

BeamTimeRetreat 2024

„Construction activities - Focus on EH, FCC, Maßnahme 1, GAF“ - Maria Martin
„storage capabilities, lab and handling space“ – Sebastian Sauer

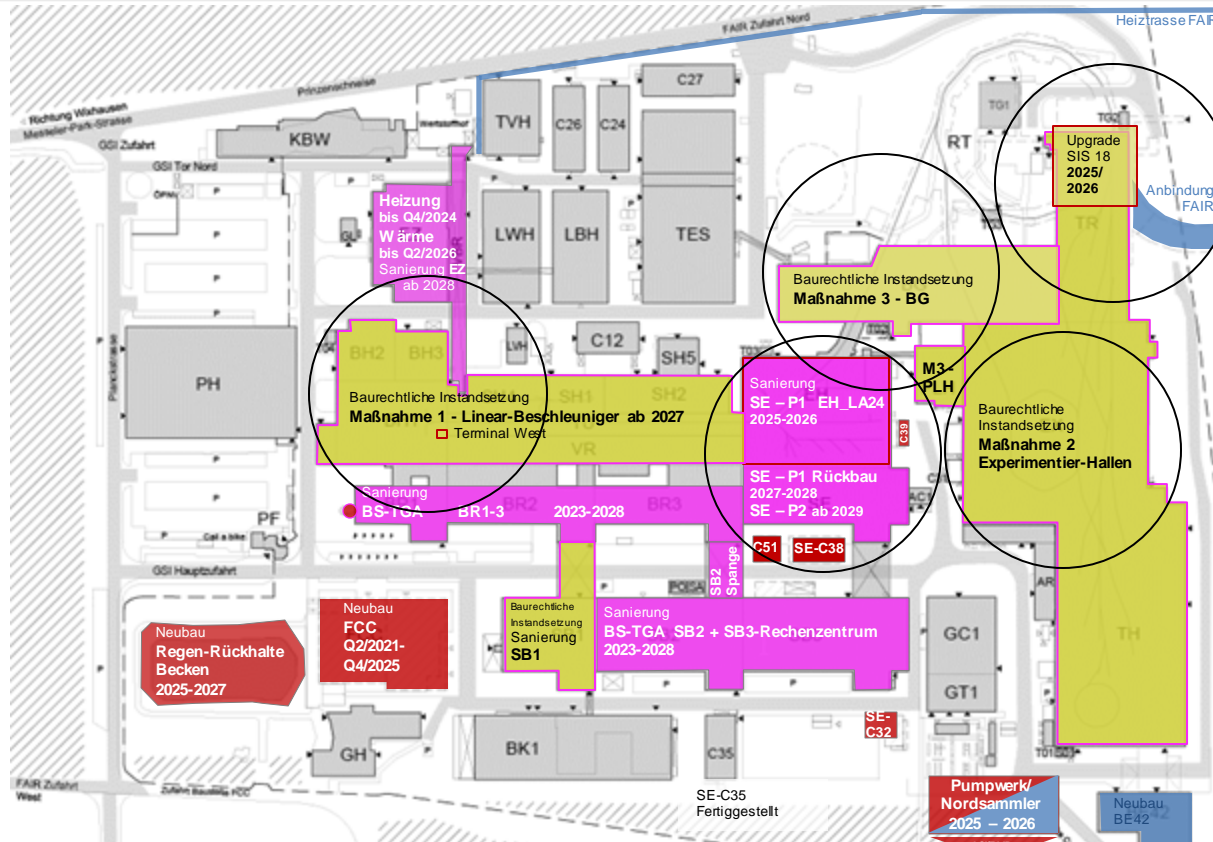
Necessary construction measures to achieve building permission / conformity projects and their impact on the accelerator and scientific operation (clashes of dates, spatial limitations, etc.)

- Refurbishment of EH and replacement of LA24
- FAIR Control Centre
- Upgrade SIS18 / GaF
- Building permission and fire protection measures:
 - M1 - Linear accelerator BH1-3/VR/TU/SH1-4
- storage capabilities
- handling space

