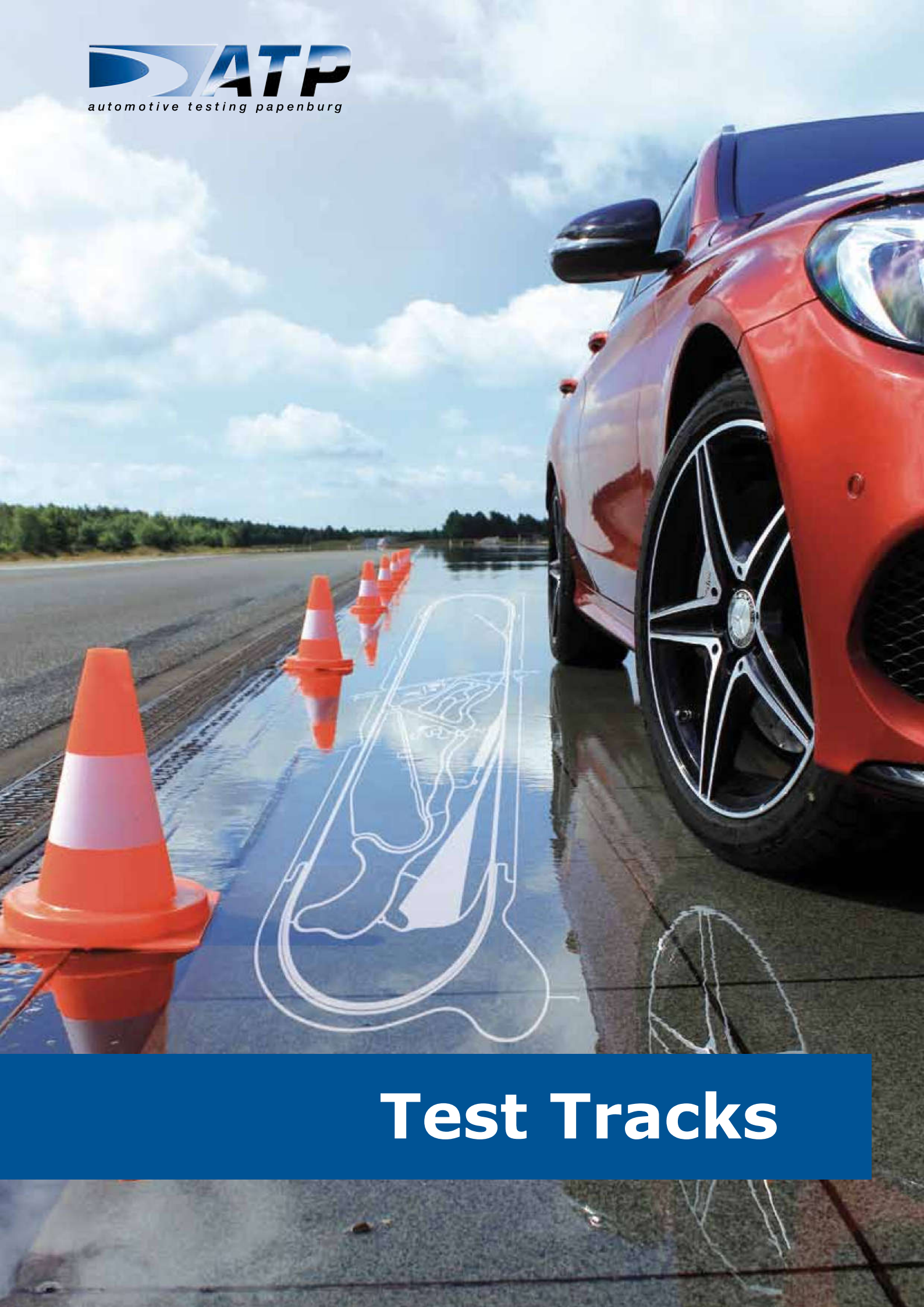
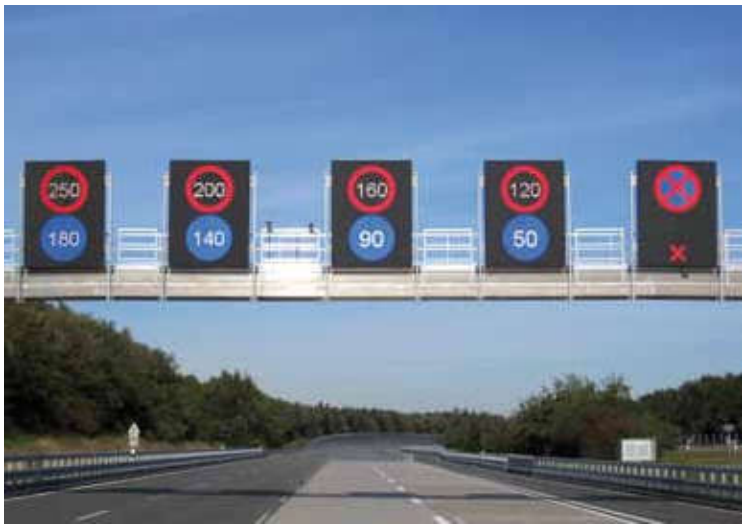
ATP
automotive testing papenburg



Test Tracks


250
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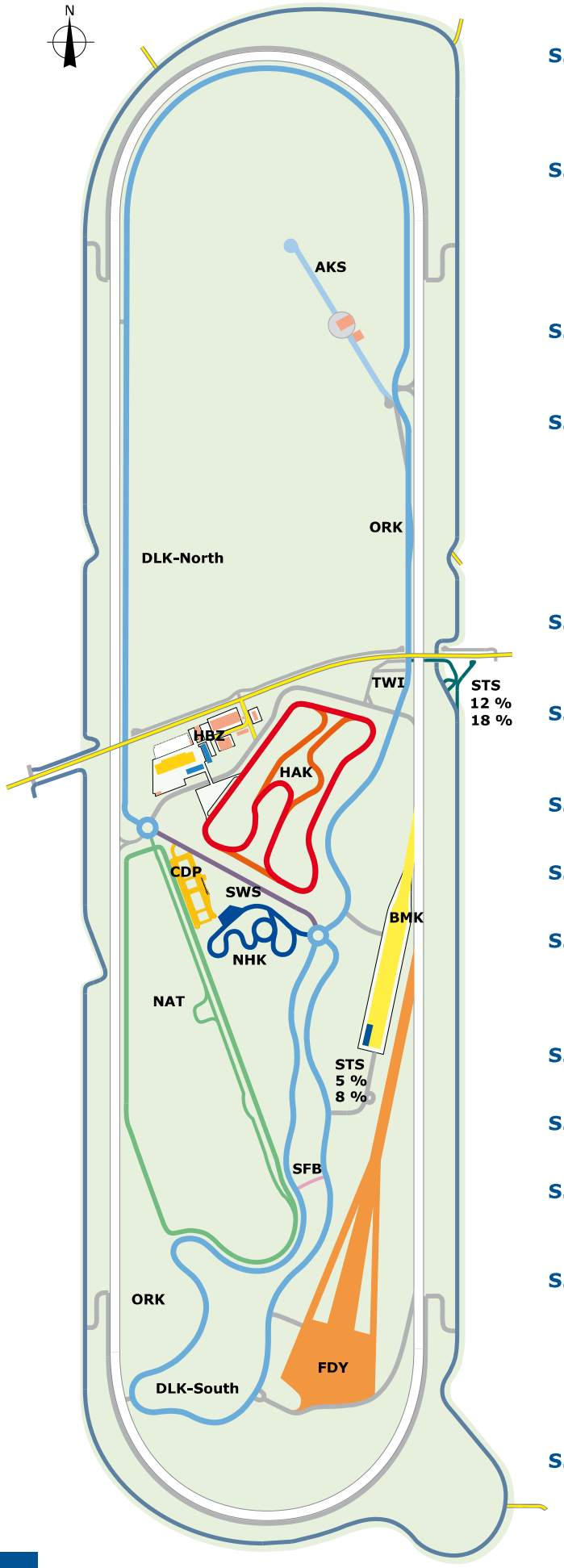
Facility Overview



S. 4 **Administration Area (HBZ)**
Workshops, Test Benches, Administration, Dispatcher, Filling Station, Car Wash, Vehicle Weighing Bridge

S. 5 **High Speed Oval (ORK)**
12.3 km, 4/5 lanes (plus safety lane); Vehicle speeds up to 250 km/h with zero side force; special surface include concrete freeway sections (e.g. FW 710 L.A.),long-wave two way and equal-sided excitation

S. 6 **Vehicle Dynamics Area (FDY)**
300 m diameter circular area with 1.2 km tangential and radial accesses

S. 7 **Braking Tracks (BMK)**
300 m, multi-lane wet surfaces (100 m thereof longitudinal aquaplaning surface) with a 280 m straight access from the high speed oval (Friction Level from 0.13 to 0.90)

