Vertical Layout for the Service Cryostat to QD0 Cryostat Transfer Line.

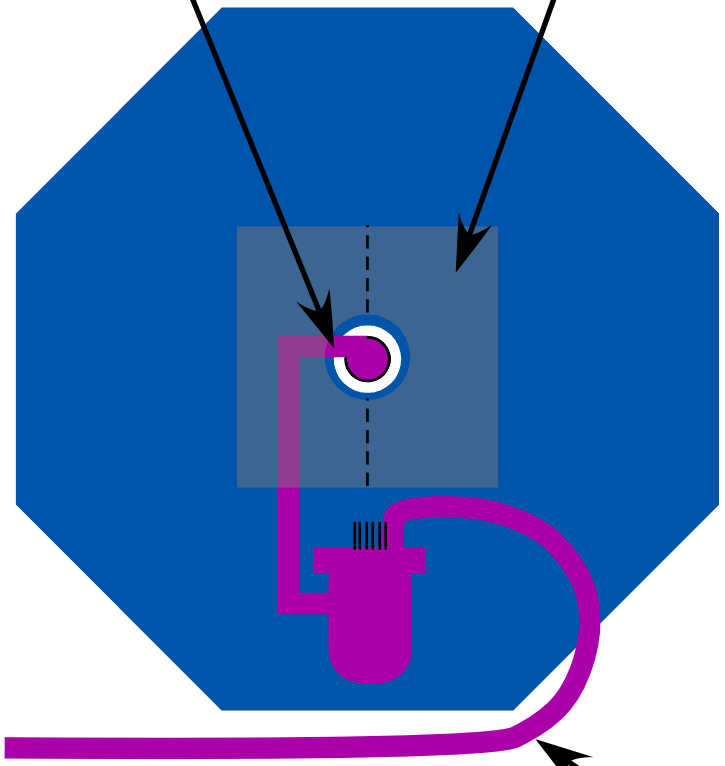
Line with 1 bar He-II and current leads to connect to QD0 cryostat.

Pacman shielding is thinner than full detector and separates horizontally.

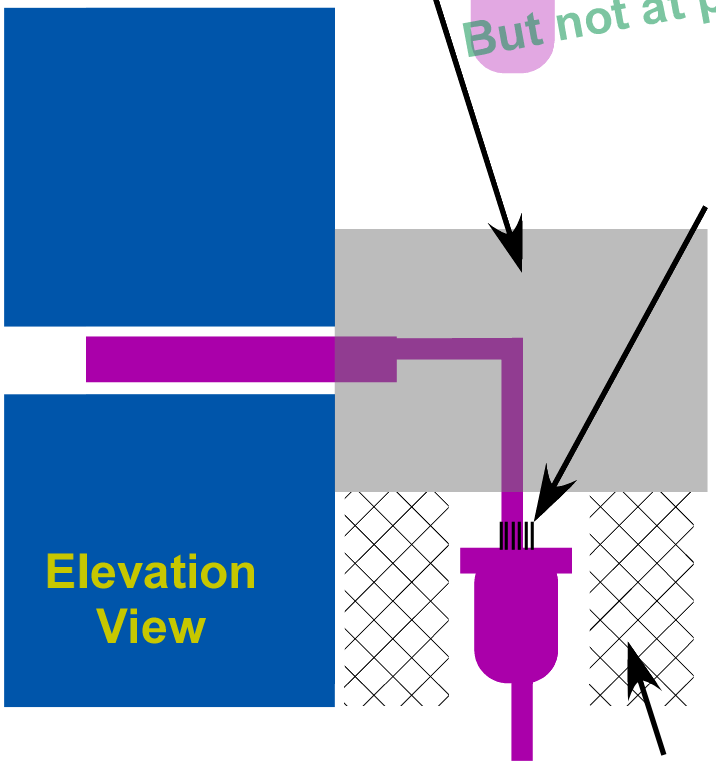
Putting service cryostat above is also possible.

But not at present proposed!

Instrumentation and magnet current leads connection point.



