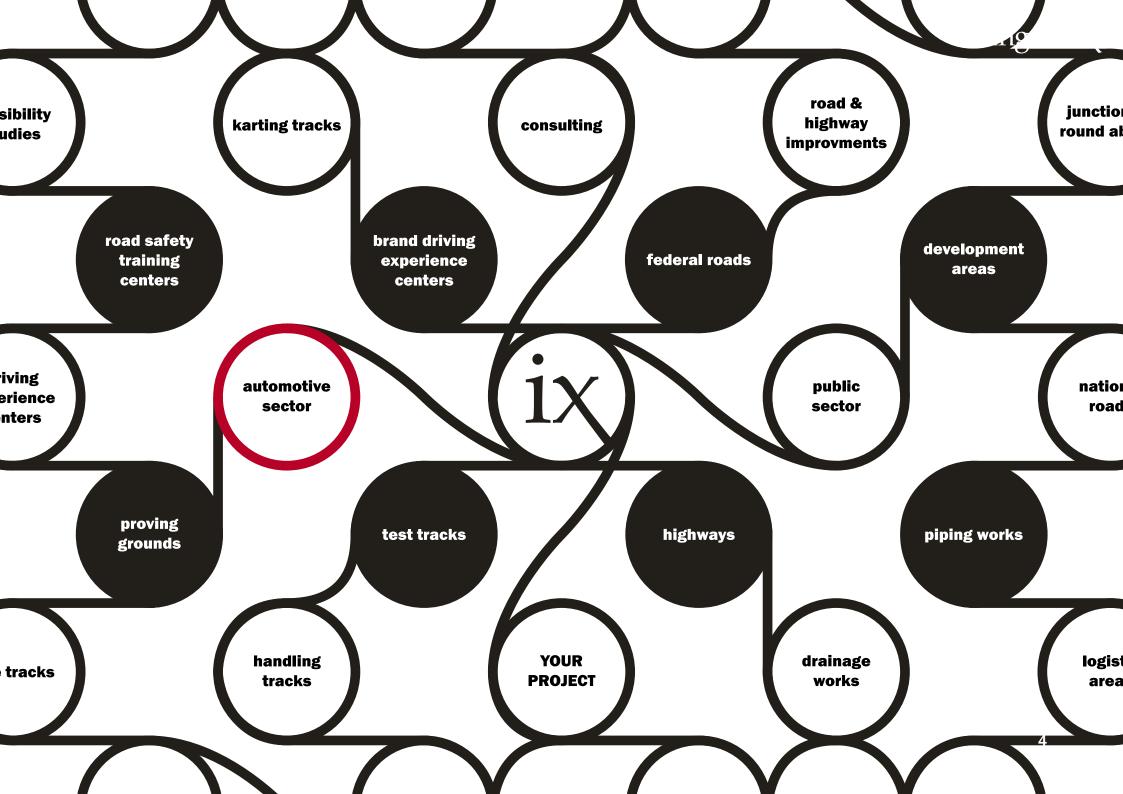
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01 Company profile







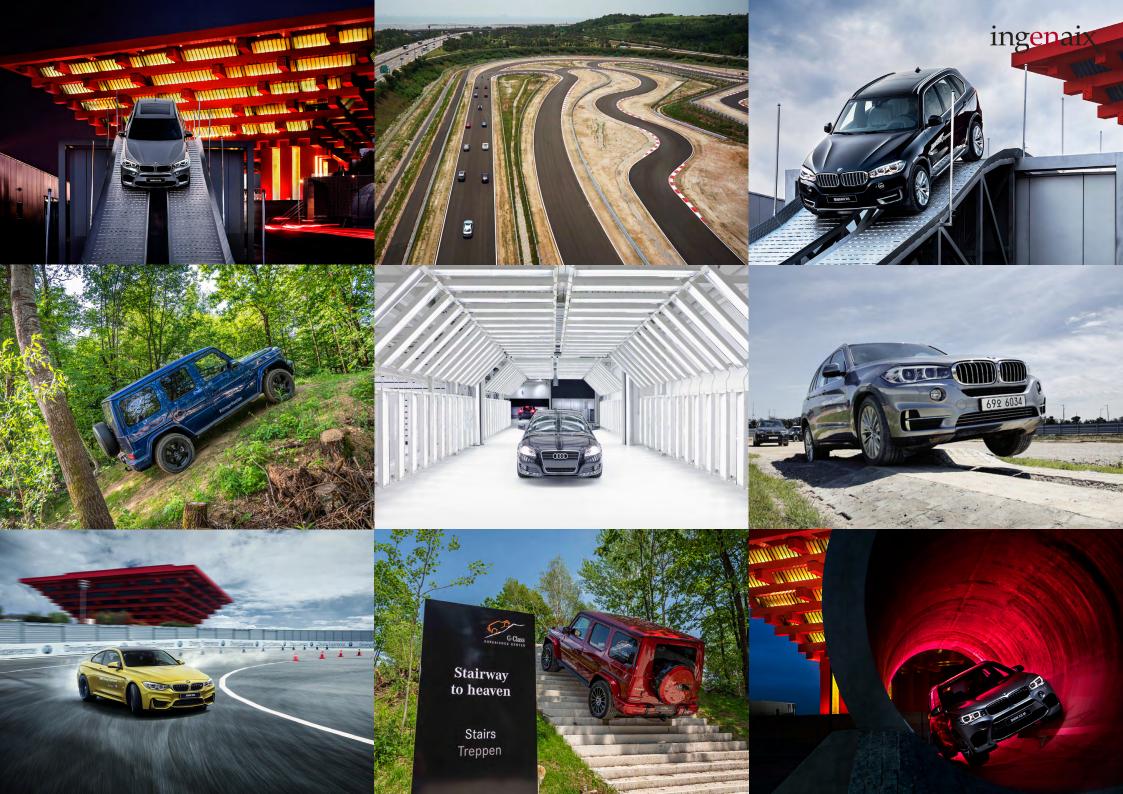
Ingenaix Civil Engineers from Aachen

Ingenaix is acting as an independent, national and international active engineering office with focus on designing, engineering and realizing complex civil construction projects. We support both automotive investors and public clients.

Being independent from any product and supplier interests we seek for the appreciation of our profession and Ingenaix engineers leading to longlasting successful development of our company.

We act focused on behalf of our clients and optimize our processes of quality management to deliver the requested services.

Throughout all engineering services Ingenaix feels responsible for our clients needs in regards to quality, time schedule and budget!







Emotional road engineering

As a competent planning partner Ingenaix will bring your automotive project from the first sketches to inauguration.

WE FOCUS OUR ENGINEERING KEY COMPETENCES ON THE FOLLOWING PROJECT TYPES:

- ✓ RSTC road safety training centers
- ✓ DEC brand Driving Experience Centers
- industrial used test tracks and proving grounds
- ✓ race circuits and handling tracks
- ✓ incl. related technical equipment
- ✓ incl. related project management

We offer interdisciplinary consulting and engineering know how throughout all civil works and technical equipment providing you with the services of the following engineering phases:

A Project development

- ✓ feasibility study
- concept studies for entire project or parts thereof
- ✓ economic feasibility study
- ✓ development of construction phases

B Design and engineering

- project basics
- ✓ schematic design
- ✓ detailed and construction design
- construction application
- preparation of tender documents and bidding
- ✓ planning in existing infrastructure
- site supervision and site superintendence

C Value Engineering

Partnering with Ingenaix will generate various beneficial effects for your project
 it would be a pleasure for us to convince you personally!





