Update on DH and AH Layout

Milestone of DH Design & Construction

Mini-Workshop on ILC Infrastructure and CFS
for Physics and Detectors

Masanobu Miyahara

KEK - Linear Collider Project Office

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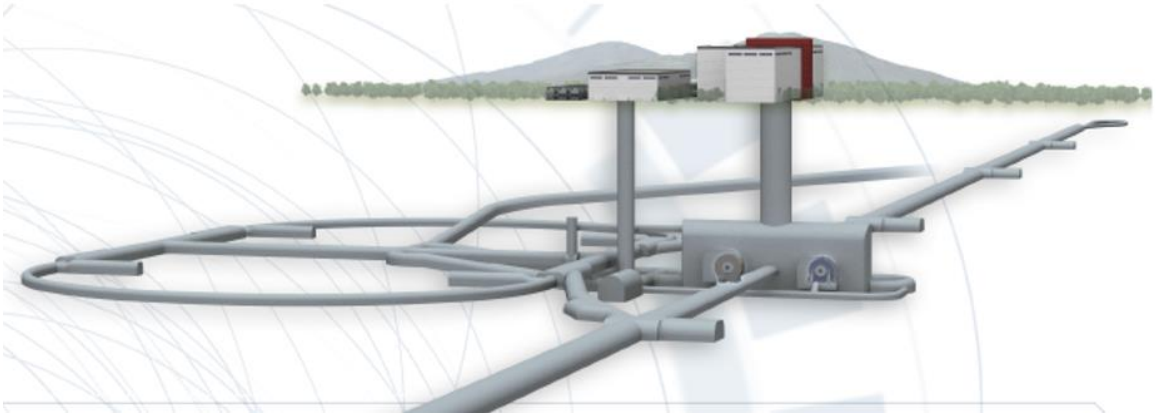
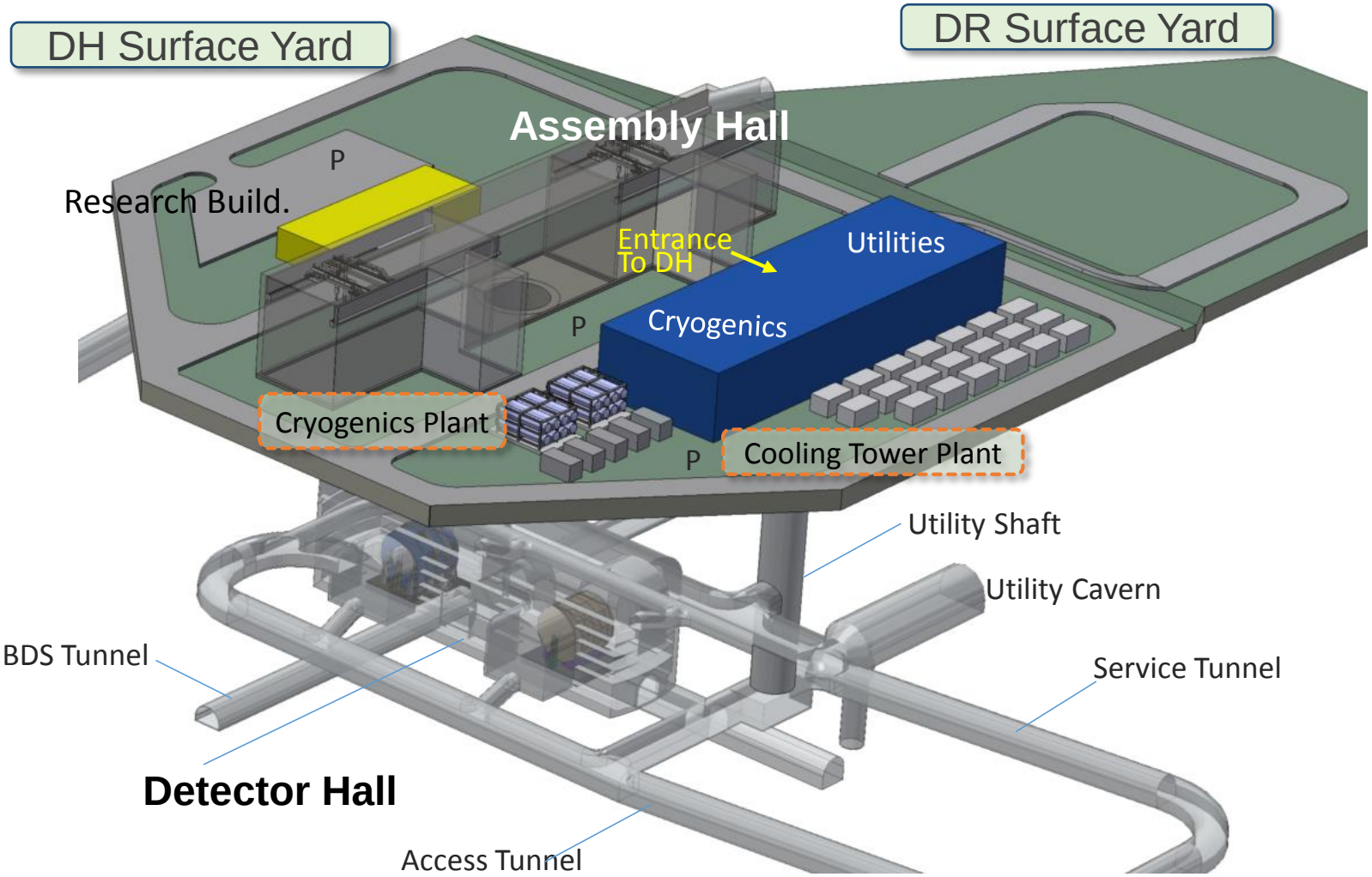
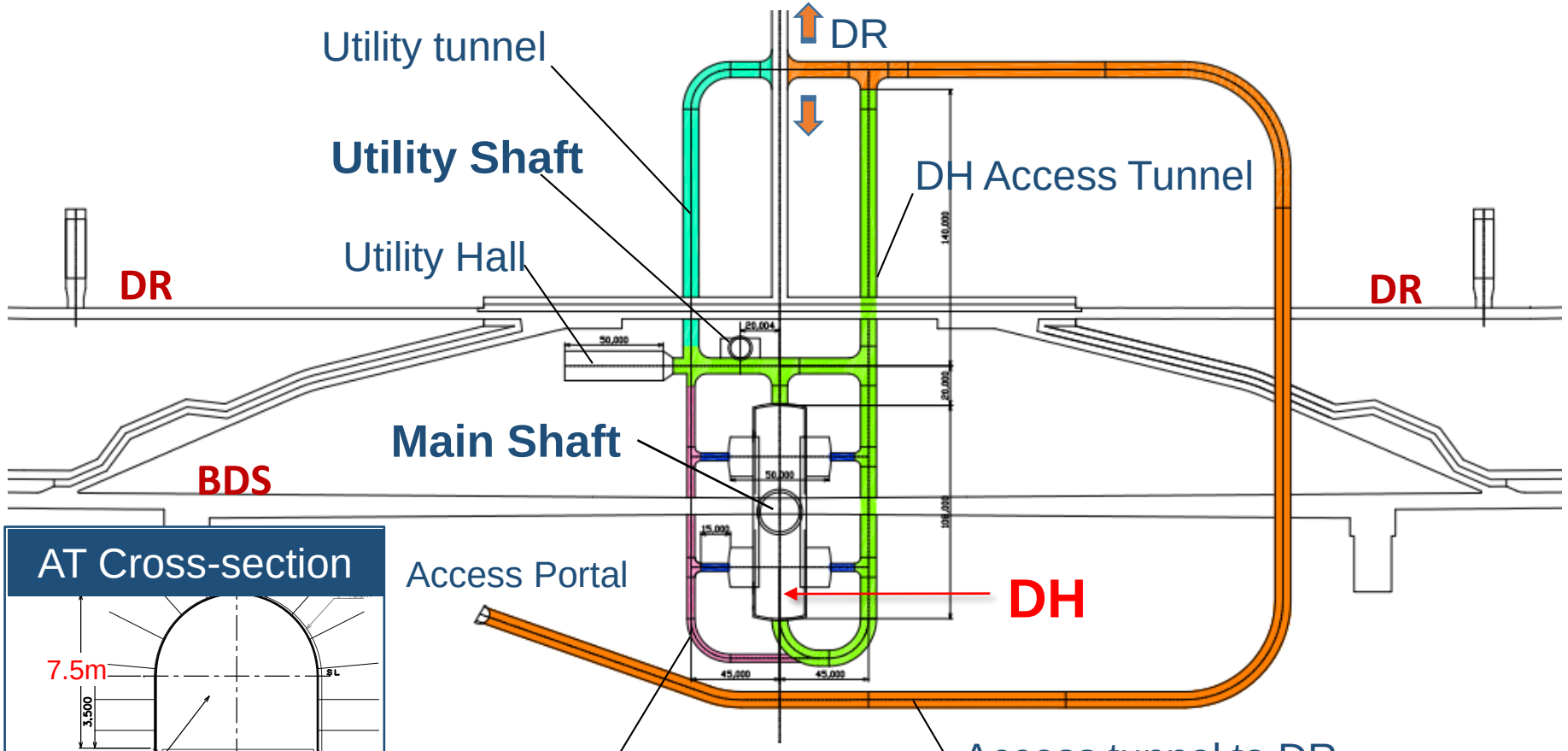


