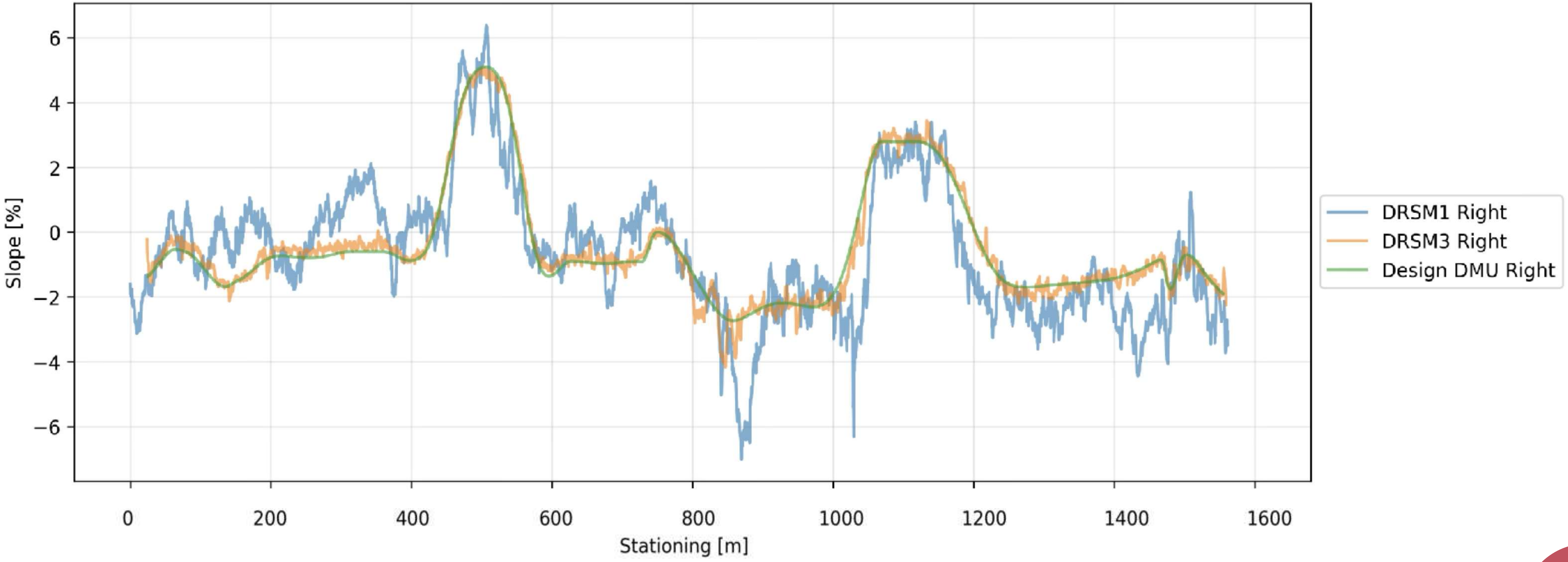
EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

CROSS-SLOPE IMPROVEMENT

98% OF SECTIONS IMPROVED OR LEVELED FOR CONSISTENT CROSS SLOPE

SLOPE CHART - DRSM1 VS DRSM3 VS DMU DESIGN - RIGHT SLOPE



WE SEE more GREEN ASPHALT

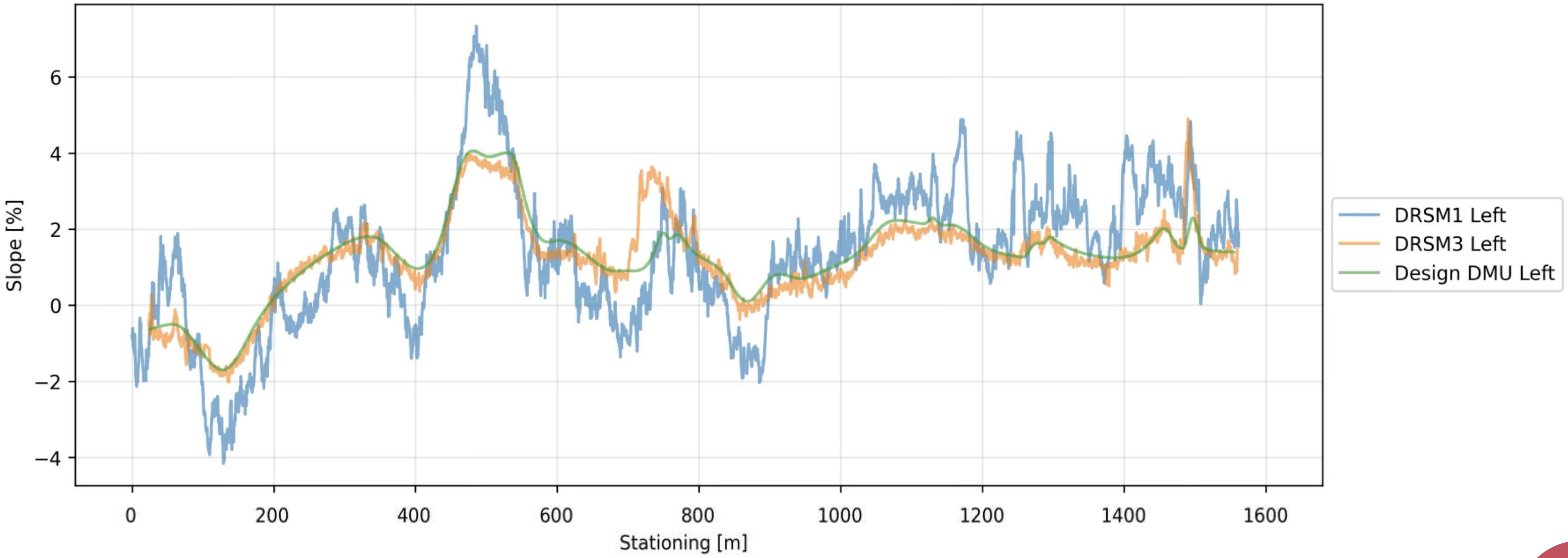
EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

