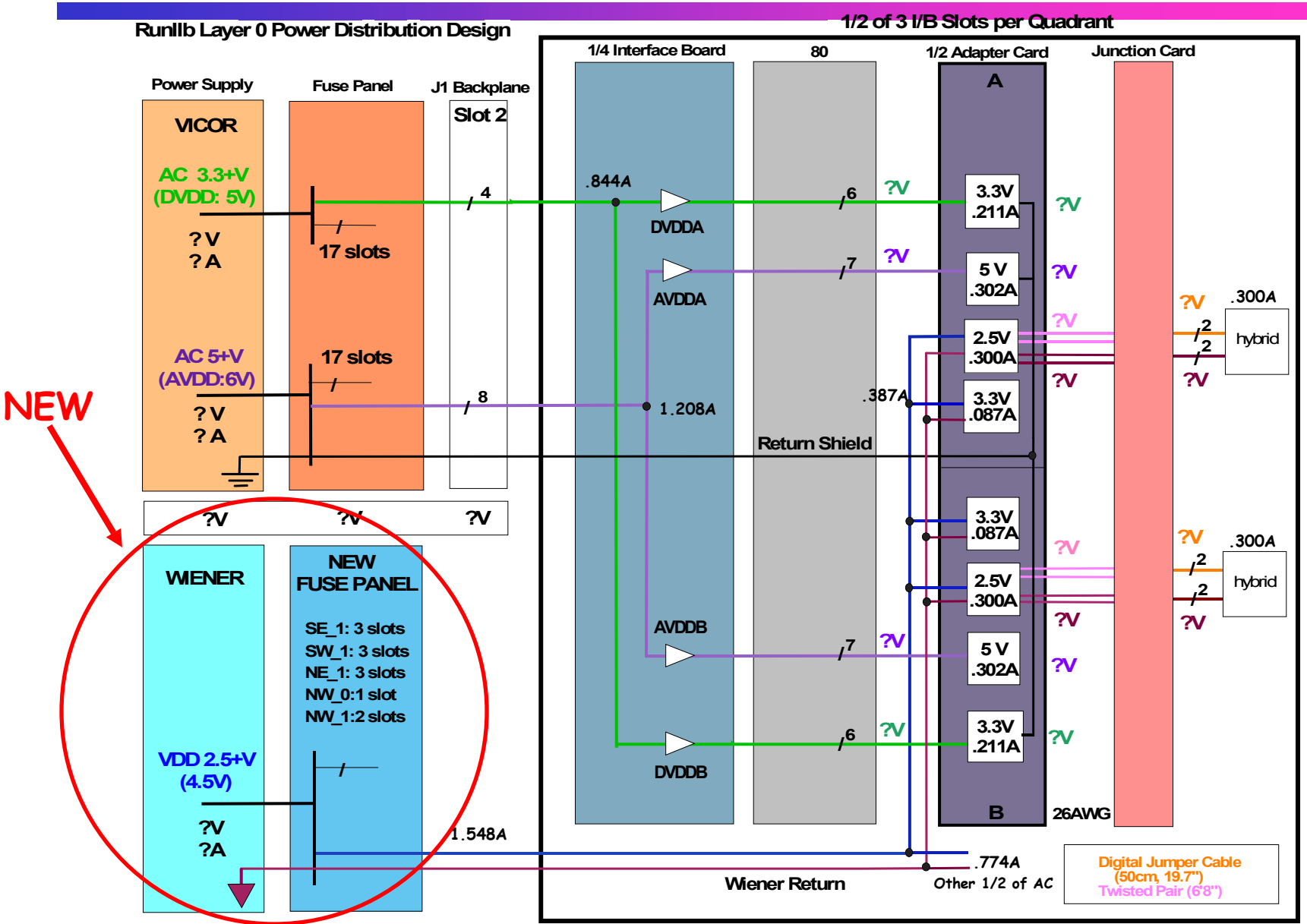
# L0 Electronics Shutdown Plans

L. Bagby Fresno Workshop 6.7-12.04

- Install a few (1-4) L0 hybrids.
  - Installations required:
    - Isolated SVX4 and driver supply needed.
    - Cooling and VESDA interlock chassis.
    - SEQC firmware change.
  - Software changes required:
    - Download GUI modified.
    - Reconstruction.
- Install more HV.
  - Installations required:
    - HV crate / pods (MCH2)
    - Fanout Box (MCH2)
    - Breakout Box (Platform)
  - Software changes required:
    - Download GUI