Misuse Test Area
Exchangeable track modules

S. 8 **Durability Road North (DLK-North)**
Approx. 12.4 km (incl. Durability Road South) with multiple modules

S. 9 **Durability Road South (DLK-South)**
Approx. 12.4 km (incl. Durability Road North) with multiple modules

S. 10 **Handling Track (HAK)**
2.6 km, reproduction of small Hockenheimring

S. 11 **Wet Handling Track (NHK)**
1.1 km with integrated skid-pad

S. 12 **Acoustic Track (AKS)**
Over 300 m long with measurement areas for cars and trucks (built in accordance with DIN ISO 10844:2014)

S. 13 **Gravel Track (NAT)**
Loose mineral mixture

S. 14 **Hill Sections (STS)**
Gradients of 5 %, 8 %, 12 % and 18 %

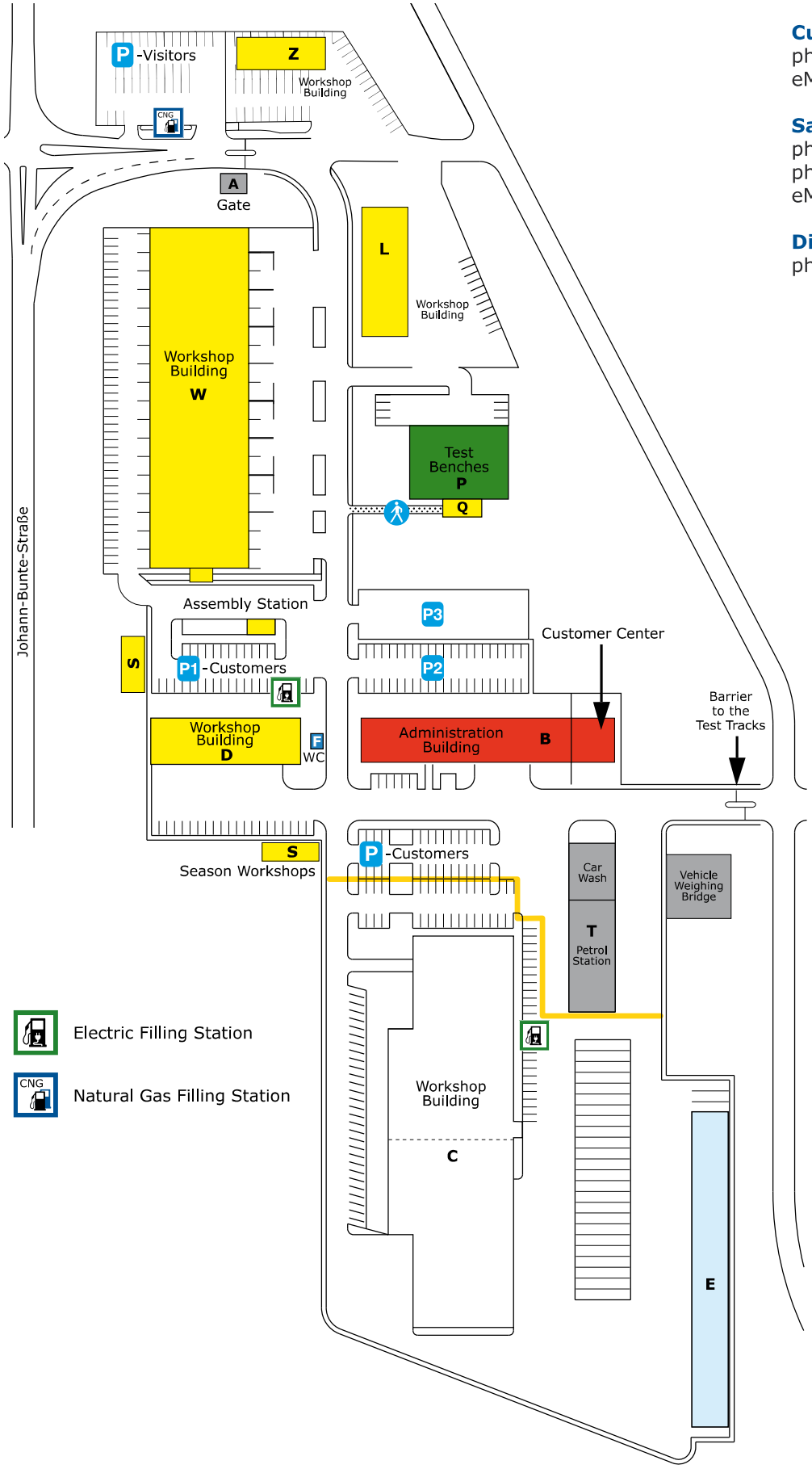
S. 15 **Rough Road (SWS)**
Concrete plate jolts up- and downwards, large stones set in concrete, various pavements

S. 16 **Twist Road (TWI)**
Mutualy offset, sinusoidial road corrugations

Banked Road (SFB)
2 tracks with a length of 75 m each and approx. 4 m wide, angle of inclination transverse to the driving direction 15° and 20°

S. 17 **City Durability Road (CDP)**
Total track length of 443 m, slalom track approx. 250 m, salt water trough with adjustable water level

Administration Area (HBZ)



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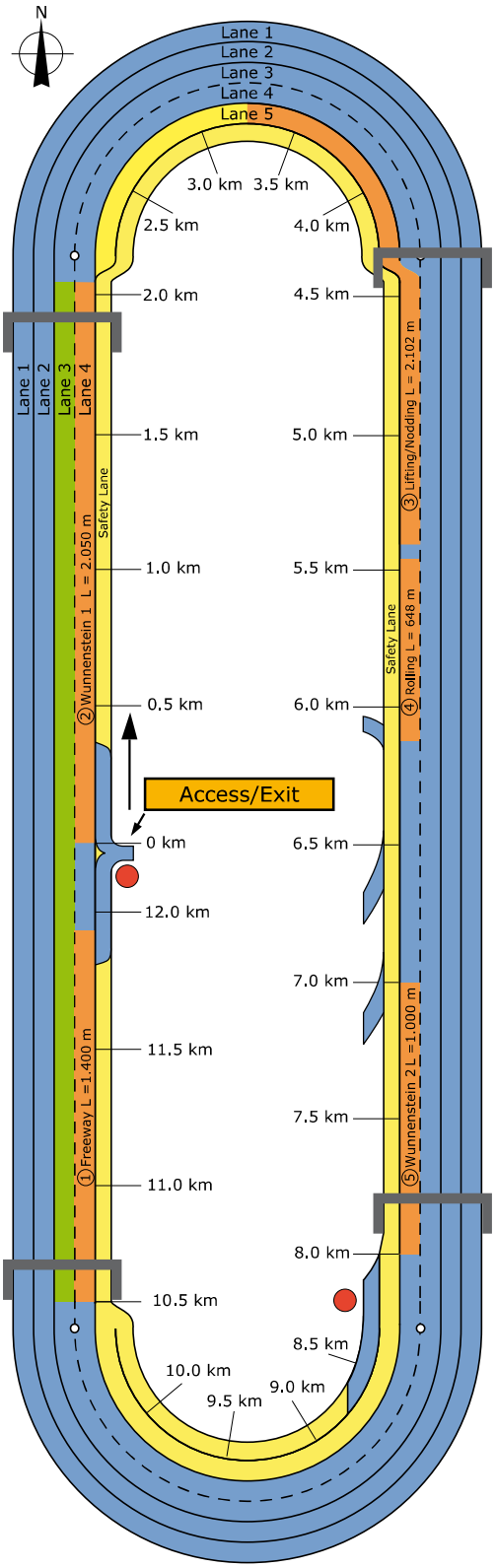
High Speed Oval (ORK)

- High Speed Oval with banked curves up to 49.7°
- Zero side force up to 250 km/h
- Speed sensor in lane 1 and 2

Complete dimensions	Length: 12.3 km
Straight Lanes West/East	Length: each 4.0 km (5 lanes)
Curves North/South	Length: each 2.15 km (6 lanes)



Asphalt
Special Section
Concrete
Roofed Parking Site
Safety Lane
Variable Light Displays

