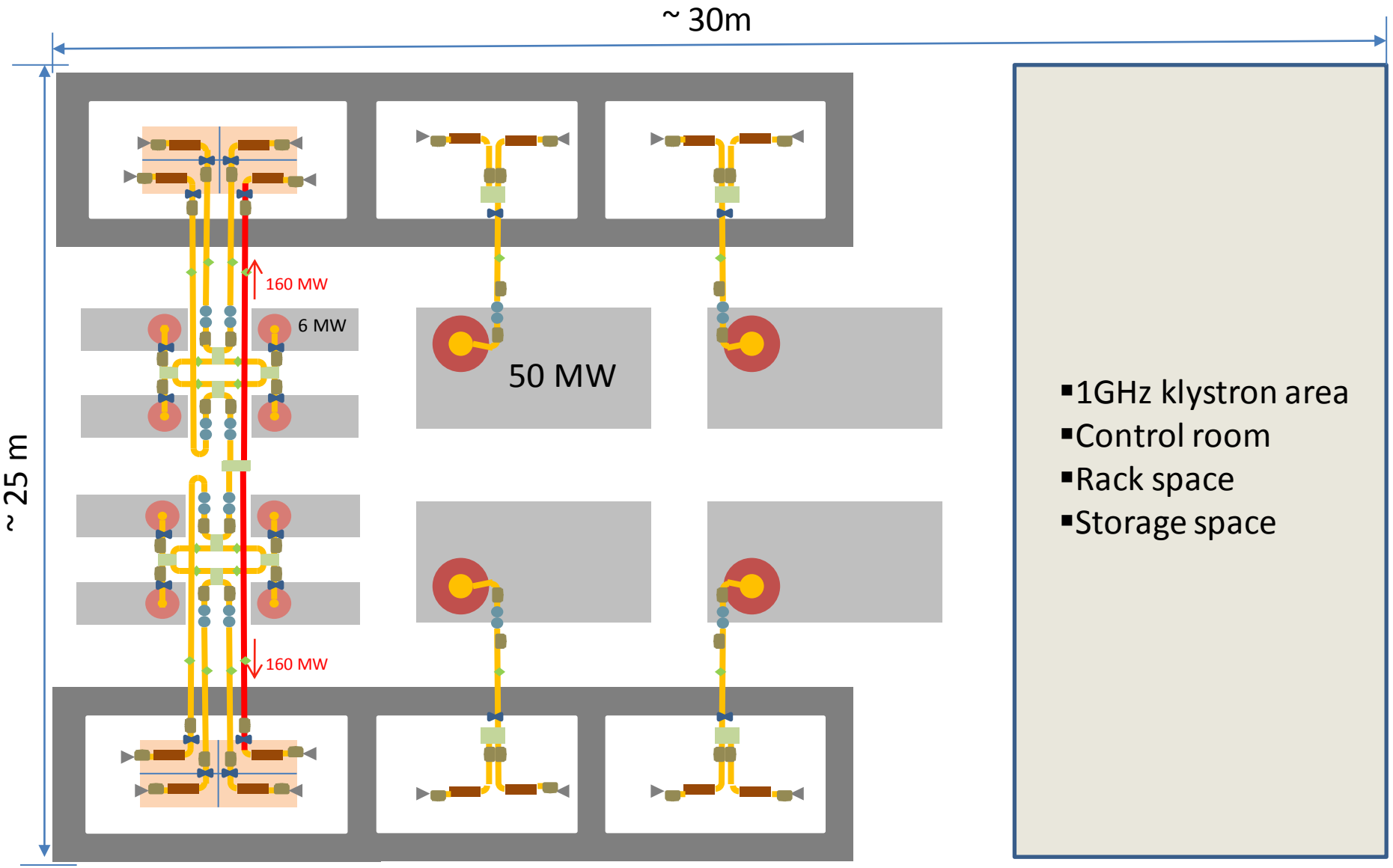
CLIC space requirements

General	CLIC-001	CLIC General	S. Stapnes
Parameters and design Daniel Schulte	BPH-BASE	Integrated Baseline Design and Parameters	D. Schulte
	BPH-SIM	Integrated Modelling and Performance Studies	A. Latina
	BPH-FEED	Feedback	D. Schulte (interim)
	BPH-BCKG	Background	D. Schulte (interim)
	BPH-POL	Polarization	-
	BPH-MP	Machine Protection & Operational Scenarios	M. Jonker
	BHP-MDI	Machine-Detector Interface (MDI) activities	L.Gatignon
	BPH-SRC E	Main beam source, e-	S. Doebert
	BPH-SRC P	Main beam source, e+	
	BPH-DR	Damping Rings	Y. Papaphilippou
	BPH-RTML	Ring-To-Main-Linac	A. Latina
	BPH-ML	Main Linac - Two-Beam Acceleration	D. Schulte (placeholder)
	BPH-BDS	Beam Delivery System	R. Tomas
	BPH-DRV	Drive Beam Complex	B. Jeanneret
Experimental verification Roberto Corsini	CTF3-001	CTF3 Consolidation & Upgrades	F. Tecker
	CTF3-002	Drive Beam phase feed-forward and feedbacks	P. Skowronski
	CTF3-003	TBL+, X-band high power RF production & structure testing	S. Doebert
	CTF3-004	Two-Beam module string, test with beam	-
	CLIC0-001	CLIC 0 drive-beam front end facility (includin Photoinjector option)	S. Doebert
	BTS-001	Accelerator Beam System Tests (ATF, Damping Rings, FACET,...)	R. Tomas
	BTS-002	Sources Beam System Tests	-
Technical Developments Hermann Schmickler	CTC-001	DR SC Wiggler	P. Ferracin
	CTC-002	Survey & Alignment	H. Mainaud
	CTC-003	Quad Stability	K. Artoos
	CTC-004	Two-Beam module development	G. Riddone
	CTC-005	Warm Magnet Prototypes	M. Modena