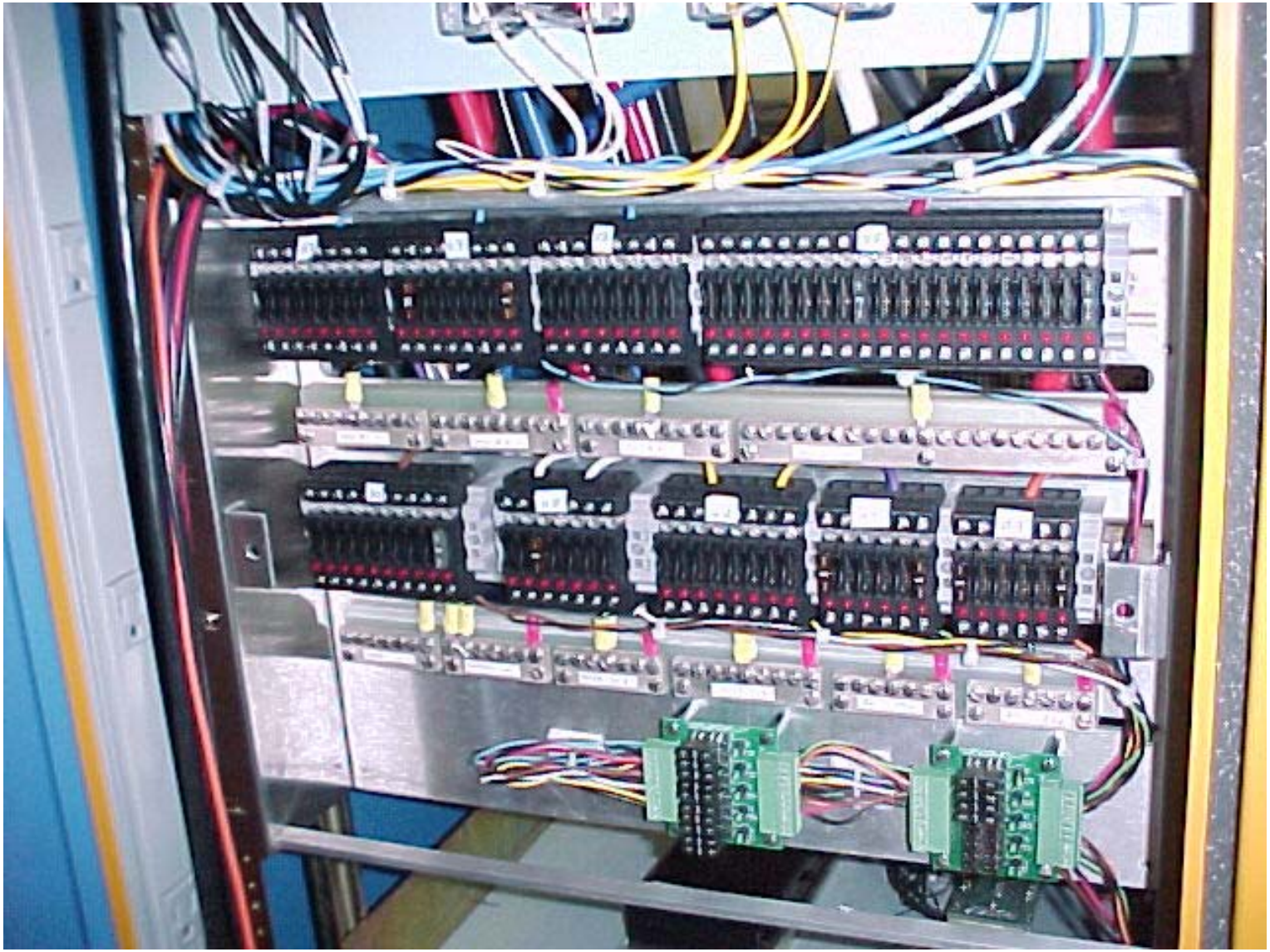
# Isolated LV System



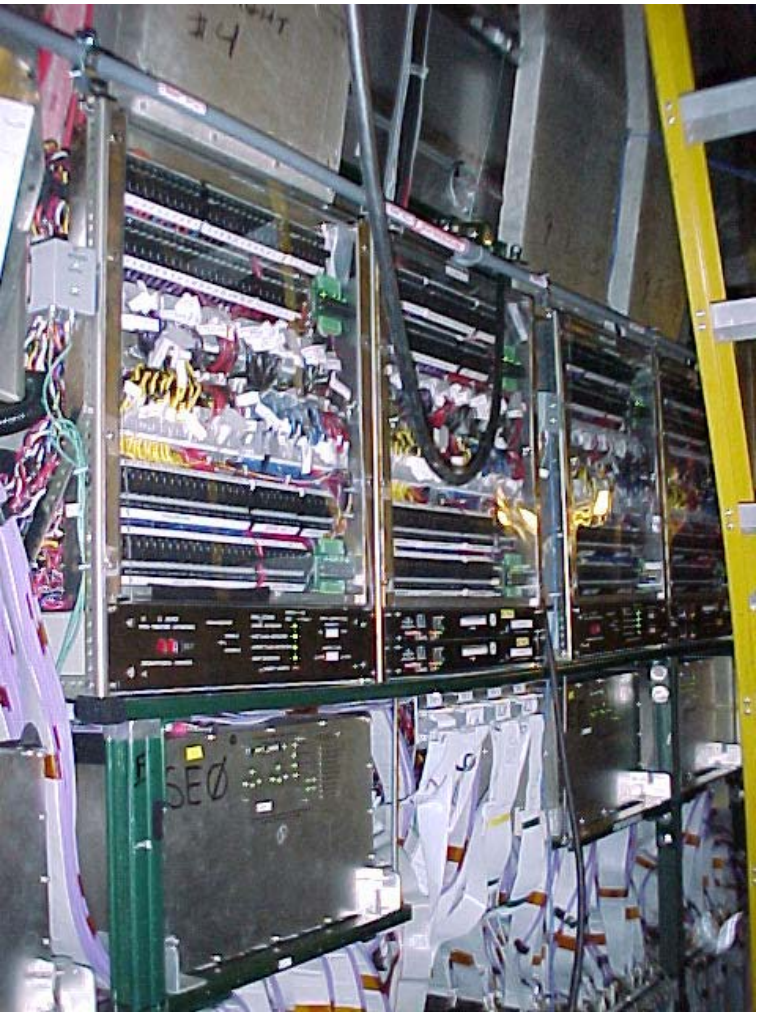
# Equipment Locations

- M119
  - Wiener Power Supply
  - VESDA/Cooling interlock chassis
- Cathedral
  - Mini Fuse Panel
- Calorimeter Gap (Horseshoe)
  - Adapter Card
- Somewhere within bore
  - Sensors – Analog cables - Junction Cards

# Mini Version Fuse Panel



# Cathedral Space



East: w:20.5” h:20” d:11.5”

West:w:18.5” h:20” d:8”

# Where will L0 fit within DAQ system ?

- Want hybrids to be assigned to a minimum of ½ of a SEQ slot due to firmware.
  - Specific AC positions must be used but which ones??
    - NW Sector 3 has the most bad H disk hybrids, 4 total.
  - Implies that I/B slot used will have ½ SVX2, ½ SVX4.
    - OK
      - Because 80 conductor pinout is the same for RUNIIb as RUNIIa except for AVDDA2 and AVDDB2. AVDD2 Pins are open on NEW AC.
      - VICOR can be used for AVDD → New AC 5V, DVDD → New AC 3.3V
      - Isolated supply comes into AC on external connector.
- AC position
- I/B – SEQ - VRB

