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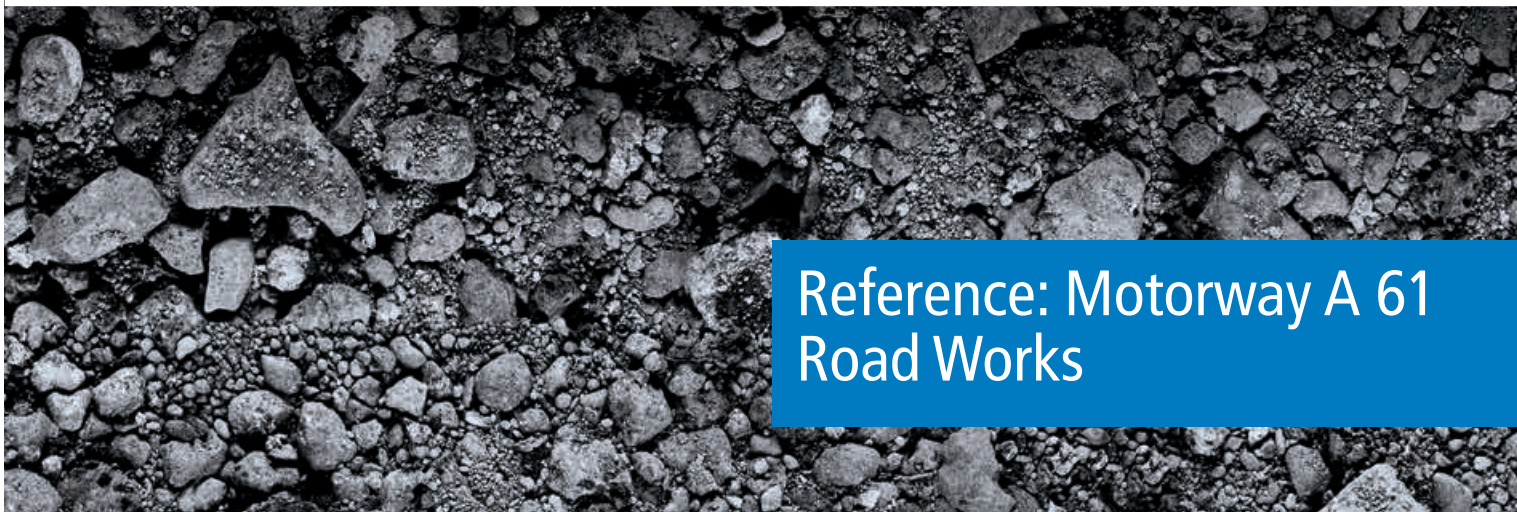


Reference: Motorway A 61 Road Works

Motorway A 61

145,000 tonnes of granova® quality in the capping of the road: an economically and technically challenging project at the Dutch / German border. The final 3 km section of the motorway A 61 between Venlo (Netherlands) and junction Kaldenkirchen (Germany) was specified as an ashpalt construction and included five underpasses as well as an entrance / exit. A particular challenge of this project was the extremely large quantity of material needed for the earthworks on the planned route.

Call for bids

The awarding authority, the Lower Rhine regional office of the North Rhine-Westphalian State Office for Road Construction (StraßenNRW), specified primary building materials in the call for tenders – the use of secondary materials was not initially considered. According to the public call for tenders, the "Neubau A 61" consortium, consisting of the companies A. Frauenrath GmbH and Willy Dohmen GmbH & Co. KG, offered to supply primary material as part of the contract.