Special elements of the High Speed Oval

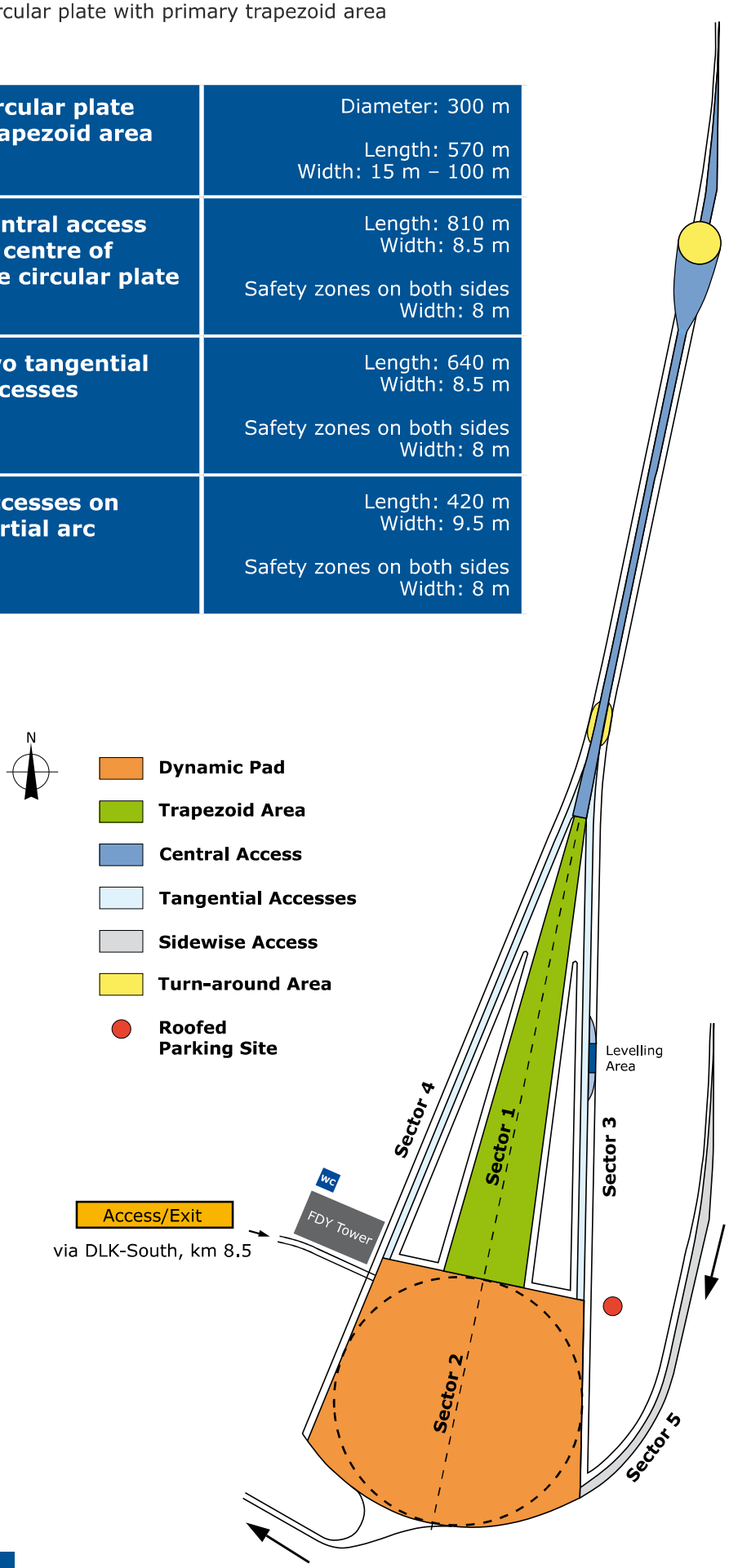
The following modules are integrated:

1. Freeway Design: Concrete	Reproduction of an American highway (FW 710 L.A.) Concrete plates with scouring, concrete plate jolts upwards Straight (one lane) Length: 1.400 m Width: 4 m
2. Wunnenstein 1 Design: Concrete	Reproduction of the state motorway section (A 81 before the Wunnenstein service area as of 1990). Concrete plates with scouring, concrete plate jolts Straight (one lane) Length: 2.050 m Width: 4 m
3. Lifting/Nodding Design: Asphalt	Long-wave equal-sided excitation Curve (one lane) Length: 1.100 m Width: 4 m Straight (one lane) Length: 1.000 m Width: 4 m
4. Rolling Design: Asphalt	Long-wave two way excitation Straight (one lane) Length: 648 m Width: 4 m
5. Wunnenstein 2 Design: Asphalt	Reproduction of the state motorway section (A 81 behind Wunnenstein service area as of 1990). Short-wave periodic rolling condition Straight (one lane) Length: 1.000 m Width: 4 m

Vehicle Dynamics Area (FDY)

- Circular plate with primary trapezoid area

Circular plate Trapezoid area	Diameter: 300 m Length: 570 m Width: 15 m – 100 m
Central access to centre of the circular plate	Length: 810 m Width: 8.5 m Safety zones on both sides Width: 8 m
two tangential accesses	Length: 640 m Width: 8.5 m Safety zones on both sides Width: 8 m
Accesses on partial arc	Length: 420 m Width: 9.5 m Safety zones on both sides Width: 8 m

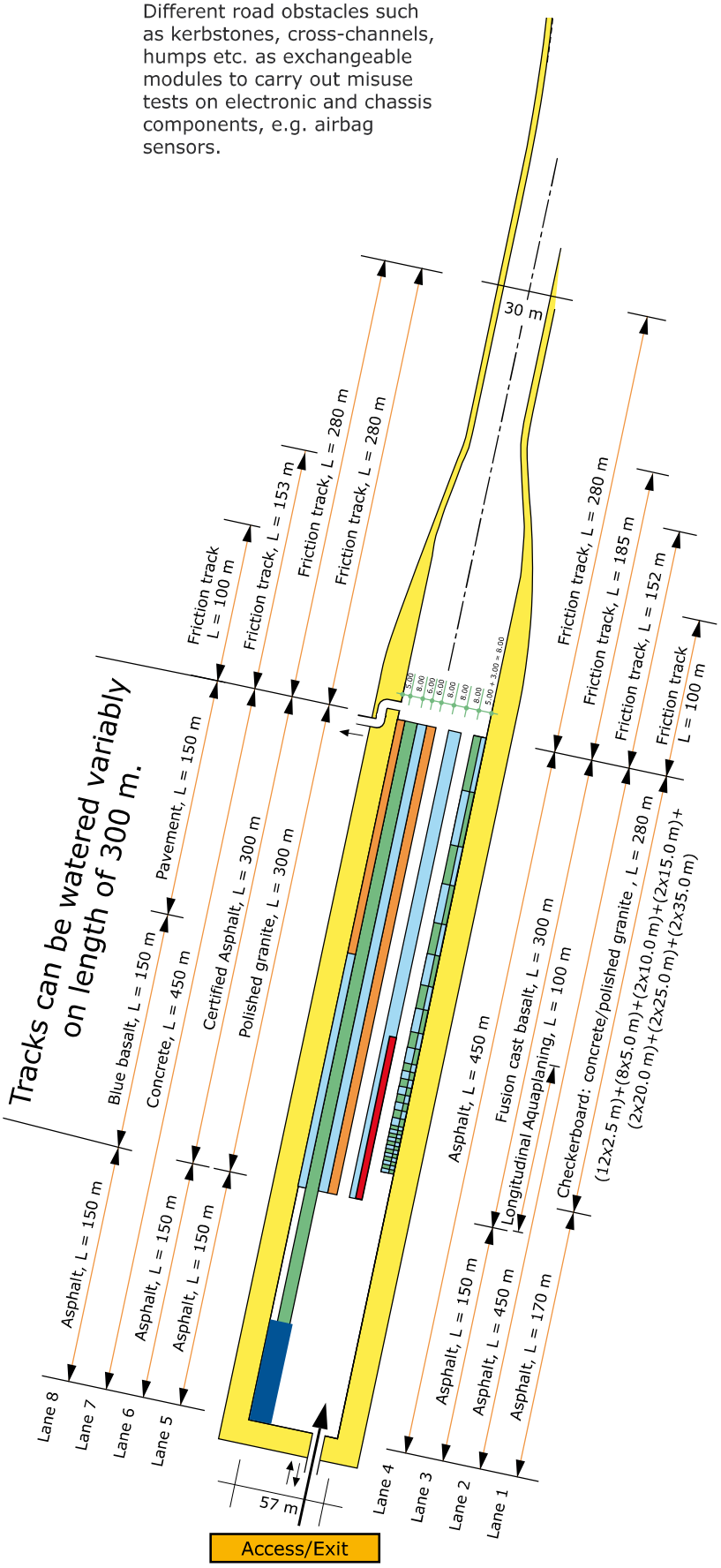


Braking Tracks (BMK)