Overall Facilities of the DH Region



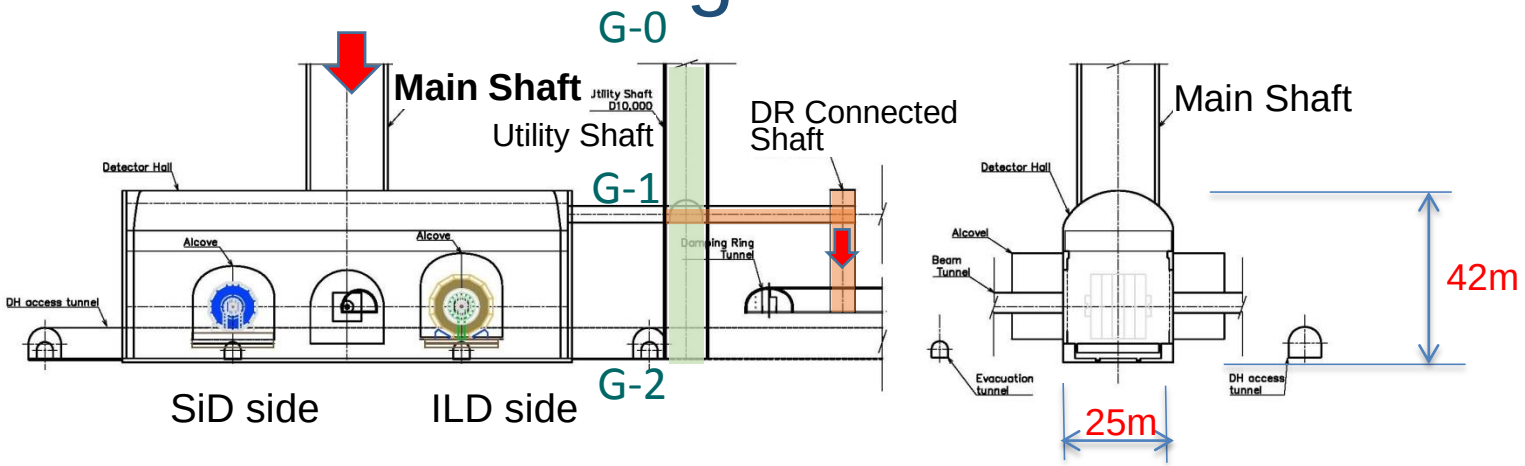
I Current Design of Detector Hall Region

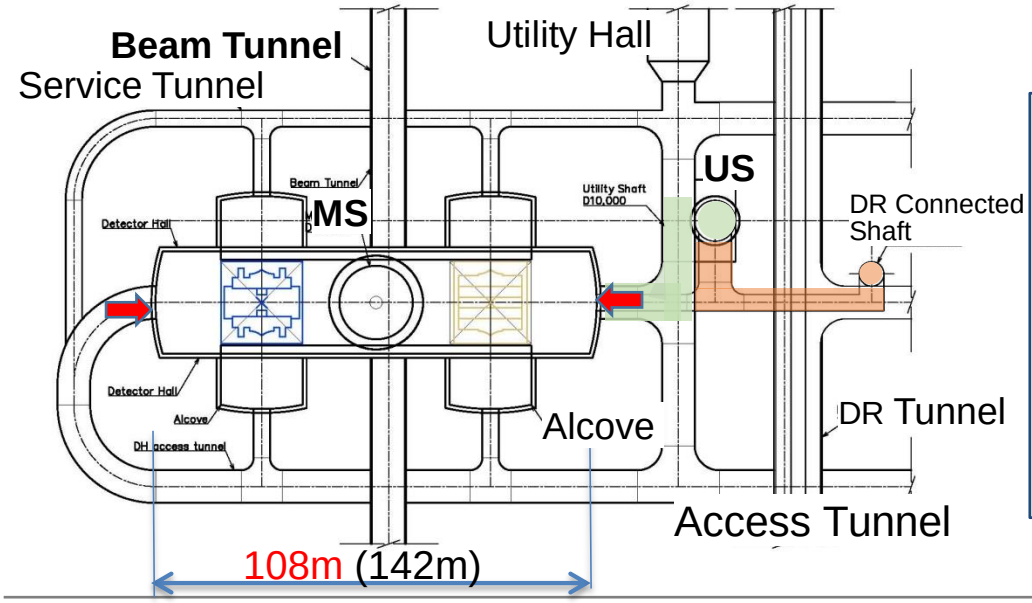
Arrangement of the Underground Facilities



