Status of the Integration Drawings Release

Jack Fowler and

The integration team

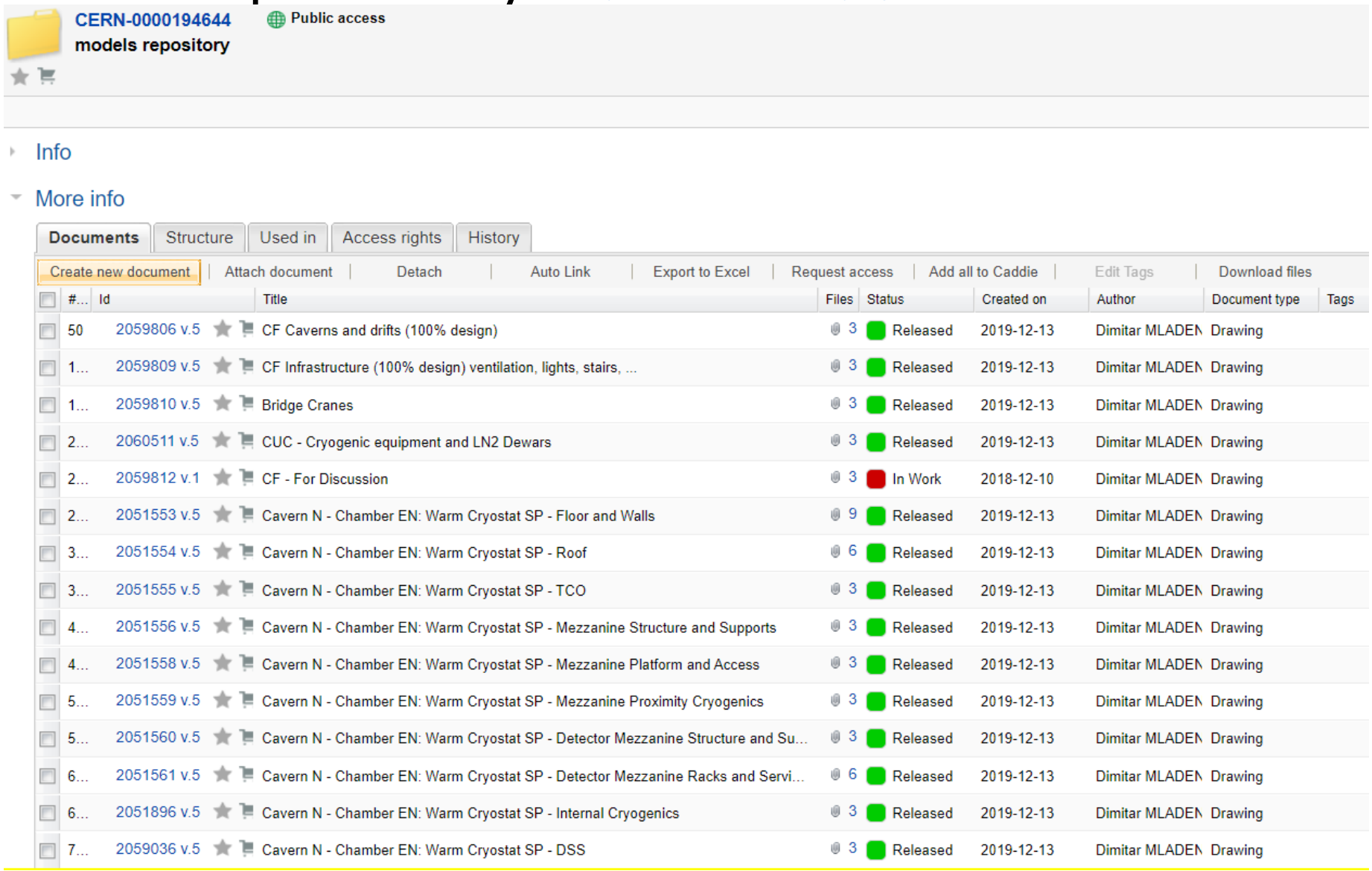
Integration process

- New models from stakeholders are posted to EDMS
- For detector elements, these are reviewed by the detector integration engineer (Kyle) with the consortia technical leads (file issues, coordinate system, interfaces, etc)
- Once satisfied, these models are released and the design office at CERN is notified
- The design office begins the process of replacing the old models in the overall integrated model
- The updated models are reviewed by configuration office, documenting the specific changes and released

