# An alternative layout proposal for ISOLDE Target Area

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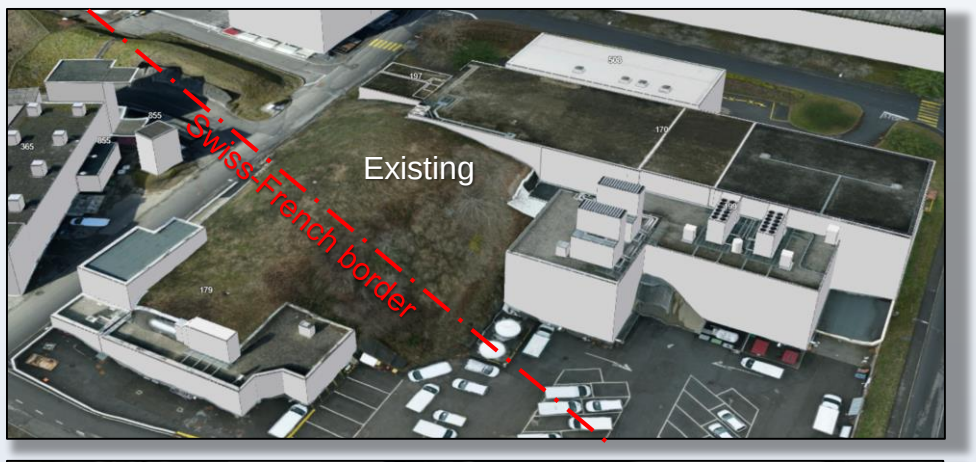
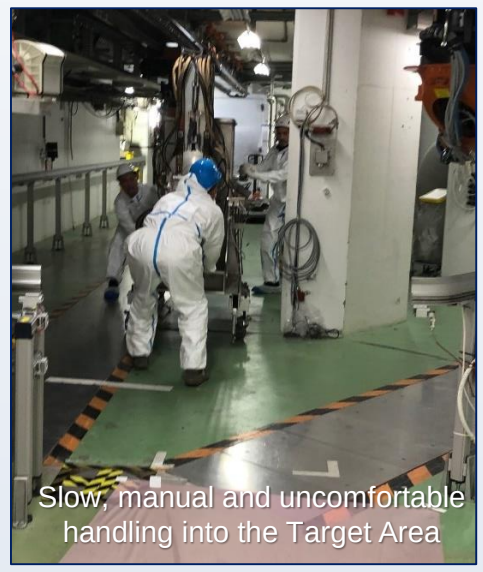
**Abstract:** This is an alternative conceptual design of a target area layout of ISOLDE. This concept will require shielding consolidation and a different approach to operational scenarios. In a first approach, this design focusses on the handling and maintenance aspects for future upgrades in the target area. The increase of radiation levels due to higher proton beam current and energy after LS3 will complicate personnel access into the target area. This concept also has the advantage of having a minor impact on the actual beam line distribution. The increase of available areas on the two new floors (2x700 $m^2$) offers many opportunities for future evolutions such as a radioactive off-line mass separator, an additional Class A laboratory, radioactive storage and repair areas. This solution also has the advantage of respecting the minimal allowed distance (10m for a visible building) from the French border.