AT Cross-section

Current Design of Detector Hall

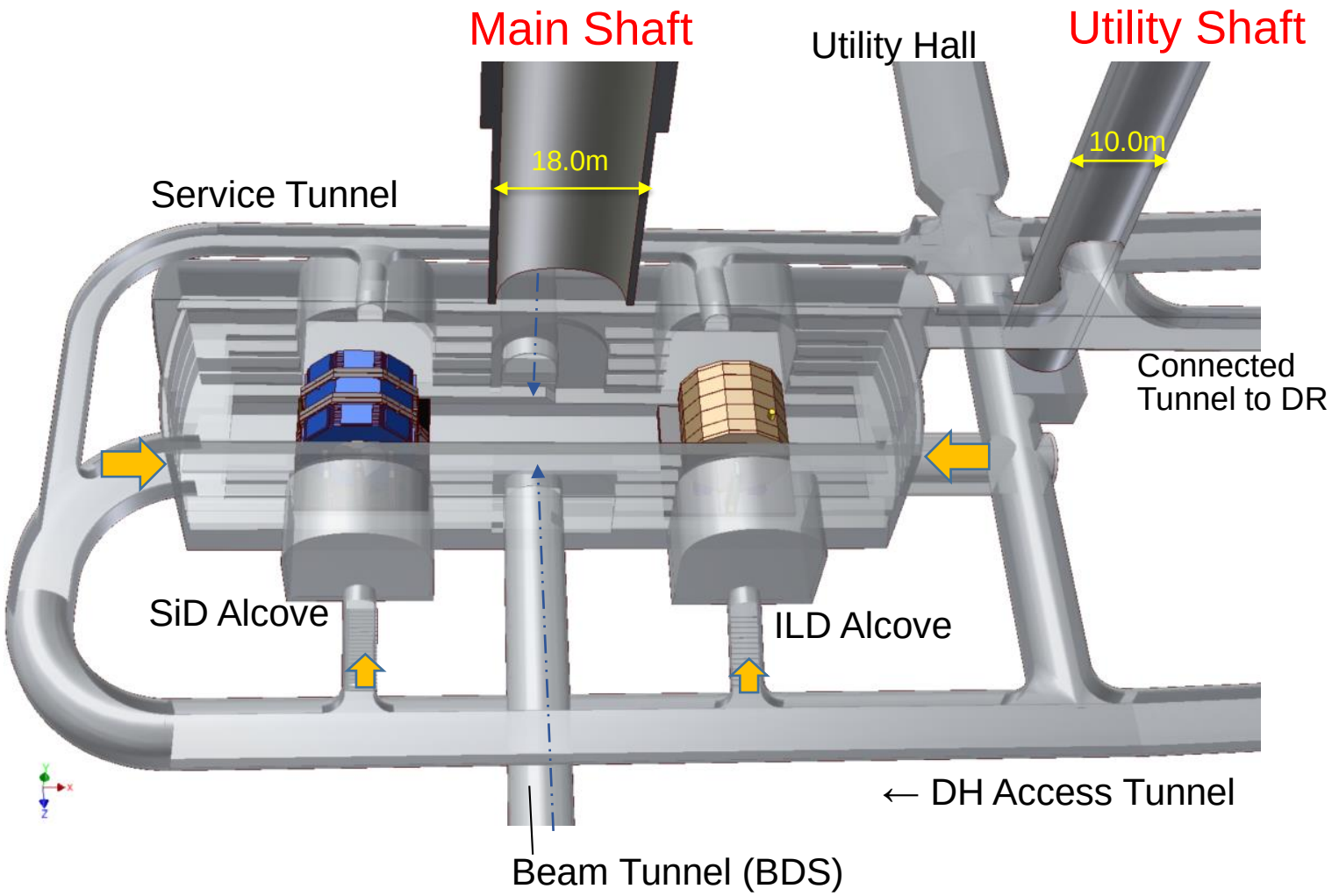




Structural Features

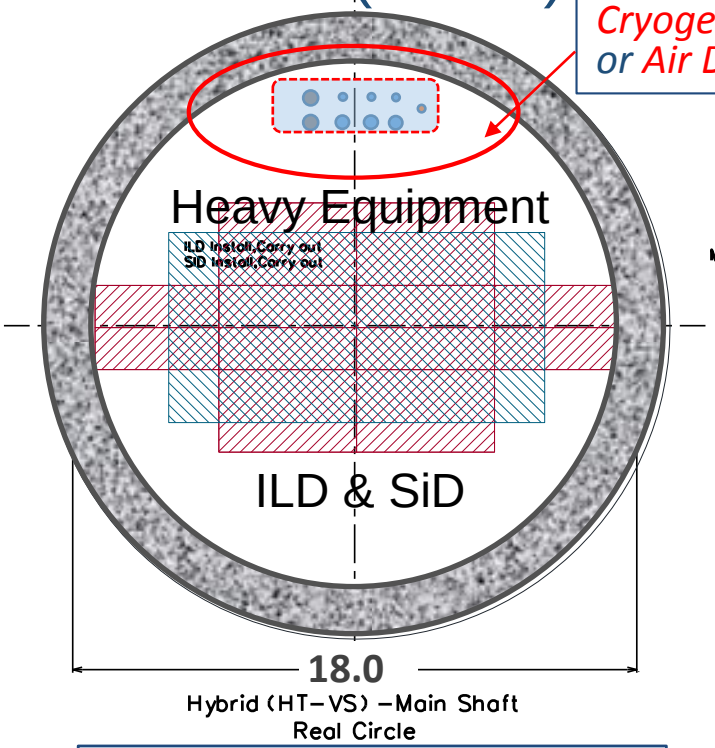
- Main shaft locates IR position.
- DH length reduction:
  108m from 142m (TDR)
- Personnel entrance way is Elevator installed in UT shaft
- Access tunnels connect at the both end of DH