GSI infrastructure work 2024

Construction measures >2,5 Mio. €

- new buildings
- refurbishments
- projected
- FAIR

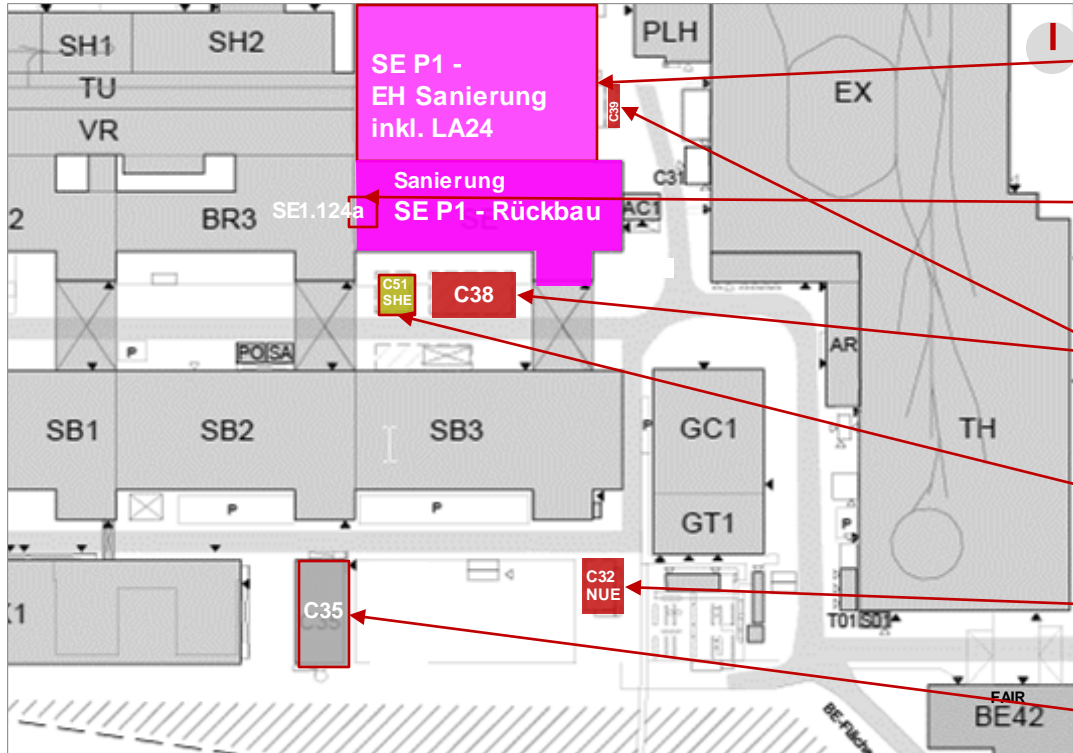


Refurbishment SE P1 – Dismantling

Overview of the project parts

BAU_Uwe Fabig / Anne Giesler

- new buildings
- refurbishments
- projected



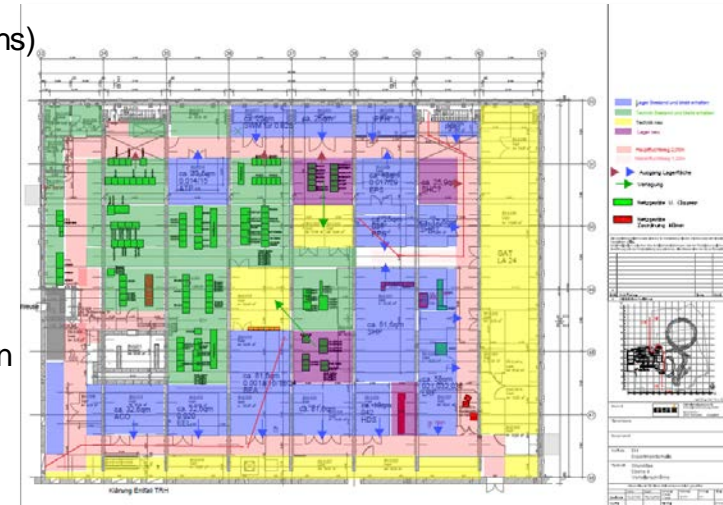
- Umfangserweiterung SE P1 – Rückbau um die EH Sanierung (inkl. LA24)**
- Vorgezogene Maßnahme III SE 1.124a** Vorabsanierung Messtation ✓
- Vorgezogene Maßnahme II C38** Kontrollcontainer SIST + SHP
C39 Biolaborcontainer BMD
- C51** Ersatzfläche für SHE Chemie
- C32** Ersatzfläche für NUSTAR
- Vorgezogene Maßnahme I C35** Interims-Bürogebäude ✓