# NW Sector 3
# (if H disks left in)

| | Horseshoe | | | Interface | | | Sequencer | | | VTM/VRB | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adapter card | H-disk | 80 Cond Cable | Quad Location | Interface Crate | Card | Seq Crate | Card | MCH Rack | Crate | Card | In Fiber | Channel | VRB Address |
| 09C1 | o | 09C | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 0 | 1 | GS:66 |
| 09C2 | i | 09C | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 0 | 0 | GS:66 |
| 10B1 | o | 10B | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 1 | 3 | GS:66 |
| 10B2 | i | 10B | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 1 | 2 | GS:66 |
| 10C1 | o | 10C | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 2 | 5 | GS:66 |
| 10C2 | i | 10C | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 2 | 4 | GS:66 |
| 15C1 | o | 15C | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 3 | 7 | GS:66 |
| 15C2 | i | 15C | NW | 0A | 10 | 0A | 10 | M208 | 0 | 18 | 3 | 6 | GS:66 |
| | | | | | | | | | | | | | |
| 16C1 | o | 16C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 0 | 1 | GS:66 |
| 16C2 | I | 16C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 0 | 0 | GS:66 |
| 17C1 | o-L0 | 17C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 1 | 3 | GS:66 |
| 17C2 | I-L0 | 17C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 1 | 2 | GS:66 |
| 18C1 | o-L0 | 18C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 2 | 5 | GS:66 |
| 18C2 | I-L0 | 18C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 2 | 4 | GS:66 |
| 24C1 | o | 24C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 3 | 7 | GS:66 |
| 24C2 | i | 24C | NW | 1B | 14 | 0A | 11 | M208 | 0 | 19 | 3 | 6 | GS:66 |

