

FULL SERVICES FOR INFRASTRUCTURAL CONSTRUCTION



TURNING PLANS INTO REALITY



**bickhardt bau**  
aktiengesellschaft

With an annual construction output of more than 400 million euros, Bickhardt Bau is one of the largest and most successful medium-sized companies in the building industry of the Federal Republic of Germany. On the basis of its know-how and innovative technologies, Bickhardt Bau Aktiengesellschaft has successfully developed into a full service provider in the field of traffic route engineering in recent years.

Core competency is the field of traditional traffic route engineering with its business areas of motorway and road construction, railway construction as well as bridge construction and civil engineering. However, our range of services does not only include all the trades required for the aforementioned purposes, such as earthworks or supply and disposal engineering, but also the special subjects of concrete road construction, special foundation construction, restoration of structures, construction of landfill sites and dam construction.

# We are building a better future

During the four decades of its existence – in 1971 the company was established by Peter Bickhardt, Graduate Engineer, in the Hessian Kirchheim – the group of companies has gained an excellent reputation among private and public customers, due to the implementation of numerous major projects. Bickhardt Bau offers professional construction solutions from one source.

The group of companies has also gained a good international reputation, particularly for the construction of the Formula 1 race courses at Hockenheimring and Yas Marina Circuit in Abu Dhabi as well as in India, South Korea, Bahrain and China. Apart from conventional traffic route engineering, Bickhardt Bau operates a powerful subsidiary called MKW Mitteldeutsche Hartstein-, Kies- und Mischwerke GmbH which is entirely dedicated to the exploitation, refinement and marketing of raw and building materials.

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- Airport Construction
- Bridge construction and Civil Engineering
- Canalisation

# From a single source

- Concrete Road Construction
- Dam Construction
- Earthworks
- Motorway Construction
- Racetrack Construction
- Railway Construction
- Restoration of Structures
- Road Construction
- Special Foundation Construction



Full Range Services  
for Infrastructural  
Construction





## Construction of Motorways

■ Exchange of goods, accessibility of markets, information flow – a highly developed transport infrastructure is the central element for growth and a positive economic development of a region or a country. Motorways are the main arteries of private transport and traffic areas which are subject to extremely heavy use, in particular due to the overproportionally large share of heavy goods vehicles. In order to ensure a smooth flow of traffic and an optimal travel speed, motorways have to meet high requirements with regard to the aspects of design and construction.

During the past ten years alone, Bickhardt Bau AG has implemented rebuilding, expansion and new construction measures concerning several federal motorways, over an overall length of more than 750 kilometres.





## Road Construction

■ The transport infrastructure of the Federal Republic of Germany is characterised by a dense network of more than 630,000 kilometres of federal, country, district and local roads. This network requires permanent maintenance and improvement.

Bickhardt Bau's decades of experience are reflected in the construction of new four-lane federal roads, the renewal of country road surfaces or also in the shaping of village centres that are typical of their local areas. Bypasses, connecting roads, petrol stations and roadhouses, pedestrian areas, cycle paths and paved areas are also part of the daily business of the group of companies.





Bridges connect

## Bridge Construction and Civil Engineering

■ Bridges connect. Bridges overcome obstacles. Bridges are essential components of functioning transport networks. They allow different traffic routes to intersect without any conflicts, they overcome site specific obstacles and they establish connections.

Since Bickhardt Bau AG particularly focuses on the provision of a full service in the field of traffic route engineering, the field of bridge construction and civil engineering has developed into an important field of activity within the group of companies. Civil engineering structures made of steel, prestressed concrete and in-situ concrete are implemented in different sizes and versions.

Therefore, complete route sections can be offered from one source in road and motorway construction as well as in railway construction. The principal is guaranteed a consistently high level of quality, a smooth coordination of the different trades and a compacted overall construction period.





## Earthworks

■ Removing, loading, transporting, installing and compacting. Extensive earthworks are the basic trade for all complex building projects in the fields of traffic route engineering and the construction of landfill sites as well as for the construction of water management facilities and power supply plants.

This field of activity is one of the core competencies of Bickhardt Bau AG. Apart from the mere movement of masses, the professional execution of construction work also includes the consideration of the specific properties of the soil. Bickhardt Bau has special expertise in the field of soil improvement and soil solidification. A company-owned building materials laboratory ensures the required quality standards from scratch, by means of self-monitoring.