CROSS-SLOPE IMPROVEMENT

98% OF SECTIONS IMPROVED OR LEVELED FOR CONSISTENT CROSS SLOPE

SLOPE CHART - DRSM1 VS DRSM3 VS DMU DESIGN - LEFT SLOPE

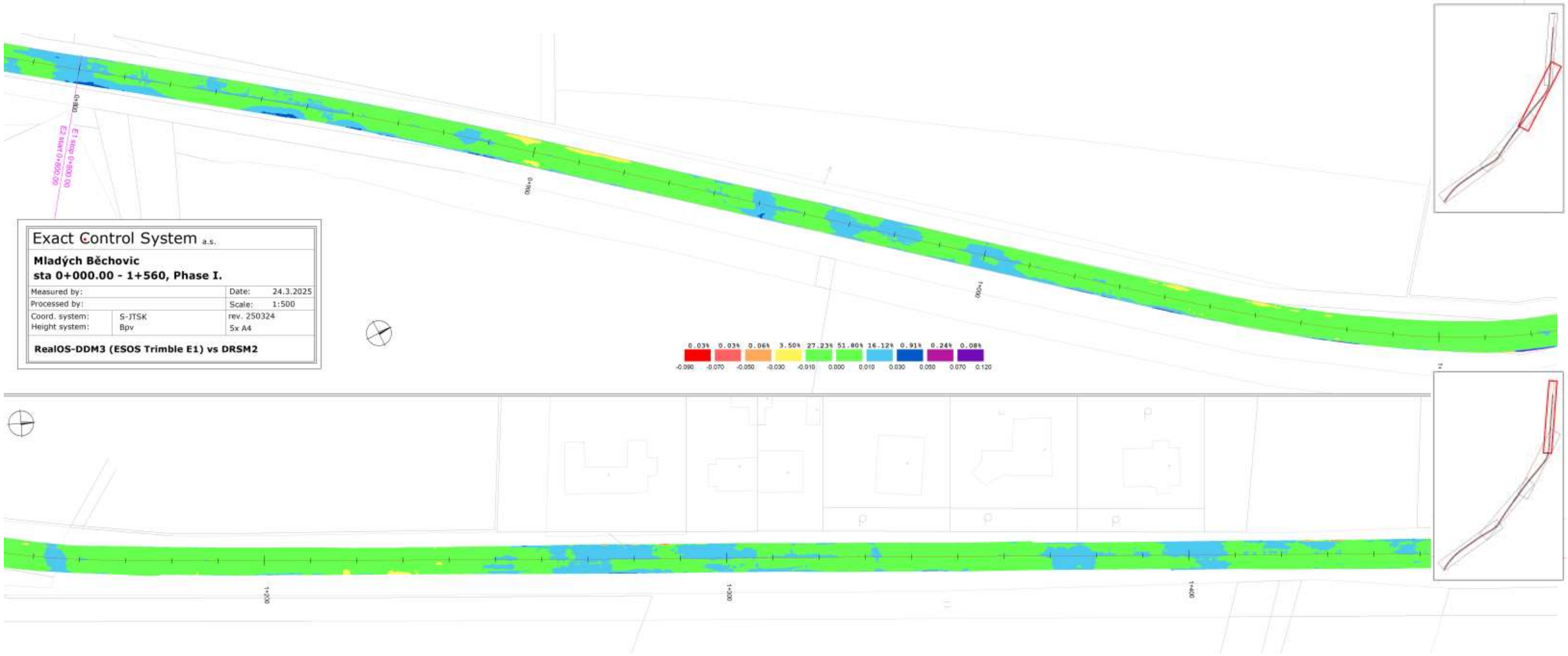


EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

AS BUILT COMPARISON [MM]

ES-OS VS AS-BUILT PRECISE SURVEY (DIGITAL LEVELING AND SCANNING)