Refurbishment SE – P1_Preparatory work

Preliminary projekt: EH_new LA24

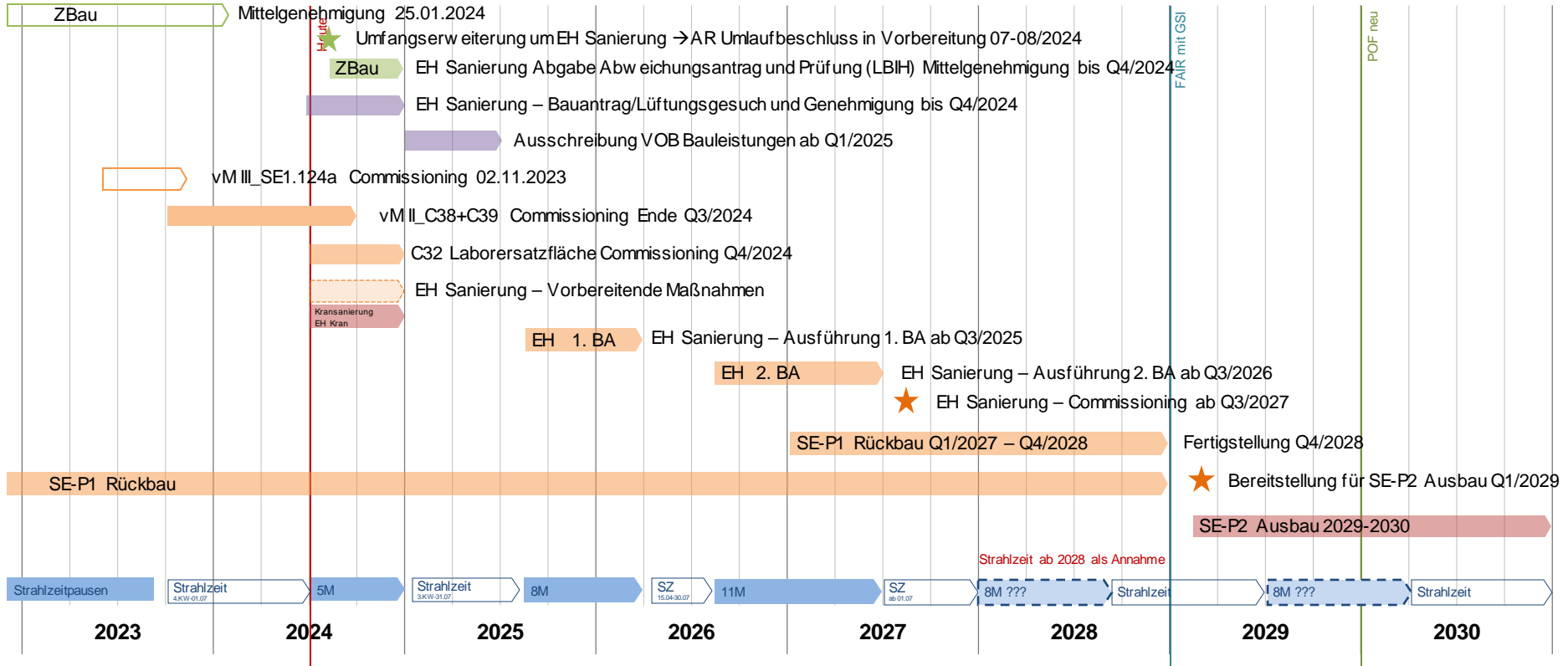
BAU_Uwe Fabig / Anne Giesler

- Measures:** Adaptation of permit "Industrial Facilities Directive" (unit without living quarters)
Separation of LA24 (old system) and construction of a replacement ventilation system for the EH (new LA24), Fire protection measures, building permit with new fire protection concept
- User:** The LA24 – refurbishment EH is necessary for the approval of accelerator operation under radiation protection law
- Costs:** approx. 6,7 Mio. € (incl. risk)
- Construction:** Q3/2025 to approx. Q1/2026 - 1. construction phase (8 months)
Q3/2026 to Q2/2027 - 2. construction phase (10 months)
- Commissioning:** Q3/2027
- Status:** Preparatory work /dismantling work started in 07/2024
Dismantling of lattice crates, cable removal work,
Expansion of the scope of the SE P1 project is submitted to the Supervisory Board for approval as a circular resolution in 07-08/2024
Planning up to request building permit Q3/2024
Building permit Q4/2024