Core  
**competency**





Ready to  
**Take off**



## Airport Construction

■ People who are looking for rapid transport connections rely on the aircraft. Airports are at the same time point of departure and destination for business travellers and tourists. Modern hubs are required for the rapid flow of goods. Regardless of the size and function of the airport, special requirements are imposed with regard to safety. This already begins with the subsoil. With regard to bearing capacity and condition of substructure and superstructure, especially high quality standards are required in airport construction for the takeoff and landing runways as well as for taxiways, aprons and parking areas.

In recent years, Bickhardt Bau AG has gained special expertise in the construction of new airports (Kassel-Calden) as well as in the expansion, repair and upgrade of existing aircraft movement areas – even during the ongoing flight operation. In this context, taxiways, takeoff and landing runways and parking areas paved with concrete or asphalt have been implemented.





## Construction of Landfill Sites

■ Landfill sites are used for the temporary or final safekeeping of municipal or industrial waste. They are environmental protection structures of a high technological standard. Apart from earthworks, the construction of sealing systems is one of the key activities. In the field of surface sealing, Bickhardt Bau AG has developed its own sealing system – Bickhardt DOM – and has complemented this system by an own cover and recultivation system – Bickhardt TERRA.

Bickhardt Bau has implemented a large number of such projects and renders an important contribution to the long-term, safe and environmentally compatible storage of any type of waste in this way.

Safety for  
**Generations**

## Canalisation

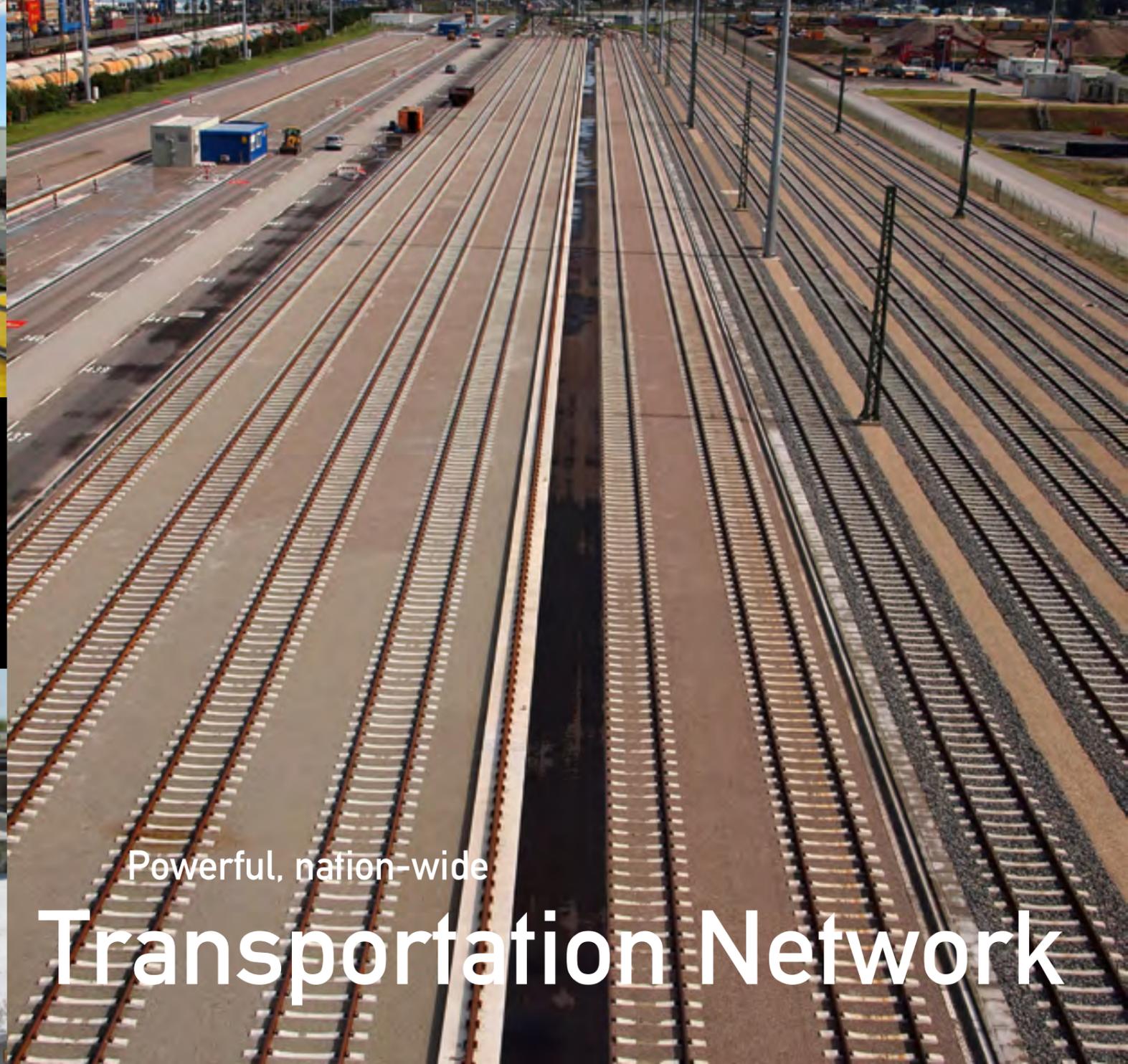
■ An important part of public infrastructure measures is located below the earth's surface. It is invisible and often underestimated. Widely spread pipeline networks fulfil the tasks of water supply, wastewater disposal and media supply. Bickhardt Bau builds supply and drain lines and media cabling systems, which can be done with all desired materials and in all dimensions. The pipelines are executed as collecting ducts in a mixing or separation system, sewers with storage capacity and overflow, inverted siphons, pressure pipes, throttle sections or long distance transport pipes.