	CTC-006	Beam Instrumentation	T. Lefevre
	CTC-008	Beam Disposal (post-collision line & dumps)	E. Gschwendtner
	CTC-011	Controls	M.Draper
	CTC-012	RF Systems (1 GHz klystrons & DB cavities, DR RF)	E. Jensen (placeholder)
	CTC-013	Powering (Modulators, magnet converters)	S. Pittet
	CTC-014	Vacuum Systems	C. Garion
	CTC-015	Magnetic stray Fields Measurements	S. Russenschuck
	CTC-016	DR Exctraction System	M. Barnes
	CTC-017	Creation of a " CLIC technology center @ CERN"	F.Bertinelli
X-band Technologies Walter Wuensch	RF-DESIGN	X-band Rf structure Design	A.Grudjev, I. Syratchev
	RF-XPROD	X-band Rf structure Production	G.Riddone
	RF-XTESTING	X-band Rf structure High Power Testing	S.Doebert
	RF-XTESTFAC	Creation and Operation of x-band High power Testing Facilities	E.Jensen (placeholder)
	RF-R&D	Basic High-Gradient R&D	S.Calatroni
Implementation studies Philippe Lebrun		Civil Engineering & Services	J. Osborne
		Project Implementation Studies	P.Lebrun

We use many facilities but the main one at CERN is CTF3:

Today we look for space for key activities (in terms of resources 30-40% of the program)

High Power structure testing facility



High Power structure testing facility

Aim to perform a large number of structure high power tests per year to enable CLIC structure optimization and industrialization

Space needed: 25 x 30 x5 m

Height needed ~5 m,

Crane for klystron manipulation would be desirable

Temperature controlled demineralized cooling water for klystrons and structures

Shielding enclosures for structures, radiation area (klystrons)