We accept the client's responsibilities in the areas of:

- organization, communication and documentation
- ✓ qualities and quantities
- costs and financing schedule
- time schedules, processing and coordination
- ✓ risk management

We consider the project management to be an essential part of the project administration to reach the desired goals to the satisfaction of all involved parties. At Ingenaix steering a project means considering all facts – plan, current status and goals – in the decision making process.

Technical Consulting by Ingenaix!

- ✓ earth works
- road construction
- civil works
- ✓ related technical equipment

Ingenaix performs an individual analysis of your specific inquiry. We provide a detailed decision basis and generate a sustainable decision making process - to avoid cost and time intensive mistakes.

Ingenaix provides second opinion analysis of third party planning and engineering services with focus to meet the user needs as well as the time and budget requirements. Further we take over the civil engineering quality management.

Independent consultancy by Ingenaix means more confidence and reliable decisions.

With joined forces we lead your project to success!



02 Our Team







03 Projects







G-Class Experience Center, Graz, Austria

Concept and layout, engineering and realization of the premium and challenging Mercedes-Benz G-Class Experience Center

ENGINEERING SERVICES

 General planning and engineering services for all dynamic project elements (engineering, application and permissions, tendering, supervision)

KEY FACTS

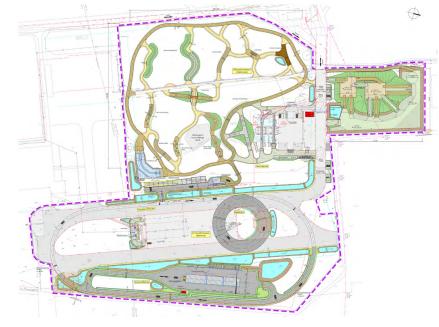
✓ Offroad modules: tree trunk bridge, wooden seesaw, mud dive, artificial lake "submerge", cross slope, twist axle track, inclination hill, ast gravel track, inclination hill and gravel tracks, 2 steal bridge ramps, inclination from 45-100%, height up to 10 m, stairway to heaven 60-100%, inclination hill, height up to 13 m with app. 30.000 m³, including 12 different ramps, 30-80% with challenging track surfaces

GOAL

"stronger than time"

CLIENT

Mercedes-Benz G GmbH





Photos: Ingenaix, Daimler AG / André Tillmann







"CERMcity" urban test enviroment at ATC Aldenhoven, Aachen

"CERMcity" urban test environment at ATC Aldenhoven, Germany. Turn key planning for road construction. Engineering services and technical equipment (all engineering stages incl. site supervision).

SERVICES

- development and engineering of a flexible urban testing environment considering design criteria acc.
- EURO NCAP as well as user requirements of highly diverse user types (OEMs and suppliers)

KEY FACTS

- ✓ project area app. 5ha
- ✓ asphalt area app. 18.000m²
- ✓ flexible walls for urban sceneries
- supply and distribution network for electricity and IT
- ✓ 5G mobile data environment

GOAL

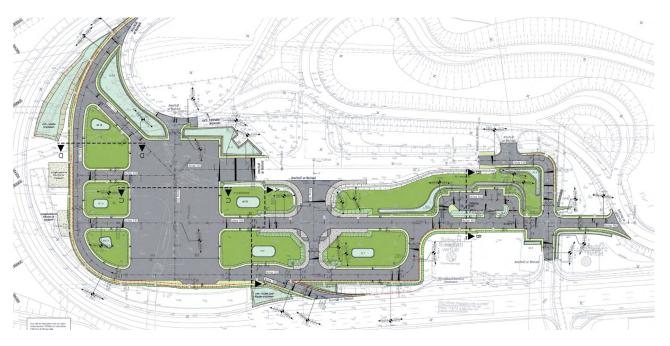
be prepared for future testing requirements

CLIENT

RWTH Aachen

Photos: Ingenaix, ATC Aldenhoven, RWTH

Aachen











Kyalami Grand Prix Circuit, South Africa

CIVIL ENGINEERING AND CONSULTING SERVICES, ACCORDING TO FIA REGULATIONS

- ✓ modification of the track layout
- ✓ extension of the start-finish straight
- ✓ run off area engineering and layout
- Kyalami circuit safety measures according to FIA regulations
- ✓ new underpass for infield accessibility
- civil consulting services during construction period

KEY FACTS

- 4 new turn geometries "Crowthorne", "Jukskei", "Barbeque Corner" and "Crocodiles"
- adoption of app. 40% of the existing Kyalami circuit
- ✓ new set up of all safety measures
- complete new pavement of Kyalami circuit

GOAL

Polish the uncut diamond

CLIENT

Porsche South Africa

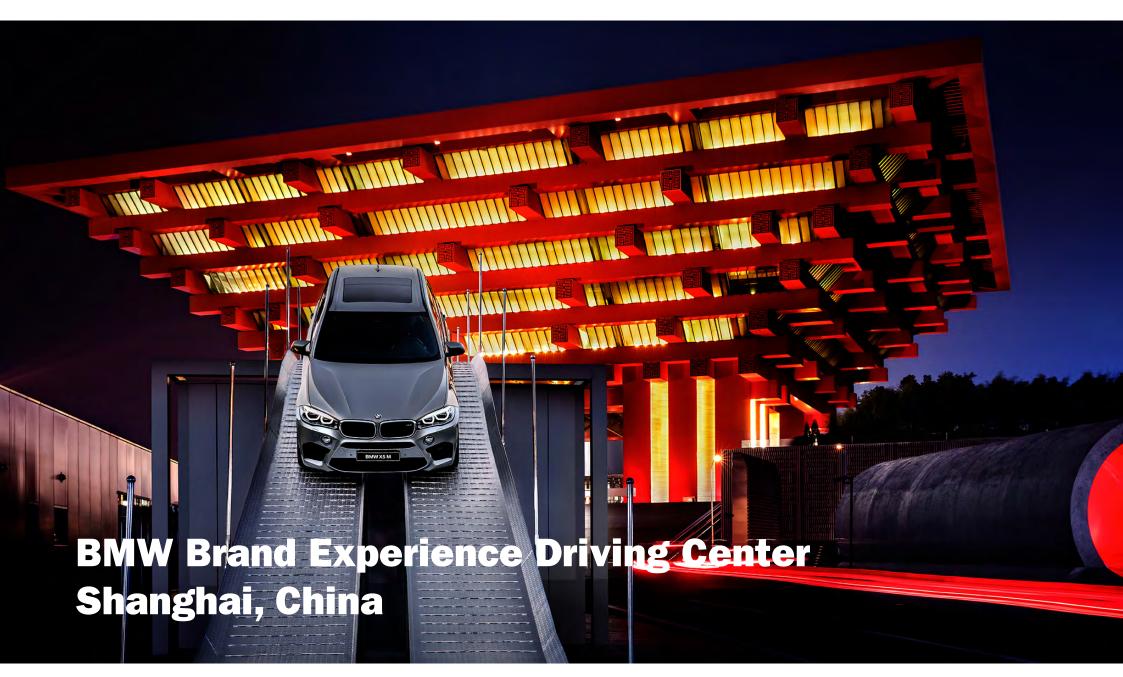
















2016

BMW Brand Experience Driving Center Shanghai, China

Turn key planning of the Brand Experience Driving Center (BEDC)