Integrated Models

- Version 5 of all far site models have been reviewed and released
- Formats – stp, nwd (Navisworks), png (for easy visualization of what is included)
- Major components of the models include:
  - Underground excavation and facility infrastructure
  - Cryostat – warm structure, insulation, cold membrane
  - Cryogenics – CUC, proximity, internal cooldown and distribution
  - Detector – APA, CPA, Field cage, HV, instrumentation, DSS
  - Mezzanines – Cryogenics, detector
  - Cryostat roof infrastructure

Current repository https://edms.cern.ch/project/CERN-0000194644



CERN-0000194644
models repository
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Info

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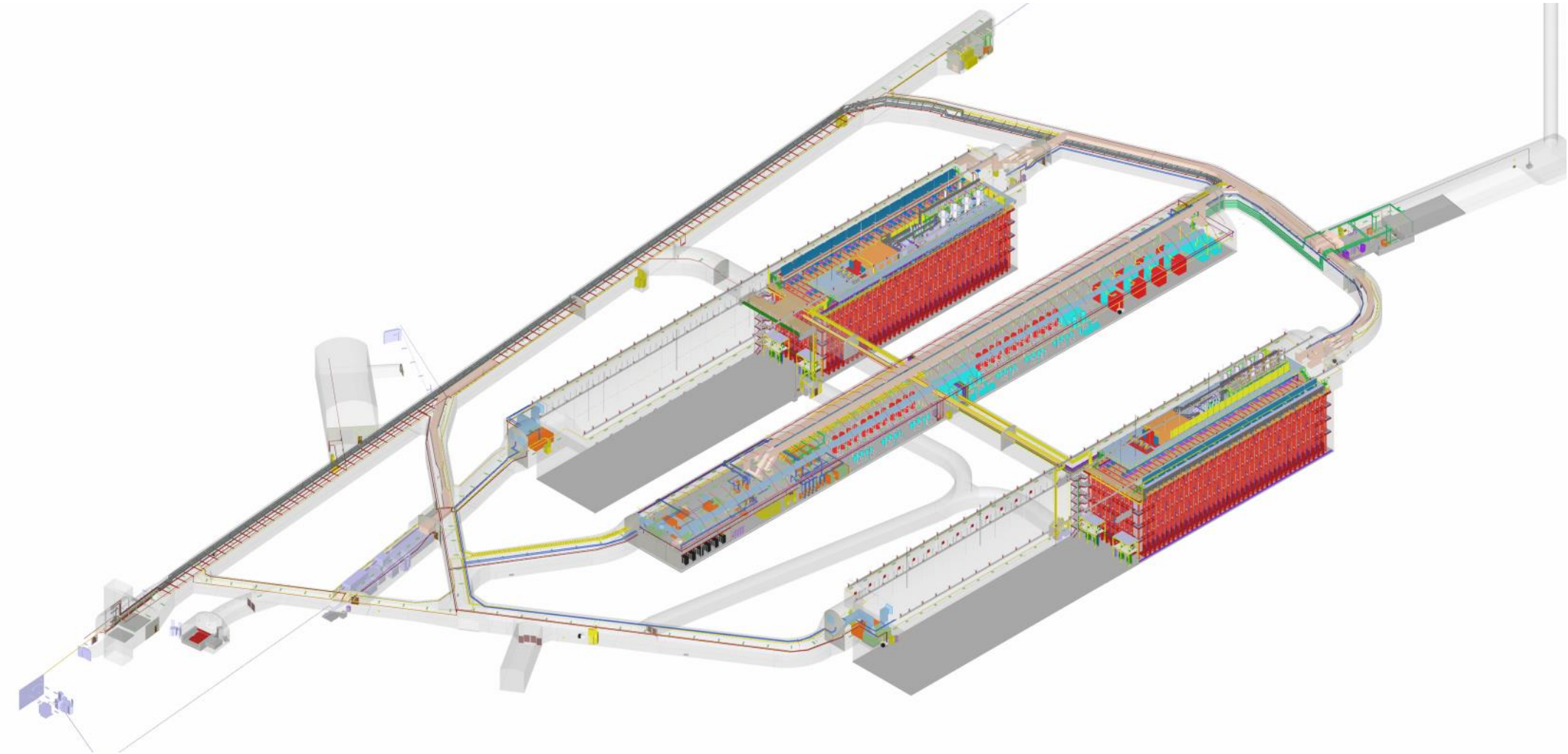
#...	Id	Title	Files	Status	Created on	Author	Document type	Tags
50	2059806 v.5	CF Caverns and drifts (100% design)	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
1...	2059809 v.5	CF Infrastructure (100% design) ventilation, lights, stairs, ...	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
1...	2059810 v.5	Bridge Cranes	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
2...	2060511 v.5	CUC - Cryogenic equipment and LN2 Dewars	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
2...	2059812 v.1	CF - For Discussion	3	In Work	2018-12-10	Dimitar MLADEN	Drawing	
2...	2051553 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Floor and Walls	9	Released	2019-12-13	Dimitar MLADEN	Drawing	
3...	2051554 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Roof	6	Released	2019-12-13	Dimitar MLADEN	Drawing	
3...	2051555 v.5	Cavern N - Chamber EN: Warm Cryostat SP - TCO	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
4...	2051556 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Mezzanine Structure and Supports	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
4...	2051558 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Mezzanine Platform and Access	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
5...	2051559 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Mezzanine Proximity Cryogenics	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
5...	2051560 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Detector Mezzanine Structure and Su...	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
6...	2051561 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Detector Mezzanine Racks and Servi...	6	Released	2019-12-13	Dimitar MLADEN	Drawing	
6...	2051896 v.5	Cavern N - Chamber EN: Warm Cryostat SP - Internal Cryogenics	3	Released	2019-12-13	Dimitar MLADEN	Drawing	
7...	2059036 v.5	Cavern N - Chamber EN: Warm Cryostat SP - DSS	3	Released	2019-12-13	Dimitar MLADEN	Drawing	

