

## 6. Conventional facilities

### 6.1 *Design Considerations*

The SLS conventional facilities have to accommodate the storage ring tunnel, the injector synchrotron, the linear pre-injector, the accelerator infrastructure, the radiation shielding, the experimental floor with the beamlines and experimental stations, the conventional house technique as well as office and laboratory space for the crew directly operating the facility. The technical challenges in building these facilities are the very tight stability requirements of the experimental floor, the airconditioning of the experimental hall and the accelerator tunnel as well as the rigorous intention of the project management to spend only a small fraction of the project investment budget on conventional facilities but nevertheless providing an attractive working environment to the users and the crew of this facility.

The conventional facility in its presented form is tailored to the site available close to the PSI west side laboratories (Fig. f61\_a). The larger part of the site is presently agricultural land where as only a smaller fraction is presently used for storage purposes of the other west side laboratories. The site is located in the valley of the river Aare north of the small city of Brugg, some 40 km northwest of Zurich. The site underground is dense gravel with a water table level more than 10 m under the soil surface. The site is situated relatively close to the departemental route and to the river Aare. The seismic power spectrum of the site is presently dominated by vibration sources operated in the PSI west area. A new seismic recording has not been done since the recent improvement of foundation of these vibration sources. Nevertheless, it seems likely, that the specification of the required seismic noise level on the foundation slab of the experimental hall of  $\frac{1}{4}$  0.5  $\mu\text{m}$  in the spectral range between 1 Hz and 50 Hz can be met.