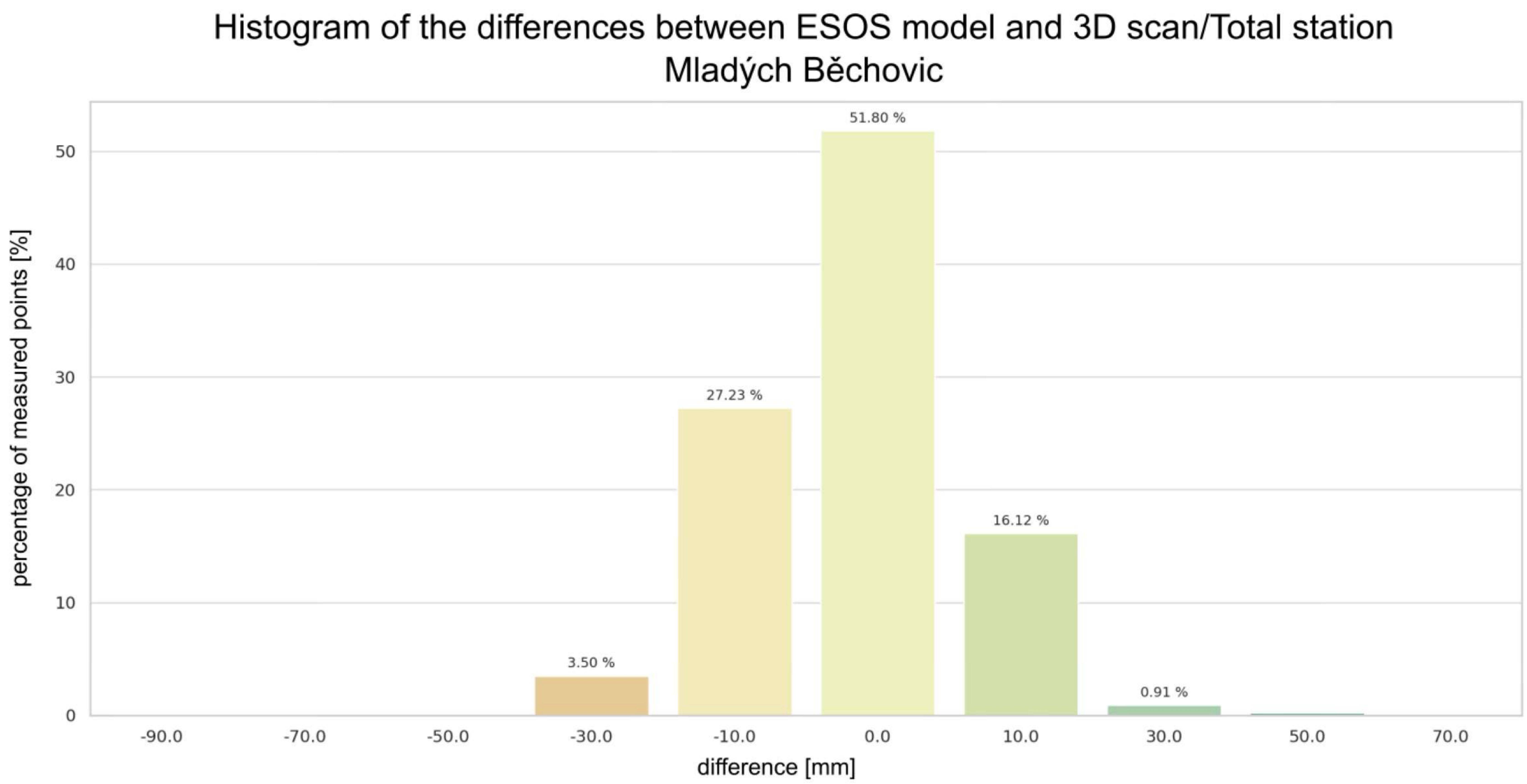


WE SEE *more* GREEN ASPHALT

EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

AS BUILT COMPARISON [MM]
ES-OS VS AS-BUILT PRECISE SURVEY (DIGITAL LEVELING AND SCANNING)



Visualization of model (Exact Street On Site) accuracy compared to reality. Zero difference = perfect match