Stored view of current overall model



Change record for each version release

Long Baseline Neutrino Facility, DUNE & CERN Neutrino Platform	https://edms.cern.ch/document/2059874/1		
Document EDMS identifier: 2059874	Fermilab LBNF DocDB:	Created: 20-Jun-19	
		Last Modified: 12-Dec-20	Rev. No.: **5**

Change report for LBNF/DUNE integrated models Version 5

Abstract

This report describes the major changes included in the version 5 release of the LBNF/DUNE integrated models.

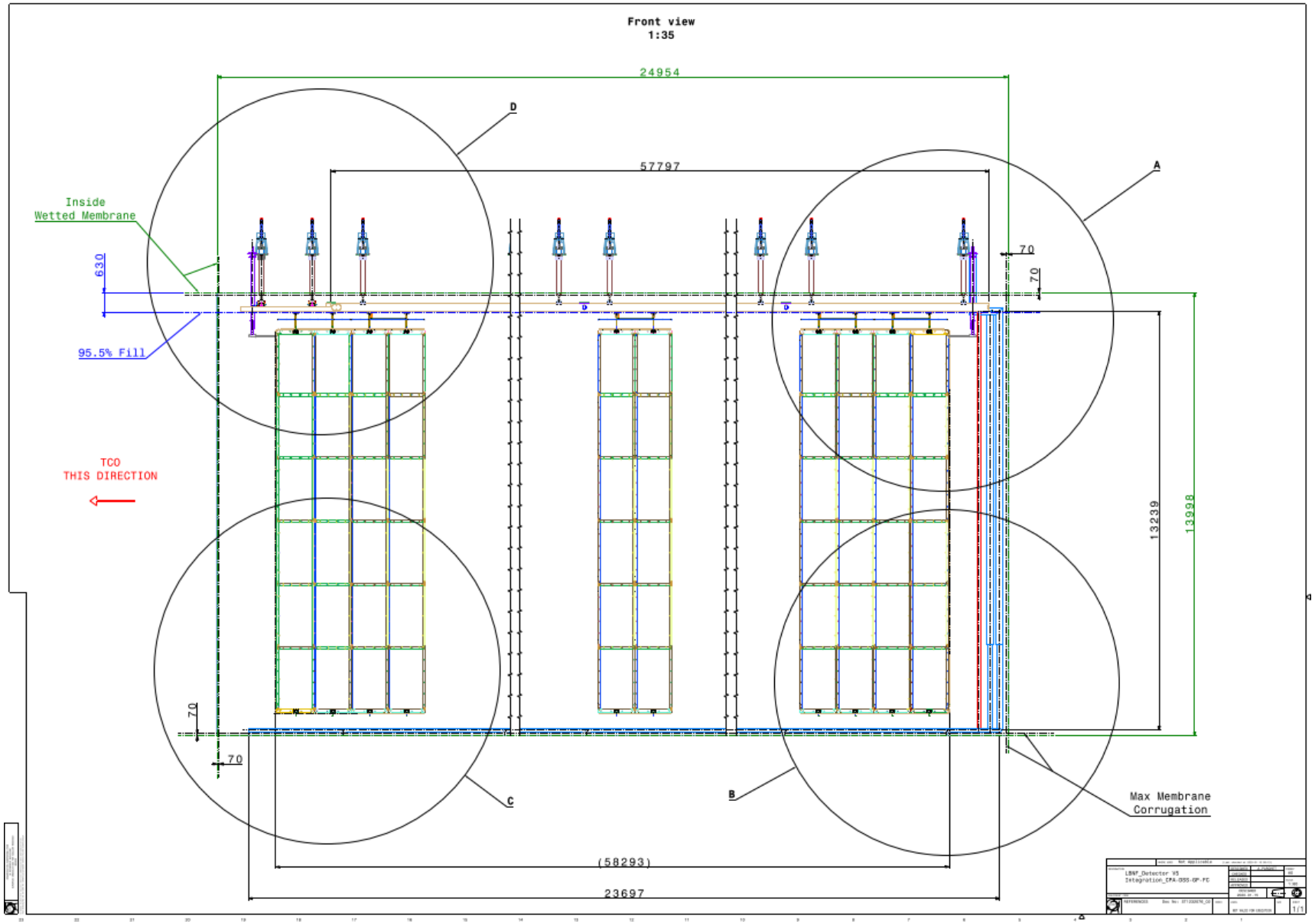
Working with Navisworks

- Greatly reduced file sizes (eg. 1 Gb is reduced to 100 Mb)
- Tools – measure, animate, clash detection
- Doesn't play well with Macs, but there are workarounds