Refurbishment SE P1 – Dismantling | Schedule

BAU_Uwe Fabig / Anne Giesler



Upgrade SIS 18 – Measure 11 from GaF

BAU_Björn Benz / Joachim Liebold

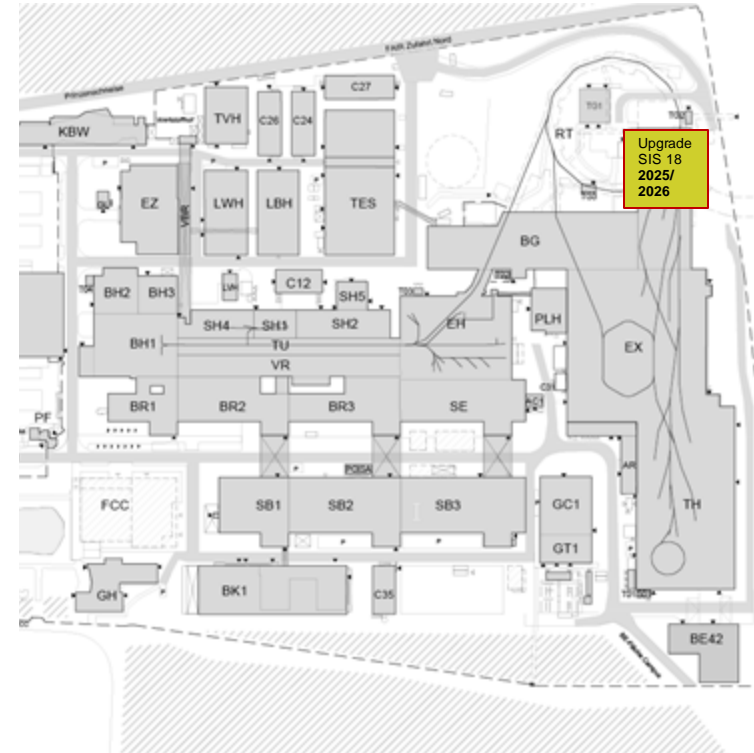
Measures: **Reconstruction of ceiling shielding in TR hall Total movements 643 beams,**
61 beams are removed and not reinstalled
260 beams must be removed and reinstalled
279 new concrete elements must be produced and installed
43 from existing stock are brought in

Use: Necessity due to increased beam intensity when operating FAIR

Constr. costs: approx. 5,5 Mio. €
(FAIR_Inkind founding promised by Hr. Spiller)

Constr. period: Shutdown 2025/2026 und 2026/2027
Installation time approx. 6 months (only beams without ancillary work)

Status: Planner will be commissioned in 07/2024
Call for tender in publication process for construction works in 01/2025 with contract in 02/2025

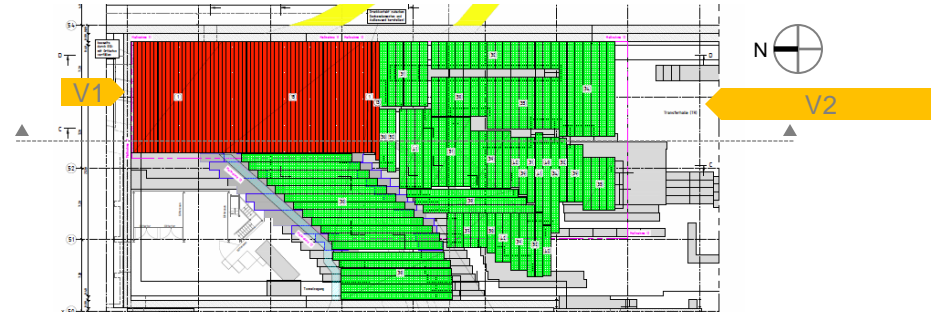


Upgrade SIS 18 – Measure 11 from GaF |

BAU_Björn Benz / Joachim Liebold

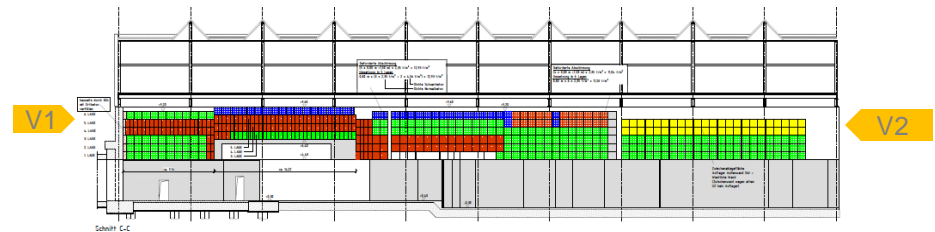
Variant 1/ Ideal case:

- Feasibility check by the planner
- Insertion of the beams through the north façade via SIS18 hill into the TR hall and movement via rail construction in the hall
- Implementation can be realized in one construction phase
- Shutdown 2025/2026



Variant 2:

- Installing the beams using the indoor cranes in the EX hall and TH hall
- Due to the increased time and space required, the installation time will be longer, so two construction phases are planned
- Shutdown 2025/2026 and 2026/2027