KEY FACTS

- ✓ 20.000 m² asphalt area as a multifunctional dynamic area
- ✓ sectional irrigated with 84 sprinkler
- ✓ 6 off-road modules
- ✓ pumping station

GOAL

- ✓ short construction time
- design and construction in existing contexts

CLIENT

BMW Brilliance Automotive Itd., Shenyang





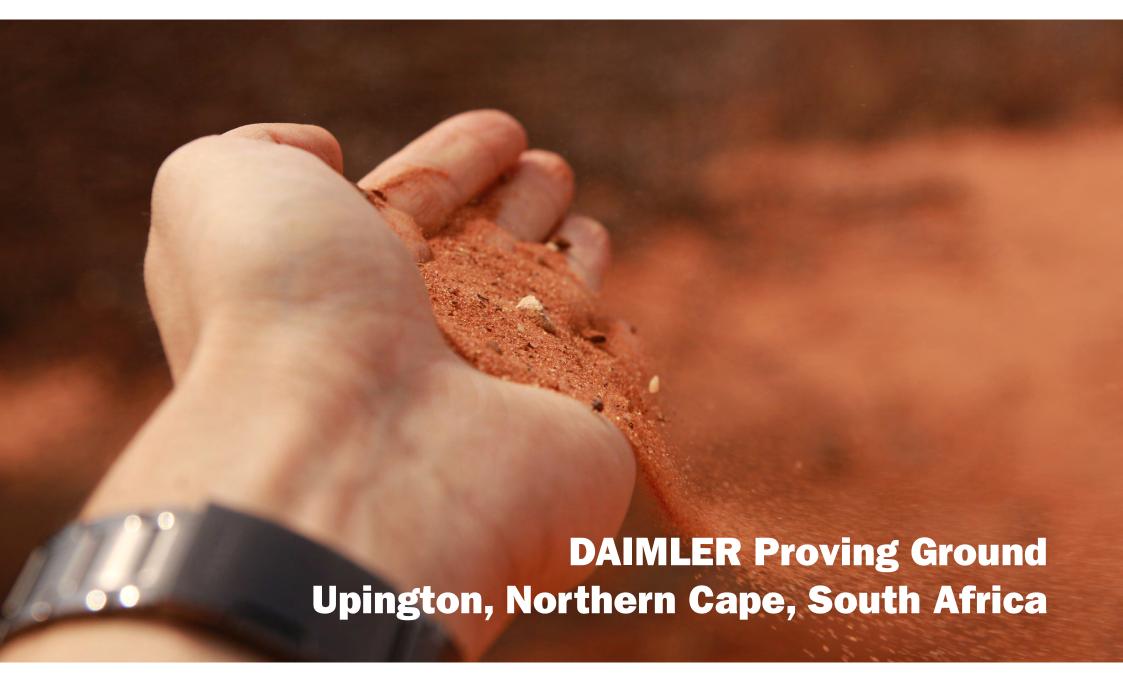


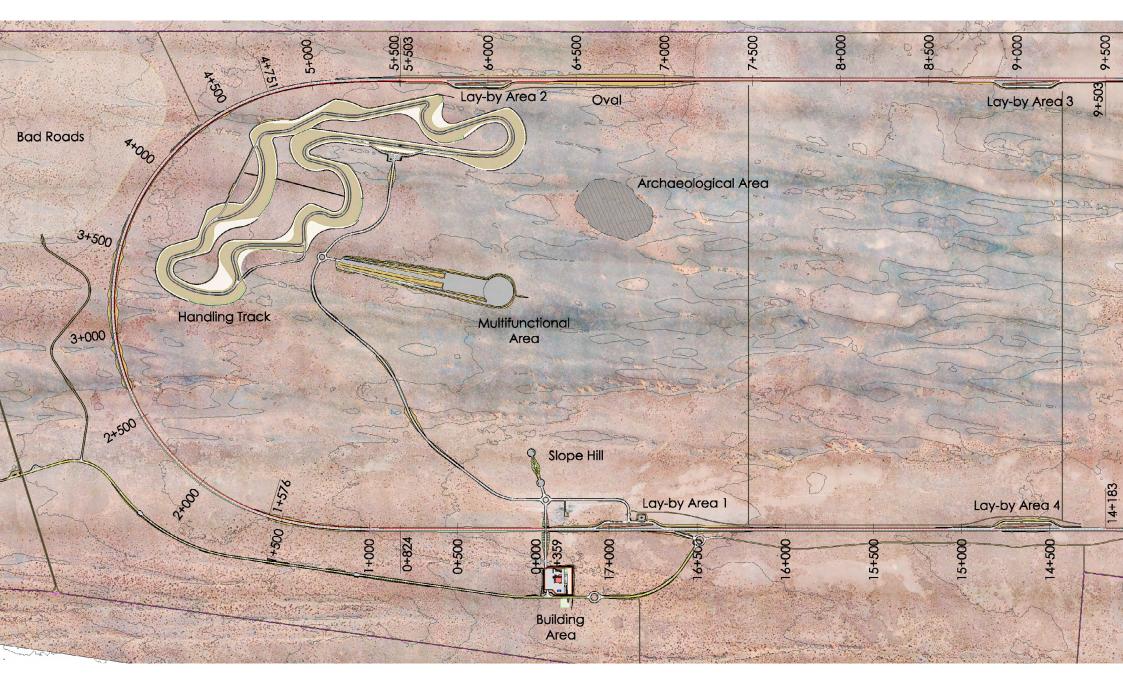
















DAIMLER Proving Ground Upington, Northern Cape, South Africa

Full scale General Planning Services

INGENAIX ENGINEERING SERVICES

- ✓ site evaluation and due diligence
- ✓ value engineering and estimates
- concept design, detailed design, working and construction drawings of all civil constructions (roads, bridges, earthworks, drainage), buildings, MEP services and infrastructure works
- ✓ specialist studies, EIA environmental impact study and assessment, noise and air pollution studies, etc.
- ✓ approved applications for all required permits
- tendering and procurement of general contractor's services

KEY FACTS, EXTRACT

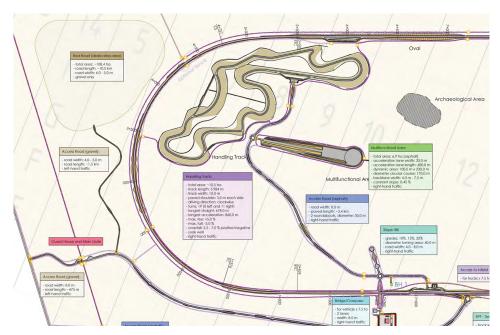
- ✓ property size appr. 3.600 ha
- ✓ superelevated high speed oval length approx. 17,4 km
- ✓ handling track appr. 5,5 km
- ✓ VDA dynamic area appr. 70. 000 m²
- ✓ various slope hill/grades
- ✓ building area incl. all buildings and MEP services
- access roads approx. 5 km

