# AD YETS and LS2 ACTIVITIES

# YETS: AD machine ongoing activities

- 3 Magnets refurbishment in progress
- Scraper replacement
- Maintenance works for e-cooler, BTV, kickers, vacuum equipment, RF, BCCC

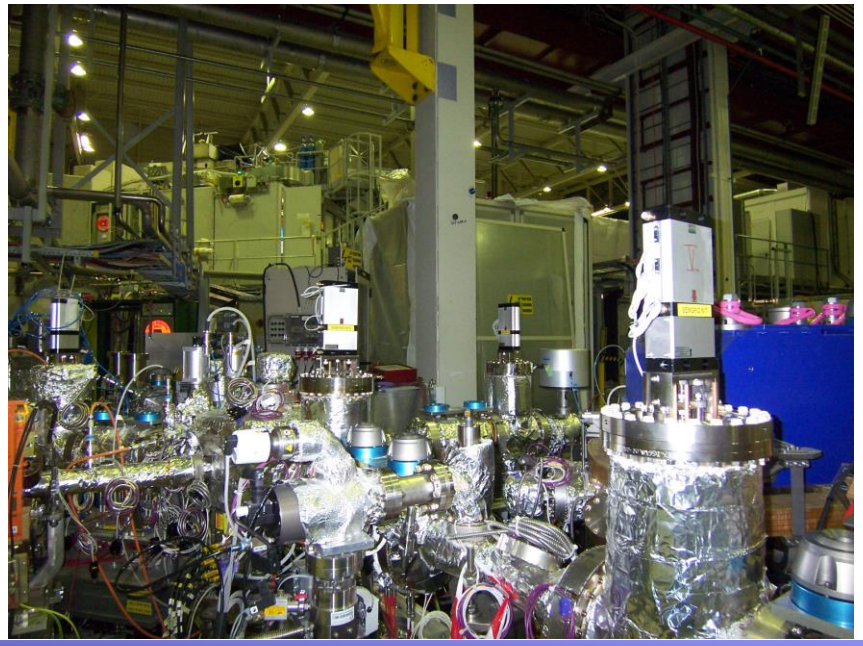

Courtesy: A. Bouvard

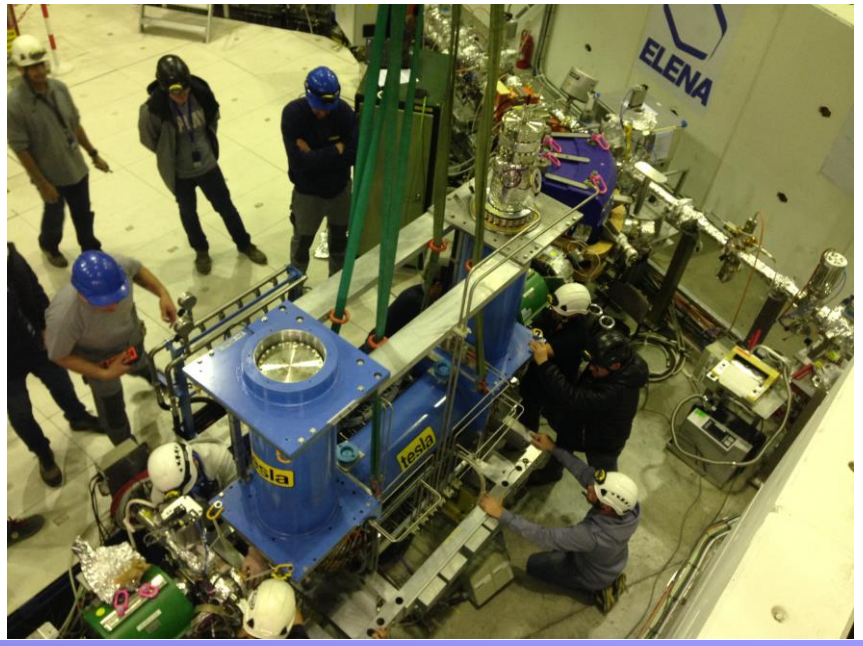
# YETS: infrastructure maintenance

- Demineralized and raw water systems maintenance (no demi water W7)
- AUG tests, safety lighting installation
- Cables removal line 8000
- RP tests with source
- ALPHA access control PPE block replacement

# YETS: ELENA works

- Ion source maintenance
- E-cooler completion and connection + bake-out
- LNE50 line completion (LPU, SEM) + bake-out
- LNI line completion (SEM's) + bake-out