Upgrade SIS 18 – Measure 11 from GaF | Status +Schedule



BAU_Björn Benz / Joachim Liebold

done

- ✓ Feasibility check by BAU

Risks / critical path

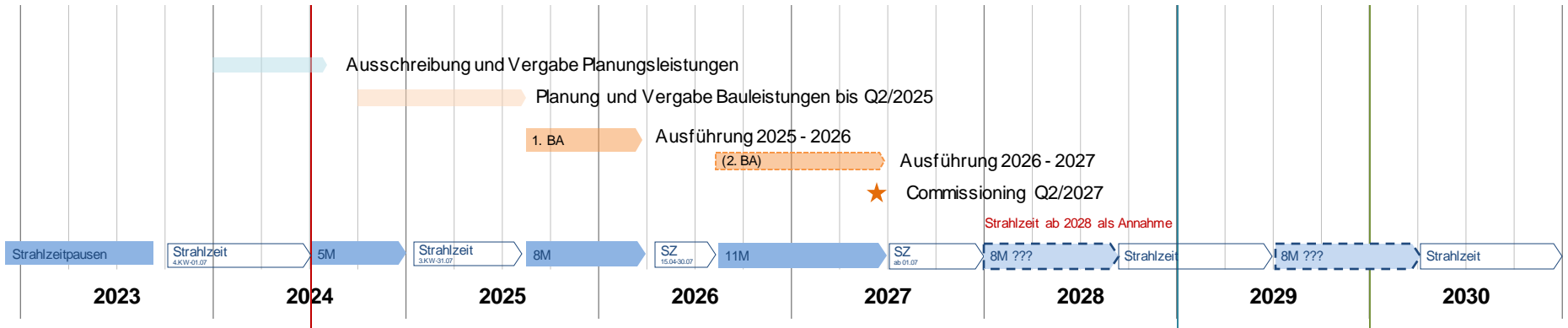
- Blasting time hazard
- Execution in 2 construction phases
- **Financing of the measure currently not secured (FAIR_InKind funds)**

ongoing

- Planner commissioning till end of 07/2024

Interfaces / constrains

- ❖ Execution only possible in full shutdown



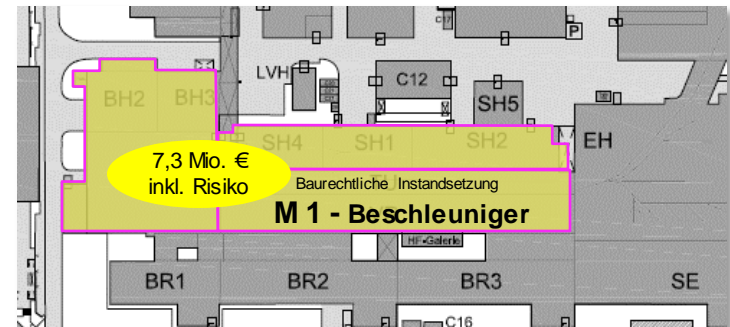
Renovation of buildings according to building law regulation _M1 Beschleuniger

BAU_Maria Martin Pelaéz / N. N.

Renovation of the buildings around the accelerator: Operating halls (BH1-3), tunnel (TU), supply rooms (VR) and stripper hall (SH1, 2 and 4)

Measures 1: Fire protection measures, construction of airlocks, enclosure of staircases, fire doors, fire dampers, fire bulkheads, fire walls, replacement of transformers, low-voltage main distribution boards and sub-distribution boards, electrification of the new airlocks, fire alarm systems, safety lighting (SiBel), BOS radio, measurement, control and regulation technology (MSR), renewal of drinking water supply, repair of underground pipes, renewal of ventilation systems