End View

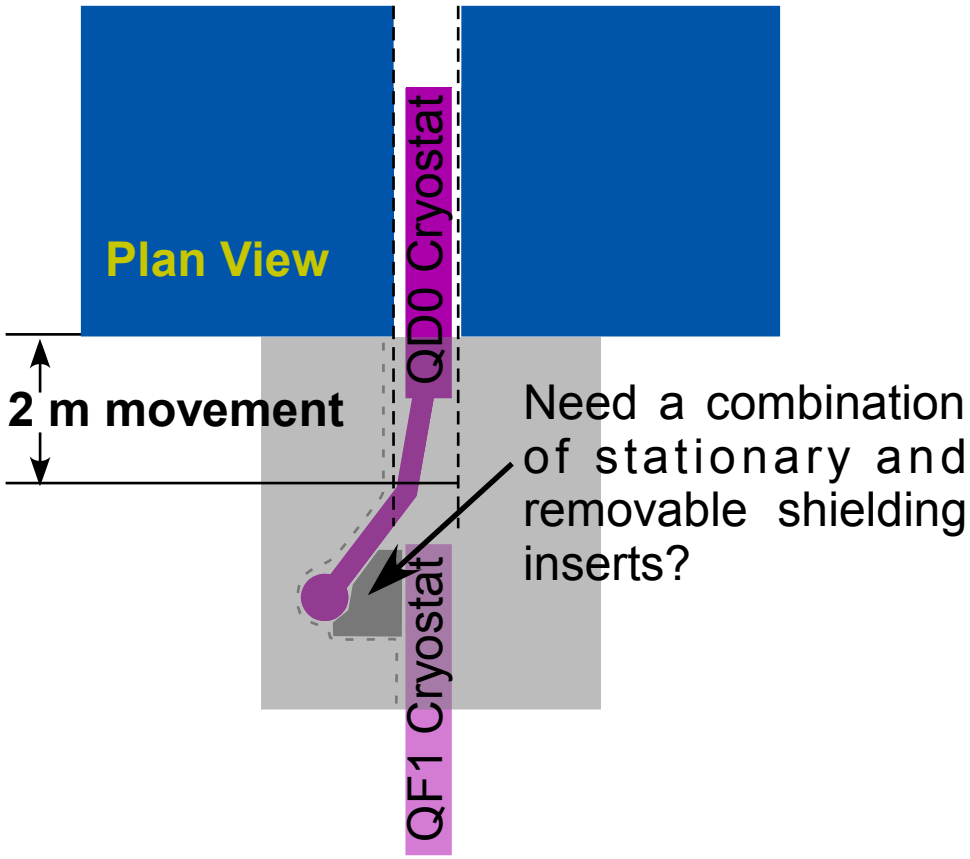


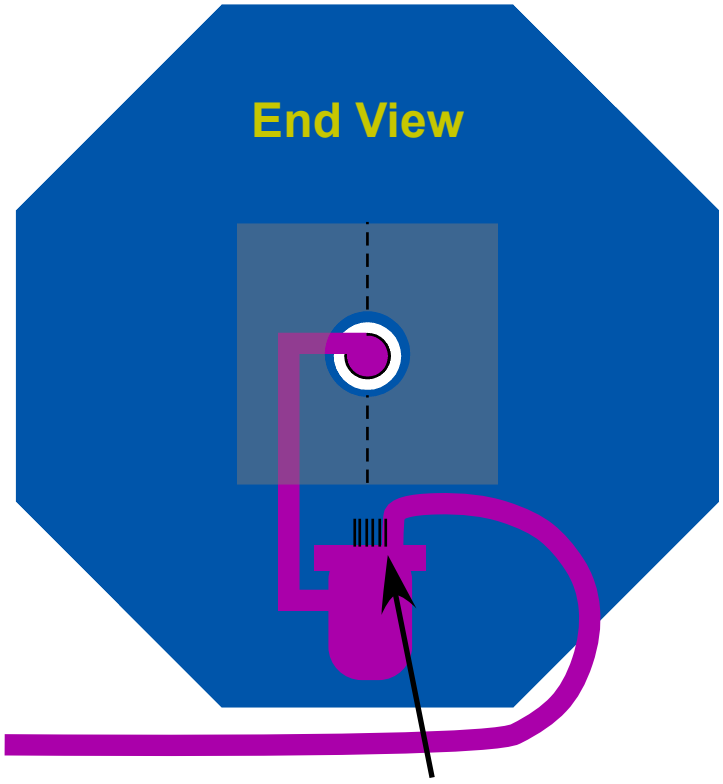
Elevation View

Single phase LHe supply and low pressure He return.