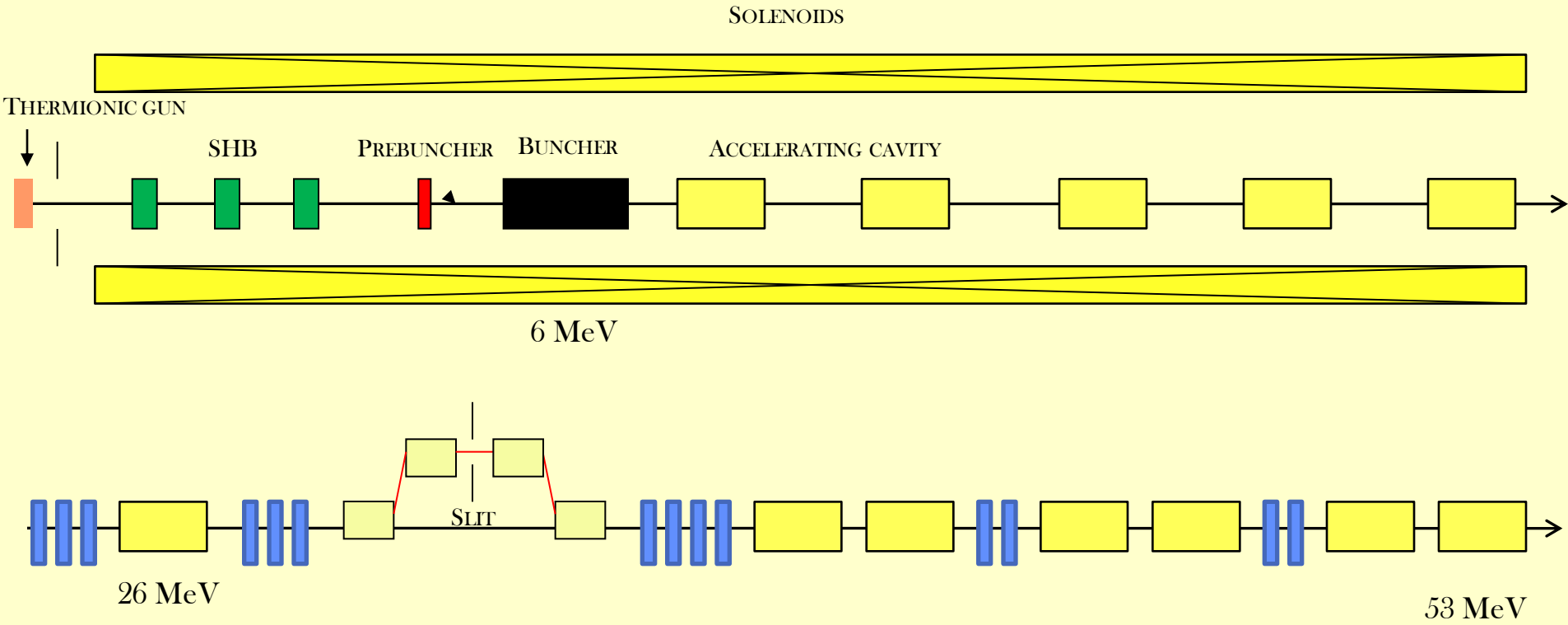
Electrical power, 400 V, ~ several 100 kW ?