GOAL

✓ arid - huge - remote - fast

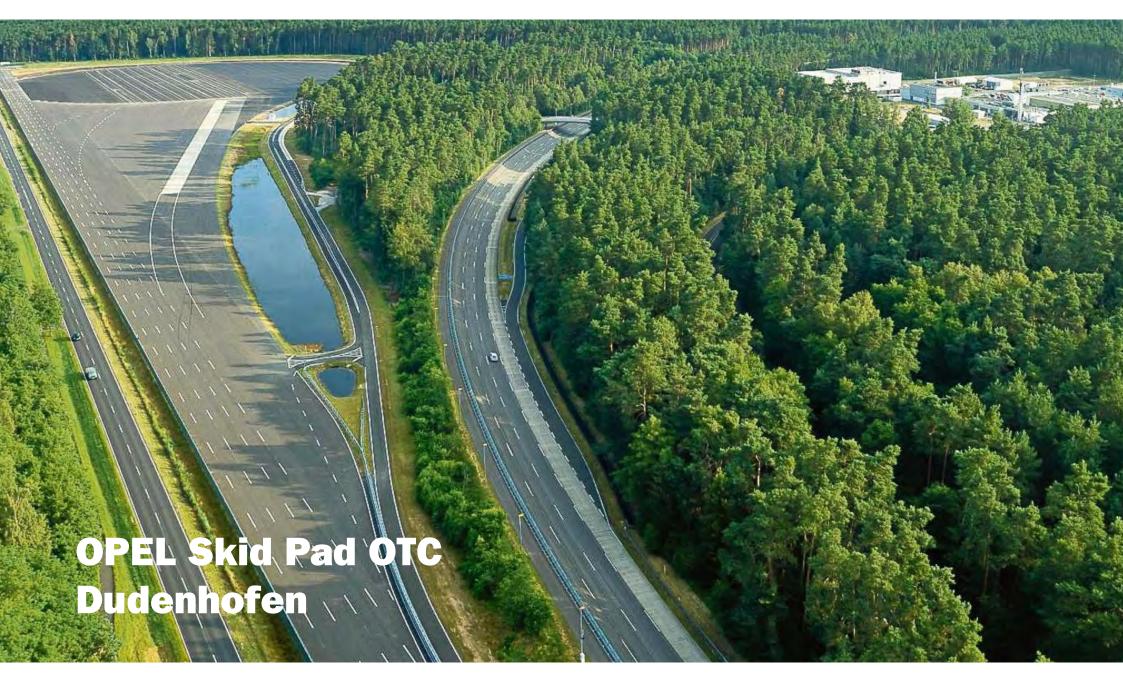
CLIENT

Mercedes Benz South Africa Ltd., South Africa









2016

OPEL Skid Pad OTC, Dudenhofen

TURN KEY PLANNING OF THE 300 M SKID PAD

- ✓ concept and construction design
- ✓ tender documents and contracting
- ✓ site supervision
- ✓ health and safety coordination (SiGeKo)

KEY FACTS

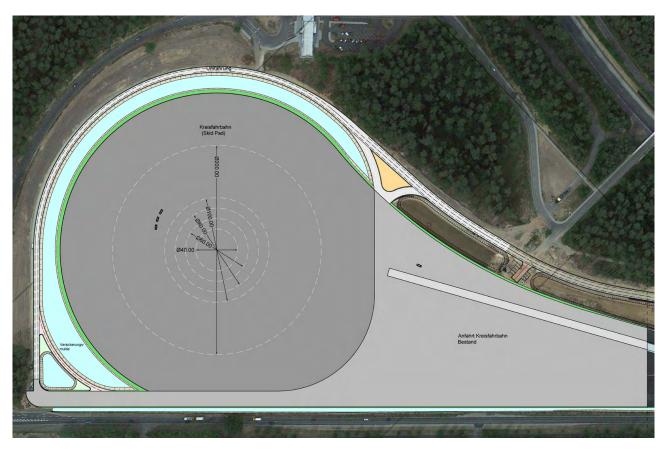
- √ 70.000 m² asphalt area
- ✓ Ø 300 m Skid Pad
- √ 0,6% slope
- ✓ surface drainage

GOAL

- ✓ high surface evenness
- ✓ short construction time

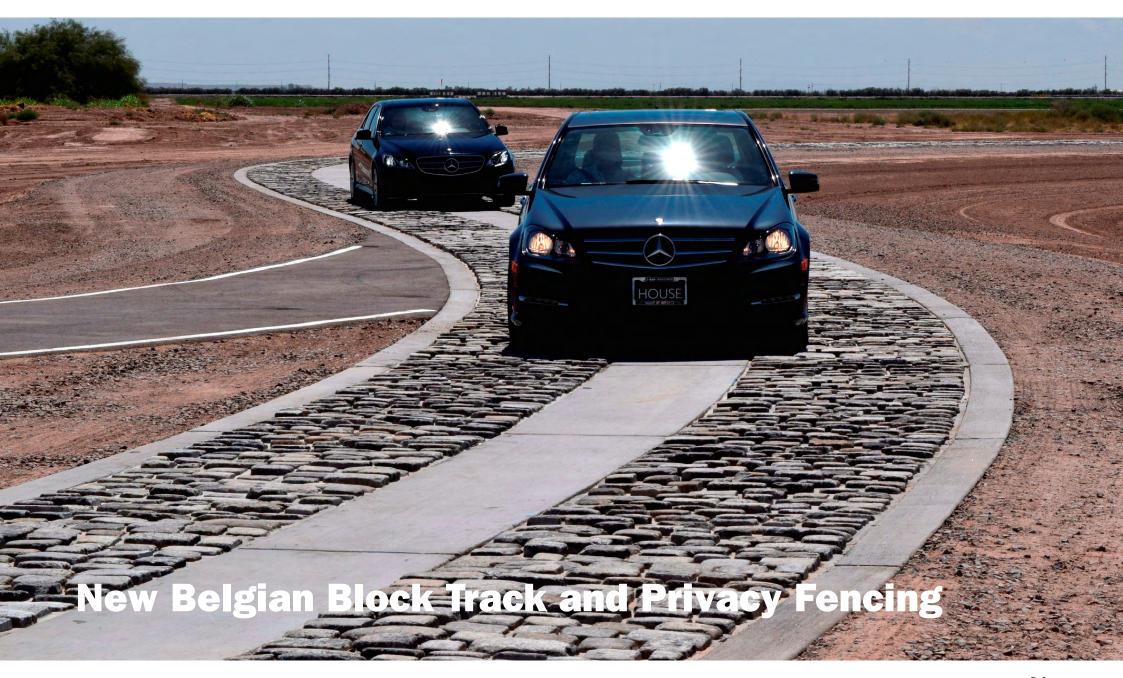
CLIENT

Adam Opel AG Rüsselsheim, Germany











New Belgian Block Track and Privacy Fencing

ENGINEERING SERVICES

- design and execution planning of road construction, drainage and structures
- ✓ 3D-analysis of an existing Belgian Block Track and deduction of pavement plans for cobble stones for the new track
- endering and procurement of GC-works
- ✓ commissioning
- ✓ site supervision
- ✓ quality control
- ✓ documentation