Detector Hall and two Vertical Shafts

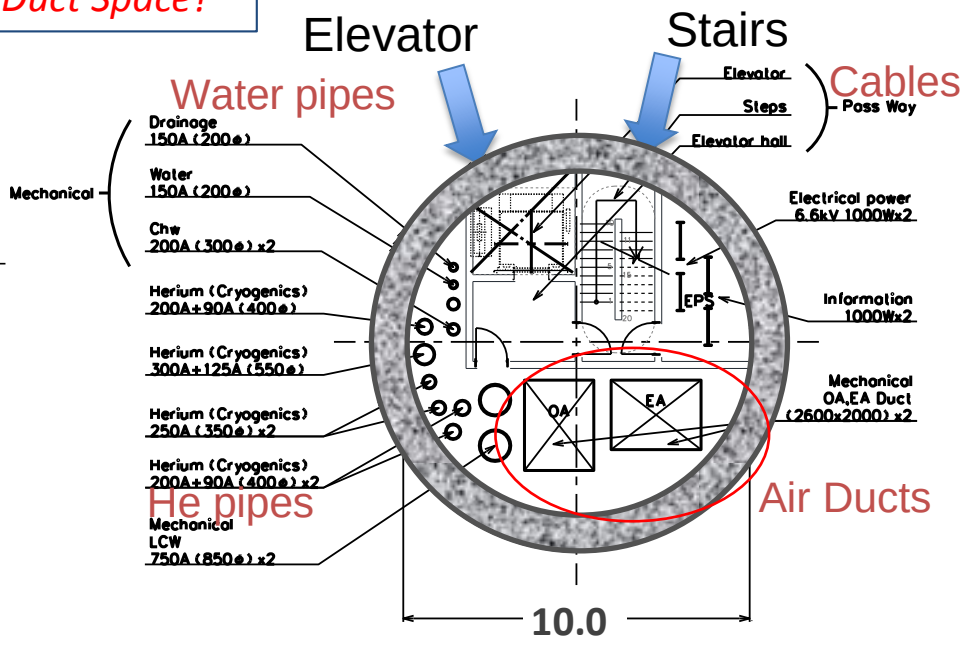


Two Vertical Shafts

Main Shaft (D18m)



Utility Shaft (D10m)



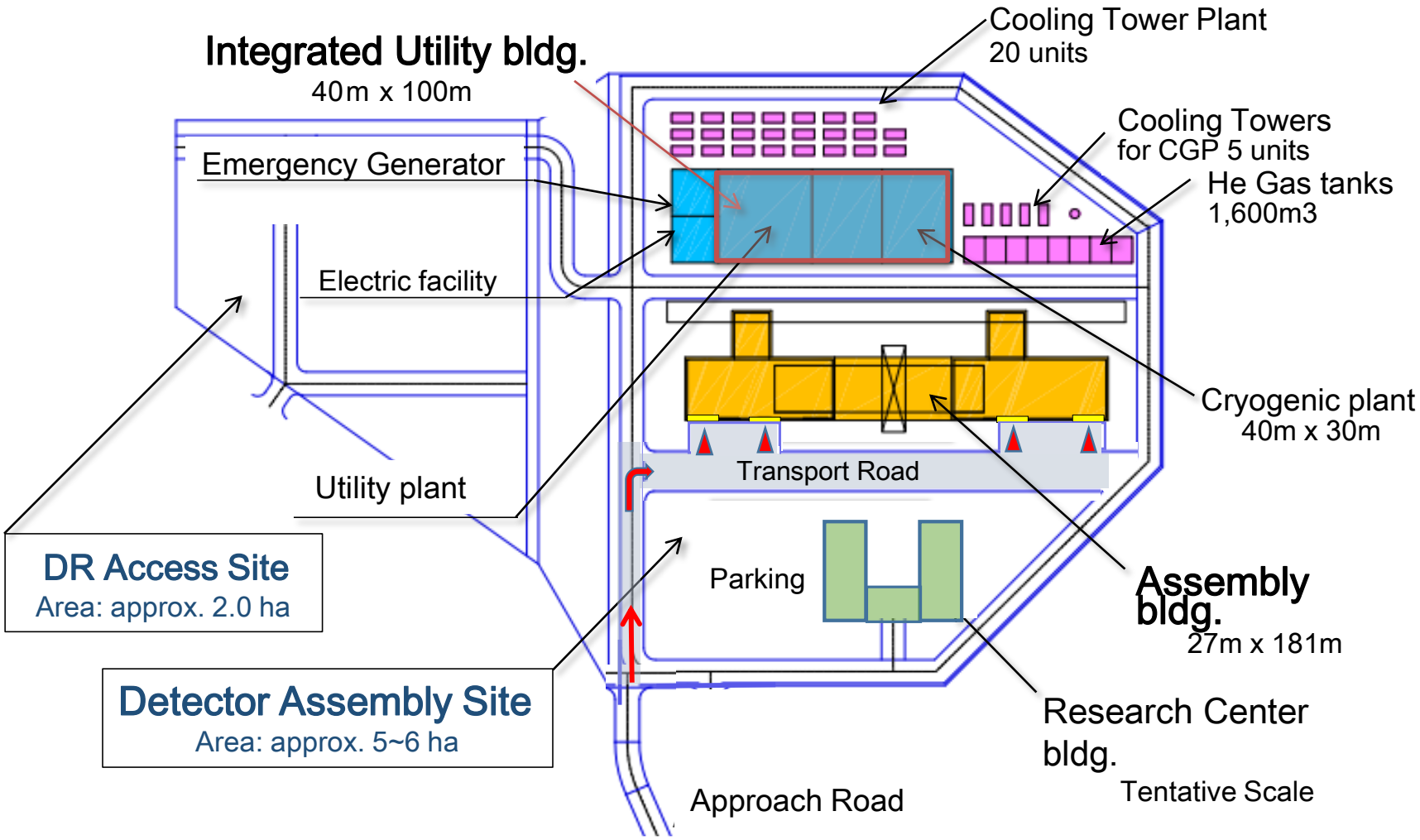
Main shaft D=18m

- Center of DH
- Detectors Installation by Gantry Crane

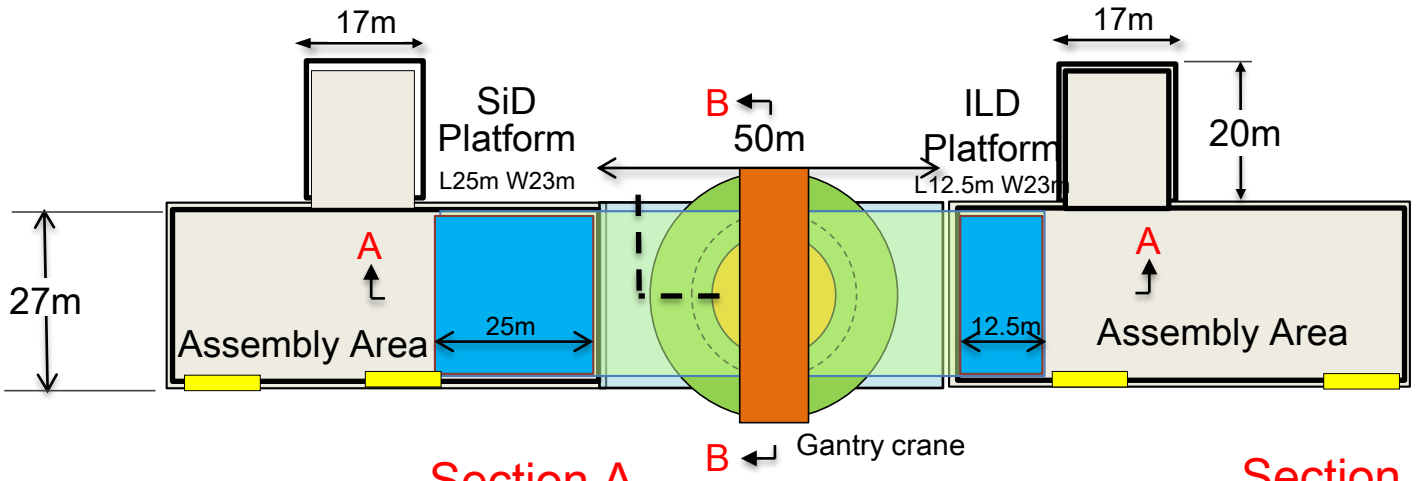
Utility shaft D=10m

- Utility lines: Pipes, ducts, cables
- Personnel access to Detector Hall by Elevator and Stairs