Need to move 3 H disk hybrids: 16C1 → 10C1
16C2 → 24C2
17C2 → 18C1

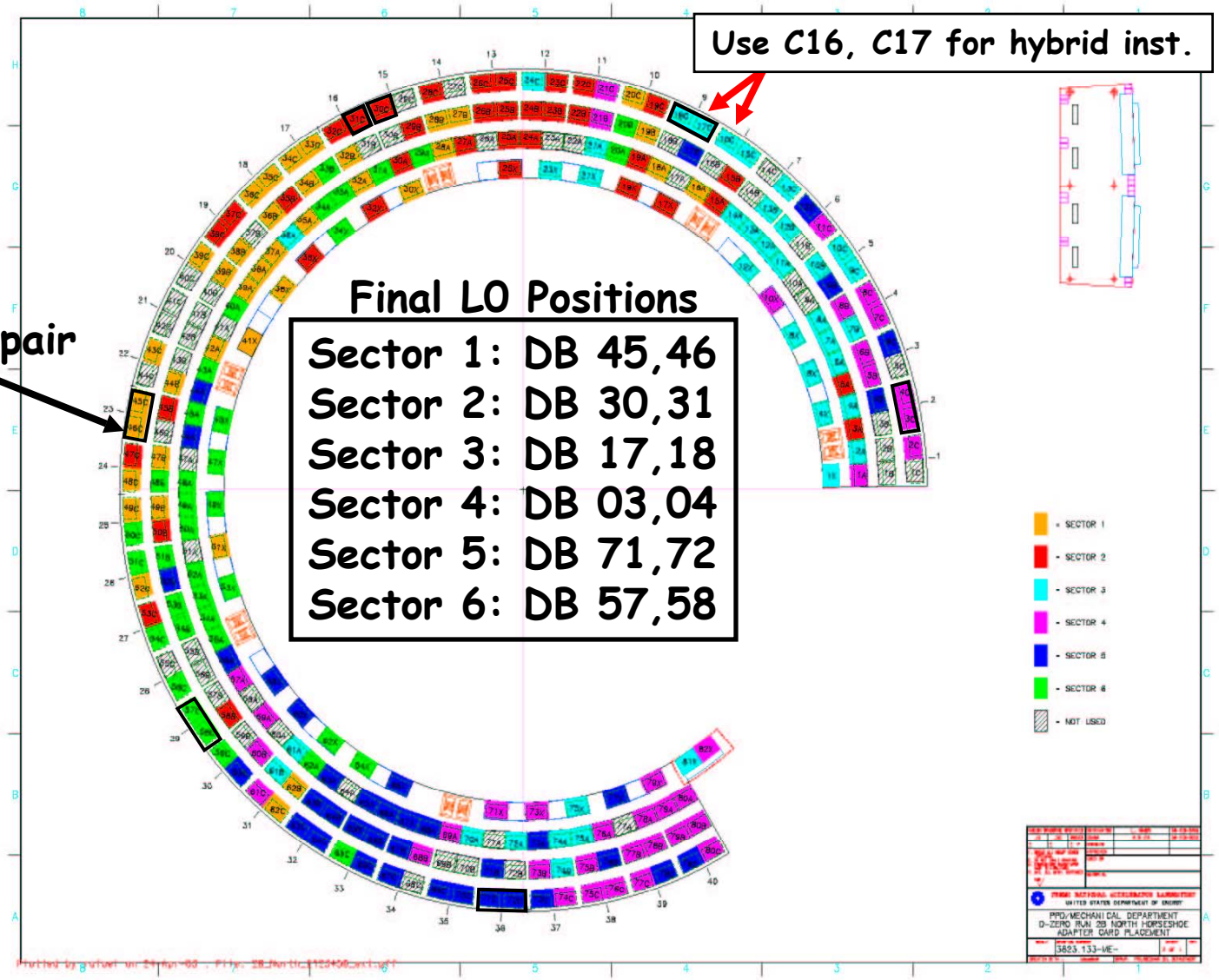
# North Horseshoe LO AC Positions

Use C16, C17 for hybrid inst.