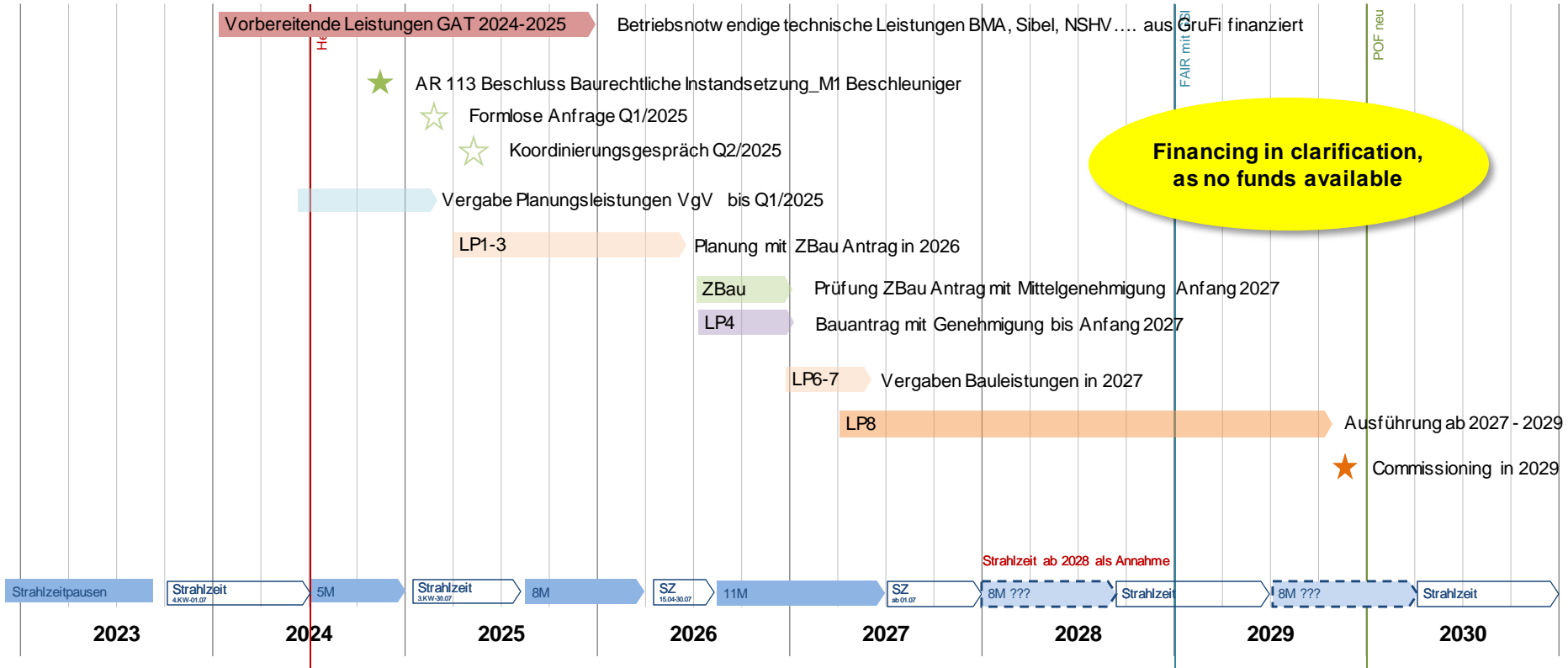
Use: Linear accelerator and supply
Costs: 7,3 Mio. € incl. risik approx. 1 Mio. €
BGF: ca. 17.180 m²
NGF: ca. 11.820 m²
€/m² BGF: ca. 465 €/m²
Planing: ab 2025
Constr. period: 2027 – 2029 (Commissioning FAIR)
Status: AR 111 Approval to start planning Preparation of planner tender
postpone resolution draft to AR 113 ?



Renovation of buildings according to building law regulation_M1 Beschleuniger | Status +Schedule



BAU_Maria Martin Peláez / N. N.



FAIR Control Centre (FCC)

BAU_Michael Auel / Thomas Thomann

In accordance with the CMP, the FCC will house the new Main Control Room (MCR) and scientific office workstations.