# YETS planning (1)

| | | MSC | | BCCC | STI | BI | VSC | EL | | Kickers |
|---|---|---|---|---|---|---|---|---|---|---|
| | W02 | | | Warm-up and purge cryostat | ~~Remplacement MH LHC~~ | maintenance E-Cooler + cartouche resine | | TEST AUG | | |
| Jan-18 | W03 | Refurbishment QDN55 - QFN56 | Refurbishment BHS52 | Pump insulation vacuum | | | Works:<br>- Sector 2A and 2B<br>- Magnets group sector 1A<br>- Sector 1B<br>- Sector 3<br>- Sector 4 | | Installation cables for scraper | |
| | W04 | | | | | | | | | |
| | W05 | | | | | Maintenance BTV | | | | |
| | W06 | Installation QDN55 -QFN56 | | | | | | | | |
| Feb-18 | W07 | | Installation BHS52 | | | | | | | |
| | W08 | | | | | | - Bakeout sector 1<br>- Works on DE experimental Lines | | | |
| | W09 | | | | | | | | | |
| Mar-18 | W10 | | | Cool-down and refill | | | | | | - General Maintenance<br>- Test |
| | W11 | | | | | | | | | |
| | W12 | | | | | | | | End of YETS | |
| | W13 | | | | | | | | 23/03/2018 | |

# YETS planning 2

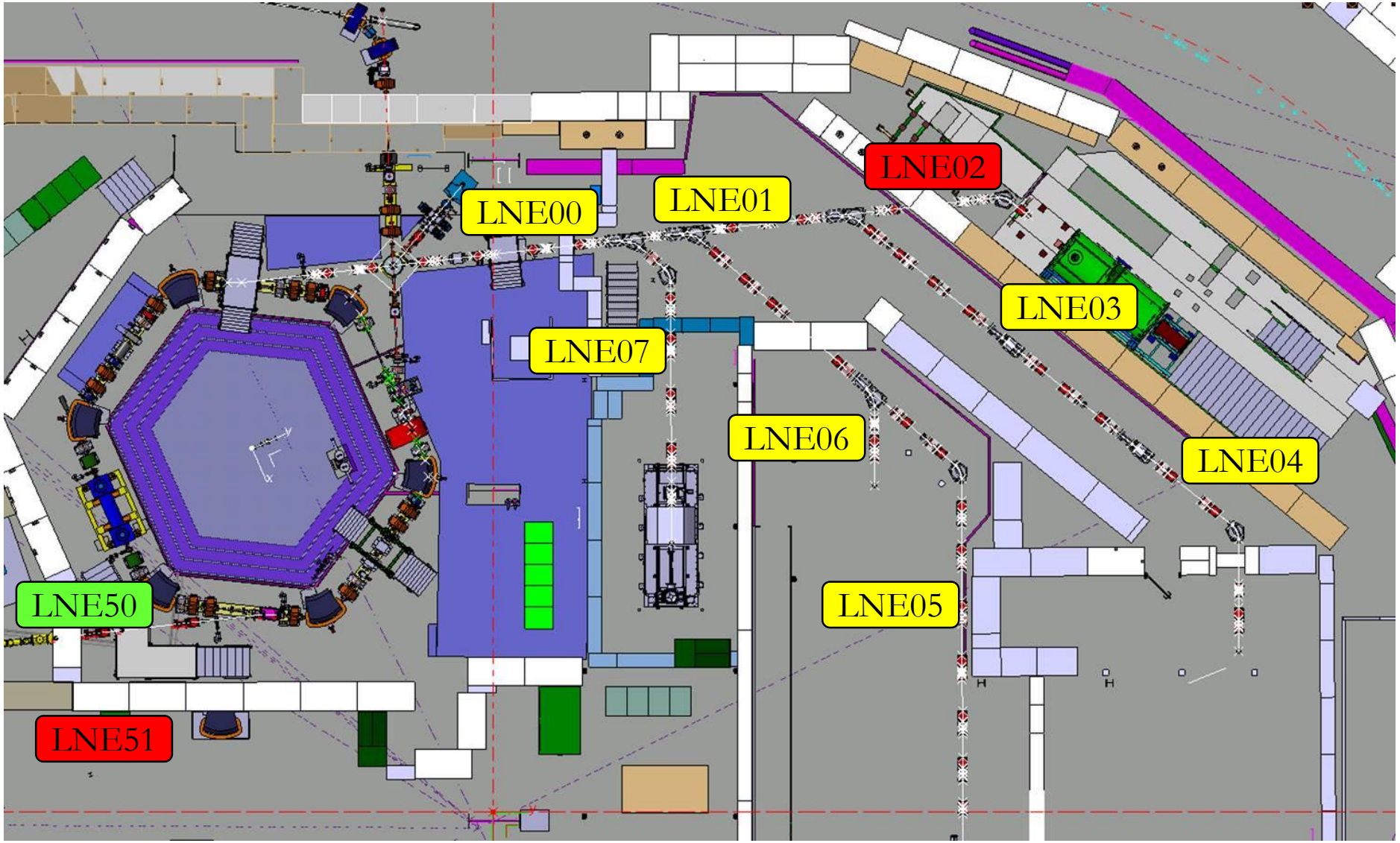
| | | RF | CV | HE | EA | SU | RP | OP | YETS ELENA | YETS GBAR |
|---|---|---|---|---|---|---|---|---|---|---|
| | W02 | | | Closing shielding | | | Test source:<br>- PMIA604 | | | |
| Jan-18 | W03 | Maintenance system<br>ADC02/ADC10 | | | Cleaning cables line 8000 | | - PAXA604<br>- PAXT113 | | LNR30-40-50: Bakeout<br>LNE50<br>LNI-LNR | Installation LINAC |
| | W04 | | | | | | | | | |
| | W05 | | | Openning schelding:<br>- QDN55<br>- QFN56<br>- BHS52<br>- SME5305/07 | | | | | | |
| | W06 | | | Installation<br>QDN55 -QFN56 | | | | | | |
| Feb-18 | W07 | | Maintenance<br>demineralized water | Installation<br>BHS52 | | Alignment<br>- QDN55<br>- QFN56<br>- BHS52<br>- Septum | | | | |
| | W08 | | | Closing shielding | | | | | | |
| | W09 | | Maintenance water | | | | | | | |
| Mar-18 | W10 | ADC02: Power Test<br>ADC10: Test RF Tube TH116 | | | | | | | | |
| | W11 | ADC10: Power Test | | | | | | HARDWARE TEST | | |
| | W12 | | | | | | | | | |
| | W13 | | | | | | | | | |