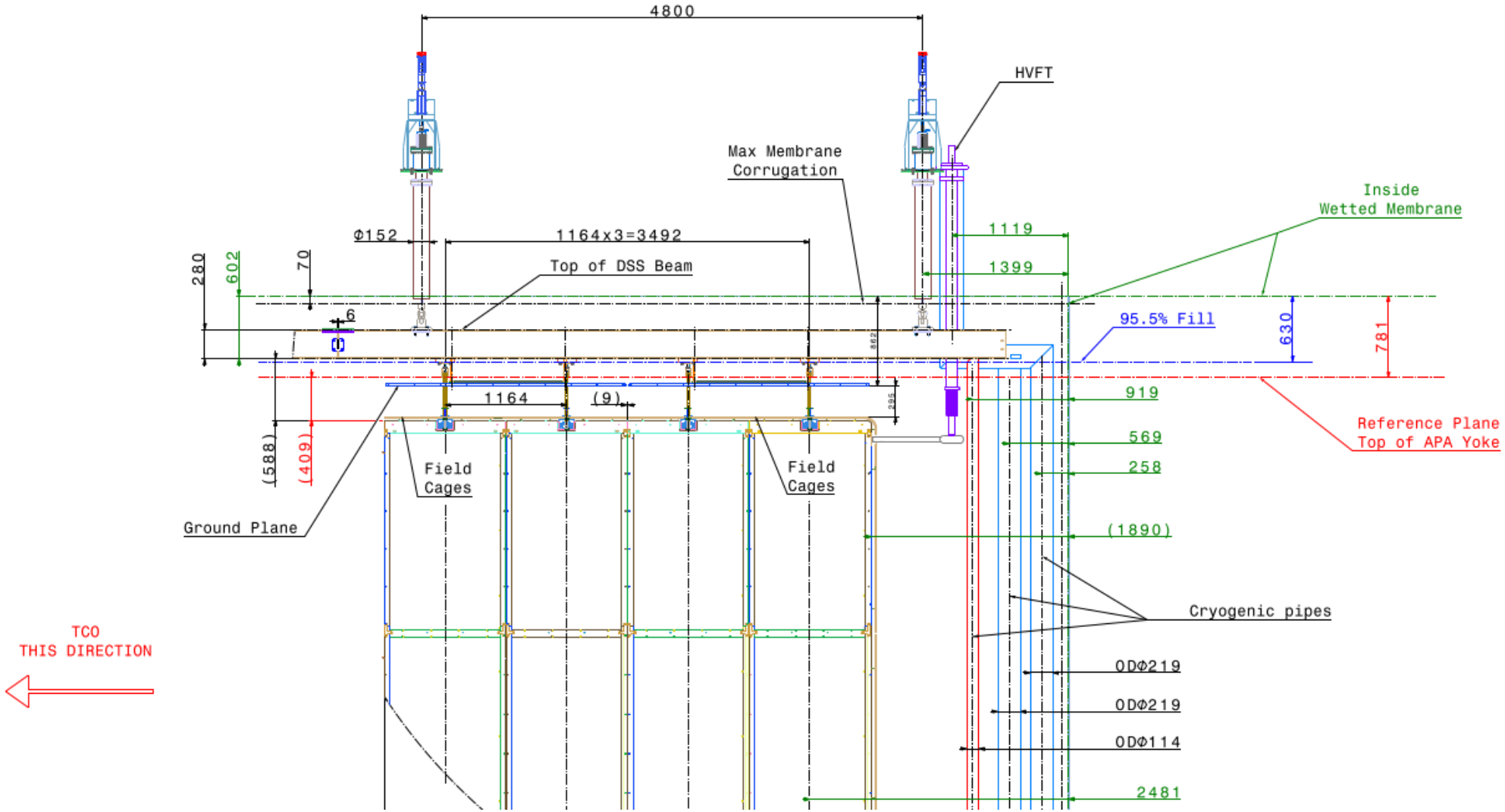
Layout drawings

- Layout drawings of the assemblies begin to identify envelopes, relationships and positions of elements between subsystems
- Some rules and guidelines
  - For now, dimensions are whole mm, also need to implement dual dimensions
  - Only placed the dimensions required for assembly and locate the detector
  - Dimensions in (000) are for information only
  - Label major components