KEY FACTS

- 0,5 mile Belgian Block Track as approximated copy of an existing Belgian Block Track
- ✓ 0,1 mile access road with parking area
- ✓ 6000 ft of privacy fence up to 9ft height

CLIENT

Private Investor

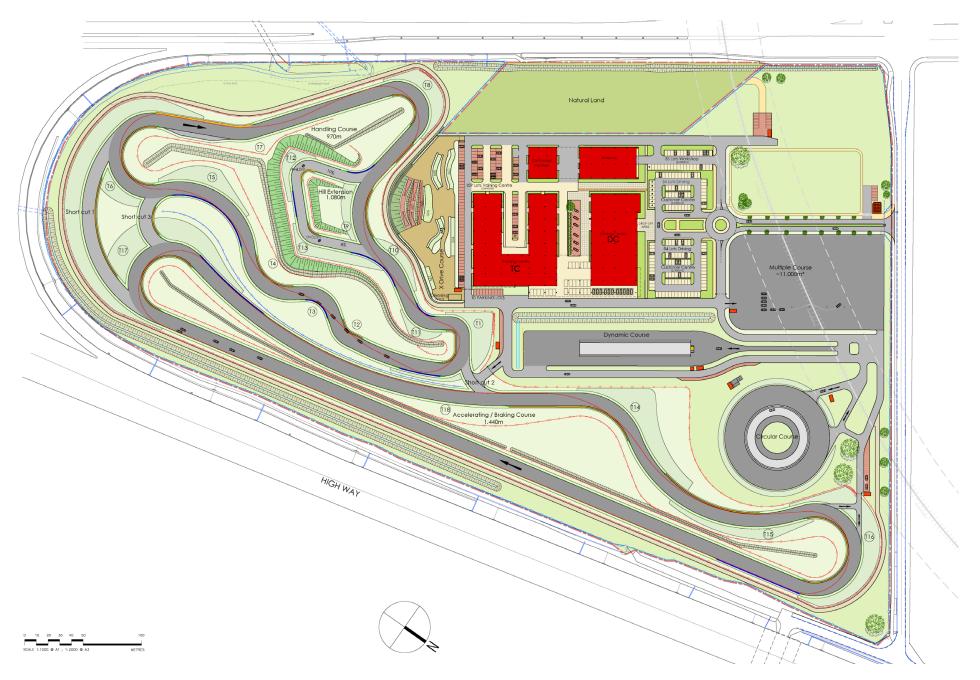




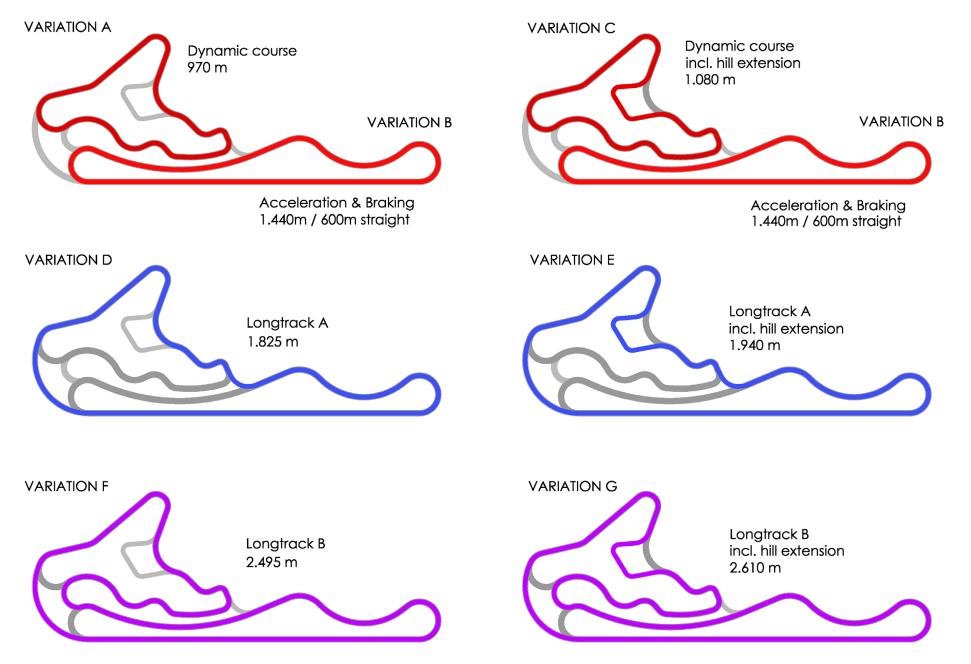




ing<mark>en</mark>aix



ingenaix





BMW Driving Experience Center, South Korea

TURN KEY PLANNING OF THE DYNAMIC MARKETING PLATFORM

- ✓ 2.400 m handling track
- 2-seperation of the handling course up to 7 track variations
- ✓ hill extension
- ✓ multiple course
- circular course, ø 90 m, incl. irrigation and water obstacles
- dynamic course incl. Kick plate, irrigation and water obstacles
- ✓ X-drive course, 8 modules
- ✓ 6 separate presentation modules

KEY FACTS

- ✓ 2.400 m track length with
- ✓ 7 track variations
- ✓ 235.000 m² total area
- √ 53.000 m² asphalt area
- √ 5.800 m² irrigated area

GOAL

✓ Pleasure of driving

CLIENT

BMW Group Korea Seoul, South Korea

Photos: Ingenaix, BMW Group Korea













BMW Driving Experience Center, South Korea

X-DRIVE AREA

- ✓ sandpit
- ✓ twist track
- ✓ banks & slopes
- ✓ climbing hill
- ✓ erratic boulders
- ✓ tree trunk
- ✓ track rail
- ✓ water passage