Courtesy: A. Bouvard

# LS2 at AD: 12 Nov 2018 – April 2021

- General situation: similar to LS1, main services partly available
- ELENA
  - Existing transfer lines removal / electrostatic lines installation
- AD ring:
  - Main bending magnets repair / quadrupoles refurbishment
  - RF Cavity installed in the Injection zone will be removed and replaced by Finemet Cavity
  - Stochastic cooling refurbishment / e-cooler replacement
- Experimental areas:
  - Aegis removal / ASACUSA laser room remodeling
  - BASE Exp area enlargement / RFQD removal
- Infrastructure:
  - Cryogenics fixed installation
  - Cooling tower refurbishment
  - Injection line power converters
  - Magnetic horn pulser
- AD target:
  - Consolidation / Bdg 196 reconstruction (See STI / M. Calviani)

# Electrostatic lines to be installed

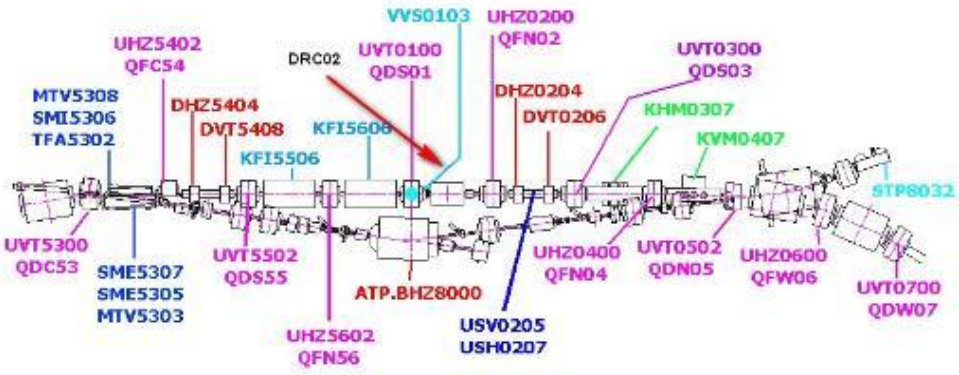


# TL's Master schedule

| | | | |
|---|---|---|---|
| **Redevelopment TL towards experiments LS2** | 586 days | Mon 12/11/18 | Tue 23/03/21 |
| LS2 start | 0 days | Mon 12/11/18 | Mon 12/11/18 |
| **Dismantling of current Transfer lines** | 54 days | Mon 12/11/18 | Thu 07/02/19 |
| **Infrastructure modifs** | 30 days | Fri 08/02/19 | Thu 21/03/19 |
| **Installation of the Transfer lines and services** | 256 days | Fri 22/03/19 | Fri 27/03/20 |
| **Vacuum work** | 238 days | Fri 14/06/19 | Tue 26/05/20 |
| **Commissioning ELENA TL's** | **40 wks** | **Tue 02/06/20** | **Tue 23/03/21** |
| Removal of all cables, including outside AD hall | 4 wks | Mon 02/11/20 | Fri 27/11/20 |

# LS2 AD ring: RF

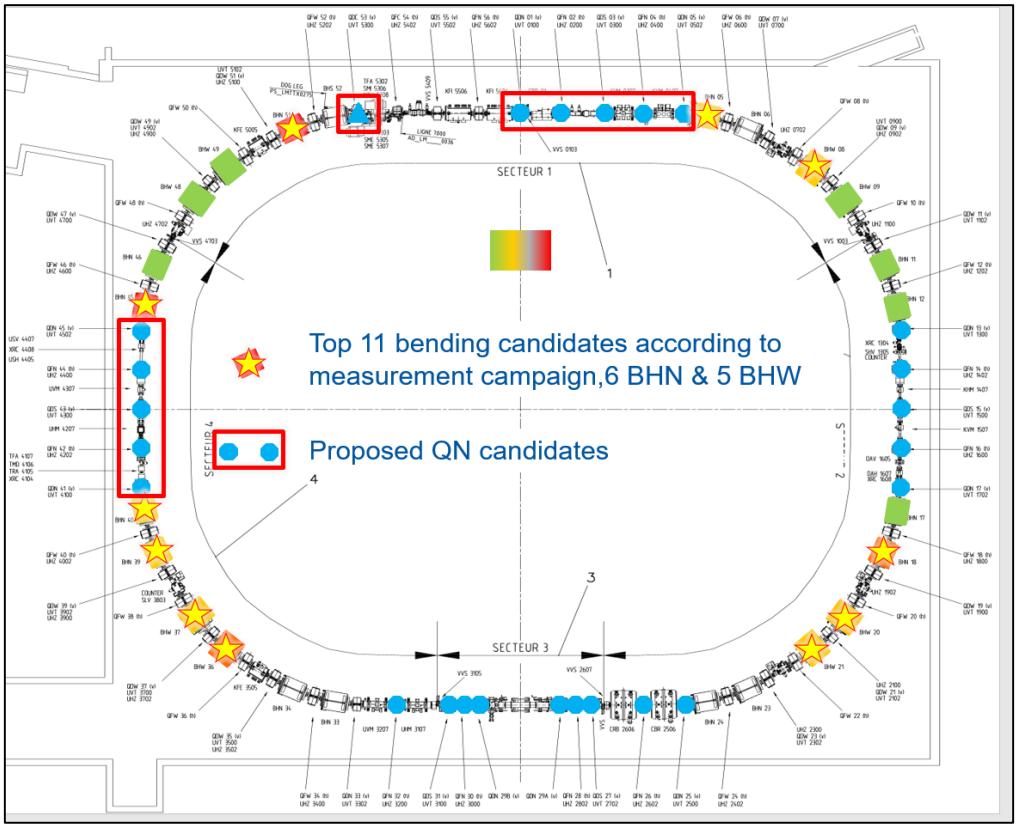
- RF cavity: C02 to be replaced by Finemet cavity. Cabling requested early 2020.




Courtesy: M. Haase

# LS2 AD ring: Magnets

- Magnets repair / refurbishment: will need a full time HE team on site, scheduling expected from TE/MSC