WE SEE more GREEN ASPHALT

EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

EXACT STREET ON-SITE PILOT PROJECTS

EXACT STREET

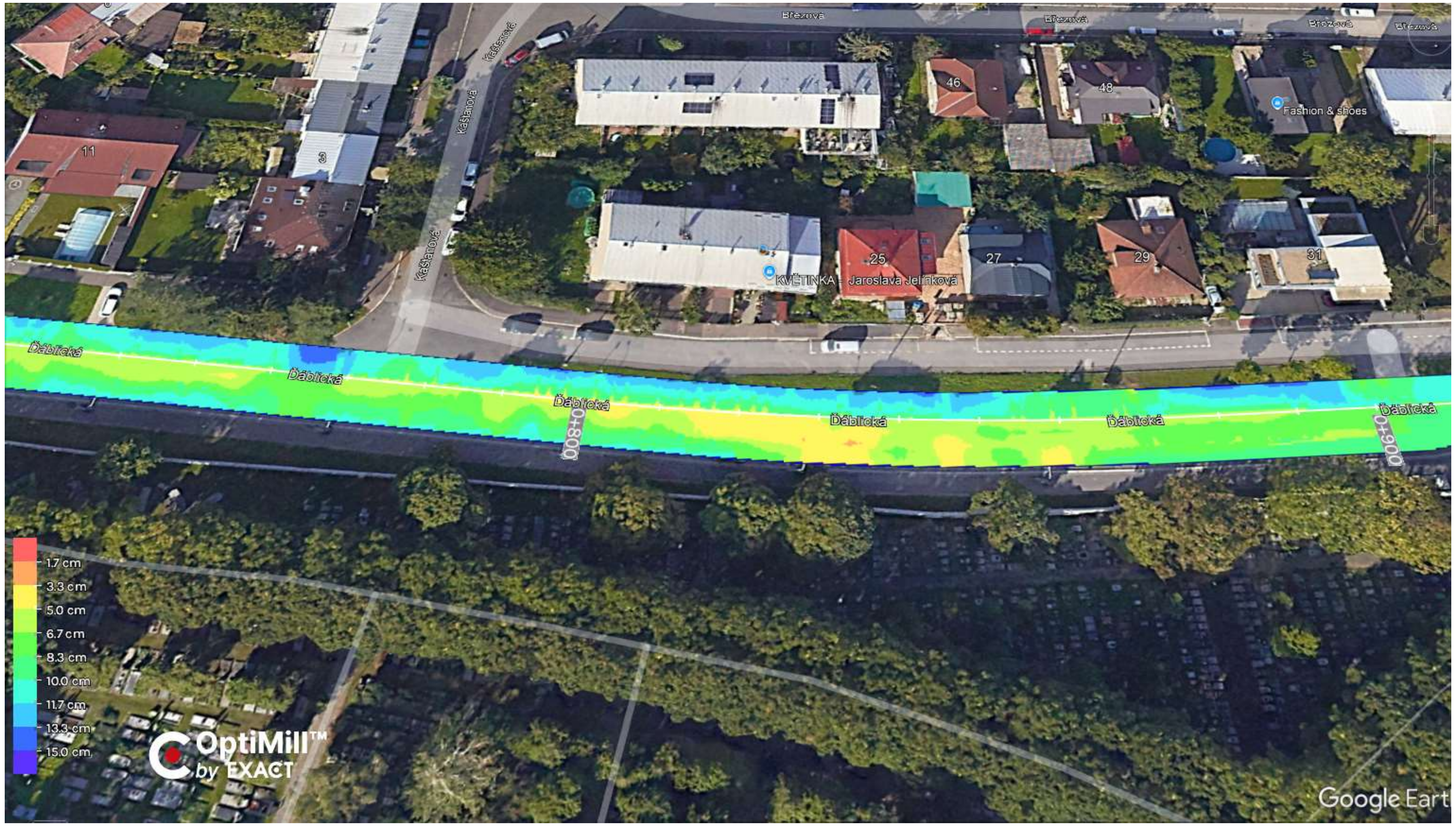
TESTING AND VALIDATION

EXACT STREET

TEST AND VALIDATION:
ON-SITE 3D MODEL ADJUSTMENT

EXACT STREET

MAX. MILLING DEPTH ADJUSTMENT: 160 MM



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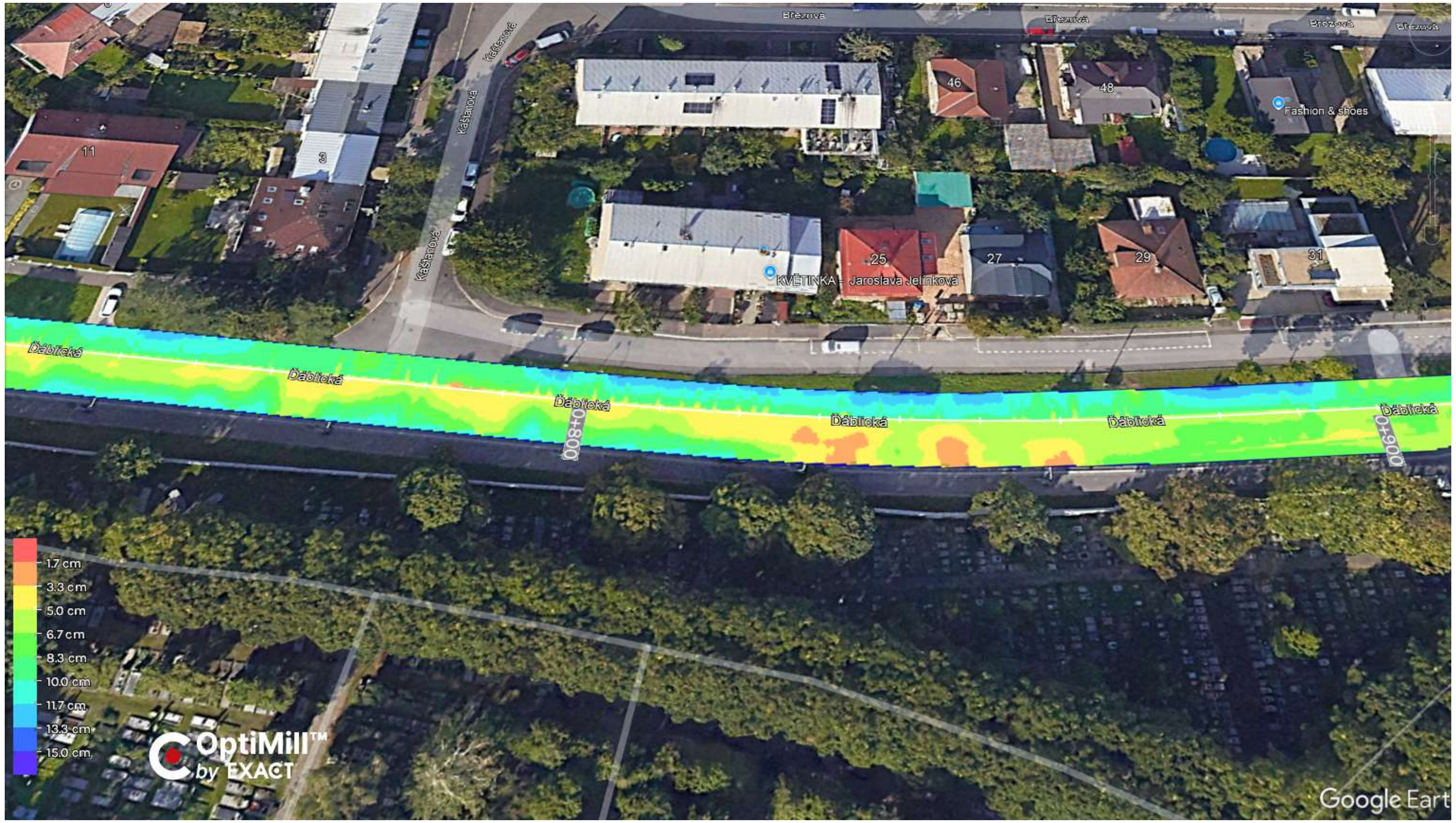
TEST AND VALIDATION
ON-SITE 3D MODEL ADJUSTMENT