KEY FACTS

- ✓ 6.000 m² off-road area
- ✓ 8 modules

GOAL

✓ Pleasure of driving

CLIENT

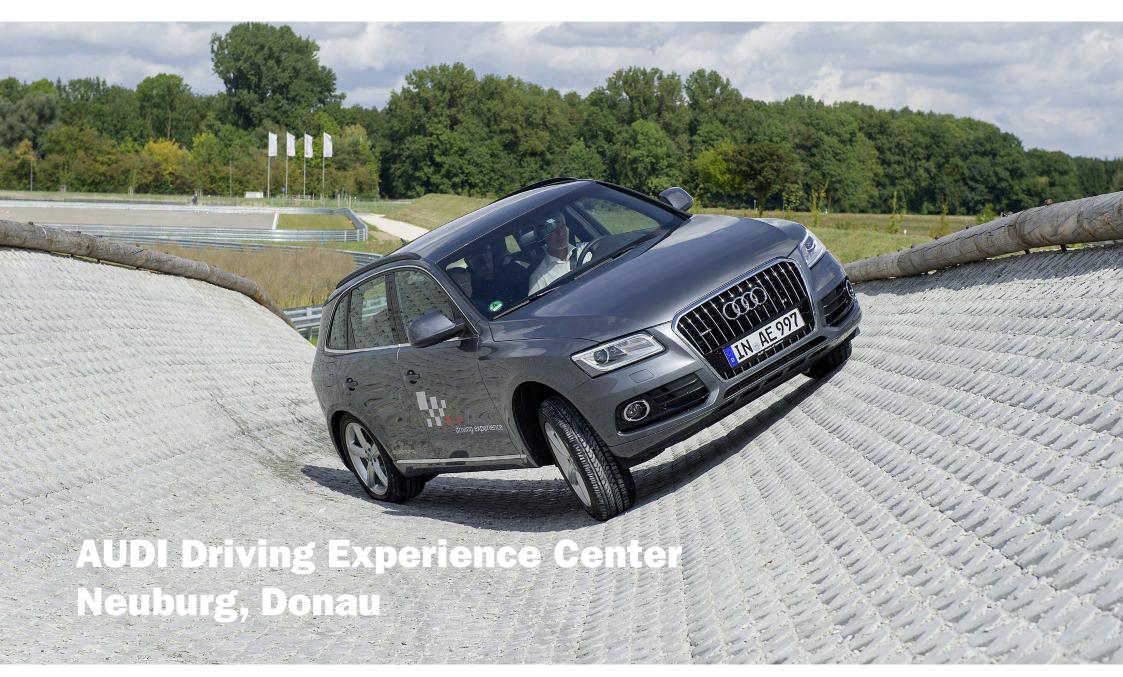
BMW Group Korea Seoul, Sotu Korea







Photos: Ingenaix, BMW Group Korea





AUDI Driving Experience Center Neuburg, Donau

TURN KEY PLANNING OF THE DRIVING DYNAMIC FACILITIES

- ✓ 2.200 m handling track
- optional 2 segments, length 1.100 m and 1.130 m
- ✓ FASYS straights, length 1.250 m
- ✓ full size handling track with 3.160 m
- ✓ irrigated dynamic area, 30.000 m²
- ✓ 9 off road modules
- ✓ noise and sight protection
- ✓ 5 separate presentation modules

KEY FACTS

- total track length 4.200 m with 6 different combinations
- √ 470.000 m² total area
- ✓ app. 98.000 m² asphalt area

GOAL

✓ Safe and perfect driving experience while optimal usage of resources

CLIENT

AUDI AG, Ingolstadt, Germany in cooperation with Weinzierl, Ingolstadt







AUDI Driving Experience Center Neuburg, Donau

OFF ROAD AREA

- ✓ tree trunk seesaw
- ✓ banks and slope concave
- ✓ banks and slopes convex
- ✓ climbing hill
- ✓ dry river bed
- ✓ twist track
- ✓ erratic boulders
- ✓ halfpipe
- ✓ water passage

KEY FACTS

- ✓ 18.000 m² total area
- ✓ 9 off road modules

ZIELVORGABE

✓ Safe and perfect driving experience while optimal usage of resources

AUFTRAGGEBER

AUDI AG Ingolstadt, Germany





















ADAC Road Safety Training Center Kiel-Boksee

PLANNING OF THE STRUCTURES AND TECHNICAL EQUIPMENT OF DYNAMIC MODULES

- ✓ irrigated car dynamic area with kick plate and mechanical obstacles
- ✓ circle module, dia 40 m
- ✓ curve modul with irrigation
- multifunctional dynamic area with irrigation and water obstacles
- ✓ off road parc with 8 modules

KEY FACTS

- ✓ 21.000 m² asphalt area
- ✓ 4 separate modules

CLIENT

ADAC Schleswig-Holstein e.V., Kiel









2012

DAIMLER Test Track Beijing, China

SCHEMATIC DESIGN OF TEST TRACK FACILITY ADJACENT TO THE PRODUCTION PLANT OF BBAC

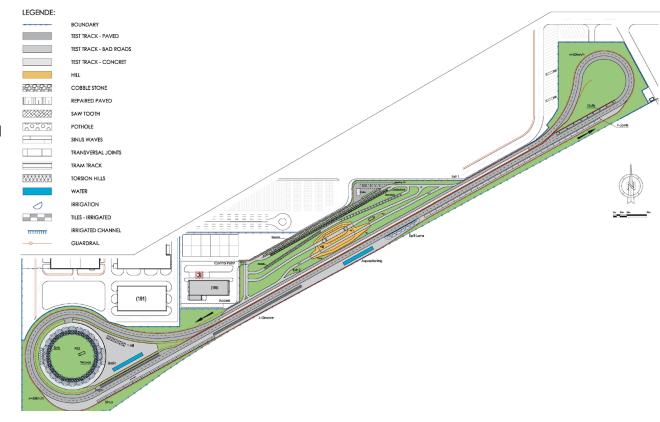
- ✓ NVH elements
- ✓ bad roads
- ✓ circle module
- ✓ hill module
- ✓ high speed track
- ✓ multifunctional area
- hydroplaning
- ✓ groove lanes
- ✓ technical equipment of track
- ✓ power and media supply
- pump stations
- ✓ irrigation system