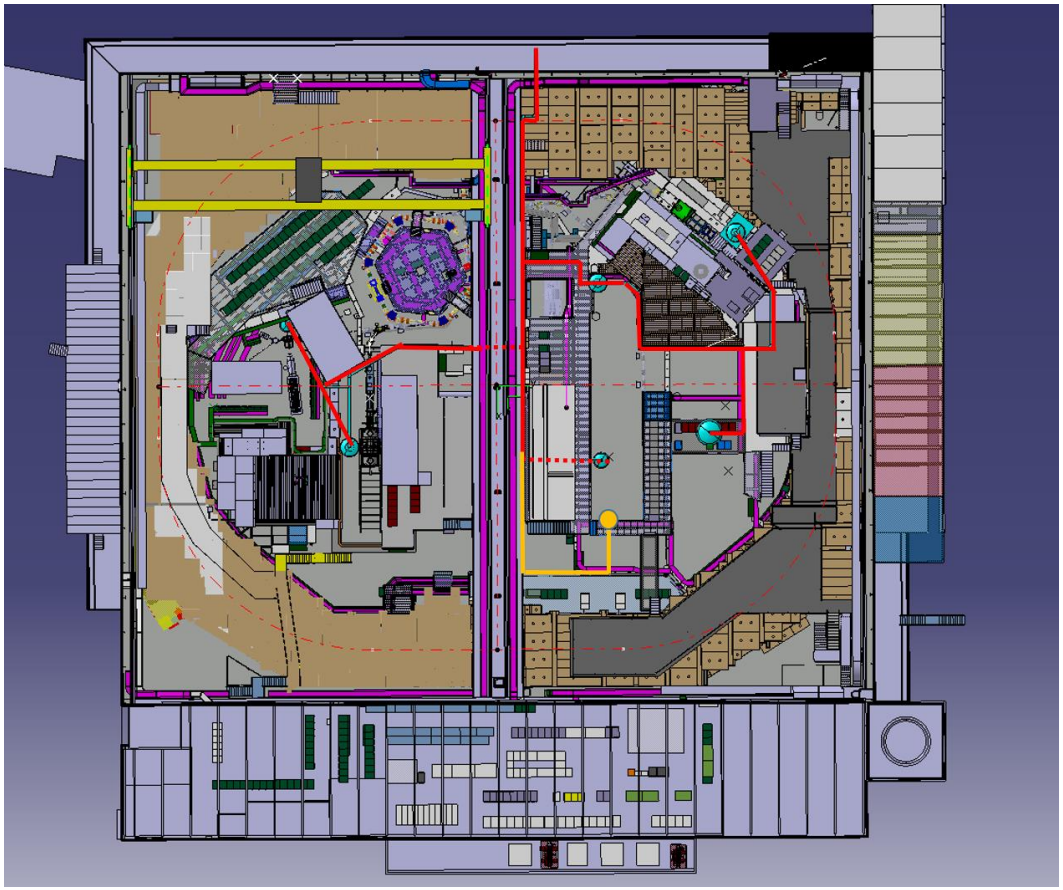

Courtesy: A. Newborough

# LS2 AD ring: instrumentation

- Stochastic cooling: exact needs not known accurately, some amplifiers / power supplies needs replacing  but cabling work not specified: could possibly be postponed till following YETS
- e-cooler replacement: missing info, probably not ready for installation during LS2

# LS2 AD hall infrastructure

- Cryogenics fixed installation: design in progress, still planned for LS2, planning and financing to be clarified.