EXACT STREET

MAX. MILLING DEPTH ADJUSTMENT: 120 MM



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EXACT STREET ON-SITE
PILOT PROJECTS RESULTS

EXACT STREET

SURFACE HEIGHT ACCURACY AFTER MILLING FIRST LAYER
GNSS ADJUST MT ALGORITHM (ESOS) VS. TOTAL STATION

Project	Length	Control points (Total Station)	σZ (1-sigma)	Note
Dablicka street	0.5 km	114	9 mm	After 3D milling
Cakovicka street	0.6 km	97	6 mm	After 3D milling

TESTING AND VALIDATION

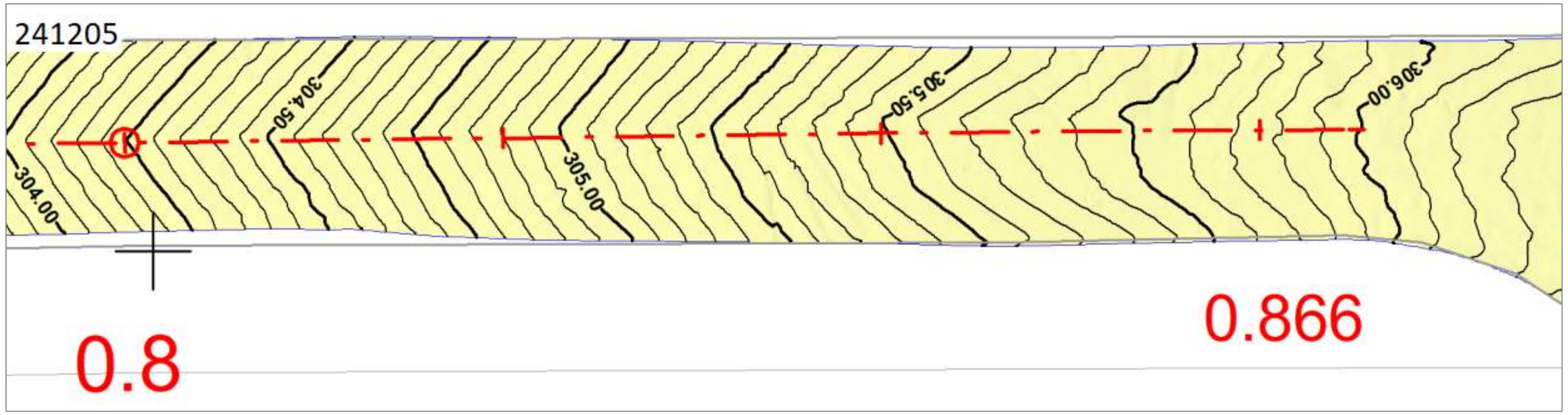
EXACT STREET

ROAD LIFESPAN EXTENDING BY 30 % – 50 %

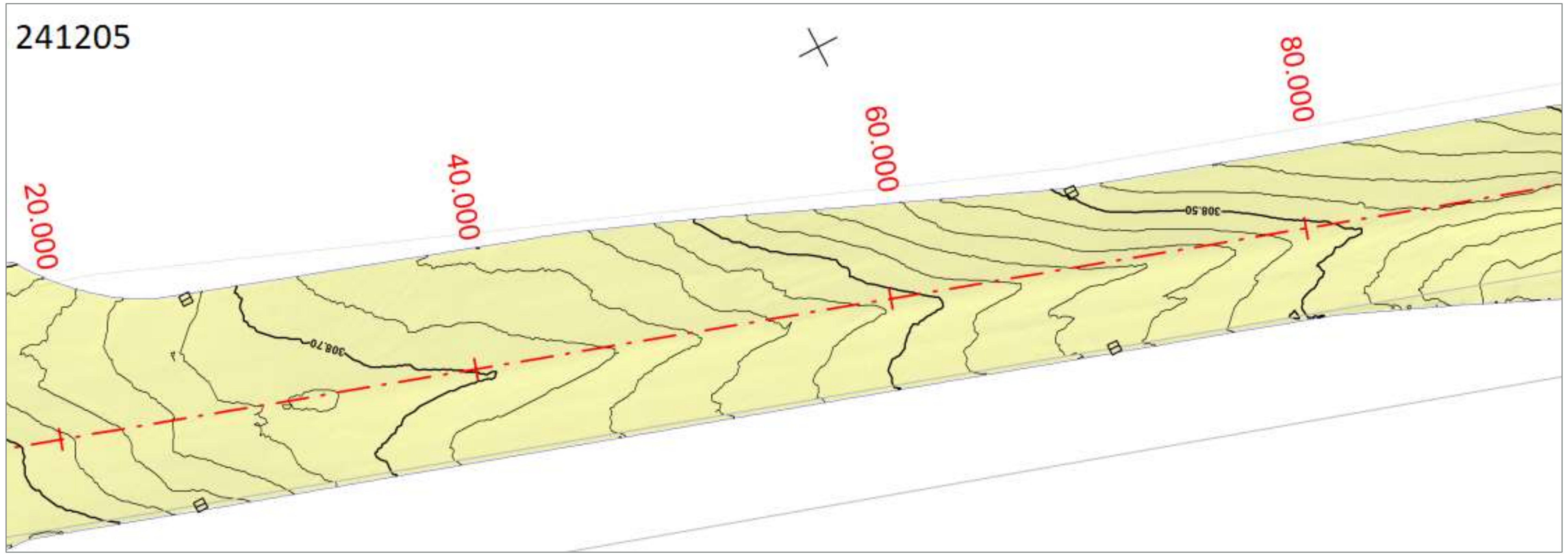
EXACT STREET

KUNRATICKÁ SPOJKA, PRAHA 4, PROJECT NO.13 309

2015
2020
2024



2024



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EXACT STREET ON-SITE:
KEY ADVANTAGES

EXACT STREET

- MINIMIZE PRE-CONSTRUCTION PREPARATION AND FASTER ON-SITE EXECUTION
- CROSS-SLOPE PRECISE CORRECTION
- SMOOTHNESS (IRI) IMPROVEMENT
- ROAD LIFESPAN EXTENDING BY 30 % – 50 %
- STANDARDIZATION OF DIGITAL RESURFACING PROCES TO ENSURE HIGH REPAIR QUALITY
- IMMEDIATE ADJUSTMENT OF 3D REPAIR MODEL
- SELECTIVE MILLING FOR EFFICIENT MATERIAL RECYCLING

ANYTHING ELSE?

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EXACT STREET ON-SITE: GLOBAL SCALABILITY

EXACT STREET ON-SITE: OUTLOOK

EXACT STREET

FOCUS MARKET:

PILOT PROJECTS

PILOT PROJECTS

PILOT PROJECTS

3D ROAD RECONSTRUCTION IN 2024

€ 100 - 300 MIL. EUR/YEAR

FORECAST FOR 3D ROAD RECONSTR. 2030

€ 2 - 4 BILLIONS EUR/YEAR

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EXACT STREET ON-SITE OUTLOOK

EXACT STREET

WE INVITE PARTNERS, INSTITUTIONS, AND INVESTORS TO ACTIVELY PROPOSE AND PARTICIPATE IN PILOT PROJECTS.

ESOS

+1-587-966-1358

VITEK@CONTROLSYSTEM.CZ

MAREK.PRIKRYL@TEAMEXACT.COM

ANTONIO.BAUCE@TEAMEXACT.COM

WWW.EXACTSTREET.COM

PUBLIC ROAD AUTHORITIES

TSK PRAHA, ŘSD, SLOVENSKÁ SPRÁVA CIE

➞ NEED: FAST, ACCURATE, AND COST-EFFI

CONSTRUCTION & MAINTENANCE

STRABAG, COLAS, EUROVIA, SWIETELSKY, S … E (USA), MIDSTAT (USA) …

➞ NEED: LOWER COSTS, BETTER QUALITY,

PPP OPERATORS & INFRA CONTR

➞ USE: LONG-TERM ASSET MANAGEMENT

GEO-PARTNERS (SURVEYING COMPANIES)