Ⅱ Surface Yard and Facilities

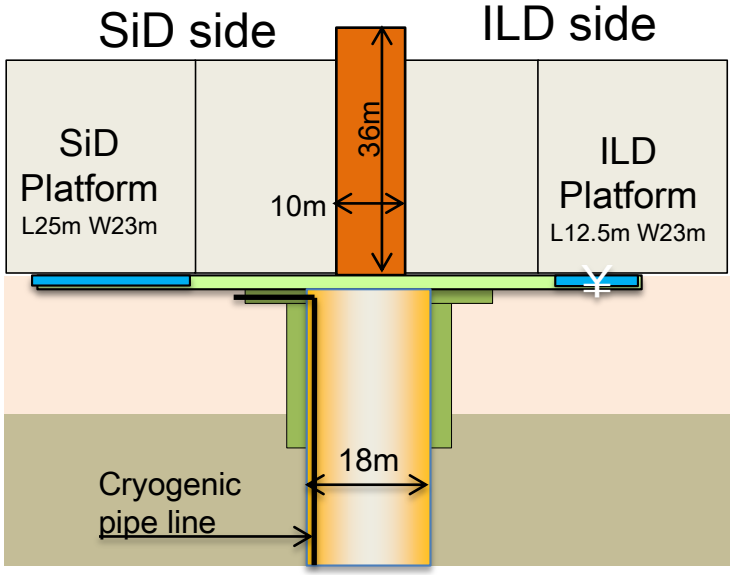


Assembly Hall and Main Shaft

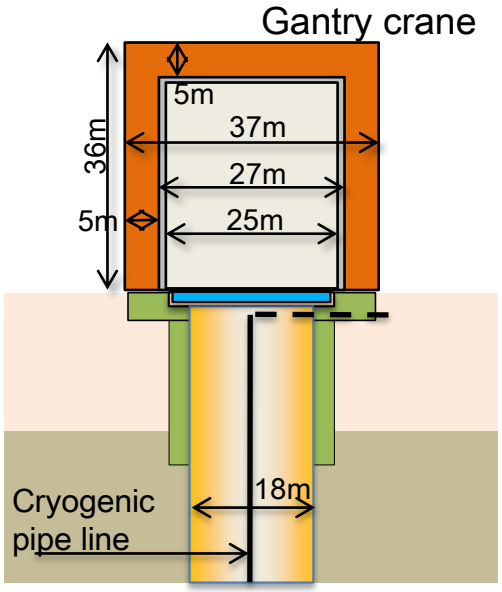


LHC-CMS Hall

Section A



Section B

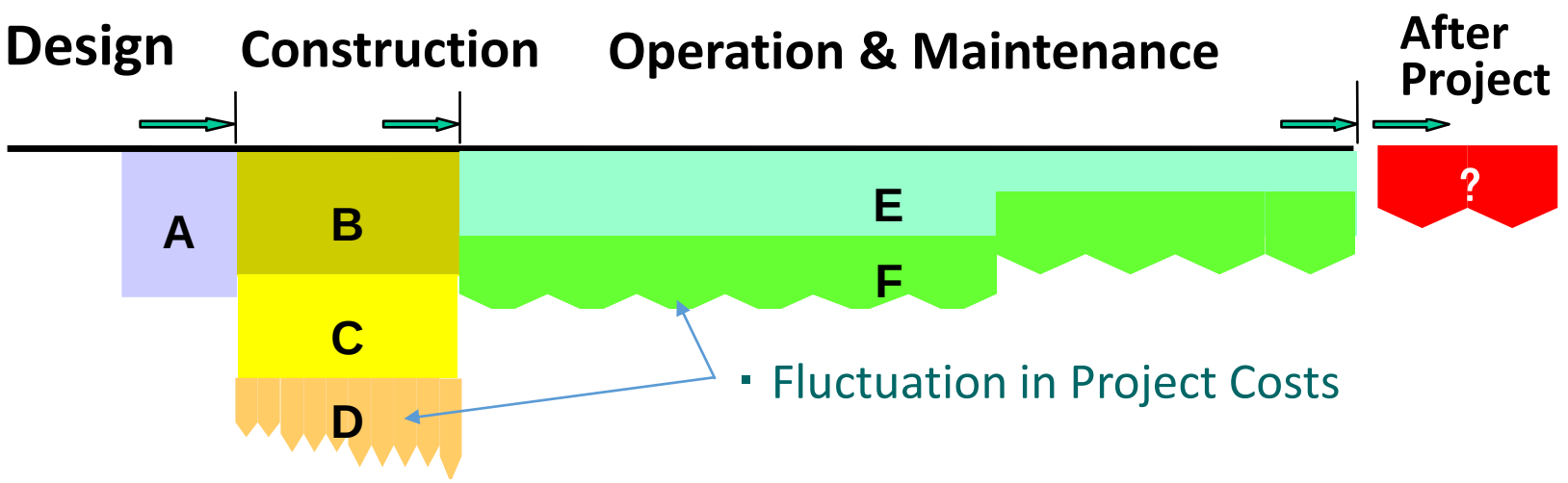


Overview of Project Schedule

- Topics – Extraction of the Project Risk Factors
- Design & Construction Schedule

Extraction of Project Risk Factors

Project Life of ILC Facilities



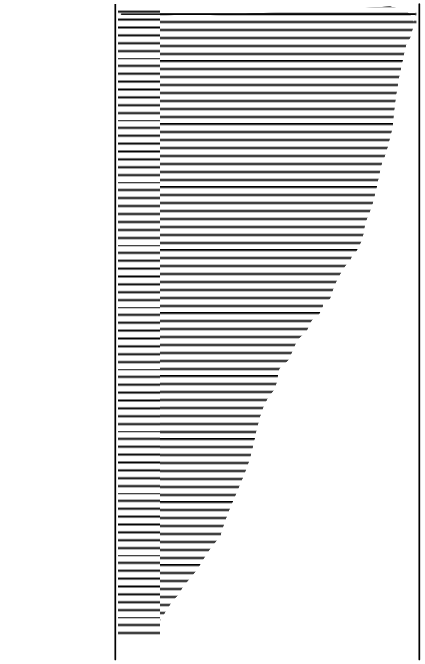
A: Survey & Design
B: Component Cost
C: Civil Cost/Fixed Amount
D: **Civil Cost/Fluctuation Amount**