- Braking tracks for cars and trucks

Misuse Test Area

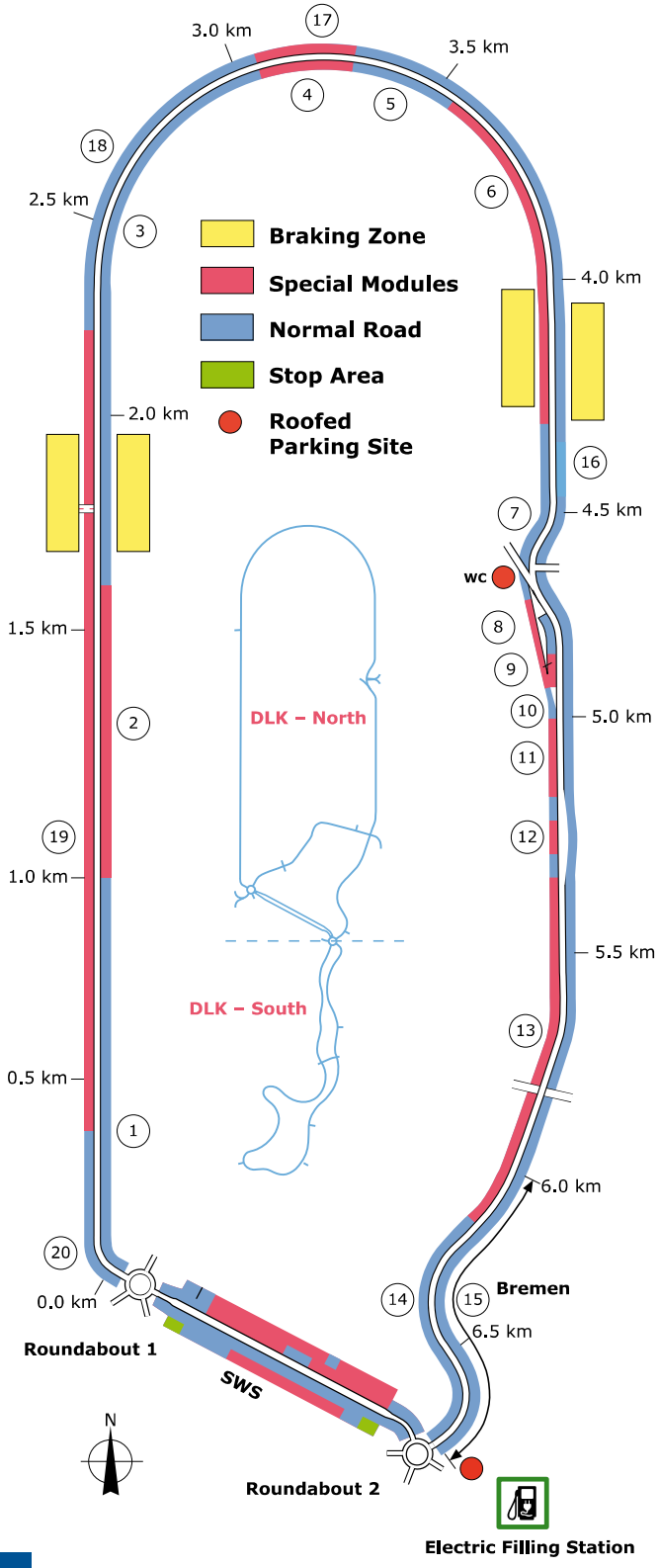
Different road obstacles such as kerbstones, cross-channels, humps etc. as exchangeable modules to carry out misuse tests on electronic and chassis components, e.g. airbag sensors.



Lane	Surface	Length	Width
1	Checkerboard Polished granite/concrete	280 m	8 m
	Asphalt	170 m	8 m
2	Asphalt according to ASTM Directive such as ECE R117 or ISO 23671	450 m	8 m
	includes longitudinal aquaplaning surface	100 m	
3	Fusion cast basalt Temporarily construction testing with different surfaces	300 m	8 m
	Asphalt	150 m	8 m
4	Asphalt	450 m	8 m
5	Polished granite	300 m	6 m
	Asphalt	150 m	6 m
6	Asphalt according to ASTM Directive such as ECE R117 or ISO 23671	300 m	6 m
	Asphalt	150 m	6 m
7	Concrete	450 m	8 m
8	Pavement	150 m	5 m
	Blue basalt	150 m	5 m
	Asphalt	150 m	5 m

Durability Road North (DLK-North)

- Track with a total length of 12.4 km
- Division in DLK-North (6.9 km), DLK-South (4.8 km) and SWS (0.7 km)
- Various special modules



Inner lane: Sequence in clockwise driving direction from roundabout 1

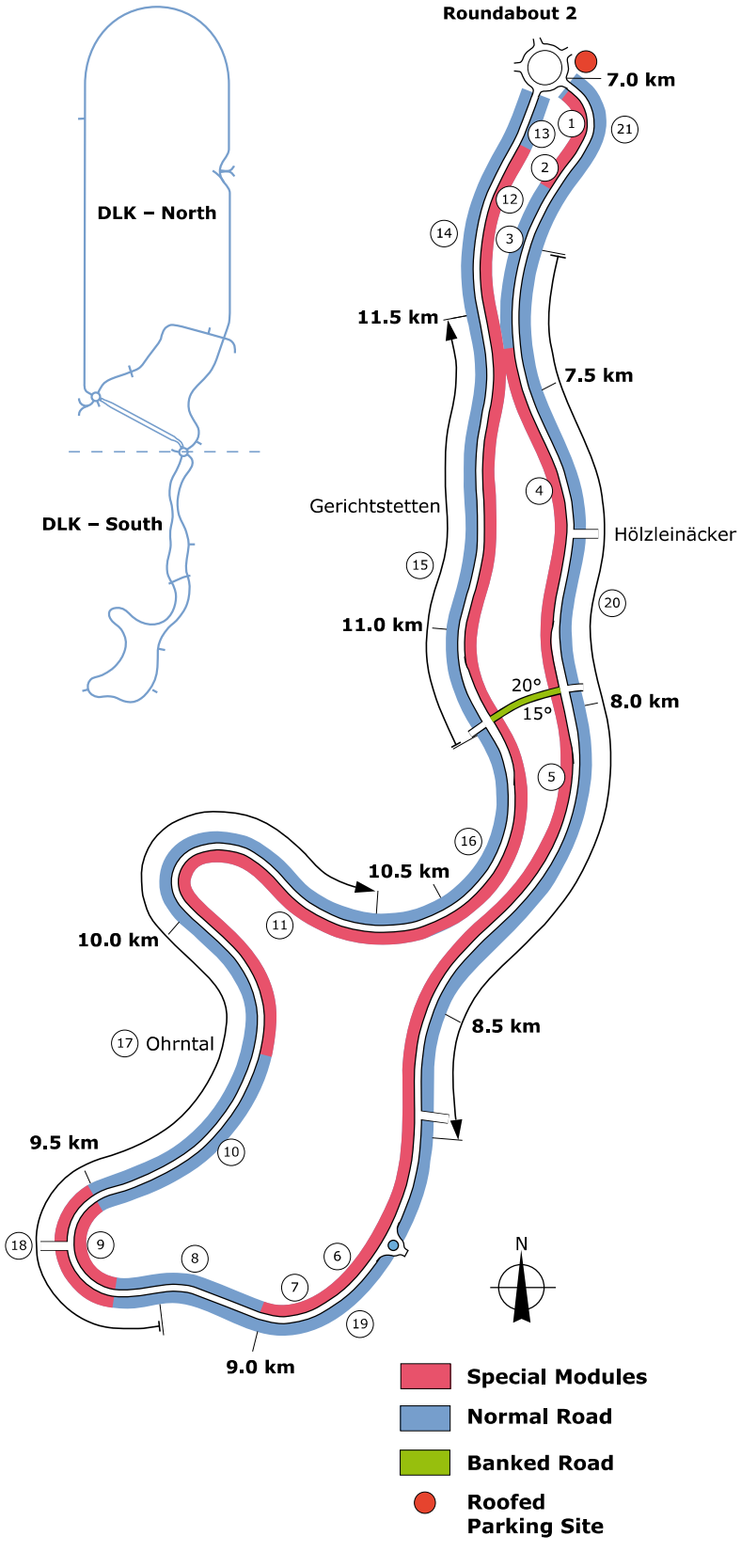
Module	Specification	Length
1	Normal road	975 m
2	Cross fall change	663 m
3	Normal road	1.397 m
4	Steering shock	188 m
5	Normal road	273 m
6	Long-wave single modules	750 m
7	Normal road	660 m
8	Bypass' free wheeling	179 m
9	Moch hollow	34 m
10	Normal road	56 m
11	Short amplitude, alternating long-wave excitation	239 m
12	Hilltop	85 m
13	Short amplitude, alternating long-wave excitation	935 m
14	Normal road	614 m

Outer lane: Sequence in counter clockwise driving direction from roundabout 2

Module	Specification	Length
15	Bremen	774 m
16	Normal road	3.828 m
17	Steering shock	188 m
18	Normal road	795 m
19	Grooves	1.869 m
20	Normal road	372 m

Durability Road South (DLK-South)

- Track with a total length of 12.4 km
- Division in DLK-North (6.9 km), DLK-South (4.8 km) and SWS (0.7 km)
- Various special modules
- One-way street (clockwise)