Schedule: Area preparation 2012, first test stand 2012/2013

Similar installations exists already in SM18 for example

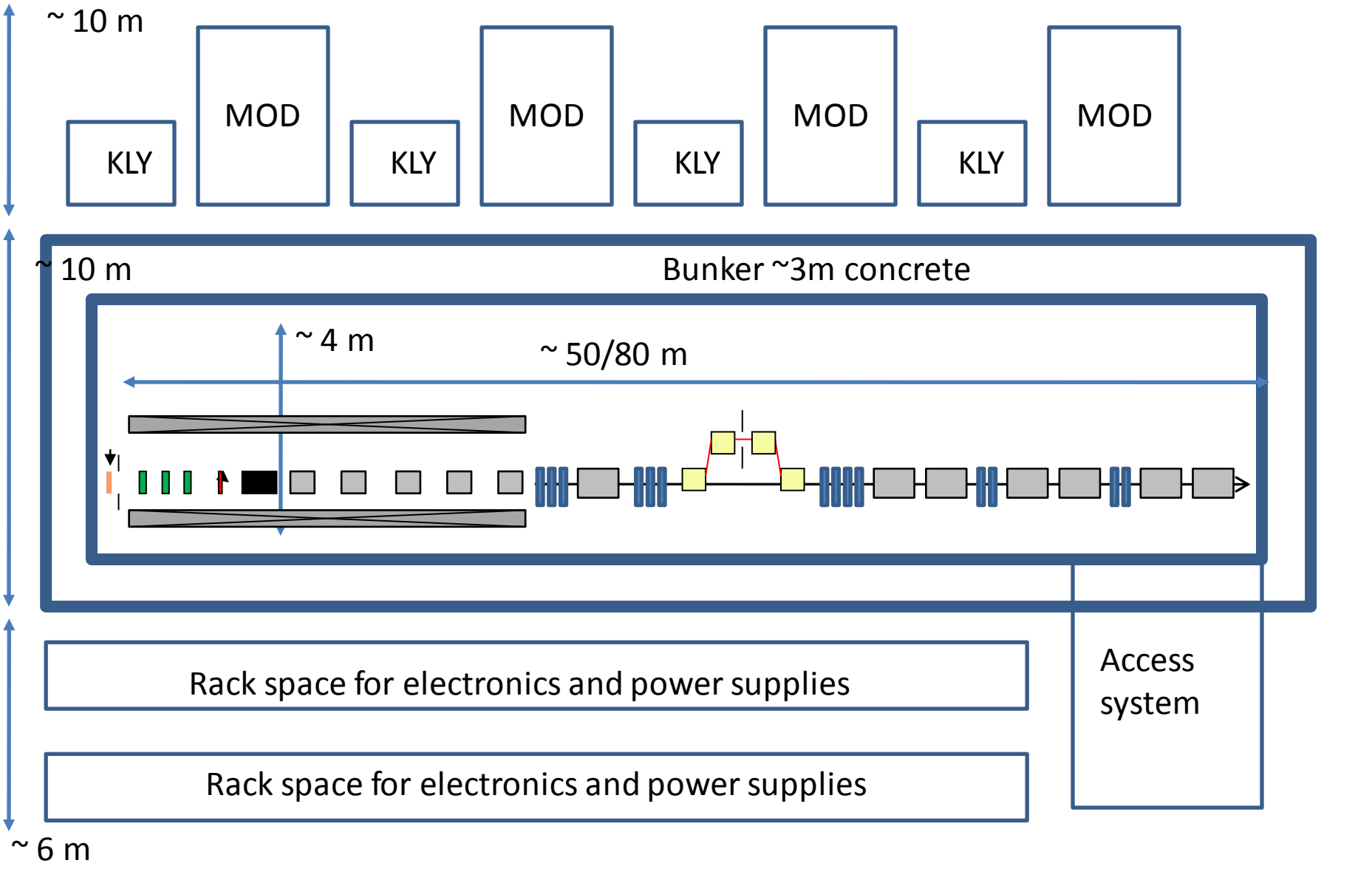
Possible options: SM18, 175,156, 112,185

CLIC DB injector schematics



Documented in the CDR; a scaled version of CTF3

CLIC DB injector test facility



CLIC 0: ~ 400 m

CLIC DB injector test facility

Aim to develop and test realistic CLIC hardware and perform beam stability studies at nominal beam power

Space needed: 50 x 30 x10 m if possible extendible to ~80 m length

Height needed ~10 m

Option: Tunnel with equipment gallery

Crane for manipulation of heavy equipment, concrete blocs, klystrons, accelerating structures

Temperature controlled demineralized cooling water for klystrons, structures and magnets

Shielding enclosures for linac with access control,

radiation area (tunnel, klystrons)

Electrical power, 400 V, ~ 1-2 MW for full installation ?