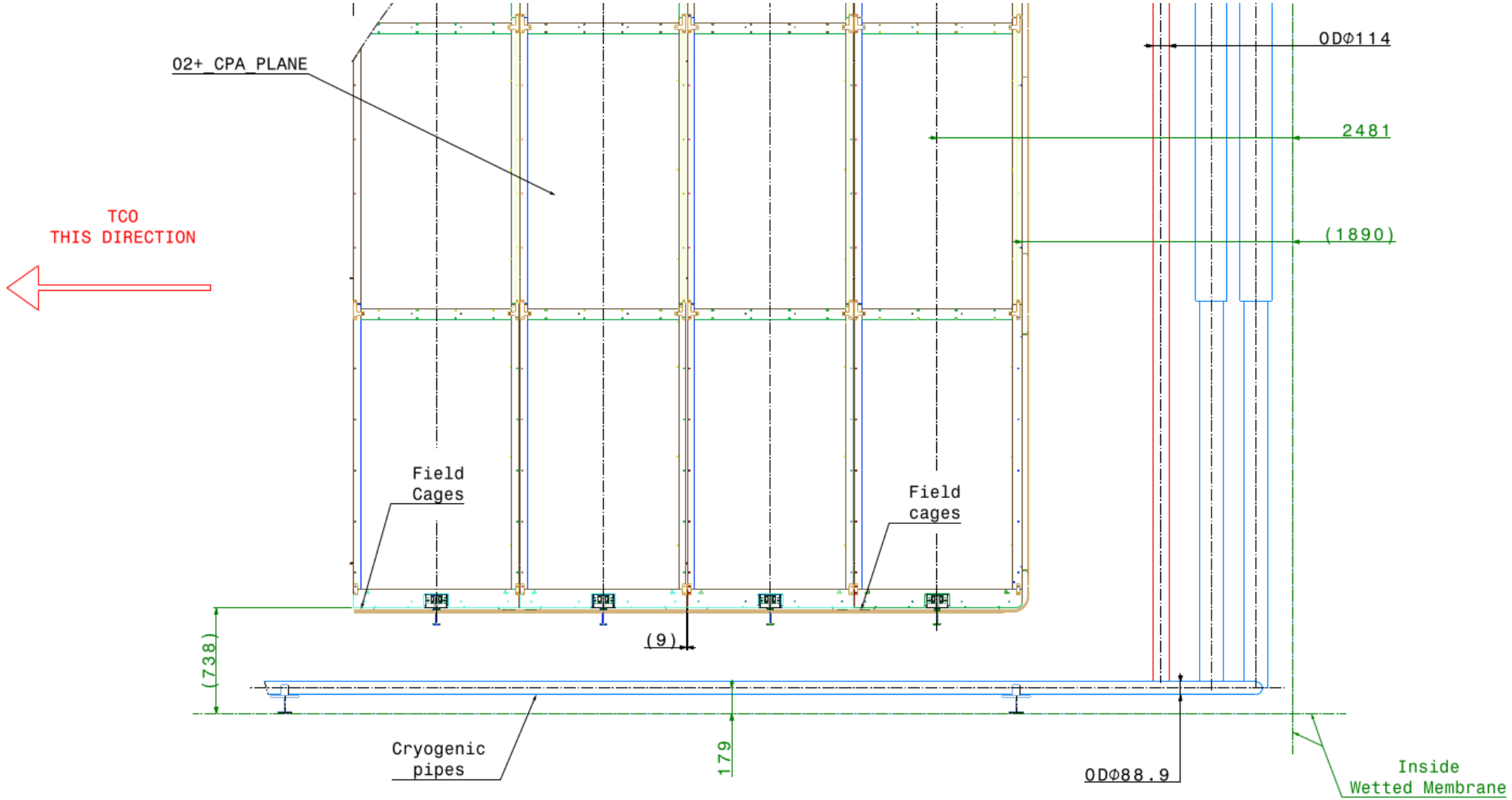
Layout drawing examples for CPA/HV/Cryostat



Section A details top corner



Section B details bottom corner



To do and in the works

- Will have similar drawings for APA next week
- Will post these for comment by stakeholders and release on EDMS
- Will update with each version release and compare reference dimensions from previous versions
- Perform critical clash detection between subsystems