Inner lane: Sequence in clockwise driving direction from roundabout 2

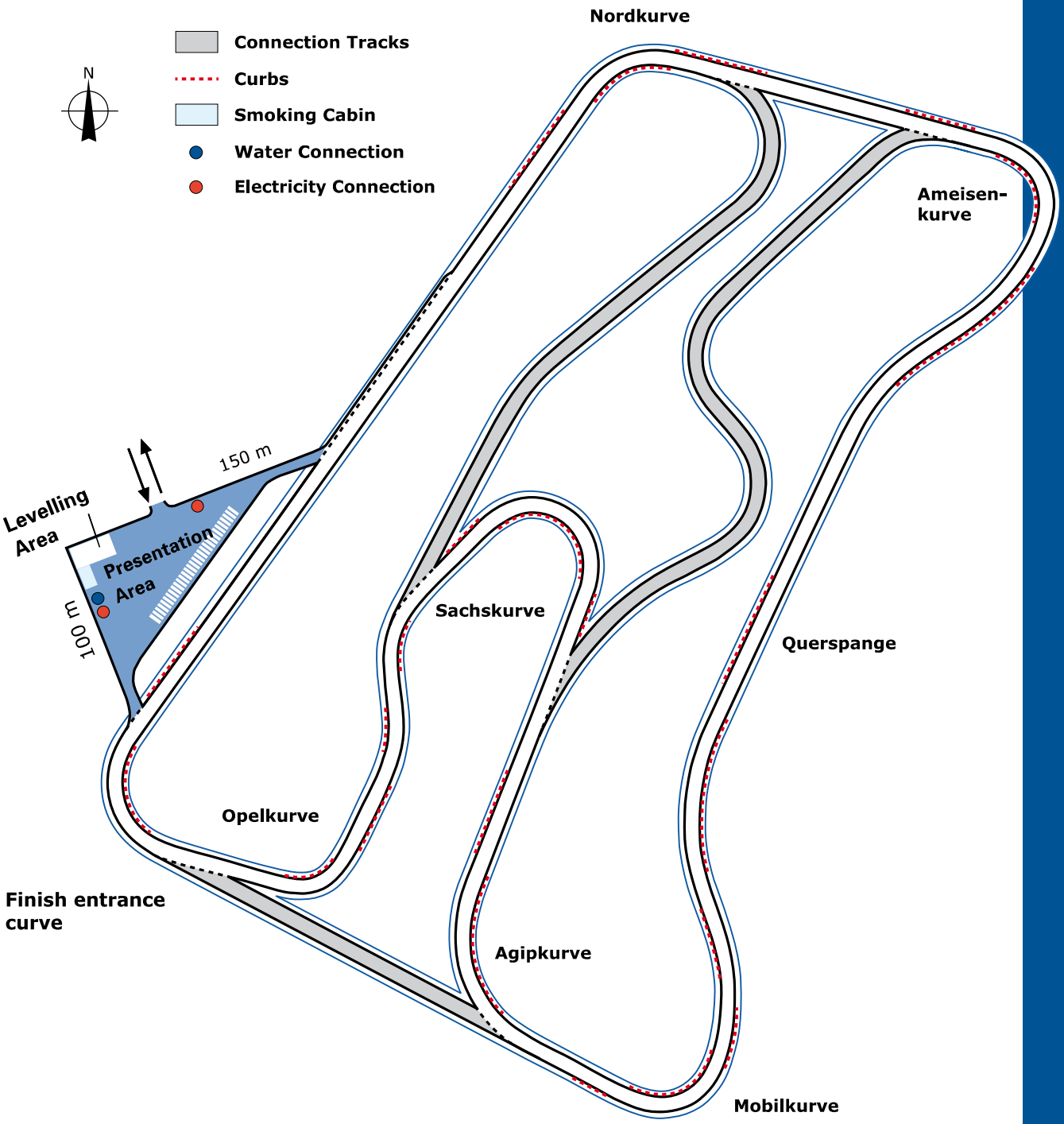
Module	Specification	Length
1	Manhole covers and cross joints	107 m
2	Single obstacles	50 m
3	Normal road	253 m
4	Aichtal, alternately	200 m
5	Aichtal	1.173 m
6	Eislingen	200 m
7	Manhole covers and cross joints	93 m
8	Normal road	216 m
9	Steering shock	185 m
10	Normal road	394 m
11	Aichtal	1.871 m
12	Brake-Hop	36 m
13	Normal road	74 m

Outer lane: Sequence in counter clockwise driving direction from roundabout 2

Module	Specification	Length
14	Normal road	361 m
15	Gerichtstetten	599 m
16	Normal road	564 m
17	Ohrntal	1.084 m
18	Steering shock	185 m
19	Normal road	629 m
20	Hölzleinäcker	1.429 m
21	Normal road	186 m

Handling Track (HAK)

- Reproduction of the small Hockenheimring
- Length 2.6 km and width 10 m
- Dividable in two separate tracks
- Driving direction clockwise



Wet Handling Track (NHK)

- Length 1.1 km
- Integrated skid-pad (40 m radius)
- Short-time workshop with storage facility
- Programm-controlled irrigation (with various switch settings)

N

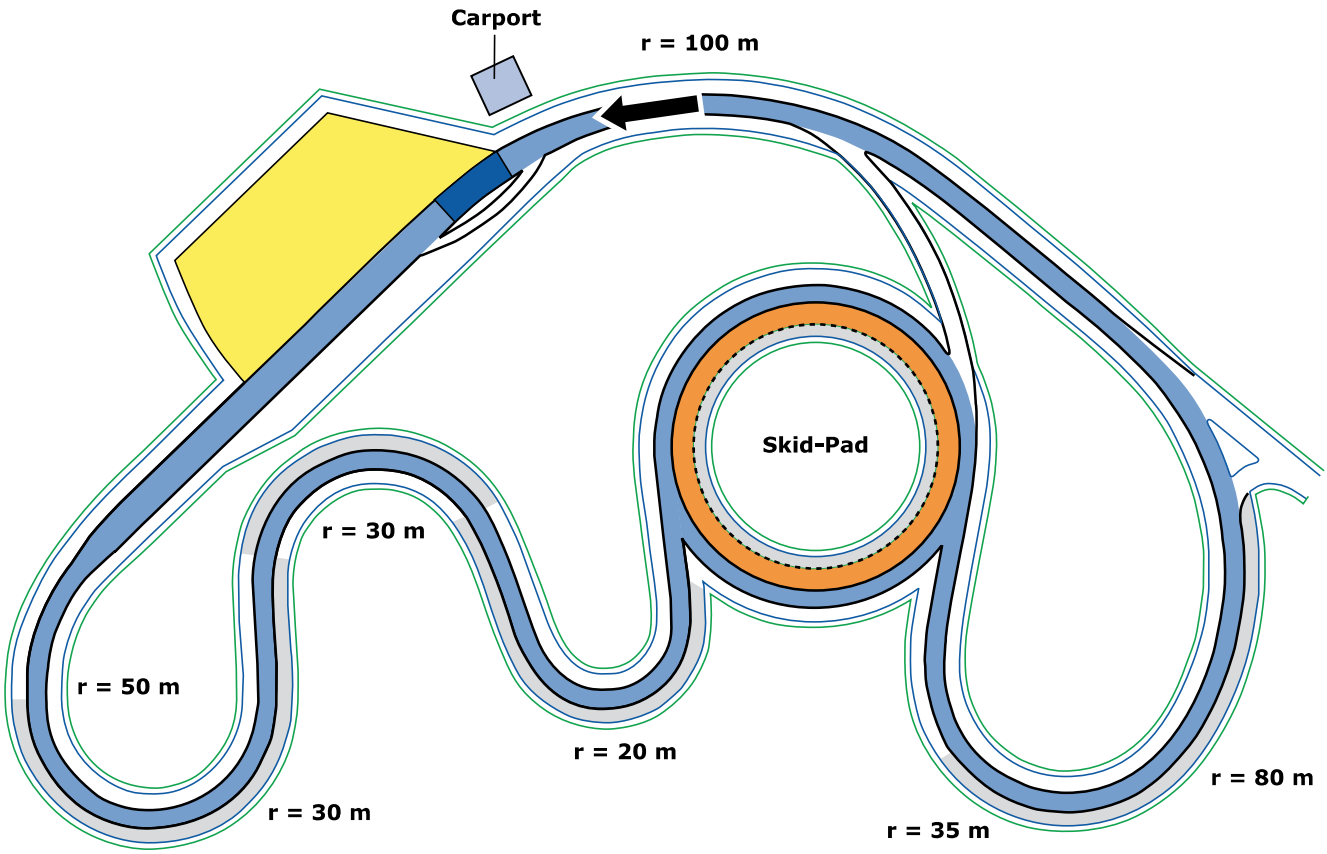
- **Blue Basalt**
- **Transverse Aquaplaning**
- **Interception Area**
- **Sequences can be watered**
- **Asphalted Run-out Area**