E: OM Cost/Fixed Amount
F: **OM Cost/Fluctuation Amount**

- Reference from; JACE Report on the Civil Engineering of LC Accelerator Facilities in 2008

Geological Risk and Life Cycle Level

■ Geological Feature and Life Cycle Level



Life Cycle Level

Planning & Design Phase :

- Preliminary stage ⇒ Feasibility Study(Basic Plan)
- Design Phase-1 ⇒ Basic design
- Design Phase-2 ⇒ Detailed Design

Construction Phase :

- Informational construction based on measurement

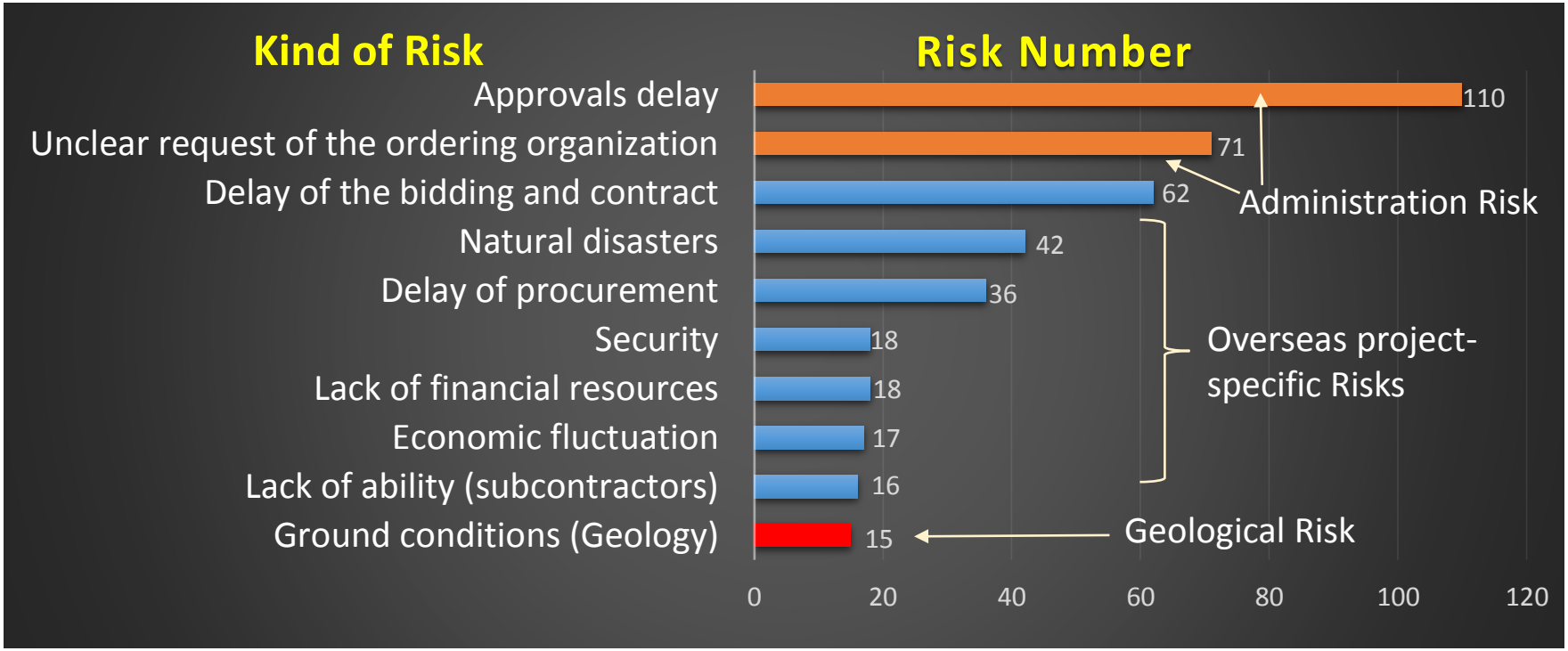
Operation :

- Operation & Maintenance stage

➢ Reference from; JACE Report on the Civil Engineering of LC Accelerator Facilities in 2008

Extraction of Risk Factors in Big Project

- Ex-post Evaluations about Cost increase and Schedule delay in 377 cases of Japan's ODA Project