KEY FACTS

- ✓ total area app. 110.000 m²
- ✓ asphalt area app. 49.000 m²

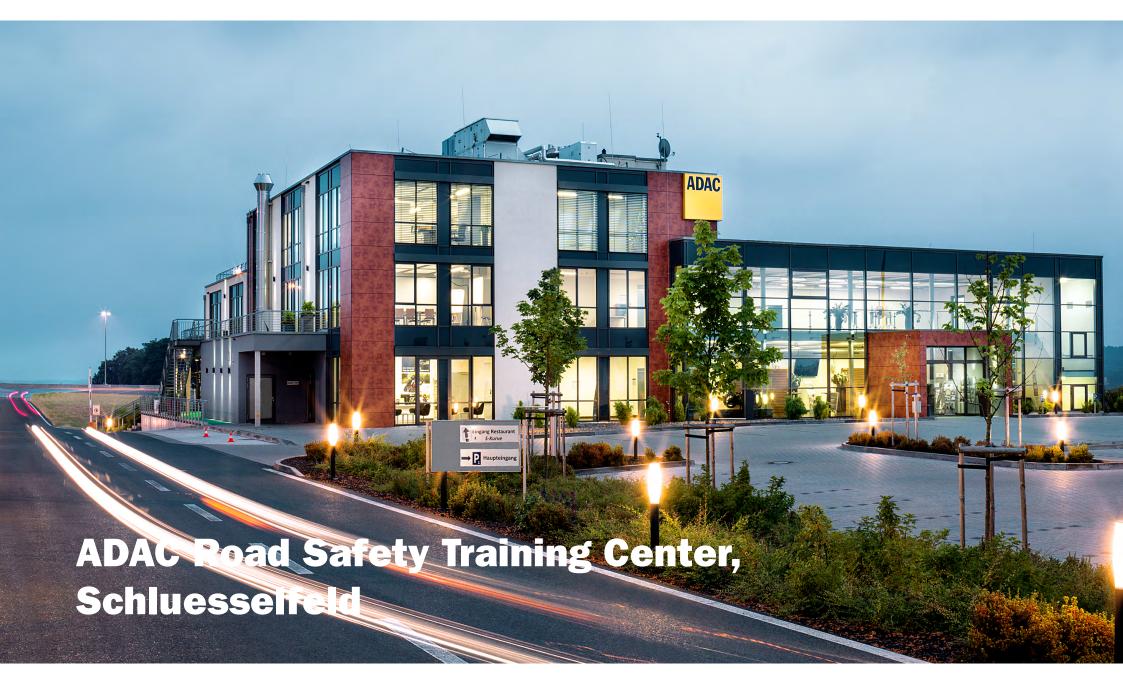
CLIENT

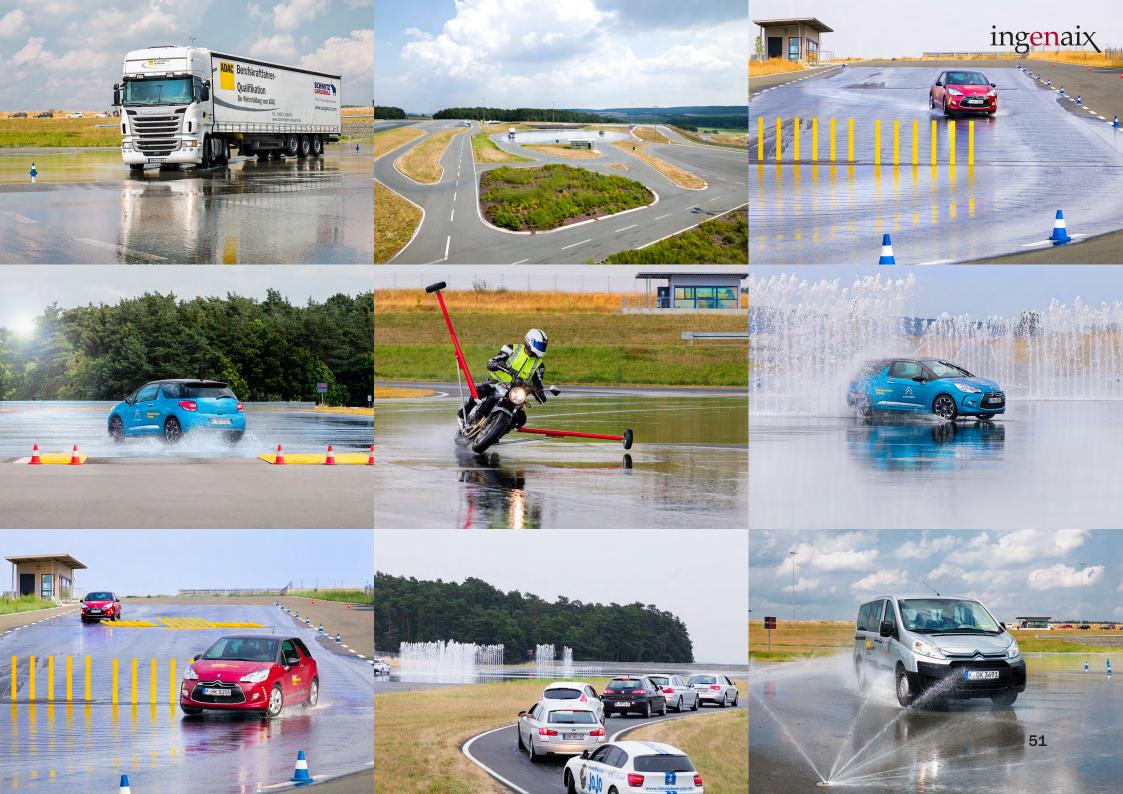
Daimler AG











ADAC Road Safety Training Center, Schluesselfeld

TURN KEY PLANNING OF THE MULTIFUNCTIONAL DYNAMIC FACILITY

- ✓ truck dynamic area
- ✓ car dynamic area
- ✓ circle module, dia 80 m
- ✓ down hill track
- ✓ motorcycle track
- ✓ multifunctional area
- ✓ handling track, length 830 m
- ✓ technical equipment of track modules
- ✓ power and media supply
- ✓ Illumination
- ✓ pump stations
- ✓ water obstacles
- ✓ mechanical obstacles
- ✓ irrigation system

KEY FACTS

- ✓ total area app. 125.000 m²
- ✓ asphalt area app. 55.000 m²
- ✓ 7 dynamic areas

GOAL

✓ CO₂ reduced operation of facility

CLIENT

ADAC Nordbayern e.V. Nürnberg, Germany

Photos: Ingenaix, Lothar Wels











Porsche Driving Experience Center, USA

CONCEPTUAL DESIGN OF 2 PORSCHE DRIVING EXPERIENCE CENTER IN USA DRIVING DYNAMIC MARKETING PLATFORMS

- ✓ driving dynamic facility
- ✓ dynamic area
- ✓ circular module, dia 80 m
- ✓ ice hill
- ✓ handling track
- ✓ technical equipment
- ✓ pump station
- water and mechanical obstacles
- ✓ irrigation system

KEY FACTS

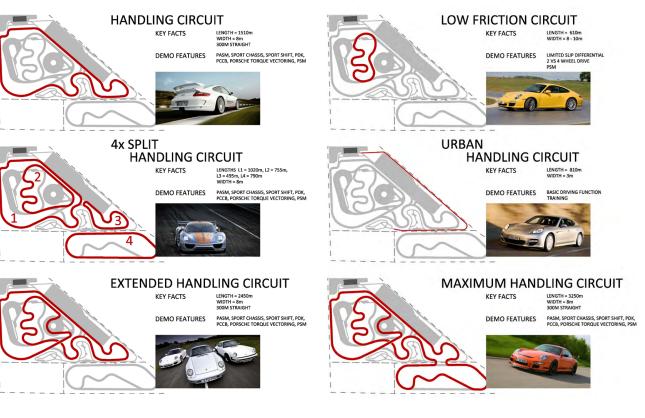
total area app. 135.000 m², 110.000 m²

GOAL

✓ Perfection and driving fun

CLIENT

Porsche Cars North America Atlanta, USA







CIK - Indoor Kart Track Linz, Austria

TURN KEY PLANNING FOR A NEW CIK-IN-DOOR KARTING FACILITY

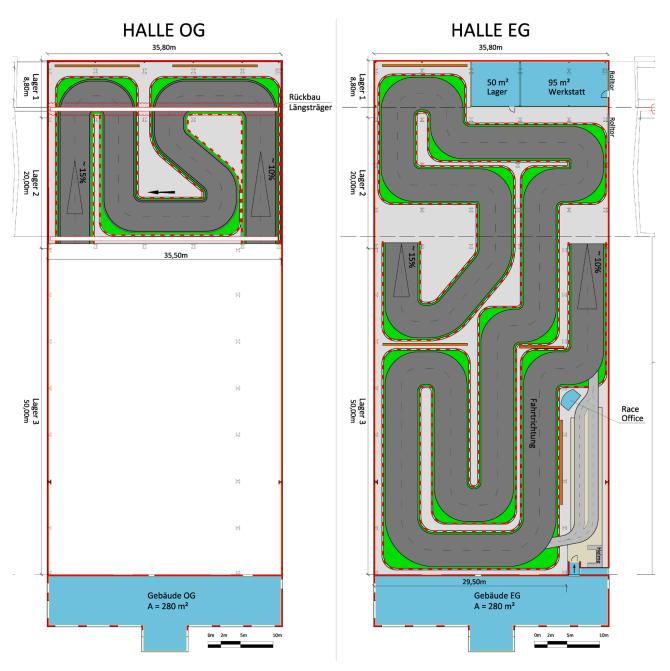
- ✓ multifunctional event center
- ✓ CIK homologation
- ✓ kart track on 2 levels
- ✓ welcome and administration building
- ✓ bar/restaurant and changing rooms
- ✓ workshops and storage
- ✓ stands
- ✓ club rooms
- ✓ auxiliary rooms