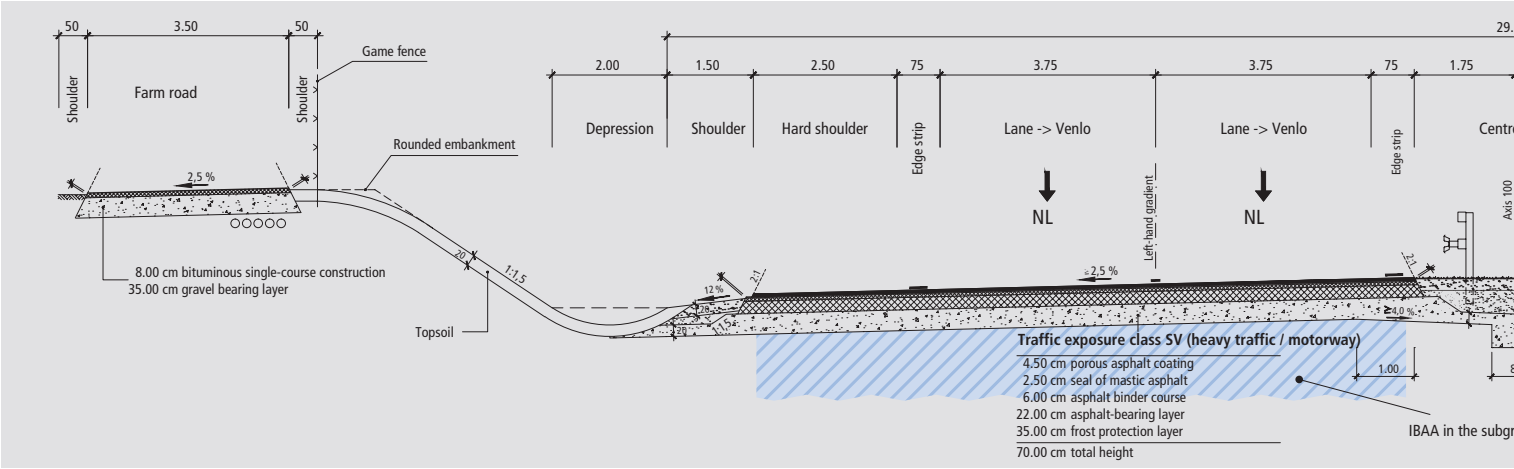
Ideal conditions for IBAA

However, the construction project was also suitable for the use of secondary materials. The site is situated outside a water protection area, and the construction under an asphalt layer is water-impermeable, allowing the use of incinerator bottom ash aggregate (IBAA).

The required minimum distance of one meter between the secondary material and the highest groundwater level was given, as was a minimum distance of half a meter from corrosion-prone buildings. As a result, all the conditions for the use of substitute materials were fulfilled.

IBAA in the secondary bid

Therefore, the consortium also submitted an alternative bid during the tender process, which specified the use of IBAA for the fill instead of the required primary building materials. This resulted in a significant cost reduction for the project. As an investor, the NRW road construction authority was convinced by the method and awarded the contract to the "Neubau A 61" consortium.



Construction

Over a period of 6 months, a total of 250,000 tonnes of IBAA were incorporated in the capping layer. 145,000 tonnes of IBAA of granova® quality were supplied by the MAV Mineralstoff-Aufbereitung und -Verwertung GmbH (a REMEX affiliated company) from their premises in Krefeld and Erftstadt. At peak times, up to 6,000 tonnes per day were delivered.

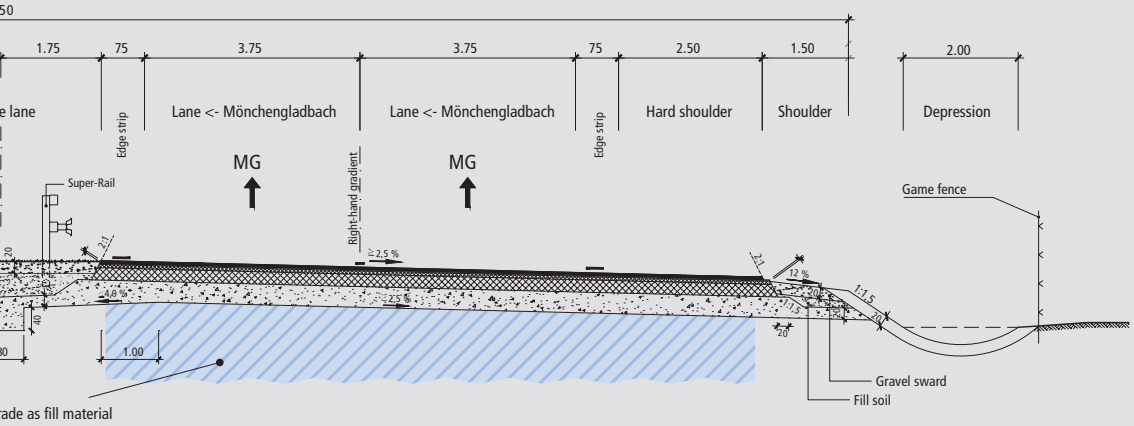
The complete section was finished after a record-breaking construction time of one year. All participants were satisfied at the end with regard to cost-efficiency, quality and progress.