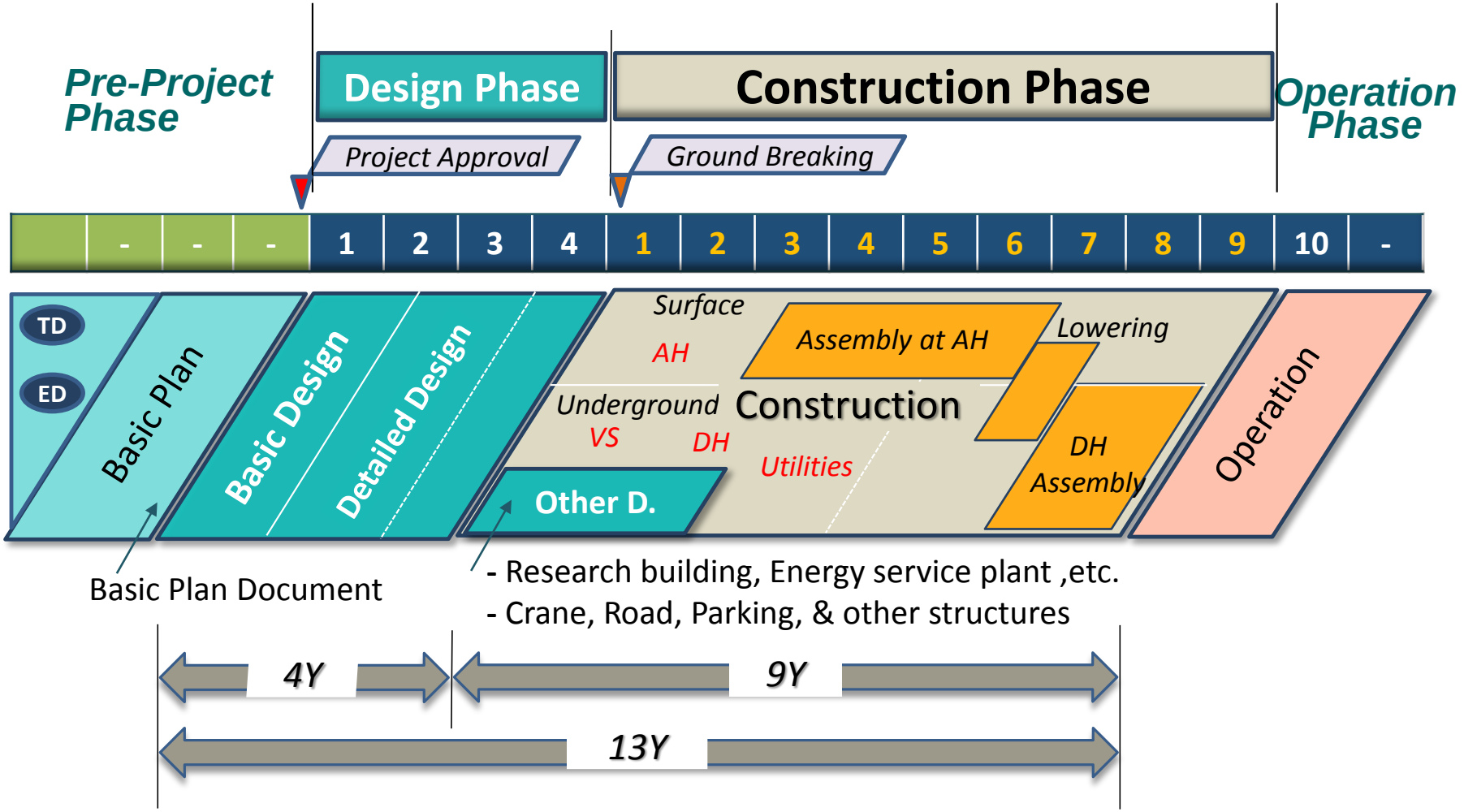


From the public report by JBIC in 2008

- Administration Risk:
  - Approval Delay: Acquisition of the Construction Site
  - Unclear Request: Design Specification, Project budget plan ,etc.
  - others: Japanese Budget system, Complicated Decision-making system, etc.