Wet handling/Transverse aquaplaning with integrated skid-pad

Total length	1.1 km
Lane width	5.0 m

Dimensions of skid-pad

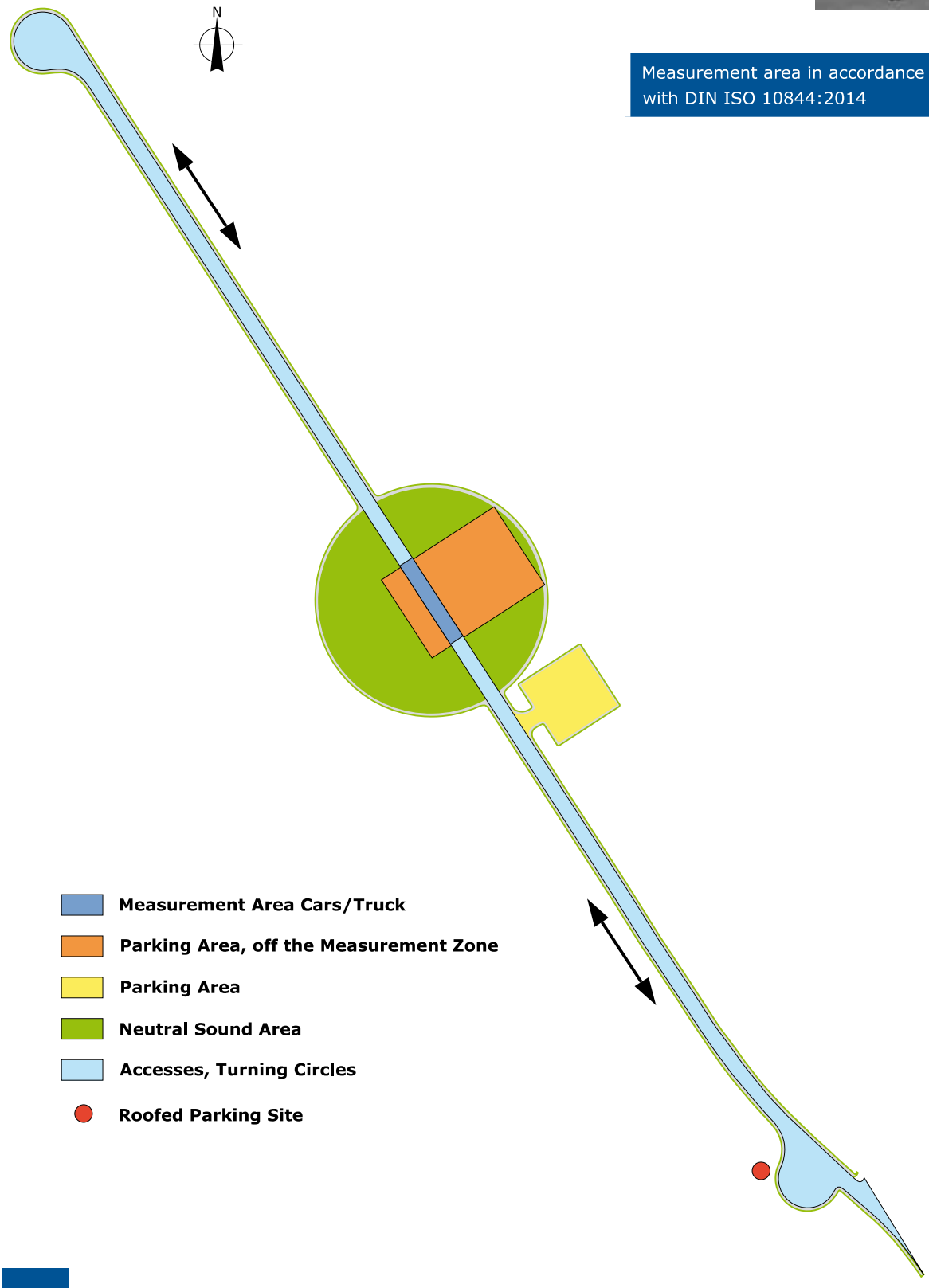
Asphalt	r = 40 m
Blue basalt	r = 35 m
Lane width	each 5 m



Acoustic Track (AKS)

- Separate lanes for cars and trucks
- Length 300 m
- External noise measurements for accelerated passing in accordance with DIN ISO 362, ECE R51 and tire rolling noise measurement acc. to ECE R117

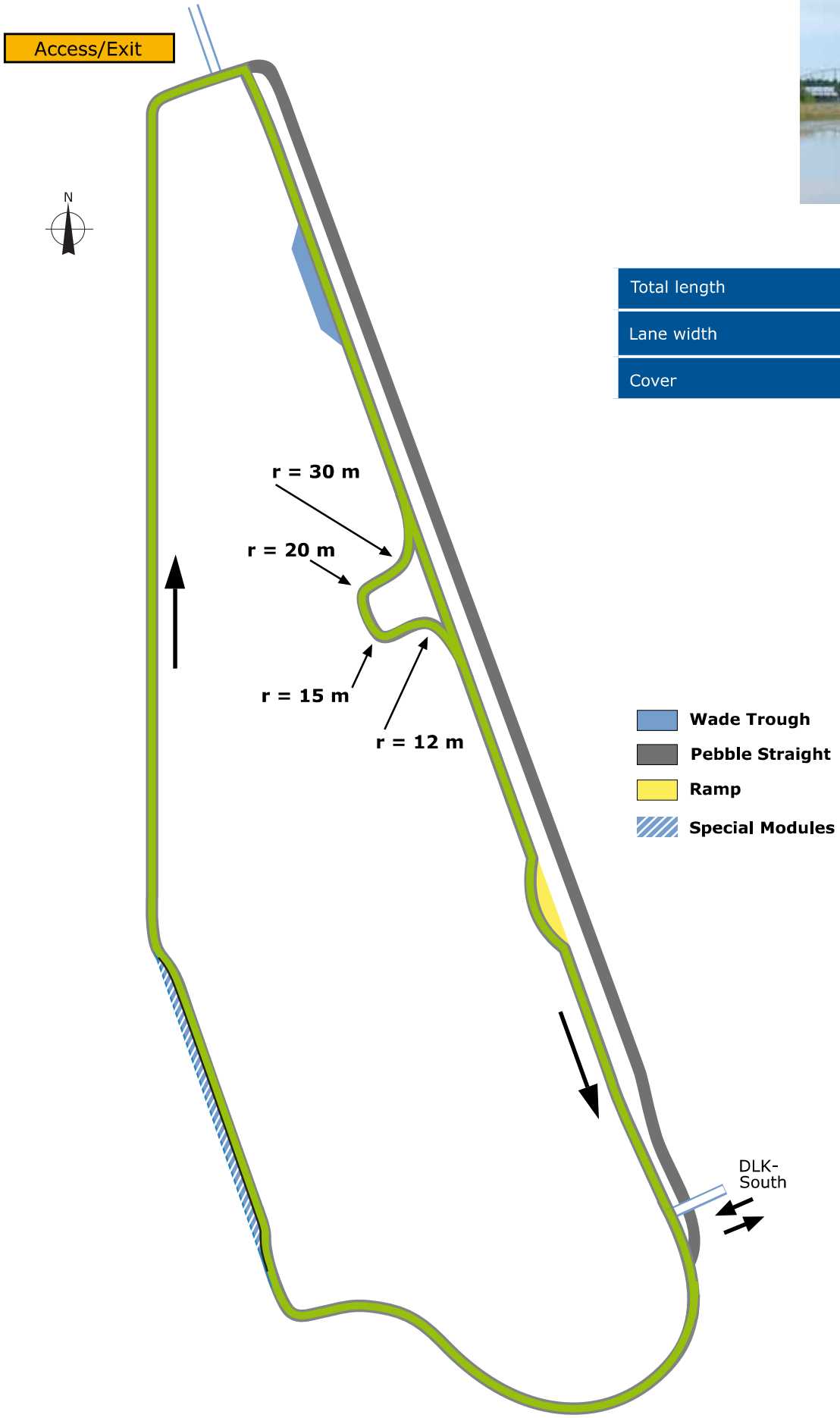
Measurement area in accordance with DIN ISO 10844:2014	Length: 40 m Width: 3.5 m



Gravel Track (NAT)