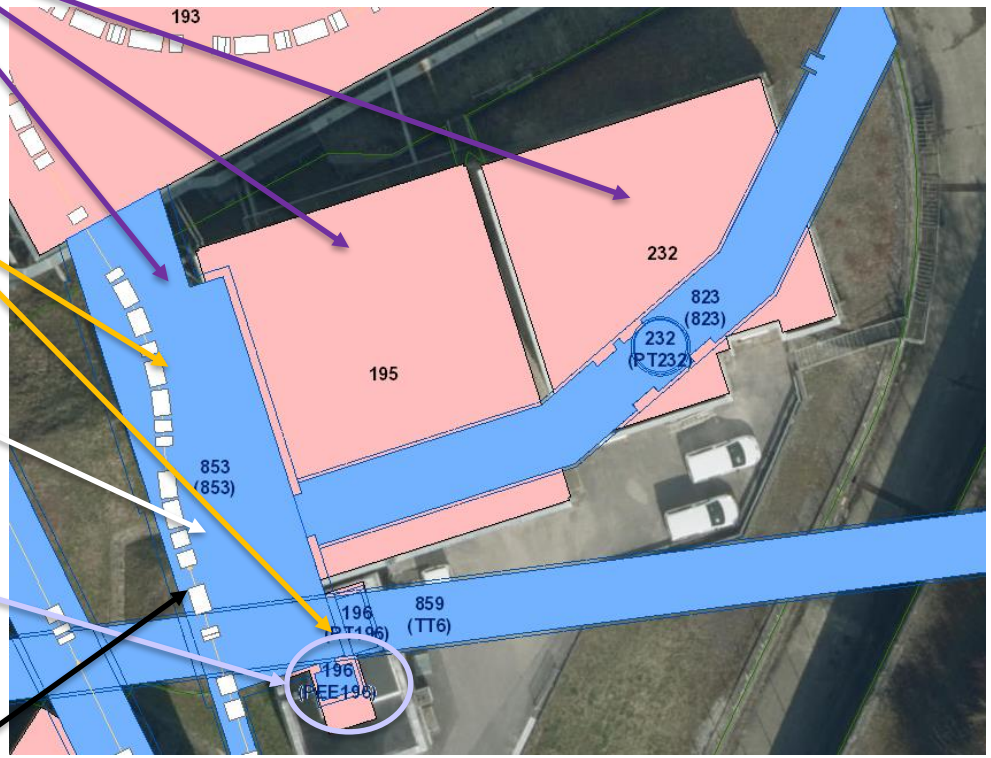
Courtesy: G. Rolando

# LS2 AD hall infrastructure

- Injection line power converters : expected complete by march 2020. Consolidation work involving cabling. Plan B exists with only half of converters swapped.
- Magnetic horn pulser: Consolidation involving cabling to eliminate Hg ignitron switches.
- Cooling tower: refurbishment work planned Sept 2019 – May 2020. Experiments expect to be connected to tap water as was done during LS1

# LS2 AD target consolidation

| | Activity |
|---|---|
| 1) | Manufacturing of new Targets and Target Beam Instrumentation |
| 2) | Horn Manufacturing |
| 3) | Installation and Operation. of 195 test bench |
| 4) | Trolleys Design and Construction 232 Mock-up |
| 5) | Upgrade of the cooling and ventilation system |
| 6) | Dismantling of the AD-T Area |
| 7) | Decontamination and repainting of the AD-T Area |
| 8) | Demolition of B196 and Construction of New Building |
| 9) | General refurbishment Activities B196 |
| 10) | New Concrete Mobile Curtain |
| 11) | AD-T Area Magnets Consolidation |
| 12) | Consolidation of the Electrical Infrastructure |
| 13) | New Window FTA side |
| 14) | Overall reinstallation of the target area (853) |
| 15) | Definition of survey strategy |
| 16) | Consolidation of Radiation Protection Detectors |