Invisible  
**Connections**





bickhardt bau  
aktiengesellschaft



# Powerful, nation-wide Transportation Network

## Railway Construction Slab Track System

■ The railways of Deutsche Bahn AG form an efficient and comprehensive transport network. They offer an alternative and supplement to other modes of transport. The range of services of Bickhardt Bau AG comprises the complete construction of fully operational route sections of new railway lines as well as the implementation of expansion and modernisation measures during ongoing rail traffic.

Due to the increased expectations concerning travel speed, passenger comfort, operational safety and environmental protection and the demand for a long period of use in connection with low maintenance expenditure, the concept of the Slab Track gains more and more importance. In contrast to the conventional ballasted track, the Slab Track consists of a continuous concrete or asphalt strip into which the track panel has been integrated.

In this regard, Bickhardt Bau actively shapes innovation and progress and was one of the first successful users of this construction method. The group of companies has the professional expertise and the machinery of a railway construction specialist that has gained a good reputation in the line of business.



# Durability

in one go



## Concrete Road Construction

■ Long durability, low susceptibility to repairs and good surface properties – these are the technical advantages of concrete roads according to expert opinion. Bickhardt Bau AG has an independent department for concrete road construction which is equipped with modern machinery.

Owing to powerful slipform pavers and trained staff, concrete roads and circulation areas can be constructed in widths from 5 up to 18 metres, in one single concrete pour. These large-surface construction possibilities also make the rolling road construction plants predestined for the use on commercial airports, container terminals and parking areas which have to withstand extremely heavy loads, such as parking areas for load trains at petrol stations and roadhouses.

Further key activities of the department are, apart from the renovation of concrete surfaces, also the construction of tunnel covers, vehicle restraint systems made of concrete as well as drainage channels with integrally moulded brim.





Vital drinking water  
**Storage**



## Flood Protection

■ Climate changes, Greenhouse effect and the melting of the Poles – once again the hundred year flood Summer 2013 in Germany has made it clear how important an effective Flood Protection is – not only on the coast but also inland. Within the last decade Bickhardt Bau has acclaimed a special expertise in the construction of flood protection such as retention basins and dams. Many skills and the knowledge of materials and processes are demanded.

# Safety

from Soil

## Dam Construction

■ Dams are essential to human life. Whether as drinking water reservoir, for energy generation or as energy storage, as flood protection or as water sports and leisure facility. With regard to the architectural design, different construction types of retaining walls and dams can be implemented. Concerning this field of activity, Bickhardt Bau AG has gained special expertise in the construction of retaining structures, retaining walls and dams and has applied core seals as well as external seals as sealing systems for these structures.

Leibis-Lichte dam is one of the largest structures of that kind which was constructed by Bickhardt Bau AG together with partners in an ARGE in the Thuringian Forest. With a storage capacity of 40 million cubic metres, it ensures the drinking water supply to well over one million people in Thuringia.





## Project Development

■ Every year Bickhardt Bau Projektentwicklung GmbH develops and implements complete building projects and delivers them to its satisfied customers. Comfortable projects which are tailor-made to the wishes of the customers are realised. They are solidly built, ready-for-use, and they are implemented at guaranteed fixed prices. On the one hand, the customer directly benefits from the synergistic effects within the network of the Bickhardt Bau group of companies and, on the other hand, Bickhardt Bau Projektentwicklung GmbH has become a respected partner due to these synergistic effects.