KEY FACTS

- ✓ floor area app. 4.800 m²
- ✓ kart area app. 3.900 m²
- ✓ 410 m track length
- ✓ 5 m track width
- ✓ 32 m pit lane

CLIENT

Plus City





Automotive City, Russia

TURN KEY PLANNING OF THE MULTI-FUNCTIONAL MARKETING PLATFORM

- ✓ race track
- ✓ FIA homologation grade 2
- ✓ pit building and tower
- ✓ Road Safety Training Center
- automated driving school
- ✓ traffic kindergarten
- ✓ drag strip ¾ mile
- main grand stand and natural stands
- ✓ museum "automobile und transport"
- showrooms and presentation and display areas
- ✓ club building
- indoor carting
- ✓ hotel facility
- ✓ leisure park
- ✓ off-road park
- ✓ further related facilities

KEY FACTS

✓ total area app. 850.000 m²

CLIENT

Private Investor









AUDI Pre-Seriens-Center, Brussel, Belgium

TURN KEY PLANNING

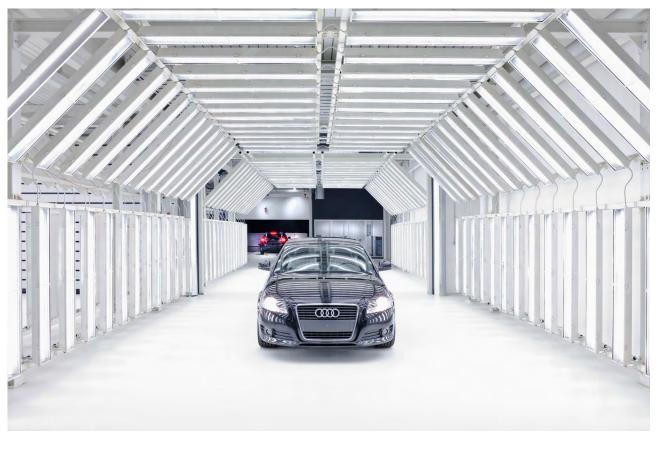
- ✓ multifunctional pre-series center
- working plots for simulation of the serial production plus quality control
- ✓ car wash plant
- permeability test stand and chassis dynamometer
- ✓ optical test bed with sided light
- ✓ head lamp test stand for adaptive light
- ✓ presentation rooms
- ✓ media floor with technical equipment
- ✓ office and meeting rooms
- ✓ staff rooms
- ✓ logistic center

KEY FACTS

✓ total footprint area app. 10.000 m²

CLIENT

AUDI Brussels S.A. /N.V. Brussels, Belgium in cooperation with SzturHärterArchitekten







Photos: Ingenaix, Lothar Wels



Regional Sport Park Simbirskiy

TURN KEY PLANNING OF THE SPORT PARK

- ✓ multifunctional sport facility
- road safety training center and traffic kindergarten
- race track FIA Grade 2 with pit building and pit tower
- main grand stand and natural/ temporary stands
- showrooms and presentation-/ display areas
- ✓ hotel
- ✓ leisure park with spa and pools
- automotive museum
- ✓ indoor kart track
- ✓ sport center with indoor soccer and skating incl. further related infrastructure

KEY FACTS

✓ total area app. 900.000 m²

CLIENT

«Avtodrom» public corporation Ulyanovsk, Russian Federation in cooperation mit SzturHärterArchitekten







BRIDGESTONE "European Proving Ground" EuPG, Aprilia, Italy

- ✓ full service design and engineering
- ✓ site superintendence
- road works design, planning of all structure
- design and engineering of the irrigation and drainage system
- technical equipment of he skid pad, da=240 m
- requirement: homogeneous irrigation result of heterogeneous road surfaces

KEY FACTS

- ✓ asphalt area app. 45.000 m²
- ✓ irrigated area app. 22.000 m²

CLIENT

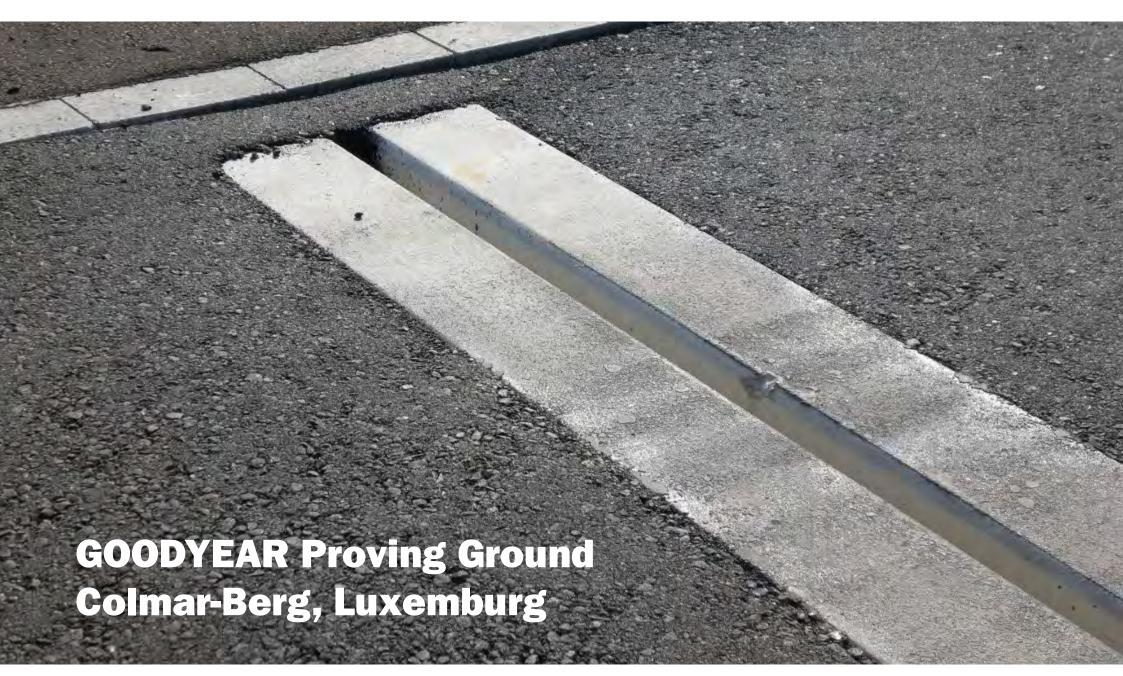
Bridgestone S.p.A. Rome, Italy











GOODYEAR Proving Ground Colmar-Berg, Luxemburg

DESIGN-ENGINEERING AND CONSTRUC-TION OF NOISE AND COMFORT LANES AT GOODYEAR PROVING GROUND, COLMAR-BERG, LUXEMBURG

- design and engineering of specific proposals
- technical and operational optimization of the proposed construction project
- ✓ technical and strategic consultancy
- ✓ client's representative
- ✓ site superintendence

KEY FACTS

- ✓ total area app. 90.000 m²
- ✓ asphalt area app. 27.500 m²

CLIENT

Goodyear S.A. Technical Center 7750 Colmar-Berg Luxembourg











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