



# Implications of civil engineering works next year on cabling in Point 1

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# Outline

- Archeology of cables at Point 1
- LS2 Committee request to state about possible requests to ask for YETS2017-18 extension
  - Comments given in EDMS about YETS length
- Status of findings
- Strategy

# Archeology of cables at Point 1

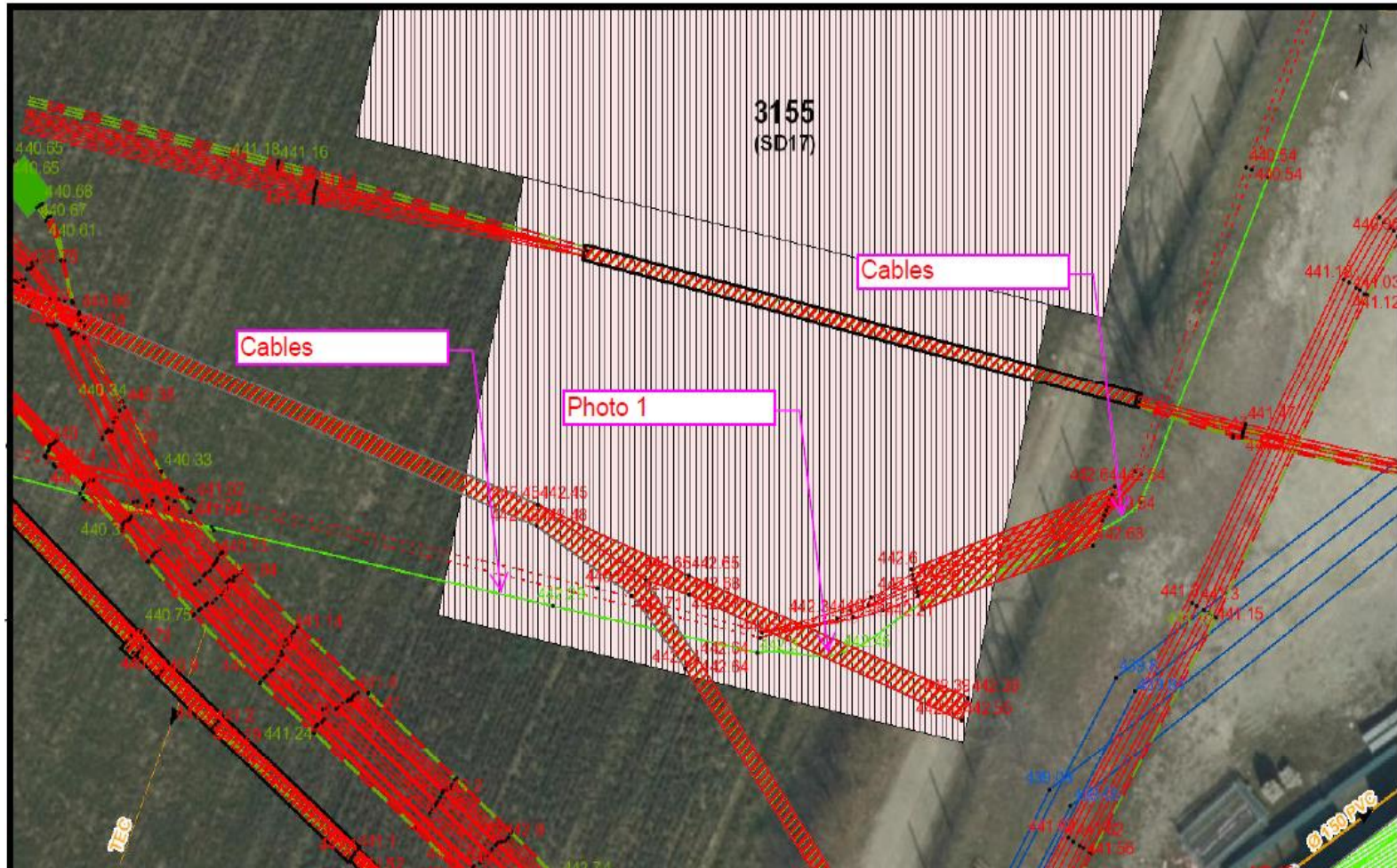
- Being Point 1 an old SPS point (house of BA6) there are always possible surprises when excavating
- Three unknown cables surfaced during the work done in December 2016 for the rerouting of known network of cables in view of HL-LHC Civil Engineering work

# The unknown cables



In a location clashing with future CE works

# Identification in CERN maps and databases



# Partial identification of the cables

- The cable with mechanical shielding is a phone cable unused
- The green cable is an ancient coaxial for Ethernet not used anymore
- The black cable is of the type NEU48 used for Alarm Level 3 transmission between SPS Points