The NRW road construction authority says that, in the future, secondary materials will increasingly be used where possible.

Conclusion

The project demonstrates that in locations where the conditions for a safe use of IBAA are satisfied, a number of financial and environmental benefits can be realised using IBAA. Due to this project, a quarter of a million tonnes of natural resources were saved and associated landfill space protected. Economically, everyone benefited: the contractor, the public investor and, ultimately, the tax payer.

The 3 km long Autobahn route



Typical cross-section of the A 61

Facts at a glance:
New construction of the A 61 between Venlo, Netherlands and the junction of Kaldenkirchen, Germany

- Project owner:
  North Rhine-Westphalian State Office for Road Construction (StraßenNRW), Niederrhein Regional Office, Mönchengladbach
- Two lanes over 3 km under asphalt pavement
- Required traffic exposure class SV (heavy traffic, motorway)
- Use of 250,000 tonnes of IBAA as fill in the subgrade
- Delivery of 145,000 tonnes of IBAA in granova® quality
- Delivery of 6,000 tonnes per day at peak times
- Completion: 2012
- Contractor:
  "Neubau A 61" consortium, consisting of
  A. Frauenrath GmbH and
  Willy Dohmen GmbH & Co. KG
- Supplier of IBAA: MAV Mineralstoff - Aufbereitung und - Verwertung GmbH, a REMEX affiliated company

Further references

Senner Straße in Bielefeld, Germany, as part of the A 33 crossing

- Project Owner:
  North Rhine-Westphalian State Office for Road Construction (StraßenNRW)
- Single-lane construction (traffic exposure class II) under an asphalt pavement
- IBAA used as backfill with bituminous sealing
- Supplied material: IBAA 0/32
- Quantity: 38,000 tonnes
- Delivery over 6 weeks with an average of 1,100 tonnes per day
- Contractor:
  Stefan Hesse Bau GmbH & Co. KG, Borchen
- Supplier of IBAA:
  MAV Mineralstoff - Aufbereitung und Verwertung Lünen GmbH,
  a REMEX affiliated company

Rahmstraße in Voerde, Germany

- Project Owner:
  North Rhine-Westphalian State Office for Road Construction (StraßenNRW),
  Regional Office Niederrhein
- Single-lane construction of a road (traffic exposure class II) under asphalt
- IBAA used as fill for the crossing of an ICE high-speed rail line
- Supplied material: IBAA 0/32
- Amount: 84,000 tonnes
- Delivery over 6 weeks, 3,000 tonnes per day
- Contractor:
  Heinrich Walter Bau GmbH
- Supplier of IBAA:
  MAV Mineralstoff - Aufbereitung und Verwertung Lünen GmbH and
  MAV Mineralstoff - Aufbereitung und - Verwertung GmbH, both REMEX
  affiliated companies

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REMEX is a waste management company with expertise in mineral waste, demolition and remediation services, stabilisation and backfilling of disused mines, landfill site operation and production of secondary construction material.

The REMEX Group consists of over 60 business locations and around 650 employees. Its network of around 20 construction waste treatment facilities produce approximately 2.3 million tonnes of high quality recycled aggregates, sold under the remexit® brand name. Additionally, REMEX produces around 1.3 million tonnes of quality assured secondary aggregates from waste incineration slag and ash which is marketed under granova®.

REMEX is part of the REMONDIS Group, one of the world's largest recycling, service and water companies.

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