Apart from residential and commercial buildings, specialist stores and shopping centres as well as sporting and recreational facilities, Bickhardt Bau Projektentwicklung specialises in the construction of senior citizen centres and nursing homes. Although the subsequent use of such buildings may be very different, all building projects which are implemented have one thing in common – the highest level of quality, functionality and economic efficiency.

efficiency

# Economic

## Restoration of Structures

■ Contaminants, adverse weather conditions and other permanent loads leave their marks on roads and bridges. Even high-quality building materials, such as concrete and steel, are not everlasting. The correction of time- and usage-dependent signs of wear is the core business of the department for the restoration of structures.

Depending on the size and type of damage, different restoration methods and procedures are used. Building materials, such as concrete and steel, mortar and plastics, are used systematically and effectively to achieve the conservation of structures in a sustainable and cost-effective manner.



# Circuits for World-Champions



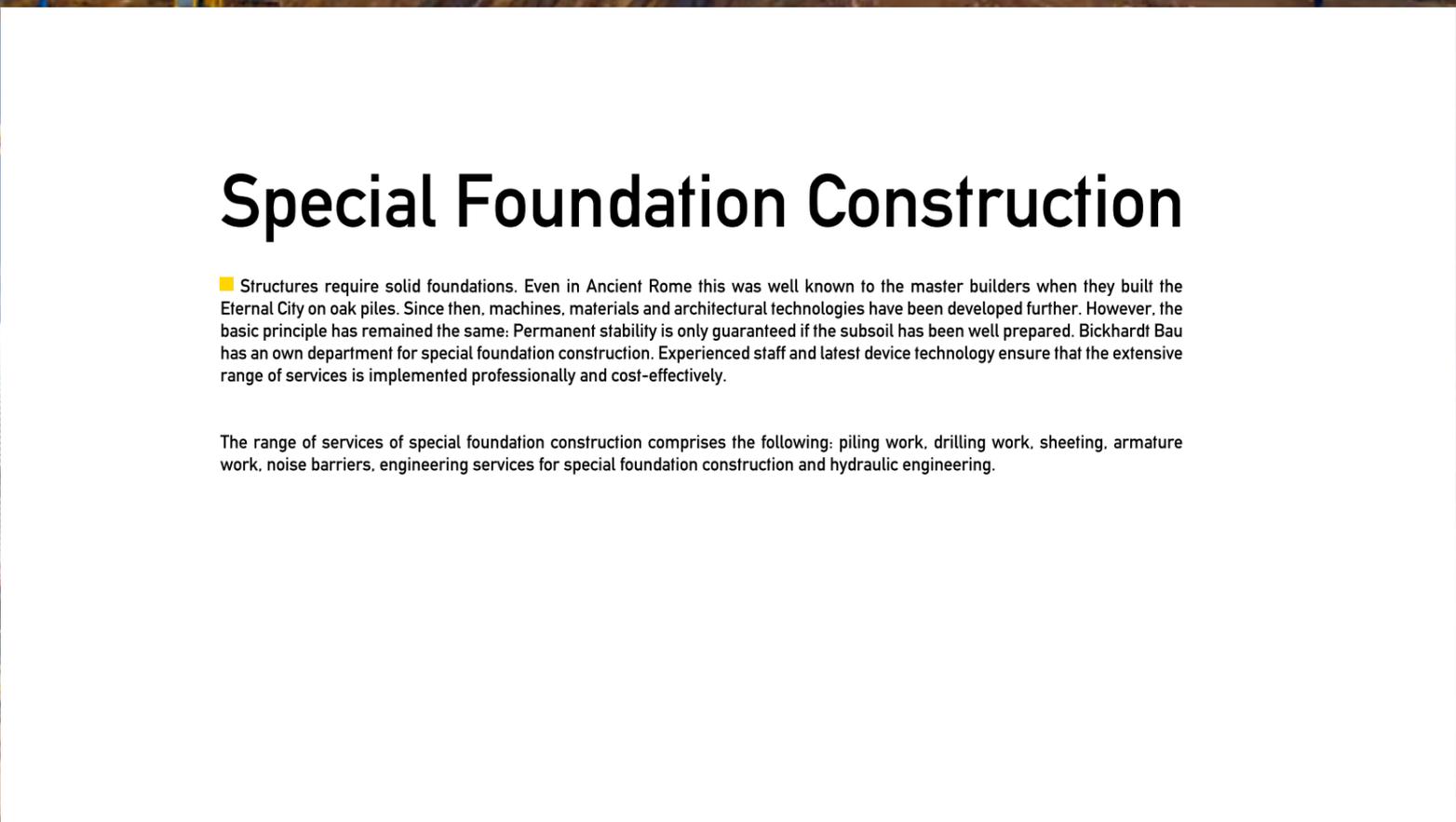
## Construction of race tracks

■ Motorsport fans and companies entrusted with the construction of race tracks are equally enthusiastic about the construction of race tracks: Whereas safety and a troublefree traffic flow are the main focus of conventional road construction, race tracks are deliberately designed to require the drivers to permanently demonstrate their driving skills. The basic prerequisite for achieving this goal is a race track built with the highest precision. Speeds of more than 300 kilometres per hour place particular demands on the quality of the road surfaces.

With the help of its qualified and motivated employees and its machinery which is equipped with state-of-the-art technology, Bickhardt Bau AG has repeatedly demonstrated its professional expertise in this very special road construction sector. The construction of the Formula 1 race course in Abu Dhabi, the modification of Hockenheimring, the asphalt paving work on the Formula 1 race courses in Bahrain and Shanghai and the construction of Sachsenring and Leipzig Porsche Centre are among the most spectacular building projects in the corporate history of Bickhardt Bau AG. In the recent past, these projects have been complemented by another chapter in Southeast Asia: Bickhardt Bau has installed the race track surface for the Formula 1 race courses in South Korea and India.



# Ground Improvements



## Special Foundation Construction

■ Structures require solid foundations. Even in Ancient Rome this was well known to the master builders when they built the Eternal City on oak piles. Since then, machines, materials and architectural technologies have been developed further. However, the basic principle has remained the same: Permanent stability is only guaranteed if the subsoil has been well prepared. Bickhardt Bau has an own department for special foundation construction. Experienced staff and latest device technology ensure that the extensive range of services is implemented professionally and cost-effectively.