Pacman supported so that shielding can be moved out of the way when detector is opened.

Prohibit any line of sight penetrations through pacman to beam line.





QD0-Service Cryostat connection line has to permit 2 m opening by door but vertical section must not point directly to incoming/outgoing beamlines.

Make the current lead, instrumentation, process gas, vacuum line, etc. connections outside to minimize penetration of pacman.

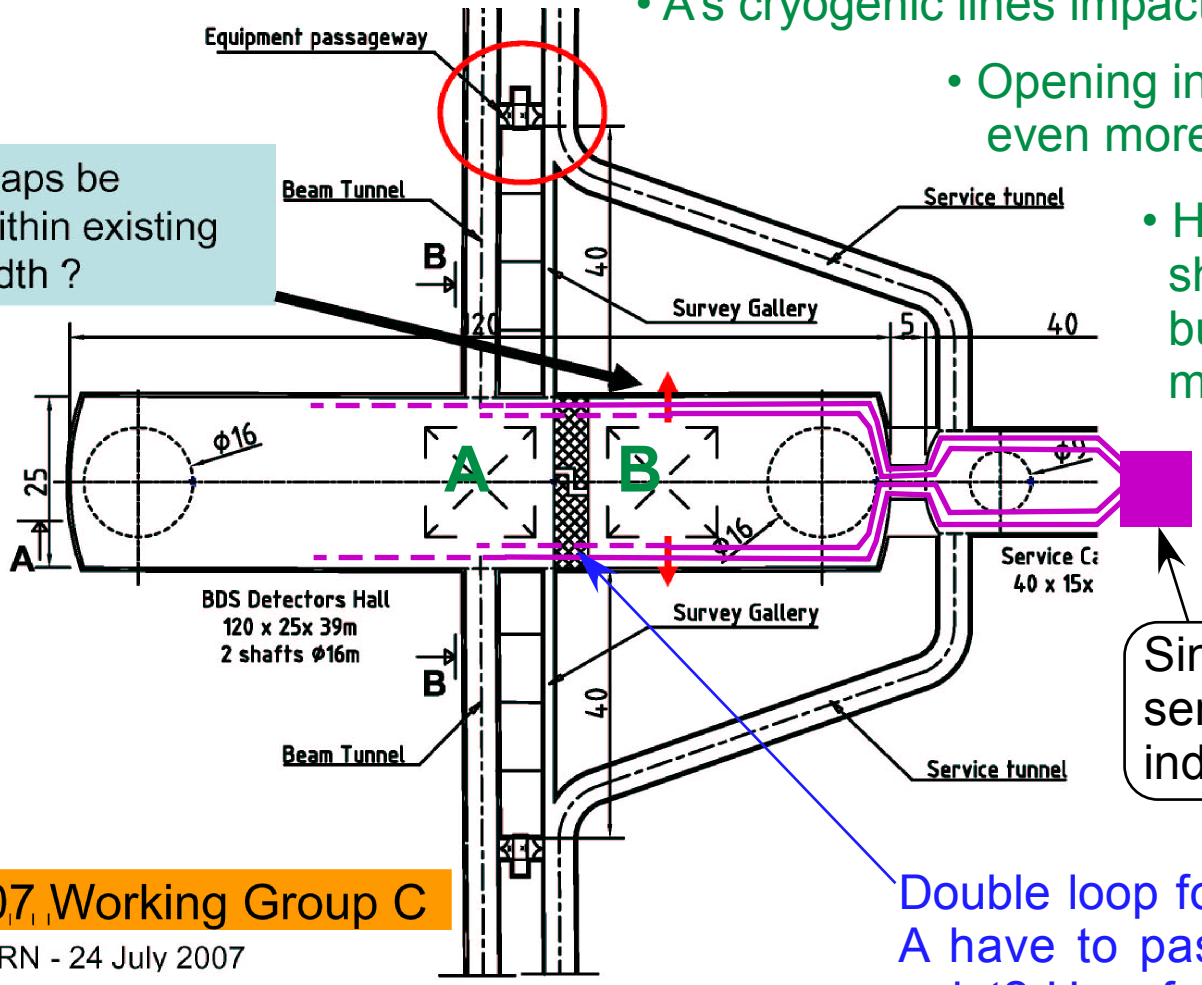
(Implicit assumption: mirror symmetric cryogenic layouts for the two experiments)