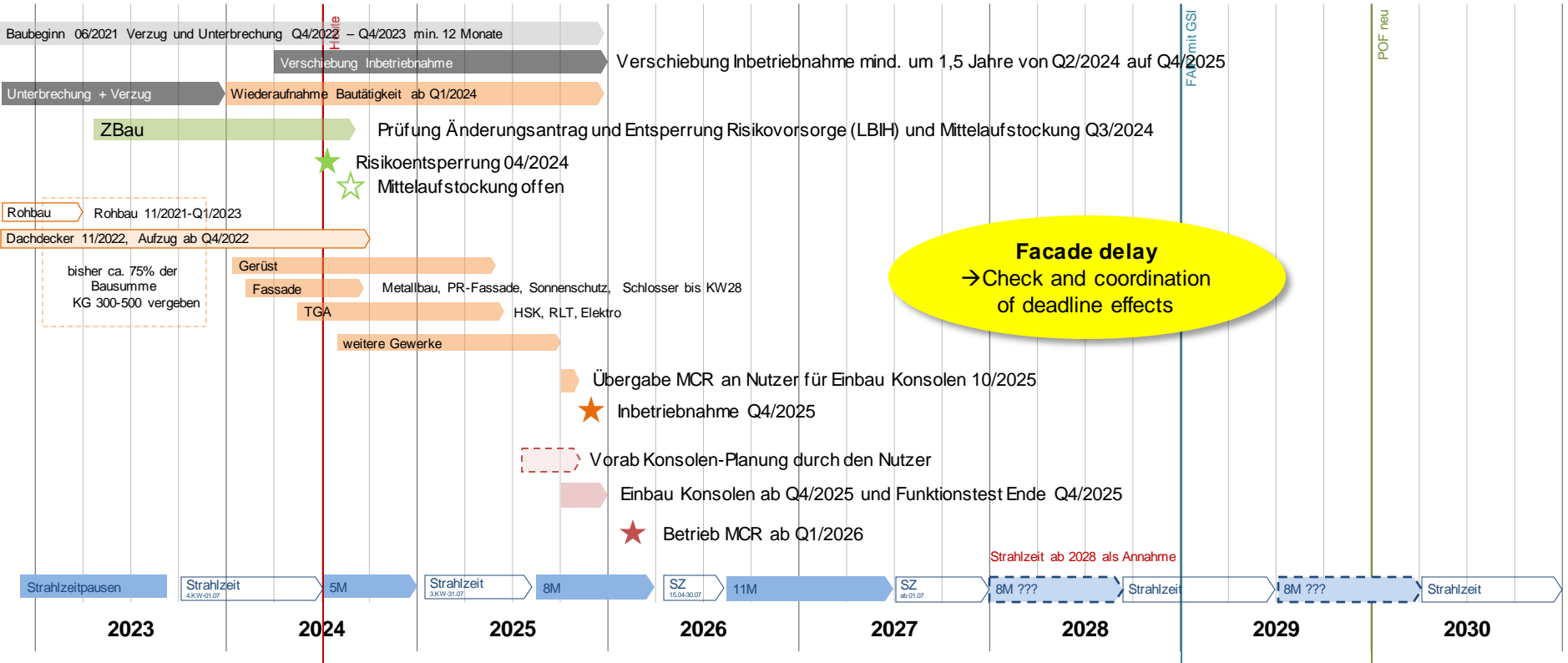
Use:	MCR, visitor access 206 office workstations
Costs:	30,745 million (incl. change request)
BGF:	6.035 m ²
NUF 1-7:	3.510 m ²
€/m ² BGF:	4.225 €/m ²
Geschosse:	5 / partial basement
Interruption:	Q4/2022 – Q4/2023
Constr. period:	Q2/2021 – Q3/2025
Resumption of construction activity after interruption:	Q1/2024
Commissioning:	Q4/2025