The range of services of special foundation construction comprises the following: piling work, drilling work, sheeting, armature work, noise barriers, engineering services for special foundation construction and hydraulic engineering.



## Surveying

■ The realization of construction projects already starts with the planning. Integral part in the efficient execution of construction projects therefore is a powerful surveying. In the surveying department of Bickhardt Bau the requirements of the clients and designers are implemented in three-dimensional terrain models using appropriate computer software. The processed data are in turn transmitted to the receivers on the Construction machinery. The system continuously checks its own position and compares them with the data plan.

With the help of this advanced equipment control systems (GPS and ATS controllers), the operator will always know the exact position of their machines and the terrain can be profiled. Thus visions become plans, and plans are shaped into buildings.

When it comes to using innovative technologies, the surveying department of Bickhardt Bau AG is always right at the forefront. Our in-house surveyors have not only recognised the benefits of a satellite-based control of machines at an early stage, and they have not only used this method throughout the company, but they have also heralded the next high-tech era: Surveying flights with a flying drone is the keyword.

## Laboratory

■ Skilled handling of building materials is one thing, but professional examination of the materials employed is another. Therefore, the Bickhardt Bau group of companies maintains several building materials, earthworks and foundation engineering laboratories with state-of-the-art equipment which accompany the building process right from the start. This continuous self-monitoring by experienced building materials testers and highly qualified lab assistants ensures that the required quality standards are always met and deviations can be rectified without delay.

Thus, during the four decades of its building activity, the Bickhardt Bau group of companies has become a synonym for structures of the highest quality which is reflected in the lasting satisfaction of customers and building principals.

## Mechanical engineering Department

■ In order to ensure a smooth progress of the construction work, Bickhardt Bau maintains a mechanical engineering department which coordinates the employment of personnel and equipment and which has an own vehicle and machine pool and own workshops. Highly qualified technical personnel – from skilled workers to engineers – ensure that vehicles and construction equipment are perfectly maintained and are always ready for use. Mobile workshops allow swift action directly on the spot.

Apart from a well versed maintenance and repair of the modern machine and equipment pool, the mechanical engineering department also pursues the innovative in-house development of construction equipment which goes far beyond the standards. In many areas, for example, special solutions are created which are tailor-made to the characteristics of the relevant areas of use and ranges of application at the construction sites. The mechanical engineering department is the interface to the surveying department and is therefore also responsible for the installation, support and servicing of the modern machine control systems.