Simple Observations re. Cryogenic System Layout.

If cryogenics comes only from one side of the IR hall, then...

- Experiment A's cryogenic lines are longer than they would otherwise have to be.
- A's cryogenic lines impact/restrict B's space.
- Opening in the garage position gets even more challenging.
- How do we make a central shielding wall be effective but still come apart having multiple penetrations?

Can Endcaps be opened within existing cavern width ?



Single cryogenic source in service cavern to feed the individual service cryostats.

Double loop for B and single loop for A have to pass through wall at this point? Hopefully we will not need this central shielding wall if detectors are self shielded.

IRENG-07 Working Group C

J.Osborne CERN - 24 July 2007

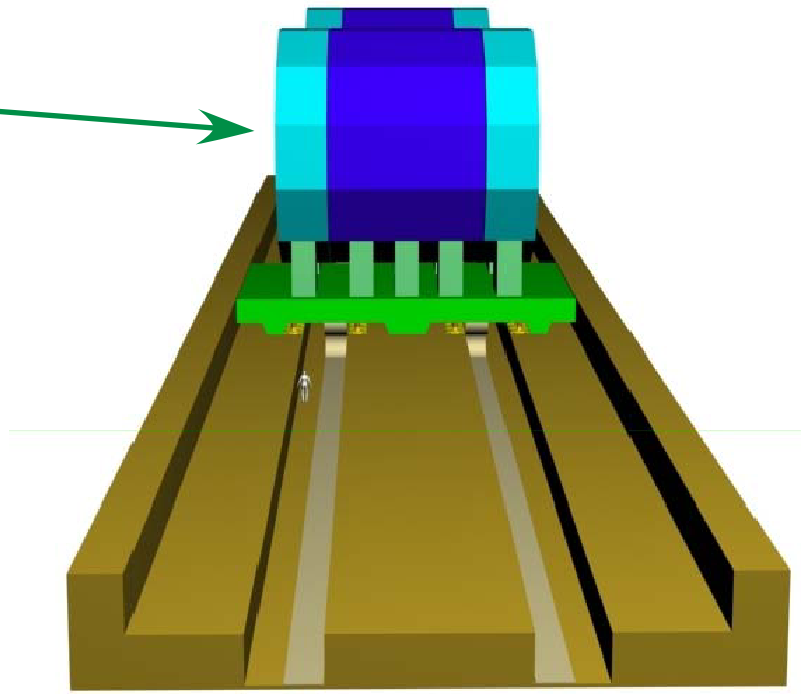
RDR Baseline Layouts for Interaction Region

Service caverns on both sides would be nicer for the cryogenic system? - B. Parker

Simple Observations re. Cryogenic System Layout.

To be useful for the cryogenic “umbilical” between the main cryogenic system and the service cryostat(s), such a scheme would need to accommodate a fairly large bend radius?

Maybe we should leave the vacuum pumps close to service cryostats (so they have to move with detectors) and only have “helium and other process gases” inside the umbilical?



Cable chains : CERN propose at least 2 chains for detector services. (Concept by H.Gerwig & A.Gaddi)

Trenches to be formed in the cavern floor invert (non structural concrete)