



High Speed Rail Assessment 2010 – 2012

Phase 3 Common Premises

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From Phase 2 to Phase 3

- Phase 2 General Studies: Technical recommendations for Phase 3 Corridor Studies
 - Technical and Safety Analysis (Pöyry)
 - Planning and Development Studies (WSP)
 - Environmental Analysis (Asplan VIAK)
- Phase 3 Consultants challenged on common Phase 2 interpretations for all 4 corridors.
 - The 4 consultants' discipline experts working together.
 - 7 Cross Corridor Working Groups
- One concluding note from each WG as basis for all 4 corridors/ consultants.





Working Groups

- Alignment
- Civil Works
- Stations
- Construction Processes/ Methods
- Quantums for Cost Estimations
- Mapping and Environment
- Traffic Noise





Alignment: Design Alternatives

Design Principles for Phase III Consultants:

- B: 20% end-to-end travel time reduction
- 2*: Design speed 250 P+F Trains
- D1: Design speed 330 P+F Trains
- D2: Design speed 330 P Trains Only
- Deviations accepted where recommendable.

Technical Parametres:

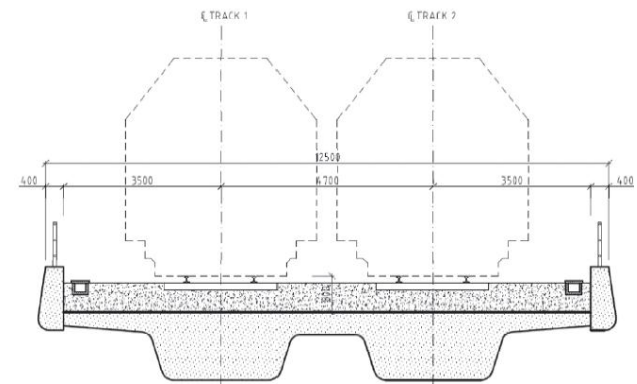
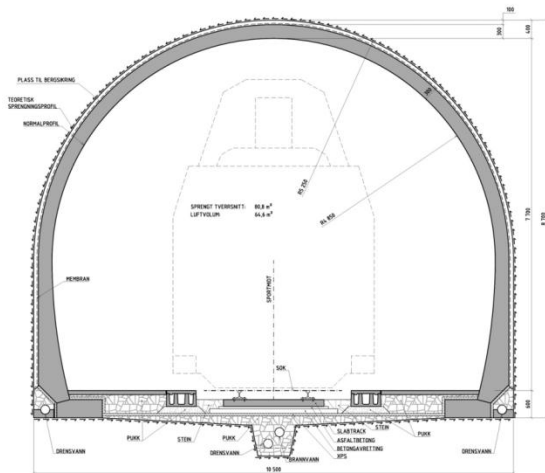
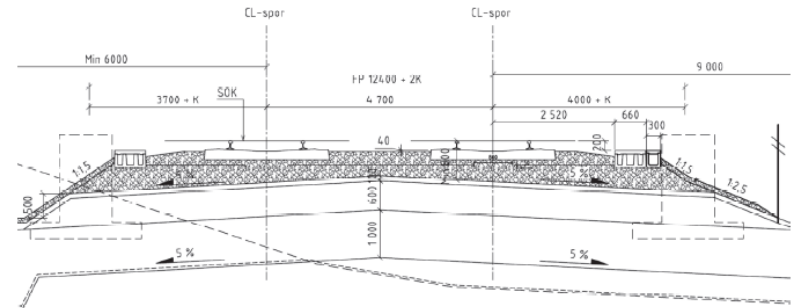
- Design Speed 250- 330 km/h: TSI
- Design Speed <250 km/h: JBV Teknisk Regelverk



Civil Works

Common approach for:

- Base Foundation
- Bridges
- Other Constructions
- Tunnels



Cost and Quantums

Common approach for:

- Understanding (and improving) the Atkins (F+G) Cost Model
- Classification Principles
- Quantum Calculation Principles
- Cost for site specific installations

Stretch	Grid Point				Trackwork					Electrification		Signalling	Earthworks - Cuttings & Embankments		
	from	to	Length	Single(S) or Double(D) New(N) or Existing(X) Track	A1 Plain Line (Ballast track)	A2 Slab Track in open ground	A3 Slab Track in tunnel or viaducts	A4 Extra over for Turn Outs	A5 Extra over for crossings	B1 per km of track	B2 Extra Over for Additional Sub Station	C1 per km of track	D1 Cat 1- EASY (0 - 10m dp/h) Good gd Cdns	D2 Cat 2 Medium (10-20m dp/h) >10m dp/h with s of Gd Cdns	D3 Cat 3 Difficult (<20m dp/h) OR > 20m dp/h with "special Measures"
Cost (MNOK/Unit)													48	120	190
Nr	Km	Km	Km	S/D/N/X	Km	Km	Km	Km	Km	Km	Km	Km	Km	Km	Km
0	0.000	61.858	61.858	X	Track already existing or planned										
1	61.858	64.776	2.918	D/N	2.918					2.918		2.918	2.147	0.464	0.007
2	64.776	65.230	0.454	D/N	0.454					0.454		0.454	0.400	0.054	
3	65.230	73.130	7.900	D/N	7.900					7.900		7.900	7.300	0.600	
4	73.130	73.935	0.805	D/N	0.805					0.805		0.805			
5	73.935	74.075	0.140	D/N	0.140					0.140		0.140	0.095	0.045	