# Cable identification so far



Photo prise au niveau de la fouille pt1

| Câbles                            |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
|-----------------------------------|----|------|------|--------|--------|-------|----------|--------------------|------------------------|---------|----------|---------|------|-------|-----------|-----------|---------|--|
| Zone                              |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Câble                             | Tr | Or T | Stat | Réserv | Réseau | Type  | Longueur | Tenant/Aboutissant | Position Fonctionnelle | Ouvrage | Position | Elément | Rack | Prise | Connect T | Connect R | Bornier |  |
| 1009                              | A  |      | V    |        | 1031   | NEU48 | 1532     | RJ11171=BA50       | BA50                   | 11171   | 9044     |         |      | 1     | A 1       | 50BPM     | 50BPM   |  |
| Trajets: Initial Commun Final Not |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| 9232                              |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| R NEU48                           |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Desc GIS BA6 = PP (109)           |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Action - Affaire complète         |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| NC CABLO S 2 0 670 0              |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Lot                               |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| DIC                               |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Etude                             |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Projet                            |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| 133902                            | A  |      | V    |        | DGPS   | FE160 | 0        | CPTR1566=BA50      | BA50                   |         |          |         |      |       | INCONNU   | INCONN    | INCONN  |  |
| Trajets: Initial Commun Final Not |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| 13952                             |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| R FE160                           |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Desc TELEPHONE                    |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Action - Affaire complète         |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| NC CABLO S S H 900 001            |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Lot                               |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| DIC                               |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Etude                             |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Projet                            |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| 350630                            | A  |      | M    |        | 1112   | VAU24 | 1350     | RA2419=BA50        | BA50                   | 2419    |          |         | 12   |       | X         |           |         |  |
| Trajets: Initial Commun Final Not |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| 9992                              |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| R VAU24                           |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Desc CABLE ENLEVE                 |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Action - Affaire complète         |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| DTP C213 A G A 182 001            |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Lot                               |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| DIC                               |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Etude SP5CUC-CR1                  |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |
| Projet                            |    |      |      |        |        |       |          |                    |                        |         |          |         |      |       |           |           |         |  |

Or, selon la câblo entre BA5 et BA6:  
 3 câbles: 1 câble noir de type NEU48  
 1 câble blindé (téléphone)  
 1 câble vert de type VAU24

Courtesy J-C. Guillaume

# Cable identification so far

Entrée BA5



Câble multiconducteur  
Téléphone  
- câble coupé.

Câbles NEU48



Câbles VAU24  
effectivement coupé  
et enlevé dans le BA5  
lors la campagne de  
retrait des câbles.

Par déduction, la seule possibilité restante est le NEU48.  
A noter que ces câbles sont ensemble au niveau de la fouille  
et rentrent ensemble dans le BA5.

6/29/2017

Courtesy J-C. Guillaume



# NEU48 multiconductors cable



# YETS extension?

- The complete identification of the remaining unknown cable is ongoing
- In the meanwhile the document about the proposed length of YETS2017-18 circulated and the HL project raised a warning concerning the cable issue
- Let's see the latest findings and then answer this question
- The urgency is given by the fact that in Spring 2018 the CE works are due to start

# Findings

- Investigations to identify cables between BA6 and BA5
- 1 cable identified at the exit of BA6 identified arriving to BA5 during the past TS

1) Câbles entrants en BA5 :

| Cable number | Cable type | Functional position | Observation            |
|--------------|------------|---------------------|------------------------|
| 1007         | NEU48      | RA0301=BA50         | Other extremity to BA4 |
| 1008         | NEU48      | RA1120=BA50         | Other extremity to BA4 |
| 1009         | NEU48      | RA1120=BA50         | Other extremity to BA6 |
| No number    | NEU48      | RA2647=BA50         | Bottom of the rack     |

2) Câbles entrants dans le BA6 :

| Cable number | Cable type | Functional position | Observation   |
|--------------|------------|---------------------|---|
| 1009         | NEU48      | RA0335=BA60         | Connected to junction box under the rack- NE48 1020 |
| 1010         | NEU48      | RA0335=BA60         | Connected   |
| 1011         | NEU48      | RA0335=BA60         | Connected to junction box under the rack- NE48 1021 |
| 1012         | NEU48      | RA0335=BA60         | Unconnected   |
| 1020         | NE48       | RA2272=BA60         | Other extremity to RA0335=BA6<br>Connected to 1009  |
| 1021         | NE48       | RA2272=BA60         | Other extremity to RA0335=BA6<br>Connected to 1011  |

# Strategy

- Identified 1009 as candidate
- The uncovered part has no identifier
- If 1009 is the the unknown cable the problem is solved:
  - The cable is a backup cable for Alarm Level 3 transmission and we can easily reroute it without interfering
- During the next TS (July 2017):
  - Check of continuity of 1009 cable
  - Injection of current in cable 1009 shielding and measurement with a current clamp (pince ampèremétrique)

# Our weapon



## If the cable is not the 1009?

- In that case we are back to square zero
- We would need more investigation during next TSs:
  - Further investigations on the cable
  - Uncovering it over longer length?
  - Trying to find where it goes: BA6? Elsewhere?
- Will it affect YETS2017-18?
  - We don't know, it looks unlikely
  - We should be able to solve earlier or well within the YETS