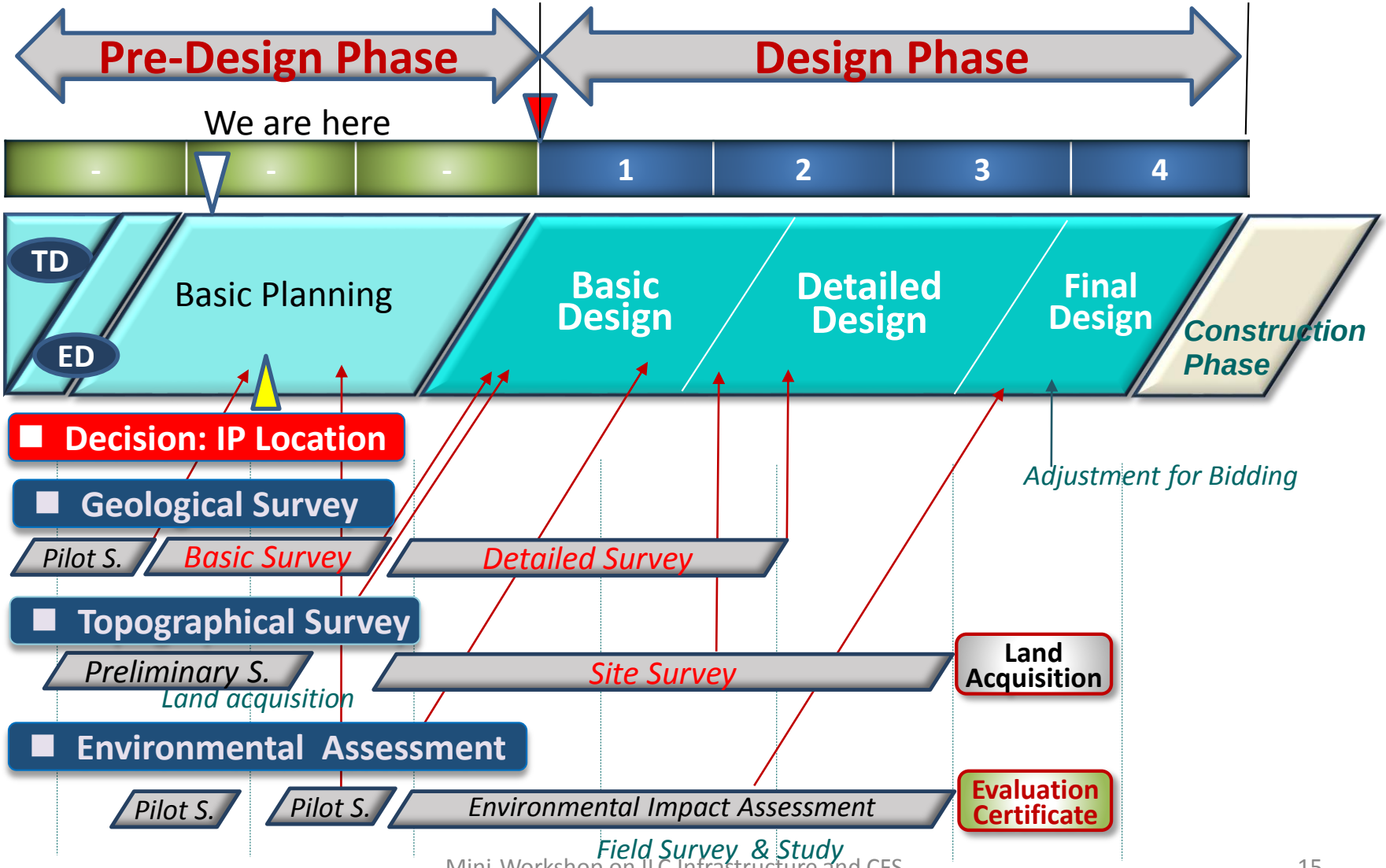
Milestone of DH Design & Construction

Design and Construction



Overview of Design Schedule

Design Schedule



Summary

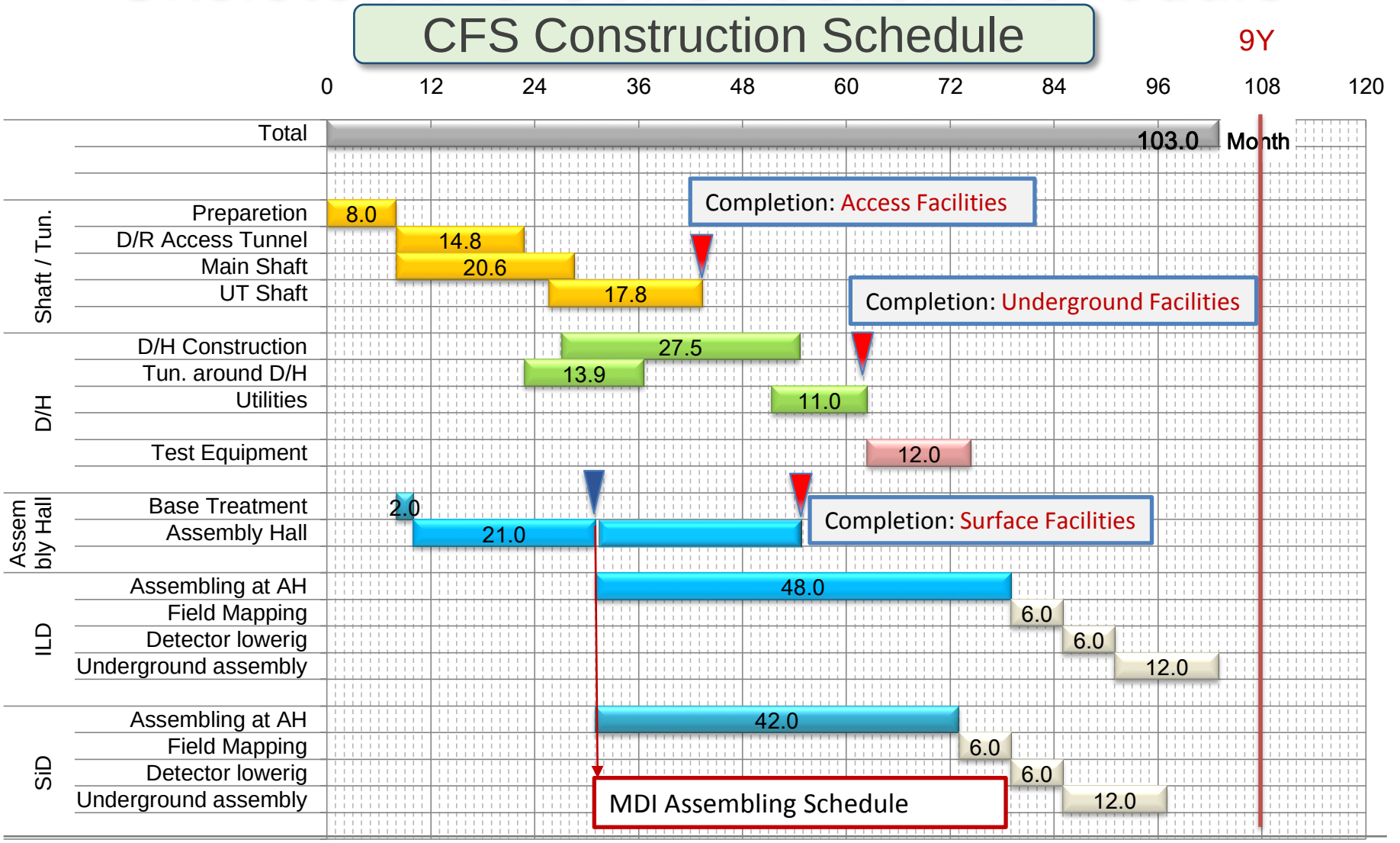
Main Issues toward the Design Phase

- Decision of the IP Location and ML Alignment:
  - Developing the ILC-TOT Work
- Verification: Geological feature in the Detector Hall area
  - Geological conditions at the Vertical shaft position
- Re-inspection: Requirement of the Experimental Functions
  - Platform structure in the push-pull system
  - Basic concept of the Pacman, Crane, Cryogenics system
  - Environmental measures in the DH surface yard:
- Coordination between of & Installation strategy and the Civil Construction schedule

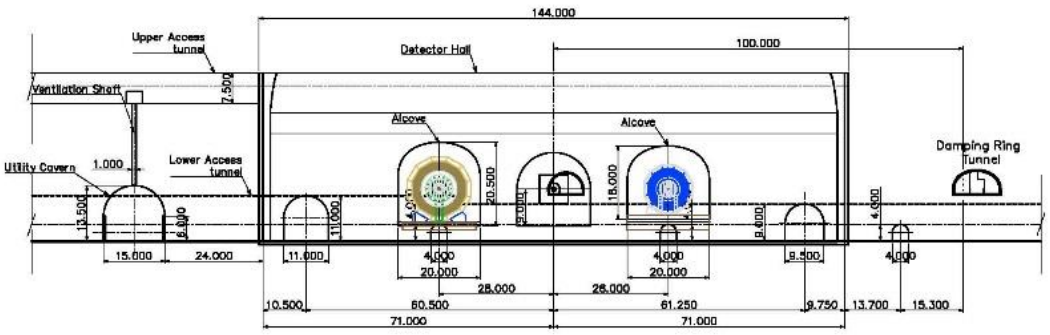
End

Appendix File

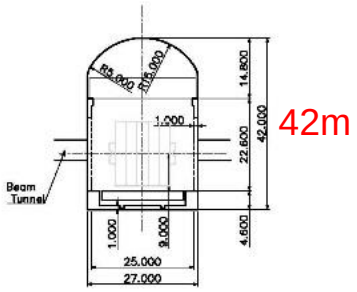
Skeleton the Construction Schedule



Detector Hall Design in TDR Baseline

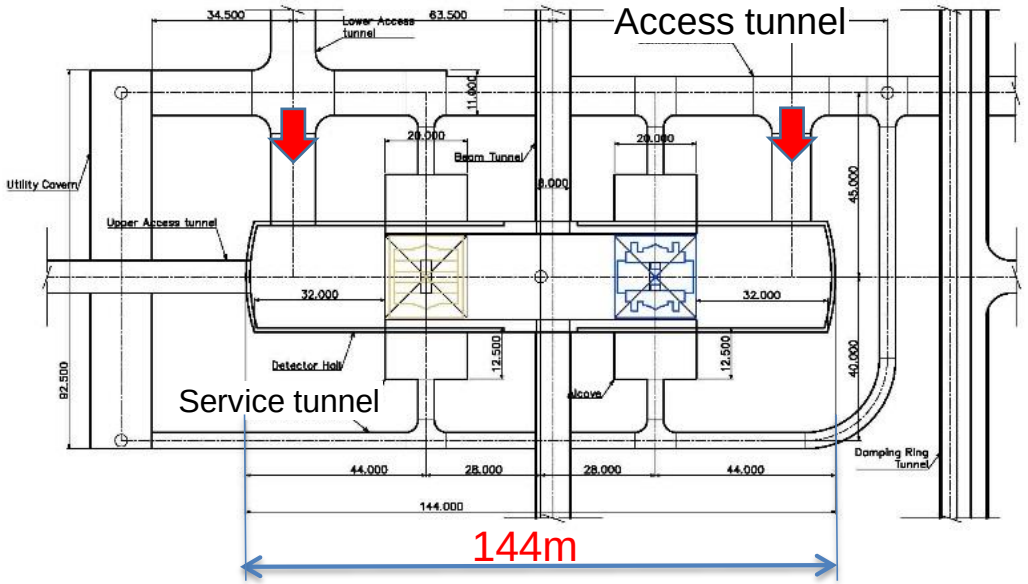


ILD side **SiD side**



42m

25m



Remarks

- Cavern Length / L=144m, W25.0m*h42.0m
- Access Tunnel / W11.0m*h11.0m (Access from the DH side)
- Assembling in the DH