Schedule: Area preparation 2012, first installation 2013,

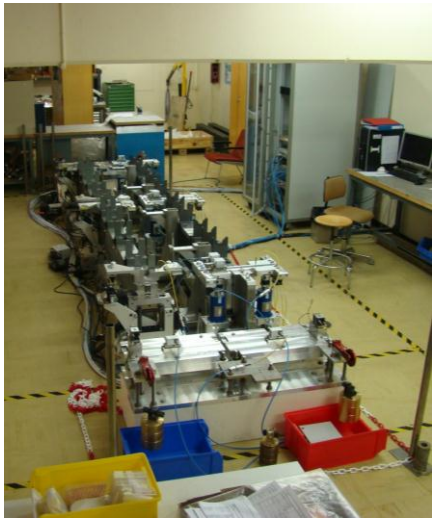
more space needed >2016

How about some space around the ISR, TT1 tunnel

Space needs for future two-beam module production

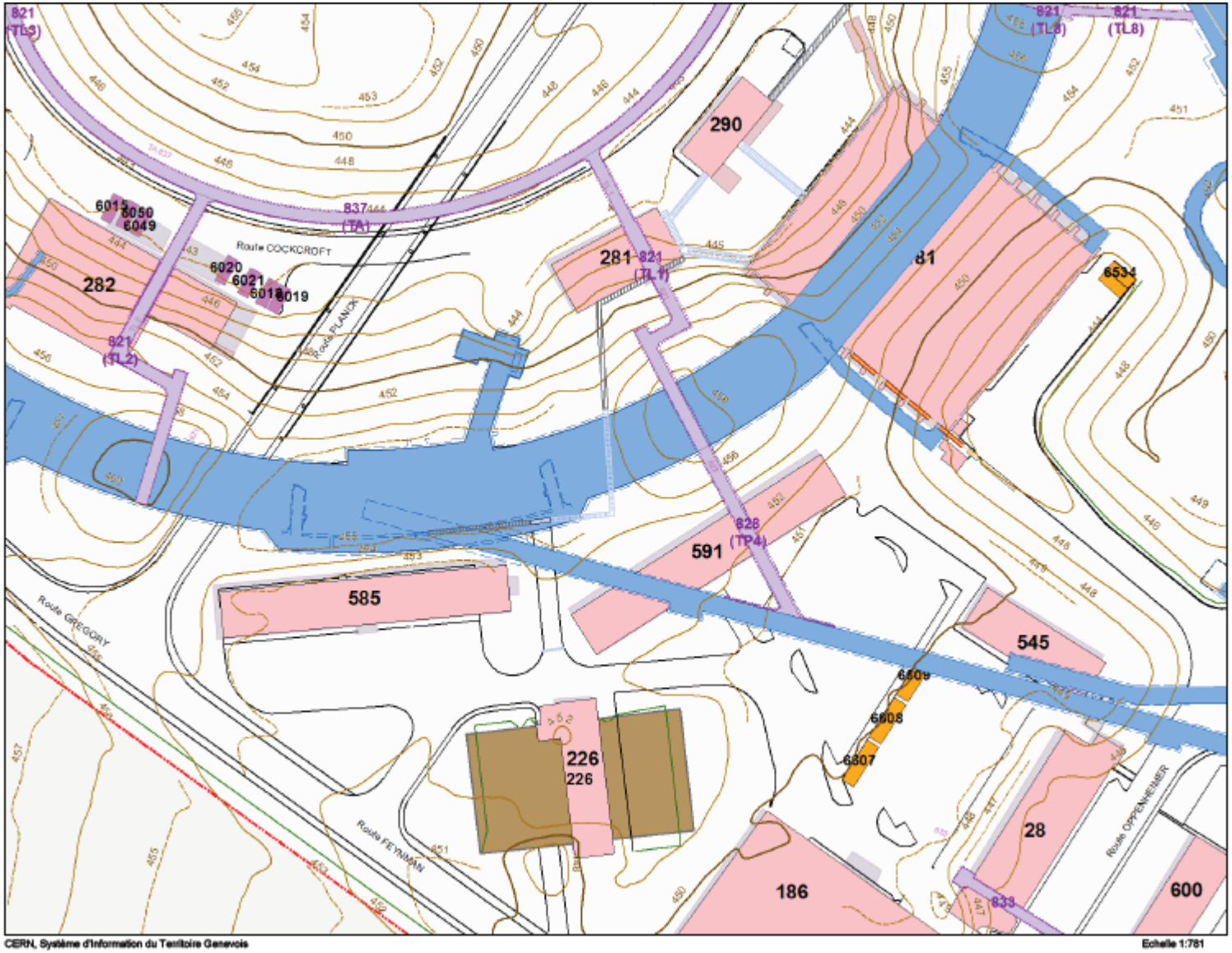
Space needed for future two-beam module production
(very preliminary!)