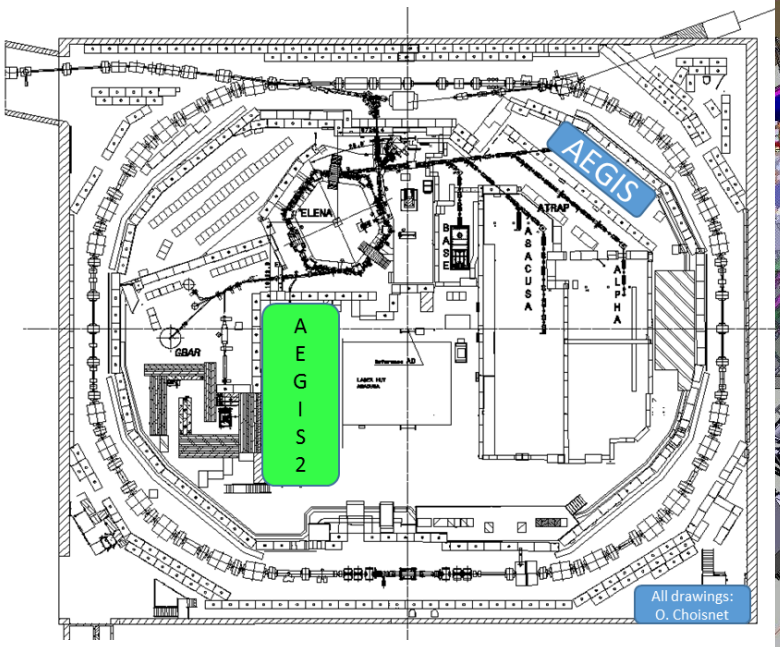


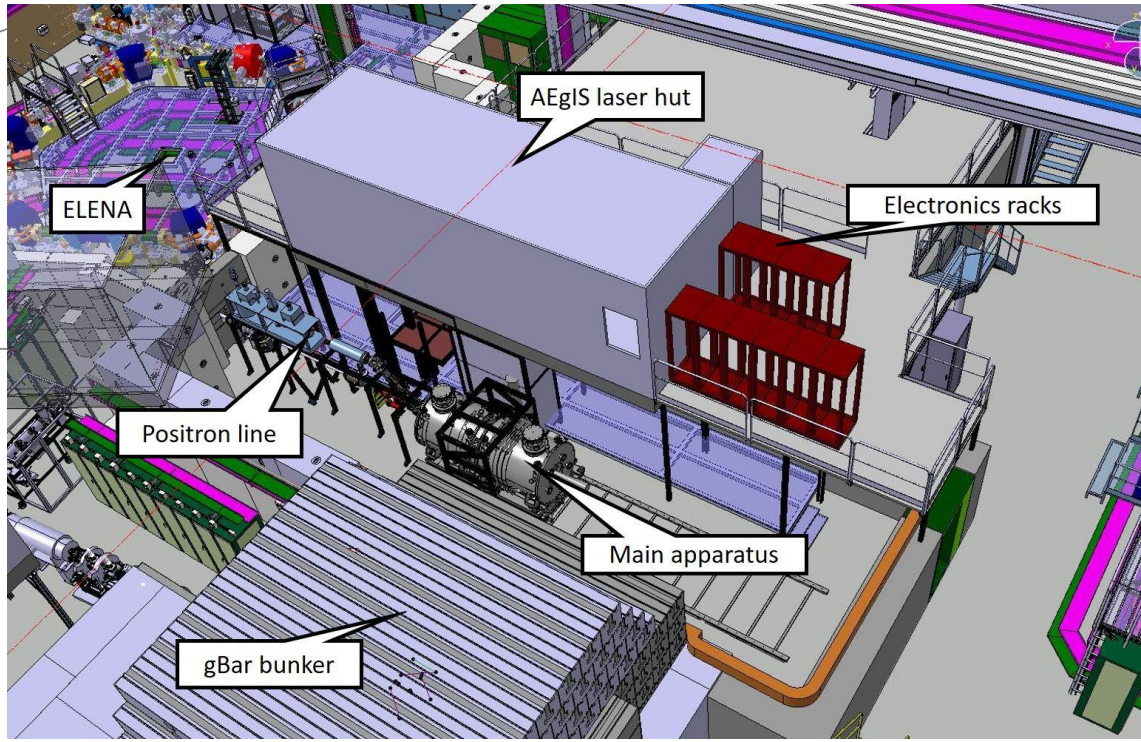

https://edms.cern.ch/panoramas#id=36410861&lon=0.00&lat=0.00&fov=90.00

Courtesy: E. Grenier-Boley