Mapping and Environment

- Establishing a common interactive mapping system – Avinet
- Common approach to Environmental Impact Analysis
 - Landscape/ Cityscape
 - Cultural Heritage
 - Natural Environment
 - Natural Resources
 - Community Life
- Use of all available sources – imported to Avinet
- Common approach to input for Environment Analysis:
 - Energy Consumption
 - Climate Consequences



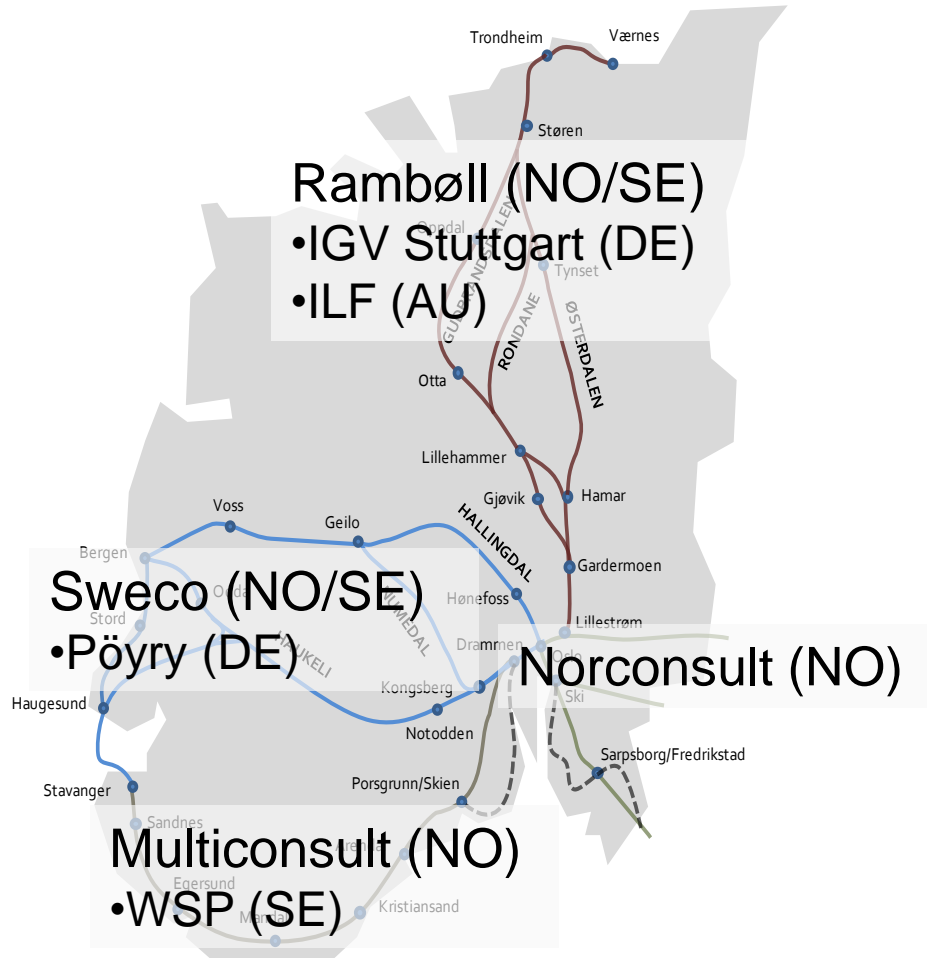


Alignment Search: Basic Assumptions

- Phase 2 Documentation
- Alignment close to possible markets
- KVV IC Project Cooperation
- Included in scope:
 - Mapping of existing situation
 - Alignment search
 - Description of alignments, tunnels, bridges and EIA
 - Quantums for cost estimation
 - Input for Journey Time and environment calculations
- Not included in scope:
 - Stopping patterns, journey times, cost estimates



Phase 3 Consultant Groups



Environment

- AsplanVIAK (NO)
 - VWI (DE)
 - MISA (NO)

Market and Economy

- Atkins (UK)
 - Faithful & Gold
 - Significance

Safety

- Pöry (DE)
 - InterFleet Technology (DE/NO)
 - Sweco (SE)



Experience Phase III

- Small client organisation
- 4 parallell studies with 4 highly skilled consultants
- Detailed design parameters left to consultants' experts for decision.
- In principle: All technical questions from consultants to JBV being returned to Working Group.
- Direct information flow between consultants
- Cooperation between experts from 6-7 (normally competing) consultants has been
 - A major support for the client.
 - Somewhat unusual for consultants, but appreciated
 - A major increase in (railway) competence among JBV's suppliers.