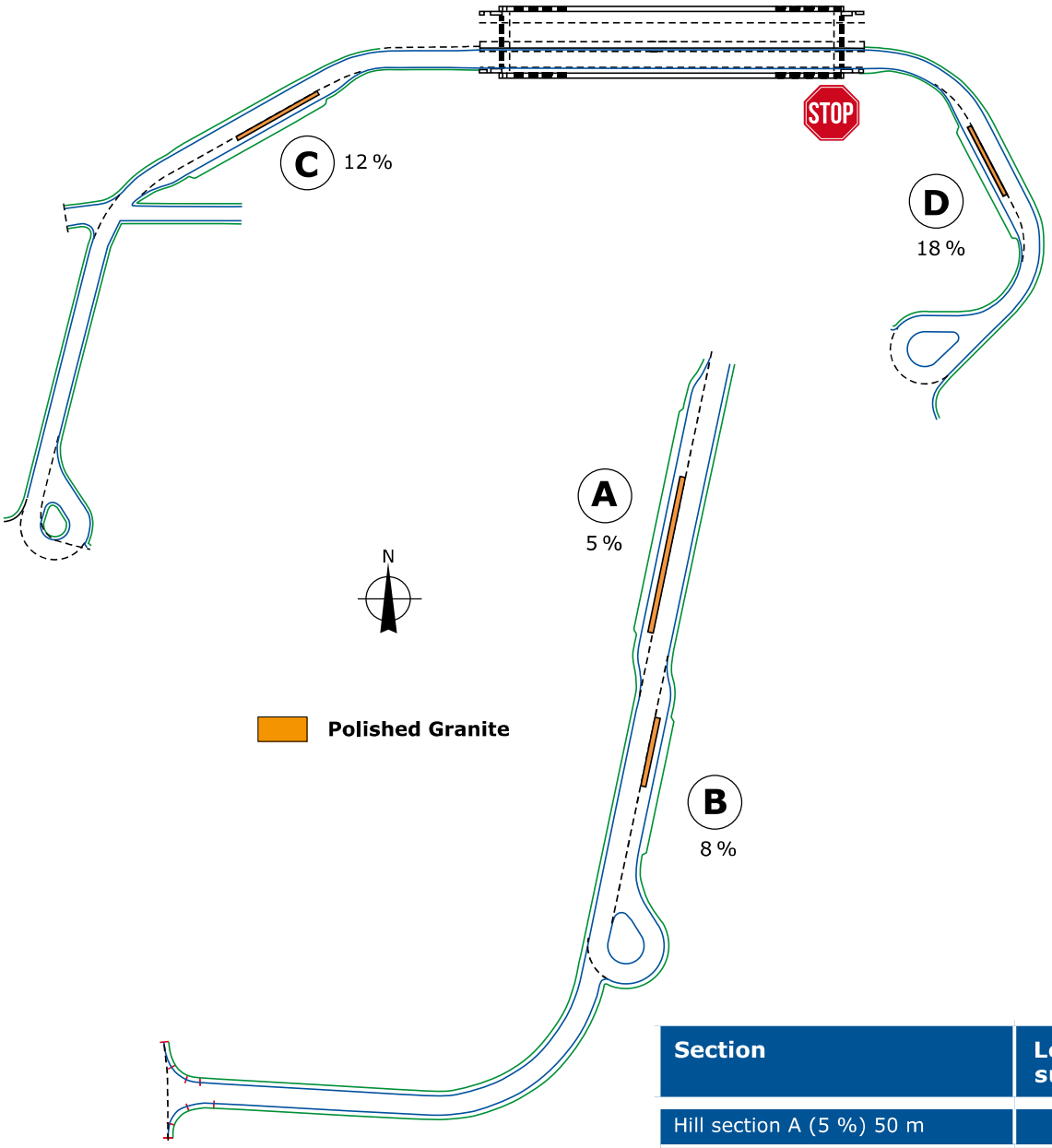
- Loose mineral mixture

Total length	Approx. 3.7 km
Lane width	4 m
Cover	mineral mixture



Hill Sections (STS)

- 4 Sections with 5 % (A), 8 % (B), 12 % (C) and 18 % (D)
- Special surface: Polished Granite - can be irrigated



Section	Length special surface
Hill section A (5 %) 50 m	50 m
Hill section B (8 %) 22 m	22 m
Lane width for both sections	6 m

Section	Length special surface
Hill section C (12 %)	32 m
Hill section D (18 %)	27 m
Lane width for both sections	5.5 m

Rough Road (SWS)

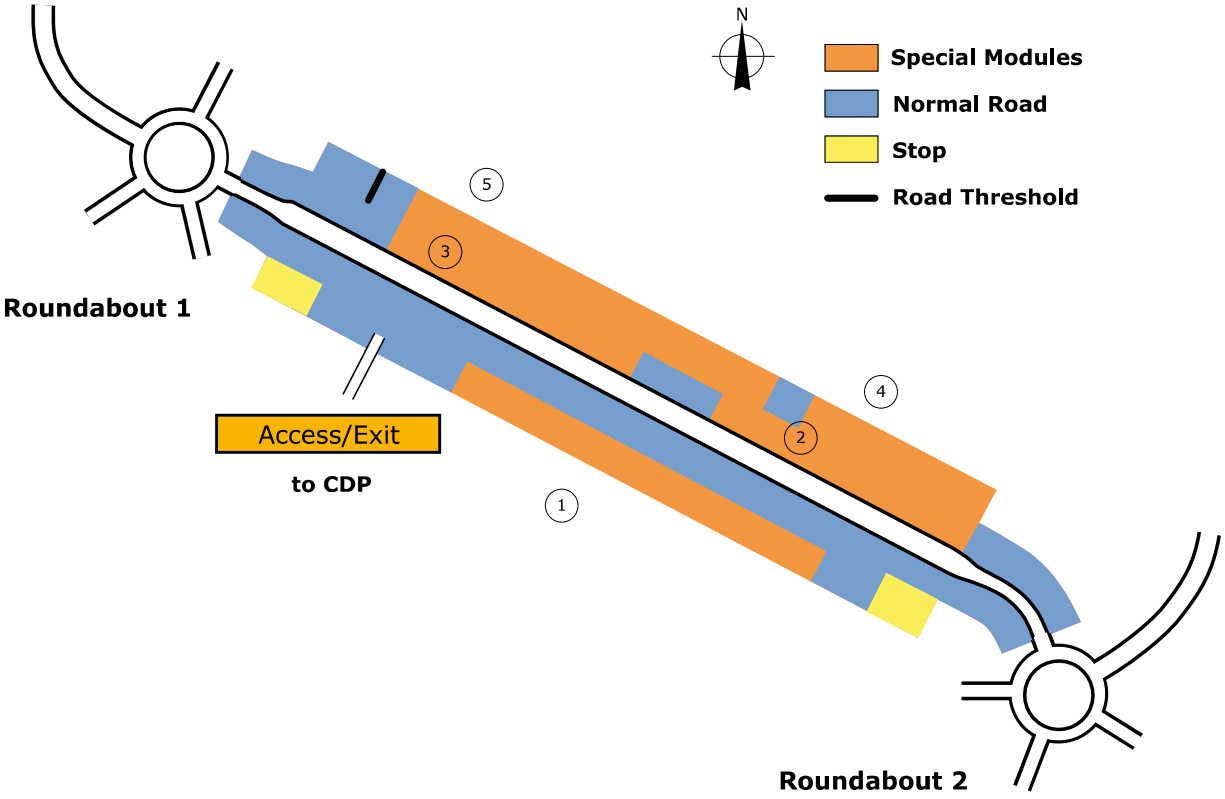
- Various surface modules

Left lane: direction from roundabout 2 to roundabout 1

Module	Specification	Length
	Inside: Normal road	703 m
1	Outside: Normal road	75 m
	Large stones set in concrete	300 m
	Normal road	175 m

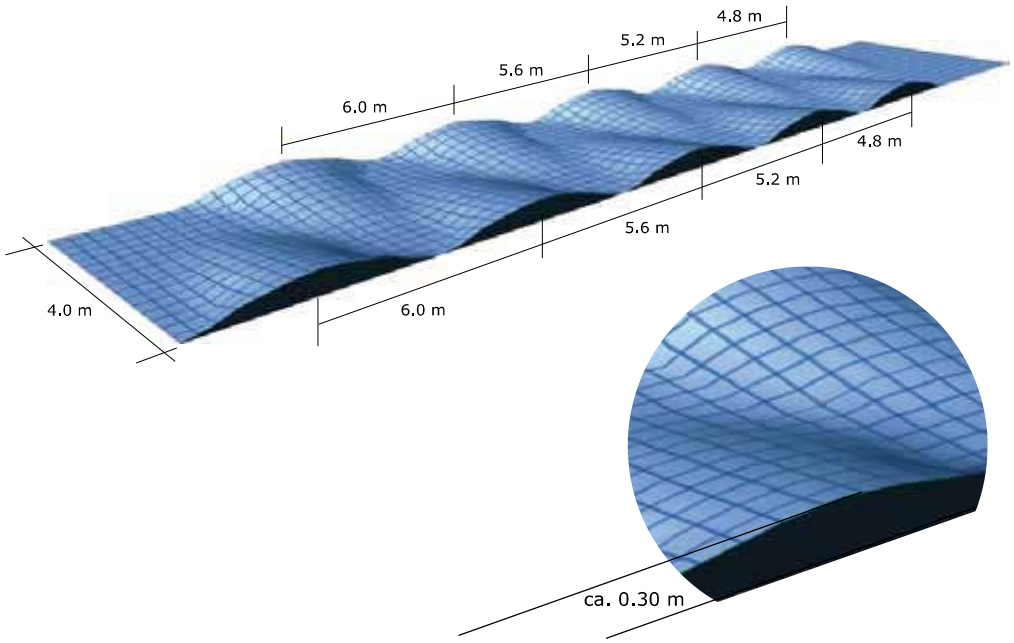
Right lane: direction from roundabout 2 to roundabout 1

Module	Specification	Length
	Normal road	97 m
2	Inside: Concrete plate jolts downwards	195 m
	Normal road	85 m
3	Concrete plate jolts upwards	195 m
	Normal road	131 m
4	Outside: Small set pavement	150 m
	Normal road	25 m
5	Pavement	300 m
	Normal road	75 m



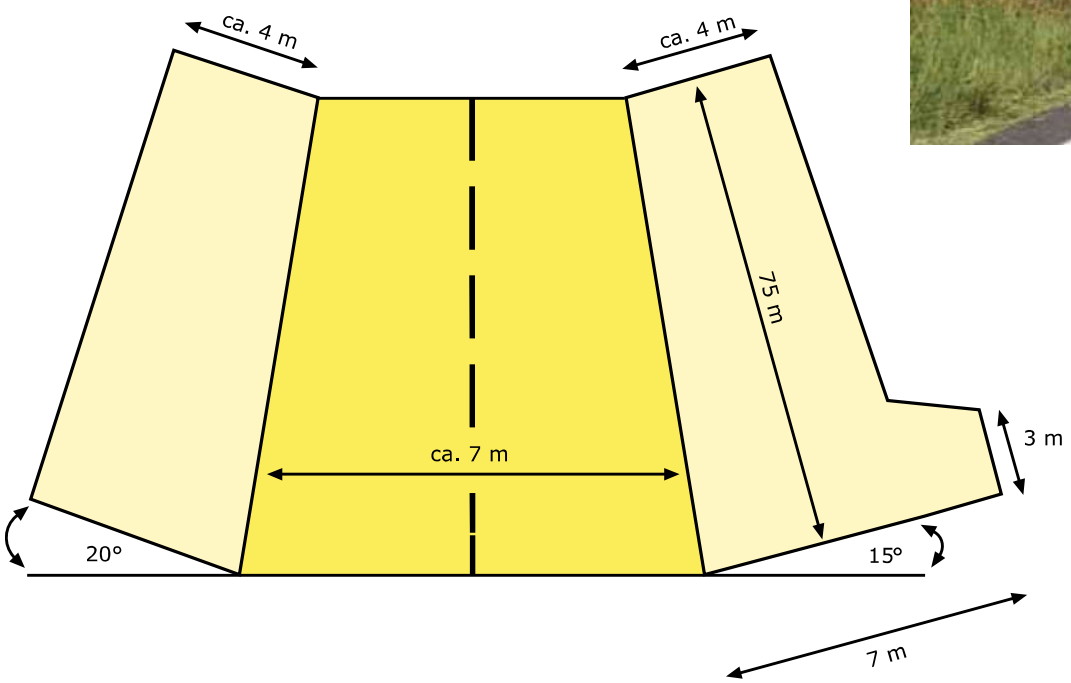
Twist Road (TWI)