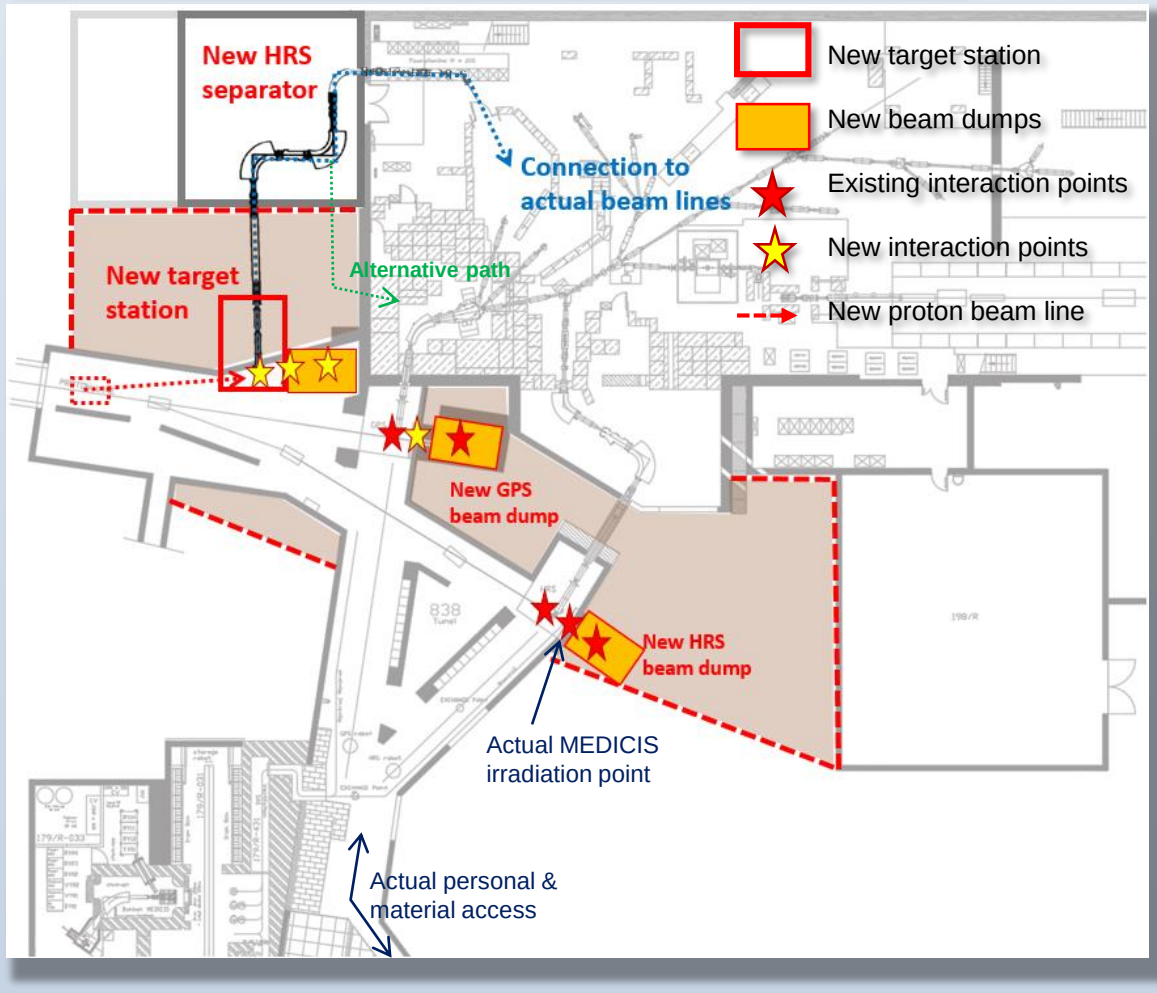


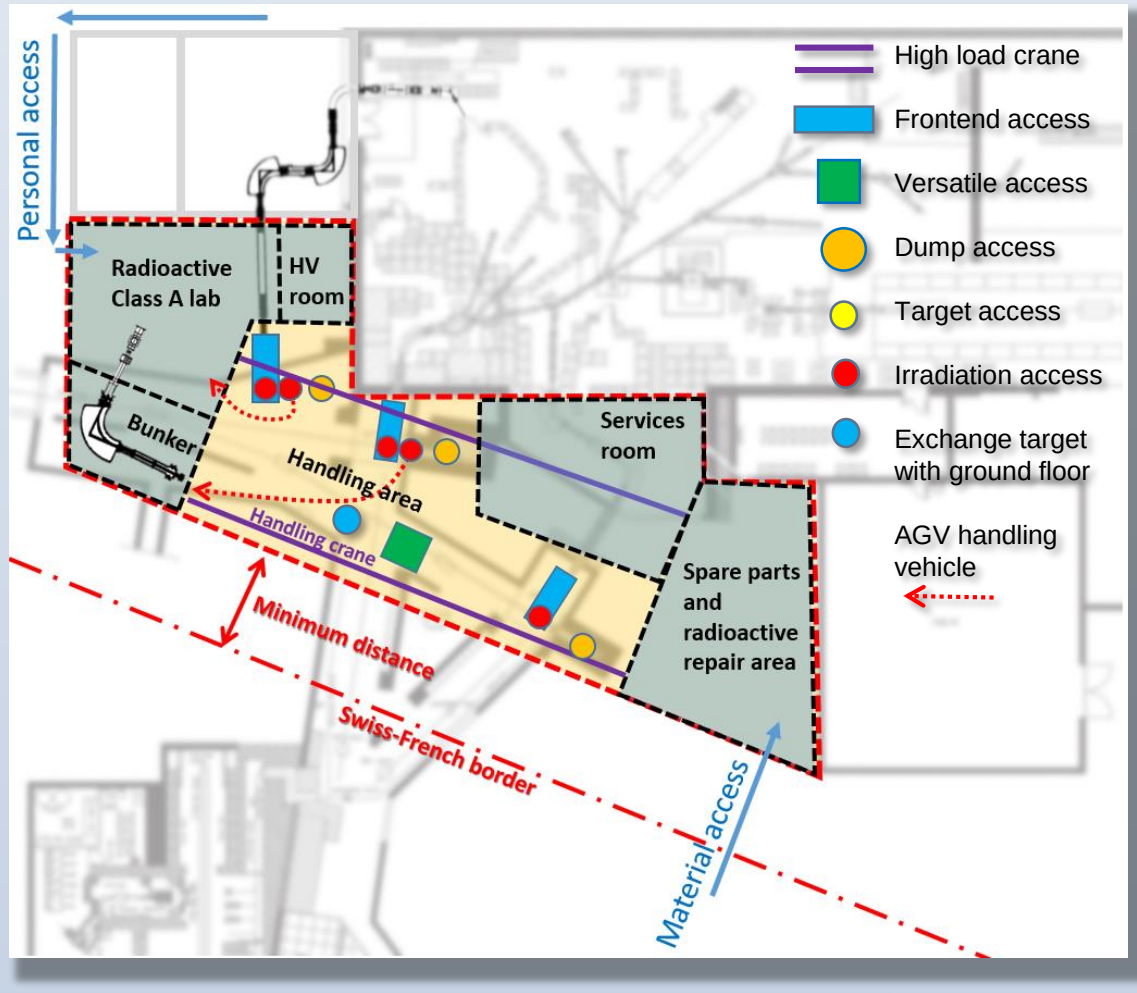





**Example of last Frontends removal:** the removal of radioactive equipment is completely manual and needs a accurate preparation and dosimetry follow up (6…9 mSv per Frontend). In addition the area was not design for higher activity and the space for the workers is really tight (all material pass through the access chicane 1.2 m large and through the class A laboratory corridor).

With the proton beam upgrade (after LS3) and consequent higher material activation it becomes more difficult to maintain/replace the equipment manually like today. The solution of a second floor for handling from above is the easiest way to shortcut many barriers.

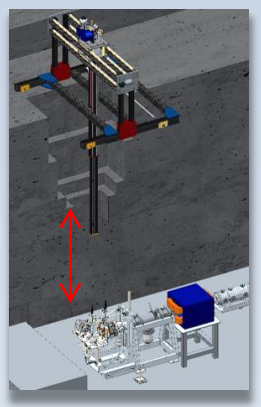



## New building ground floor :

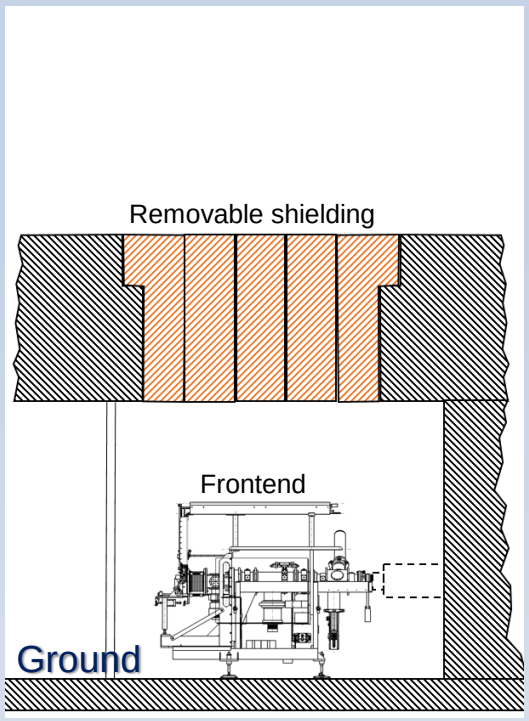
**Advantages :**

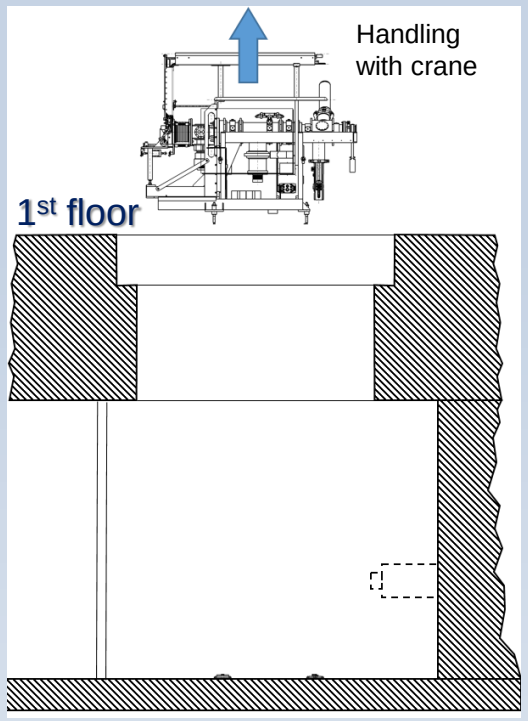
- We benefit from the beam dump replacement during LS3 to create a new target station before GPS
- The old control room is reused as the future HRS separator area
- The connection to actual beam lines has to be study in details
- Possibility to two additional irradiation points implementation between the Frontends and the beam dumps (accessible with telescopic arm from above)



Example of vertical telescopic arm for targets handling.

SPES INFN courtesy




## New building 1st floor :

**Advantages to have a 1st Floor :**

- The maintenance by modules from above (with crane) is easier and more flexible
- Drastic reduction of personal access time into the target area
- Redundant handling possibility (from above and/or as usual from ground level)
- Possibility to have a radioactive off-line (for long life isotope study and recycled target calibration)
- Avoids transit through actual class A lab for high radioactive material


Example of AGV vehicle we can use for target handling

## Handling from above