# LS2 experimental areas (1)

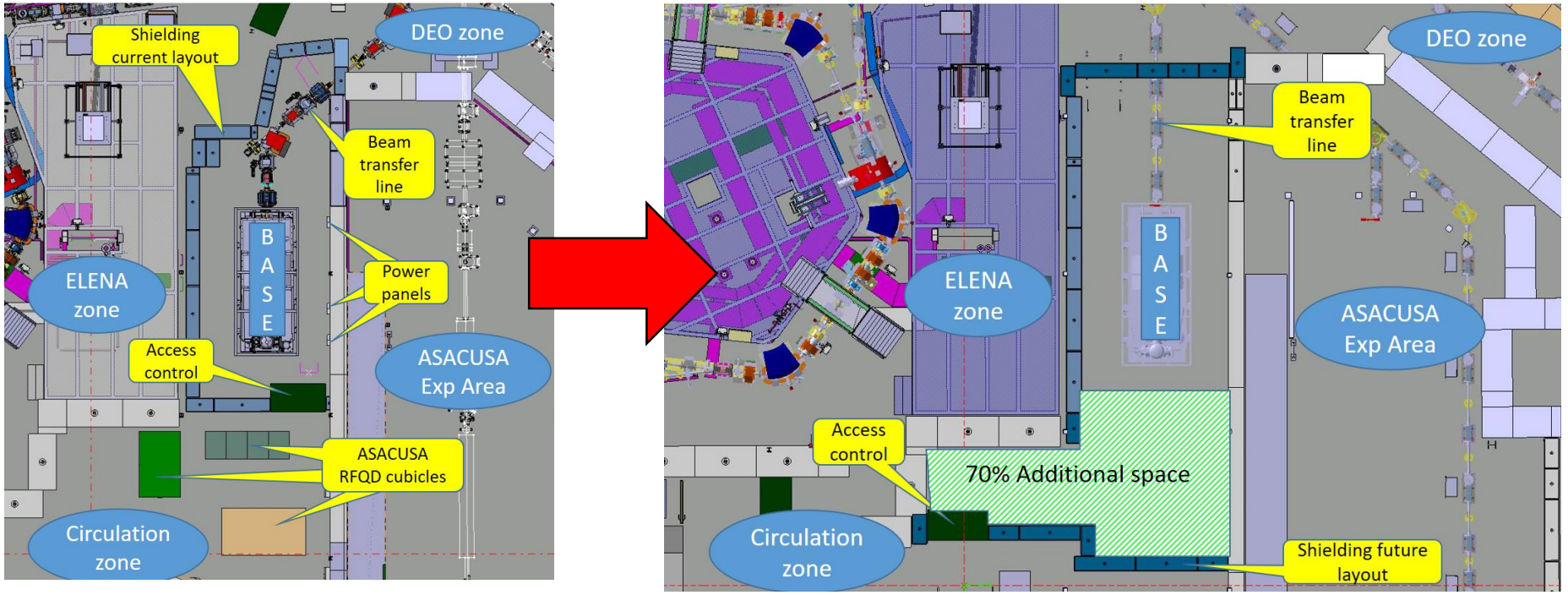
- Aegis removal: ECR under approval, significant installation. Impact on ASACUSA laser room. Financing not clarified.