- Mutally offset, sinusoidal road corrugations for body, chassis and overall vehicle testing



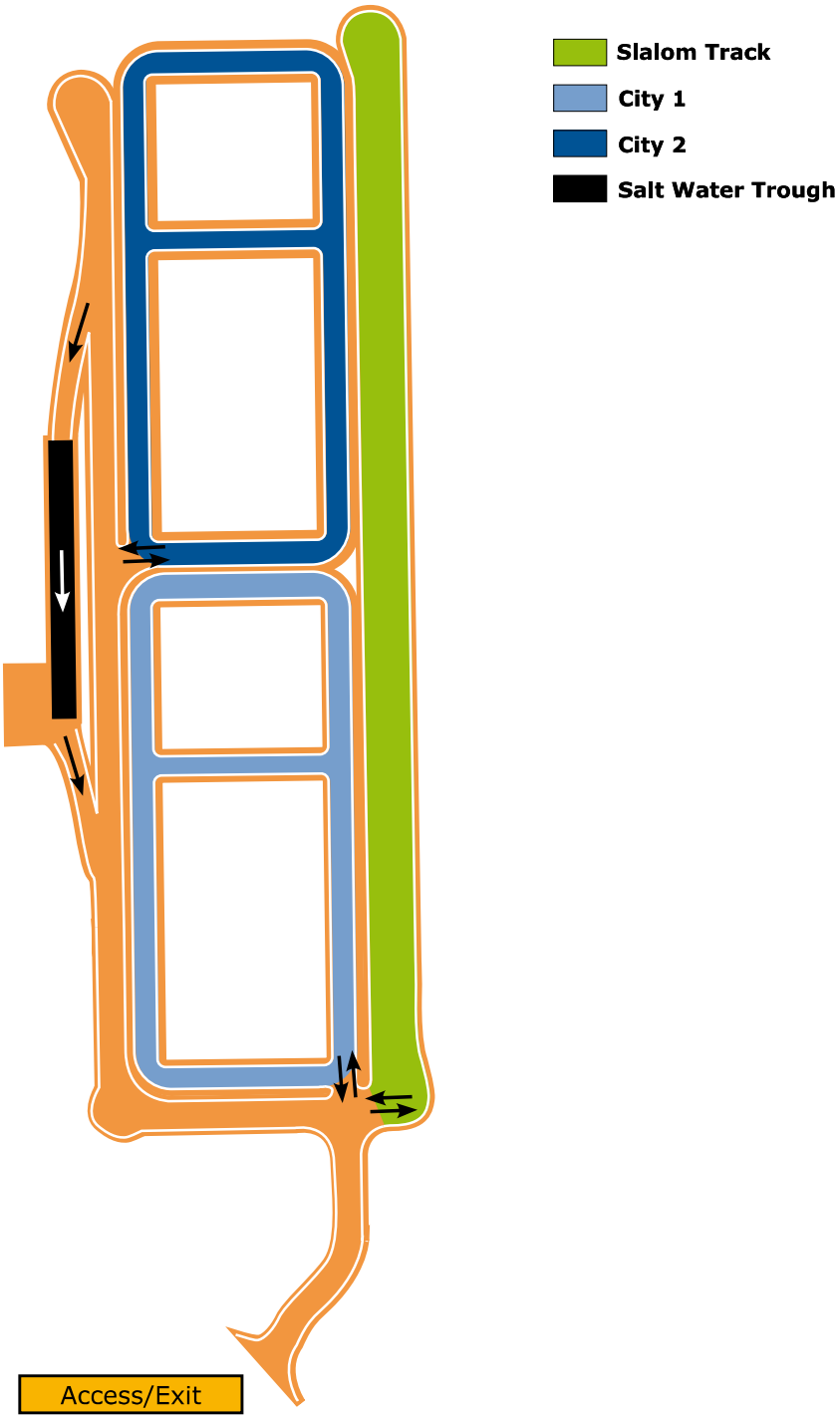
Banked Road (SFB)

- Two roadways with a length of 75 m each and width of approx. 4 m with an angle of inclination diagonal to the driving direction of 15° = 26,8 % and 20° = 36,4 % for body, chassis and overall vehicle testing.



City Durability Road (CDP)

- City 1 and City 2 have a total track length of 443 m
- Slalom Track with a functional length of about 250 m
- Salt water trough with individually adjustable water level



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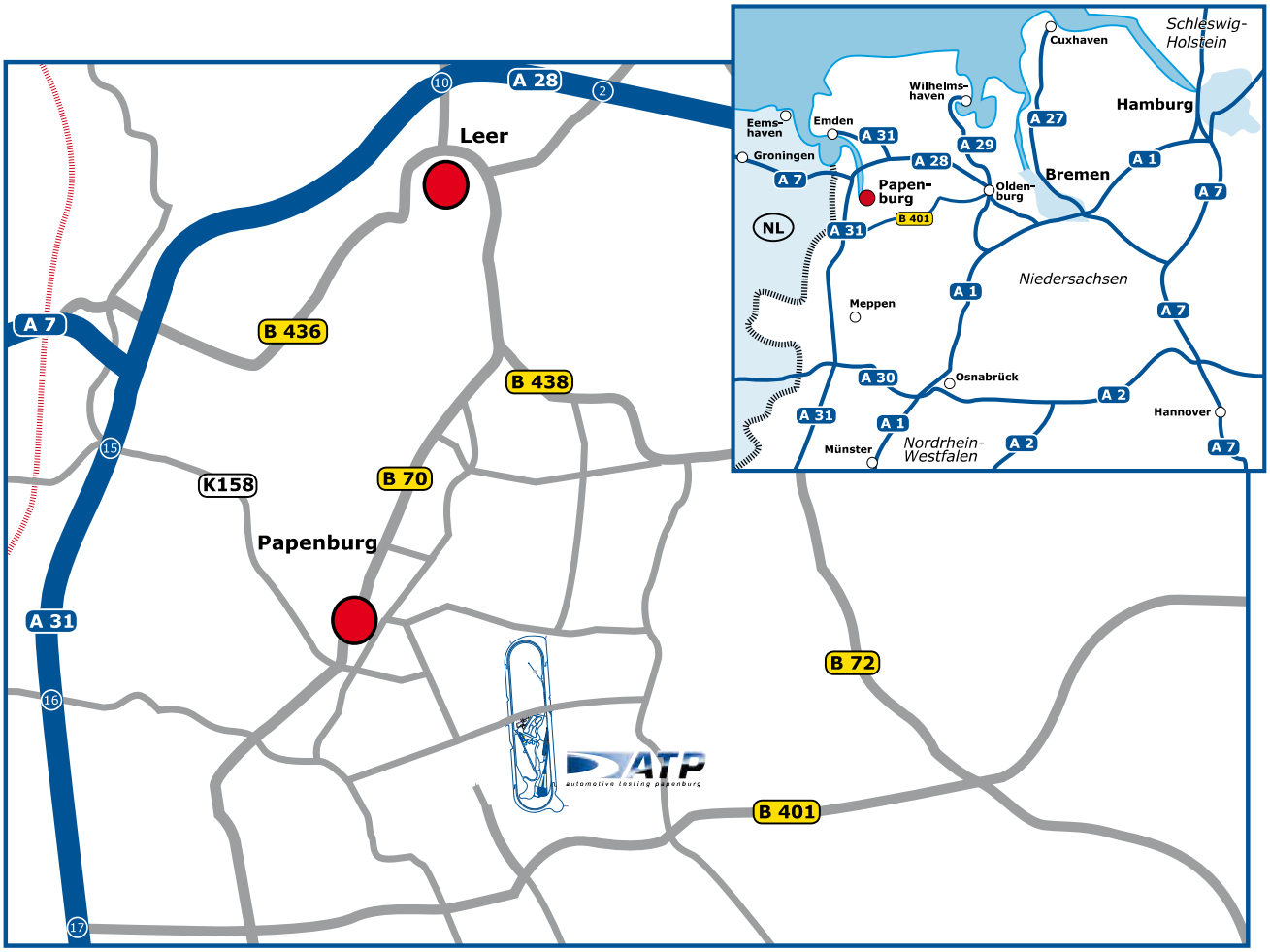

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