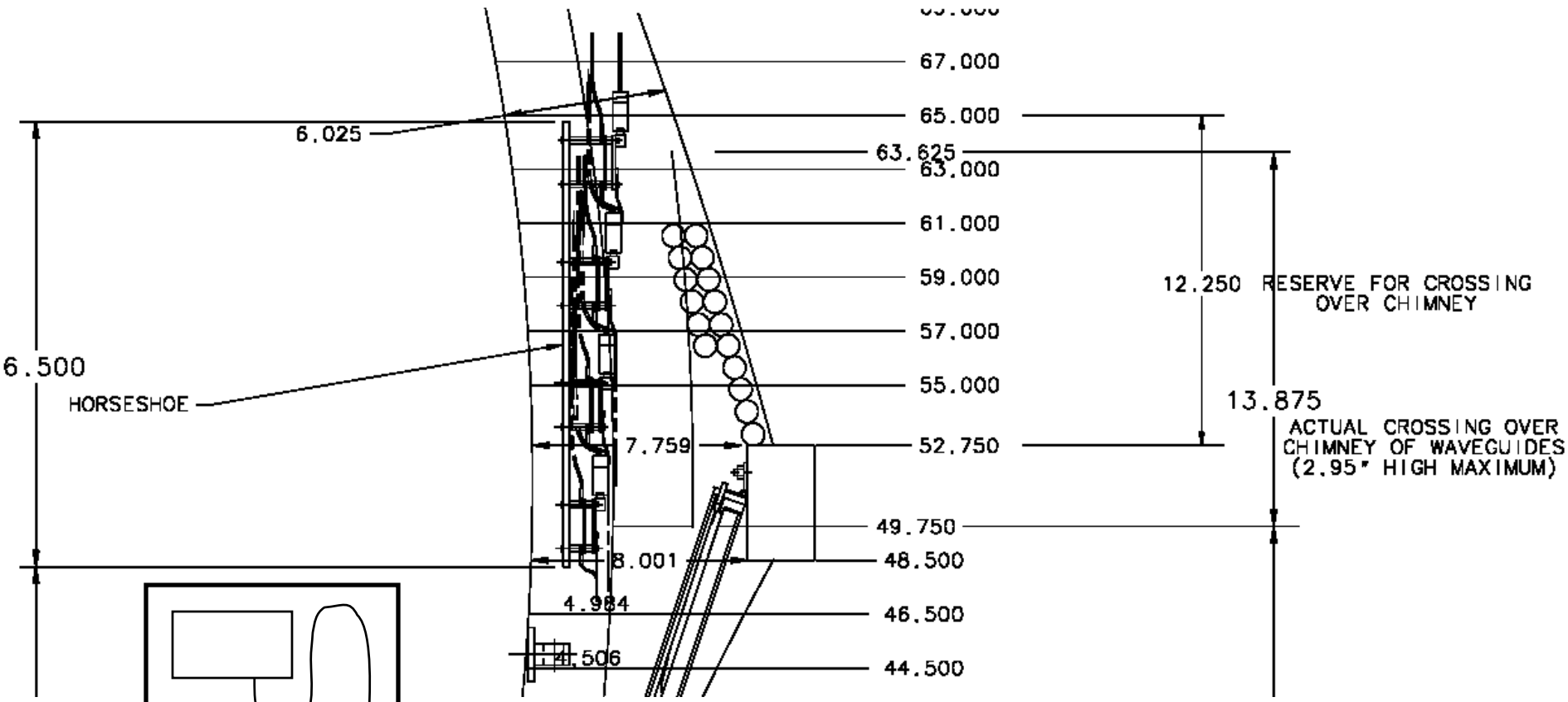
Have to repair

**Final LO Positions**

| | |
|---|---|
| Sector 1: | DB 45,46 |
| Sector 2: | DB 30,31 |
| Sector 3: | DB 17,18 |
| Sector 4: | DB 03,04 |
| Sector 5: | DB 71,72 |
| Sector 6: | DB 57,58 |