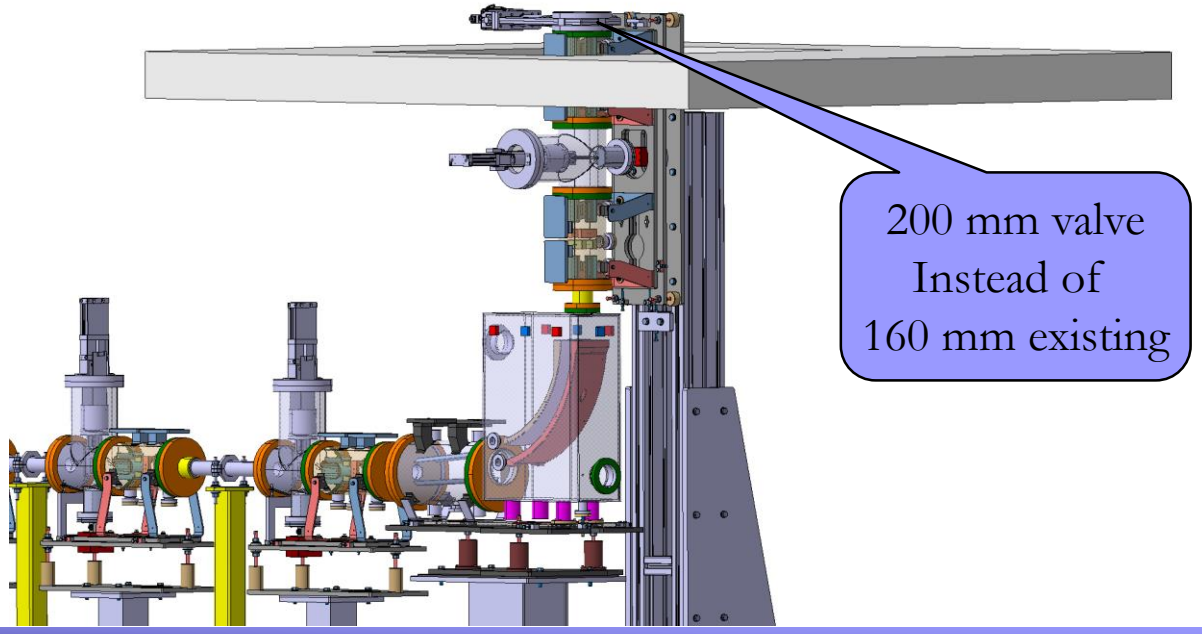
# LS2 experimental areas (2)

- BASE exp area enlargement: ECR under approval. Financing OK. Mostly shielding reshuffling. 3 additional power sockets needed. ASACUSA RFQD must be removed.



# LS2 experimental areas (2)

- ASACUSA 2: needs not clarified yet
- ALPHA G: works during LS2 not clarified yet
- ATRAP: connection to ELENA transfer lines will involve some modifs



# Shifted to YETS beyond LS2

- ALPHA / ASACUSA control rooms refurbishment are proposed to be shifted due to missing resources during LS2
- Cables removal campaign (TL magnets, …)
- Some magnets refurbishment (TBD)

# Conclusion

- About 17 months of intense activity for ELENA
- To be done in parallel with AD machine consolidation / AD hall and exp areas infrastructure works / potentially AEGIS relocation
- Integrated schedule being prepared