# Know-how

in every Subject





## Employees and in-house Training

■ In recent years, Bickhardt Bau AG has successfully developed into a full service provider for large projects in the field of traffic route engineering. There are more than 1600 employees in the group of companies. All of them have considerably contributed to this positive development. Their commitment and their high professional qualification play a decisive role in achieving an annual construction output of more than 400 million euros. In return, the group of companies offers its committed and motivated employees secure jobs with a long-term perspective and good opportunities for career development.

As a company providing in-house training, every year Bickhardt Bau offers many young people the opportunity to start their professional career with the company. The professional training offered in-house comprises ten different occupations. In addition to it, the group of companies assumes social responsibility in many ways as partner in the region. Thus, it is involved in numerous activities and projects in different areas of public life.

Be part of the  
**strong Team**

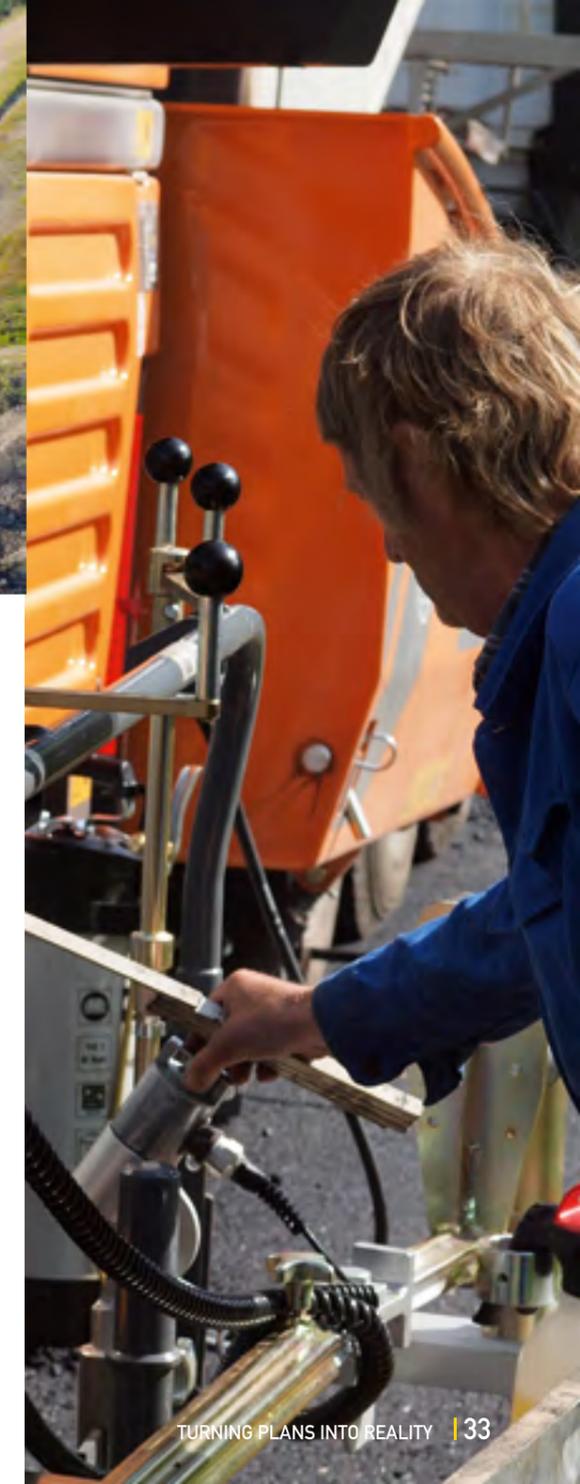


## Certified Quality

### Quality management and Certification

■ Bickhardt Bau Aktiengesellschaft is a full service provider in the field of traffic route engineering. It is one of the leading medium-sized building companies in this field of activity. Customer satisfaction and high quality of the work performed are important corner stones for its continuous success. For the Board of Management and the employees of the Bickhardt Bau group of companies, quality does not only mean the fulfilment of the customer requirements regarding the finished building project, but also equally the adherence to delivery dates during the implementation of building contracts, economic efficiency for the building principal, ensuring on-the-job safety and health protection, adherence to legal and technical standards, high professional qualification of the employees, respectful handling of natural resources and protection of the environment and last, but not least, respect for the principles of fairness among business partners.

The implementation of these demanding goals requires the constant striving for improvement and our effort to protect the life and health of all people. In order to systematise this approach, Bickhardt Bau has established a management system which is subject to continuous further development. The strategic goal of this approach is the zero-defect principle. Constant qualification and numerous certifications demonstrate that this corporate philosophy has become an integral part of our everyday operation.



# Efficient Structures

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