Total surface area: about 1000 m^2

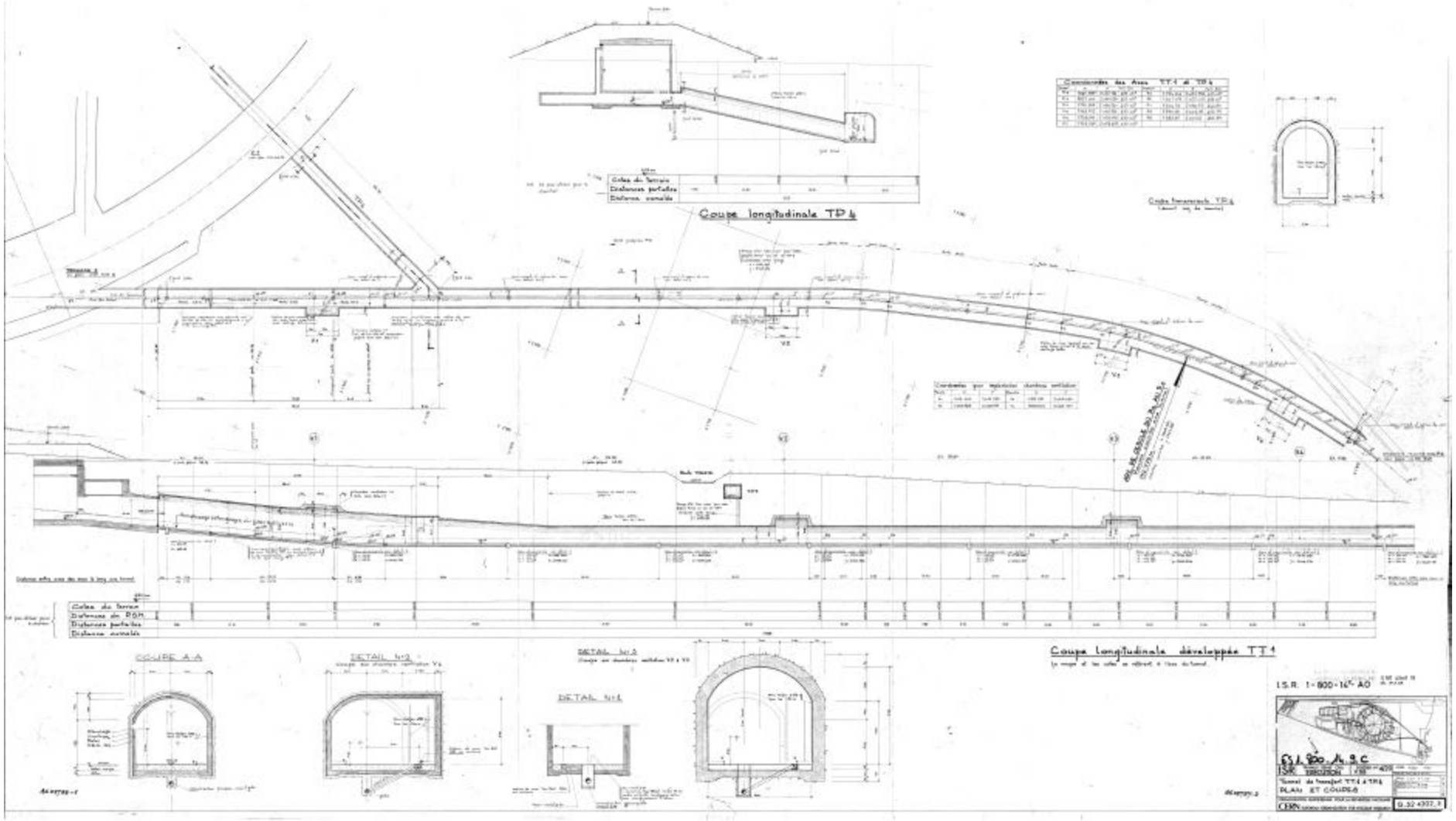


Brazing/Bonding area (100 m^2)	Machining area (for pre- and ultra-precision machining) (200 m^2)		
Metrology area (at least 2 CMM) (200 m^2)	Surface treatment area (150 m^2)	Assembly area (200 m^2)	Clean room (150 m^2)

Option for the CLLIC DB injector in the TT1 tunnel



Option for the CLLIC DB injector in the TT1 tunnel



Conclusion

- Space need identified and active research started
- Department space officers involved
- No concrete results so far,

  closer look into TT1 and Bldg 185