➞ USE: REAL-TIME 3D DATA INTO CITY INFRASTRUCTURE SYSTEMS

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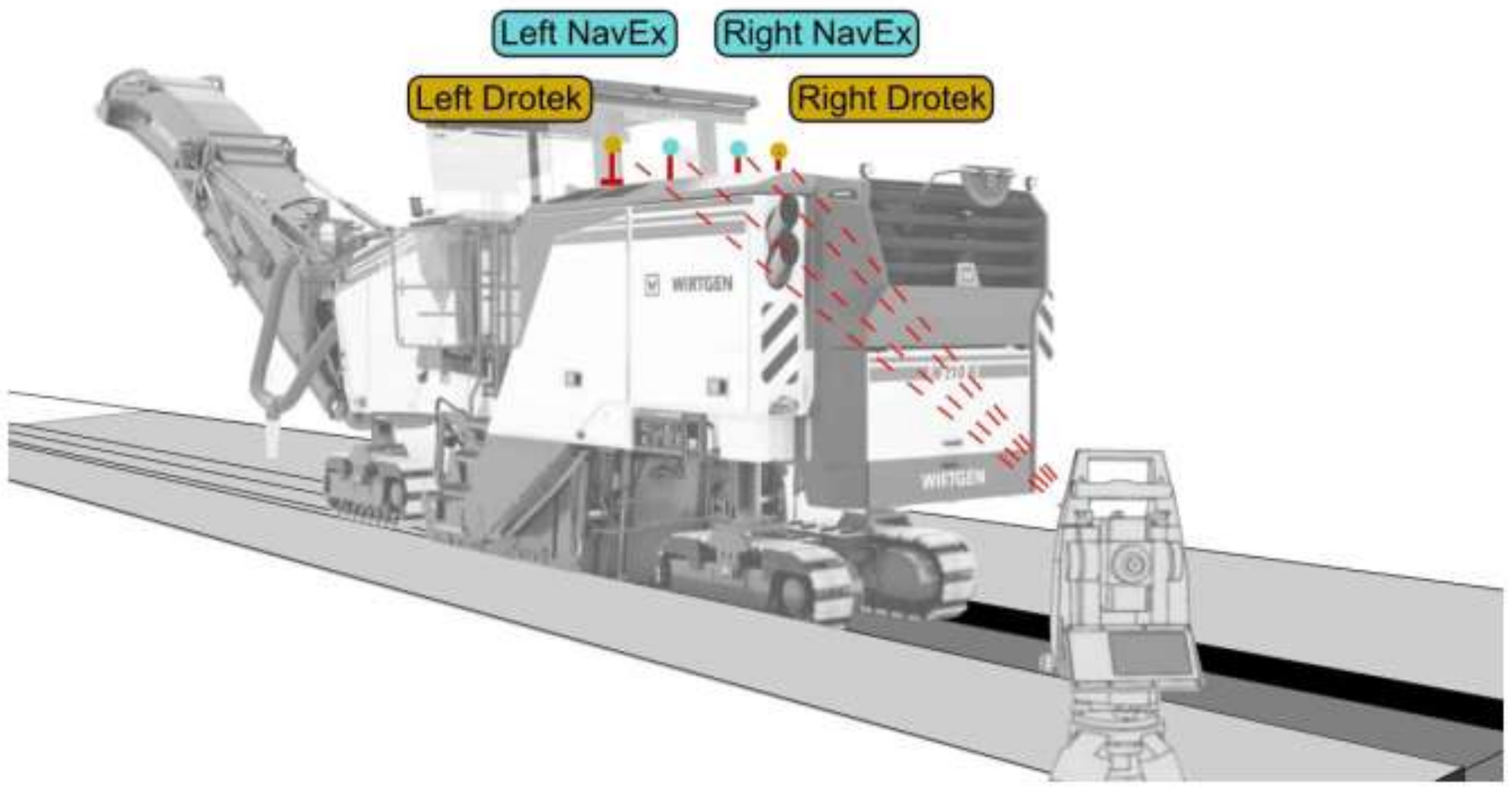
THANK YOU ESA

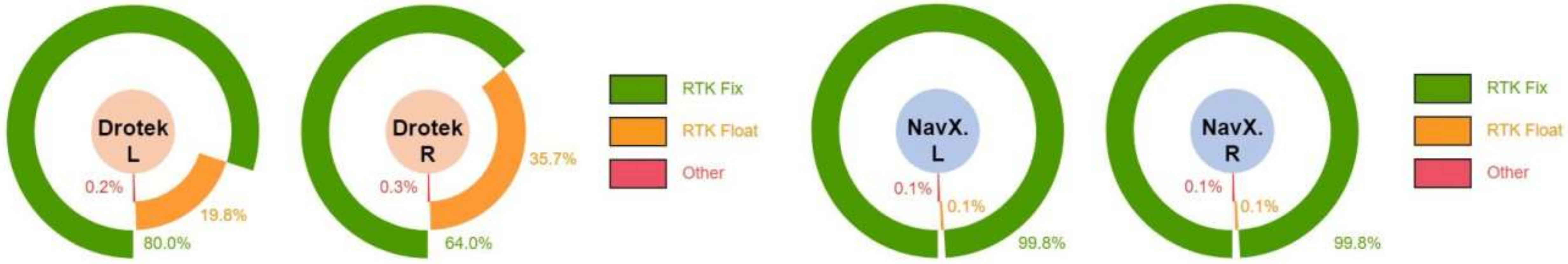
EXACT STREET

LESSONS LEARNED

GNSS ANTENA MULTIPASS:

- DROTEK ANTENNAS, UBLOX ZED-F9P CHIP
- NAVXPERIENCE 3G+C





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LESSONS LEARNED

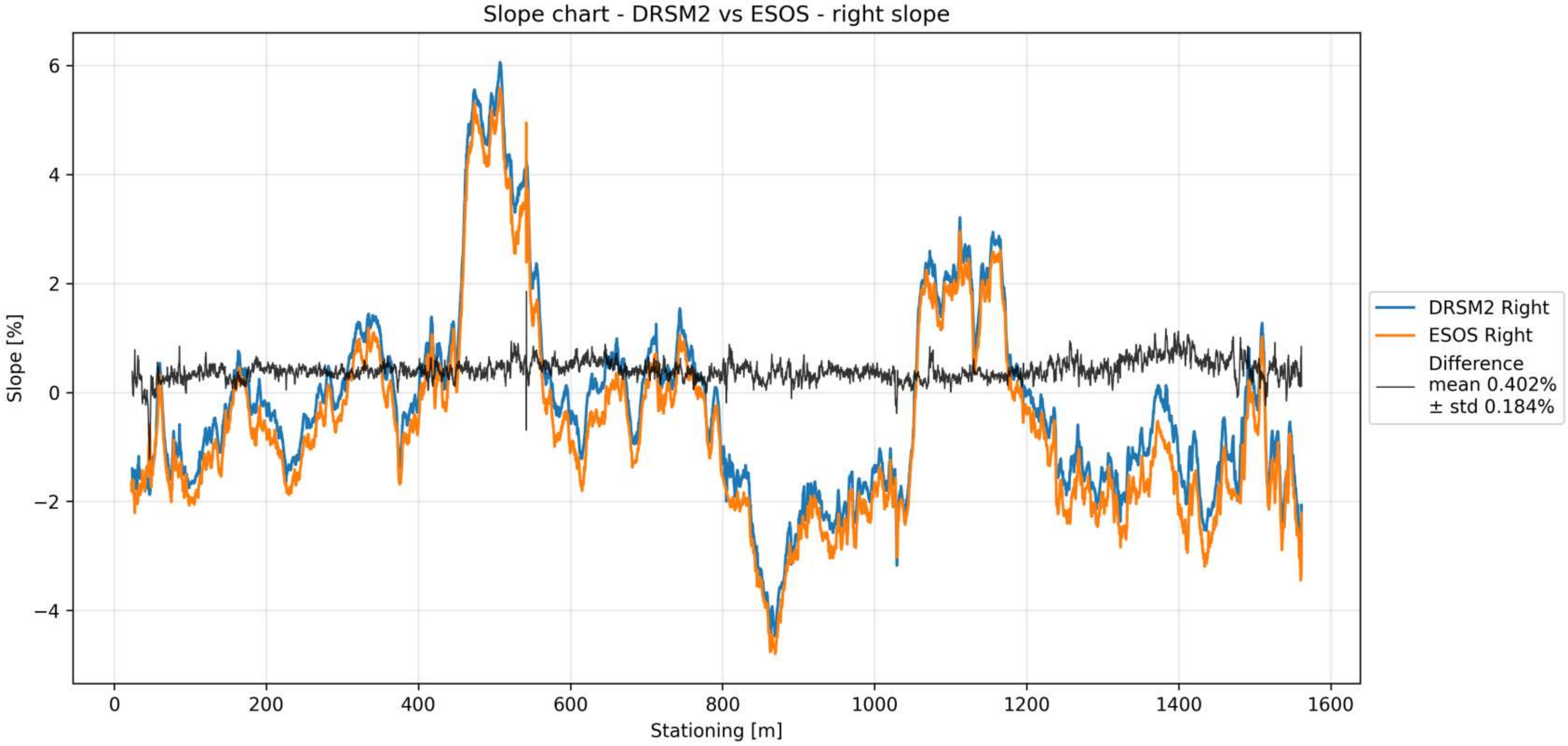
EXACT STREET

GNSS ANTENA MULTIPASS:

- DROTEK ANTENNAS, UBLOX ZED-F9P CHIP
- NAVXPERIENCE 3G+C

INCORRECT CALIBRATION OF THE MILLING MACHINE'S CROSS-SLOPE

- DURING PILOT PROJECTS, A RECURRING ERROR IN THE CALIBRATION OF THE MILLING DRUM'S CROSS SLOPE WAS IDENTIFIED AND HAD TO BE CORRECTED.



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LESSONS LEARNED

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REQUIRE 3D SELECTIVE MILLING IN TENDER SPECIFICATIONS:

- FOR REAL PILOT PROJECTS, IT PROVED ESSENTIAL THAT THE TENDER INCLUDES A REQUIREMENT FOR SELECTIVE MILLING.

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esa

EXACT
Passion for precision

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THANK YOU

ING. VITEZSLAV OBR PH.D. (CTO)
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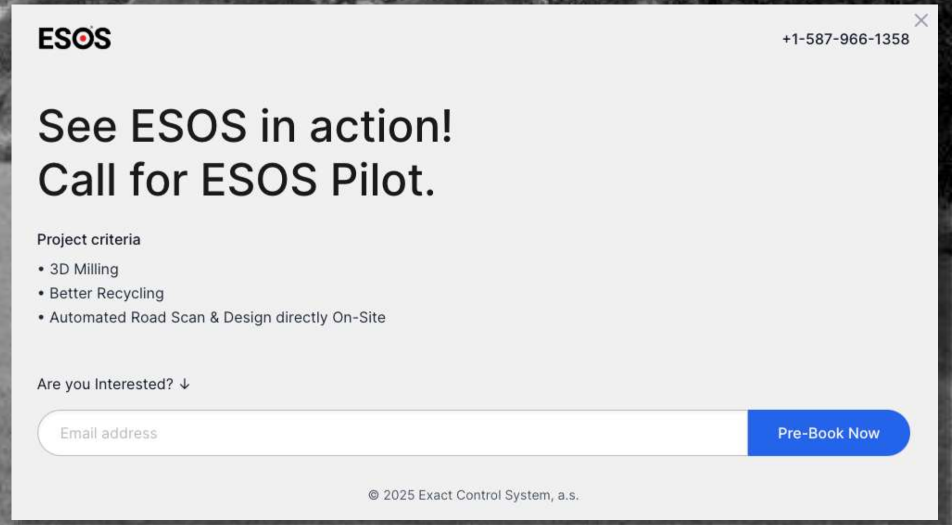
WWW.EXACTSTREET.COM



GREEN ASPHALT 4.0