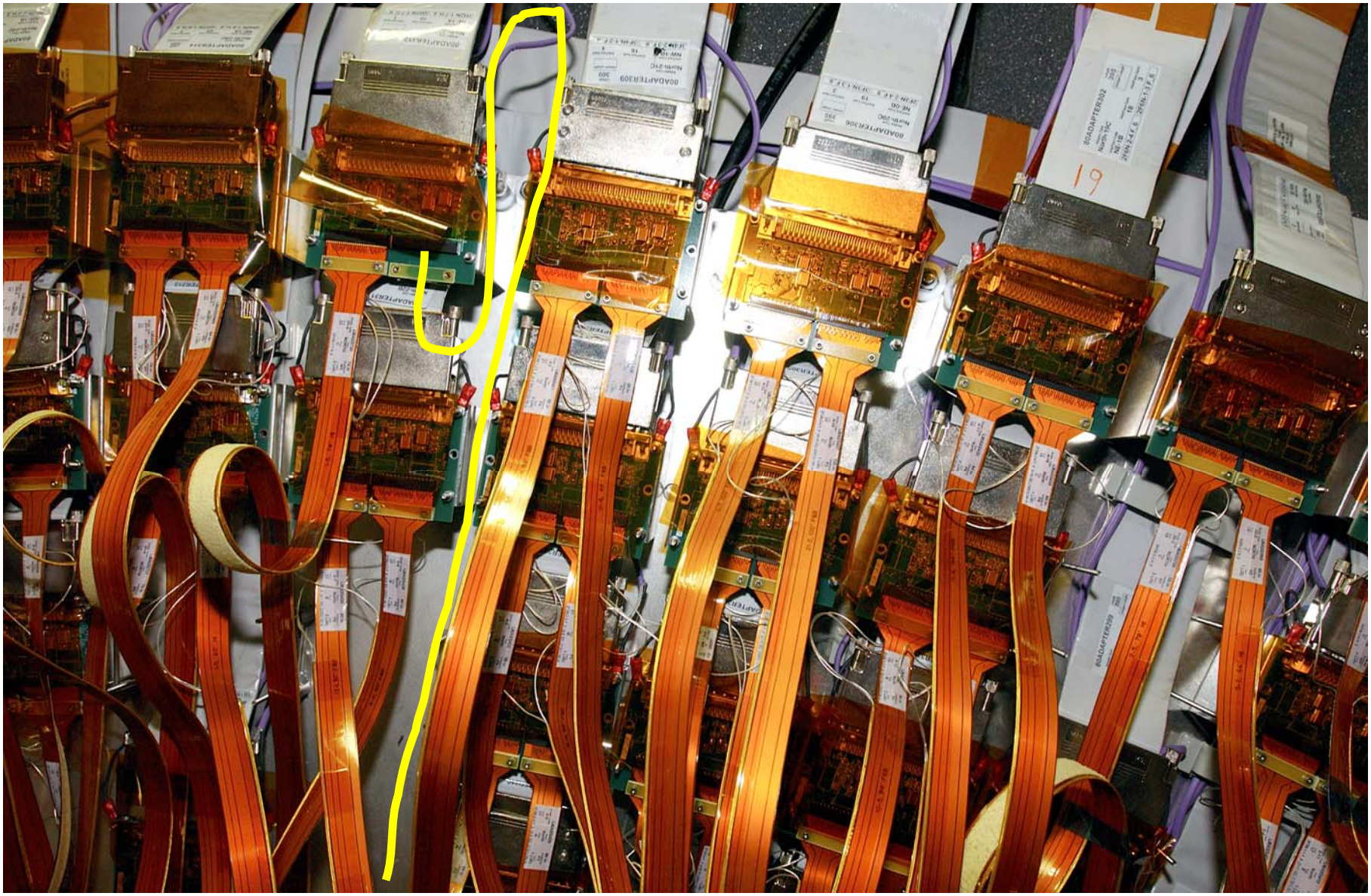
# Twisted Pair Cable Length




At 52" twpr l=1680.2mm=66.15"
Top of Horseshoe @ 65"
At 65" twpr l=66.15+13"=79.15"=6.6'
+5" for bends +6" for l between bends =90"=7.51' for no cores.

Suggest 10' to accommodate routing and possible core windings.

# Twisted Pair Route



# NW Slot Assignment

| | | | | | | | | | | INTERFACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | | L0 | | 1B | L0 | | | L0 | | |
| III | II / III | IV | II | II / III | III | I/IV | I/III | III/IV | | TYPE |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | SLOT |
| F-6 | F-8 | PROTO | F-6 | F-8 | 2.14-1.13 | F-6 | F-8 | OPEN | | 1 |
| F-6 | F-8 | PROTO | F-6 | F-8 | 1.14-2.12 | F-6 | F-8 | L0-5-43 | | 2 |
| F-6 | F-8 | L0-3-21 | F-6 | F-8 | 2.13-1.12 | F-6 | F-8 | L0-5-21 | | 3 |
| | | OPEN | | | 2.15-1.15 | | | OPEN | | 4 |

| SEQUENCER | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEQ_04 | 0A | | | | | | | | | Inner | L0 |
| | | I | III | I / III | I | I | II | II / III | III | III / IV | IV |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1 | | B_3 | B_9 | B_9 | B_6 | B_9 | F_6 | F_8 | F-6 | 2.10-1.9 | PROTO |
| 2 | | B_3 | B_9 | B_9 | B_6 | B_9 | F_6 | F_8 | F-6 | 1.10-2.8 | PROTO |
| 3 | | SP | B_9 | B-6 | B_6 | B_9 | F-6 | F-8 | F-6 | 2.9-1.8 | L0-3-21 |
| 4 | | B_3 | SP | B-6 | B_6 | B_9 | F-8 | F-8 | F-8 | 2.11-1.11 | OPEN |

| VRB | M208-1 | | | | | | | | H Inner | L0 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| B_3 | B_9 | B_9 | B_6 | B_9 | 0 | F_6 | F_8 | F-6 | 2.10-1.9 | PROTO |
| B_3 | B_9 | B_9 | B_6 | B_9 | 1 | F_6 | F_8 | F-6 | 1.10-2.8 | PROTO |
| B_3 | B_9 | B-6 | B_6 | B_9 | 2 | F-6 | F-8 | F-6 | 2.9-1.8 | L0-3-21 |
| | | B-6 | B_6 | B_9 | 3 | F-8 | F-8 | F-8 | 2.11-1.11 | OPEN |

| | |
|---|---|
| Sector 3 | L0 |
| Sector 4 | L0 |
| Sector 5 | L0 |

# HV

- If you want to remap some of the HV channels now is the time.
- Need to define...
  - Channels required.
  - Fanout box changes.
  - Breakout box changes.
  - How many new breakout/fanout installations.
- Need to find spare 54 conductors and order Pod to Fanout cables.
- Download GUI will need changed.