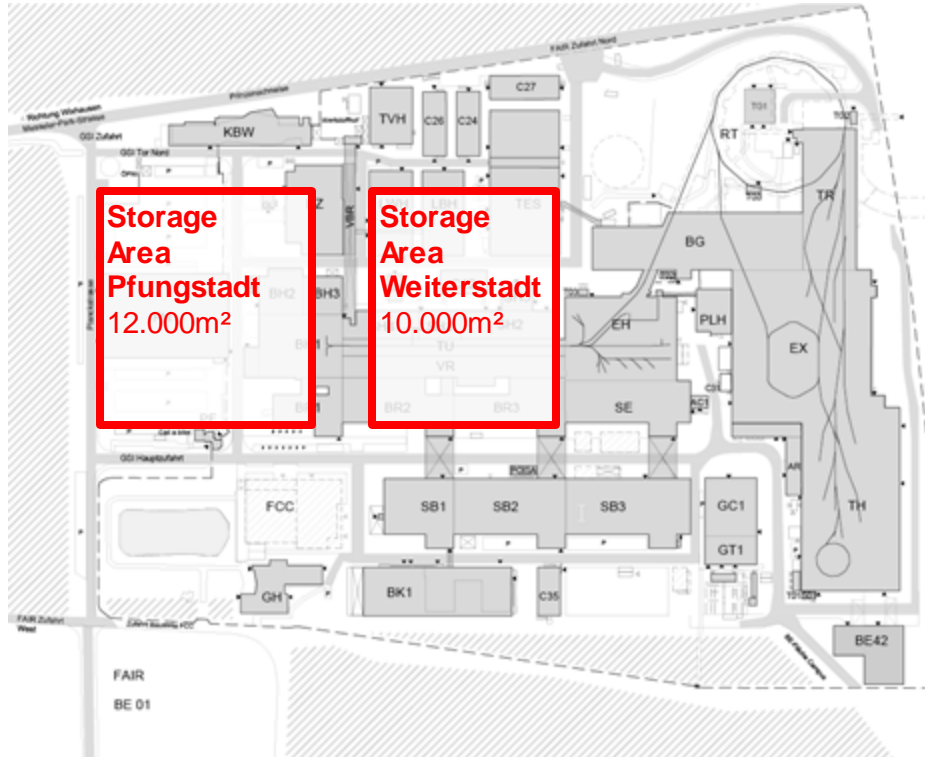
View of the north facade with the MCR

FCC | Schedule

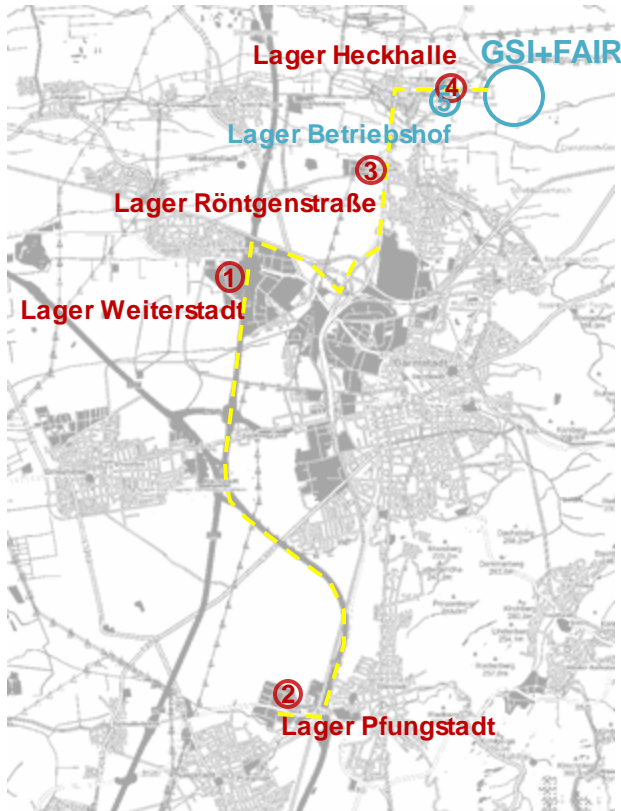
BAU_Michael Auel / Thomas Thomann



storage capabilities basics of the warehouse concept



- No essential storage space is available at the GSI and FAIR Campus
- Accelerator and research areas are too valuable
- Outsourcing of all non-urgent items required
- External central storage areas are rented
- Warehouse and logistics services from EKL, TRI, ZDI (at the moment)
- *consolidation of logistics at EKL with a central warehouse (planned)*



1. Lager und Warenannahme „Weiterstadt“
Lager-Anmietung ~10.000m² | Bewirtschaftung EKL/Schenker
> Nutzung der Anmietung „bis auf weiteres“
2. Lager / Archiv „Pfungstadt“
Lager-Anmietung ~12.000m² | Bewirtschaftung EKL
> Nutzung Anmietung „bis auf Weiteres“
3. Lager / Archiv „Röntgenstraße“
Lager-Anmietung ~1.500m² | Bewirtschaftung RED/ZDI
> Abmietung Ende 2025, Überführung Weiterstadt/Röntgenstraße
4. Lager / Archiv „Heckhalle“
Lager-Anmietung ~1.800m² | Bewirtschaftung TRI
> Teilabmietung Lager geplant, Überführung Weiterstadt/Röntgenstraße
5. Lager „Betriebshof“
GSI 600m² | Bewirtschaftung TRI
> Entwicklung zum Haupt-Lagerstandort in Zukunft geplant

1. Selection of storage Items

- Regular inspection and removal required to reduce storage requirements

2. storage Items 'high available' (hoch Verfügbar)

- components/plant parts
they have to be spontaneous / short term / constant access
- Storage facilities near the plant or on campus
- Mapping of storage spaces by function or user group
- low space availability on campus

3. storage Items 'low Available' (gering Verfügbar)

- components/plant parts
with planable access (delivery time 1-3 days)
- Outsourcing at GSI "main storage space" (Weiterstadt/ Pfungstadt)
- Warehouse management / delivery / logistics by EKL (Einkauf und Logistik)

- The Testinghalle (TES) is the central GSI location for testing of large equipment
- The TES is also used as reloading site for large equipment on campus
- For the preparation, assembly, interim storage and testing of the “Alvarez” (Post Stripper Upgrade PSU) only the surfaces of the TES are suitable
 - High demands, large space requirements, long term of use
 - Variant examination with other surfaces without feasible result
- Further coordination with Flächennutzer, Hallenkoordinator, Projekt PSU, Flächenmanagement in August 2024 (invitation will follow)

