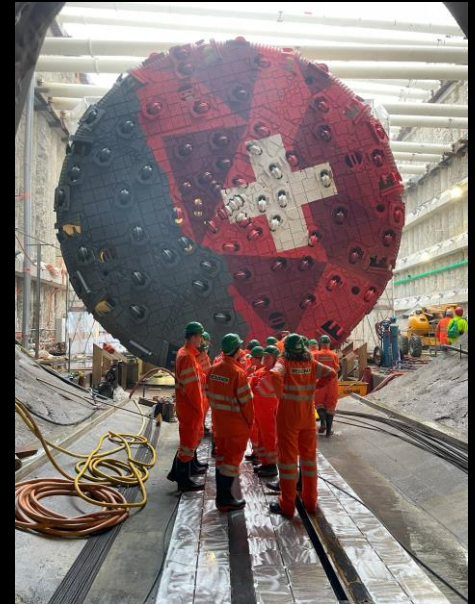


# *Comments/Links and inconsistencies on Roadmap Phase 1 vs Technical Infrastructure and Safety*

Patrick Werneke

ETO-TETO-EMR-CERN Civil Engineering Meeting

CERN, January 14, 2025



## ***Comments/Links and inconsistencies vs Technical Infrastructure***

*“Issue on 'master planning' (planning across all institutions and responsibilities).” (EMR):*

- In order to create parts 3.3 to 3.6 as a Local Team, prerequisites/input are needed from the deliverables of part 3.1.1 and 3.7. Deliverables from 3.1.1 and 3.7 must be ahead in time. **The Target Delivery Date for 3.7 should be no later than Q3 2025 and actually as soon as possible from today.***
- In this draft version, the Delivery Date is at the same time as sections 3.3 through 3.6. This inconsistency leads to an **unfeasible 'master planning'**. If – as an example - ET baseline civil infra layout from ETO is 2026, then bid book EMR should be somewhere in 2027 to allow modifications on ETO baseline in Q4 2026.*
- This also requires that the ambition from §3.7.7 should be concept design instead of preliminary design.*
- Another not unimportant point in that regard is that in the opinion of the EMR, the Target Delivery Date of 07/2026 for cost estimation and scheduling leaves no more room for adjustments in the TETI and EMR documents*

## ***Comments/Links and inconsistencies vs Technical Infrastructure***

*“Issue on level of detail for a feasibility phase.” (EMR)*

- In order to create parts 3.3 to 3.6 as a Local Team, prerequisites/input are needed from the deliverables of part 3.1.1 and 3.7. Deliverables from 3.1.1 and 3.7 must be ahead in time. **The Target Delivery Date for 3.7 should be no later than Q3 2025 and actually as soon as possible from today.***
- Central question is: why delivering so many drawings and models for a feasibility study? It costs a lot of money and brings a very limited added value for the feasibility phase.*

*Examples:*

- 3.7.1 Cooling and ventilation:** description is very detailed for a feasibility study. What is the point? CFD simulations! Some demands are typical for detailed design.*
- §3.7.2 Electrical engineering:** description is very detailed for a feasibility study. What is the point? Some demands are typical for detailed design, not for a concept design.*

## ***Comments/Links and inconsistencies vs Technical Infrastructure***

*“Issue on 'master planning' (planning across all institutions and responsibilities).”*

- The Civil Engineering and Technical Infrastructure are on different timelines due to two different collaboration agreements with CERN:
  - ETO Civil Engineering pre-TDR: Q4 2026
  - ETO Technical Infrastructure and Safety pre-TDR: Q3 2027
- **Technical Infrastructure and Safety agreement finalized and will be signed soon: start will be April 1<sup>st</sup>. :i.e. hiring the persons**
- **Consequences of the different timelines are not yet discussed with ETO directors.**



## ***Comments/Links and inconsistencies vs Technical Infrastructure***

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*“Issue on 'master planning' (planning across all institutions and responsibilities).”*

### ***What should we do?***

- ***Forget about the implications of Technical Infrastructure for now. Assume will be no problem for the civil infrastructure: assume we have enough space for cables and piping.***
  
- ***A very low level basic concept design be presented Q2/Q3 2026 may be possible?***
  - ***Will this be helpful for LT's?***
  - ***Do we expect major changes due to TI and Safety?***
    - ***Issues could be: escape routes, additional shafts, sizes, at the surface?***

## ***Comments/Links and inconsistencies vs Technical Infrastructure***

*“Issue on level of detail for a feasibility phase.” (From EMR)*

- **Cooling and ventilation: source of noise (acoustic, thermal, Newtonian)**
- **Have to follow the CERN standard program for hiring flexible personnel (fellows)**
- **CERN will provide help writing pre-TDR chapters**
- **Uncertainty if the contract can be extended after 2027/2028: HL-LHC – FCC**
- **Safety may have a large impact on the civil infrastructure**
- **We have the person power: FTE’s hired inside the CERN departments**
  - **These persons could be working for ETO in the future**



## ***Comments/Links and inconsistencies vs Technical Infrastructure***

*“Issue on safety and security.” (EMR)*

- *ETO seems to see **safety and security as a site dependent aspect while it probably will be site independent**. ETO should formulate demands in relationship with these topics that should be followed by both EMR as TETI.*

**NOTE:**

- *By formulating ‘LTs to adjust for local solution/layout’ it seems that issues as **§3.7.3 Access and alarms / §3.7.4 Health & Safety** are presented as an site dependent aspect. It should be posed as a requirement or starting point from ETO towards EMR and TETI.*
- ***3.7.3:** please confirm that the expressions Document safety requirements and solutions is intended as a request to provide evidence of specific, local requirements that LTs will use as a reference. (TETI)*



## ***Comments/Links and inconsistencies vs Technical Infrastructure***

*“Issue on safety and security.” (EMR)*

*“11) Page 11. **Tasks 3.3.4 and 3.3.6**. I do not believe in LT addressing these points alone.”*  
Responsibilities for the correlated aspects must be identified in ETO-ETC (Variola EDMS)

- Logistics plan during construction including: 1. Layout of the construction site(s), 2. Personnel, 3. Flow of equipment and material, 4. Transportation of structural components from surface to underground site level*

*“16) Page15. **Task 3.7.4**. Who will do it? This should be included in the LT studies.”*

- Occupational Health and Safety*





## ***Comments/Links and inconsistencies vs Technical Infrastructure***

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*“Issue on safety and security.”*

- **Responsible for Health and Safety at the construction site & environment: LT's**
  - **Follow EU Directives (92/57 and more)**
- **Responsible for Health and Safety during installation and operation: ETO**
  - **No ETO Occupational Health and Safety officer yet!**
  - **Access and Alarms: solution for safety issues that cannot be mitigated!**
  - **CERN safety agreement: fire safety, smoke and leak detection, evacuation, implosion**
  - **Risk manager (ETO-PO)**

## ***Comments/Links and inconsistencies vs Technical Infrastructure***

### **Conclusion:**

- **Pre-TDR of the Technical infrastructure will be ready in Q3 2027!**
- **What are the consequences of this delay and what information is needed for LT's?**
- **Responsible for Health and Safety at the construction site & environment: LT's**
- **Responsible for Health and Safety during installation and operation: ETO**

