

Jornada técnica

LA PRESA DE ENCISO

Aspectos geológicos y geotécnicos

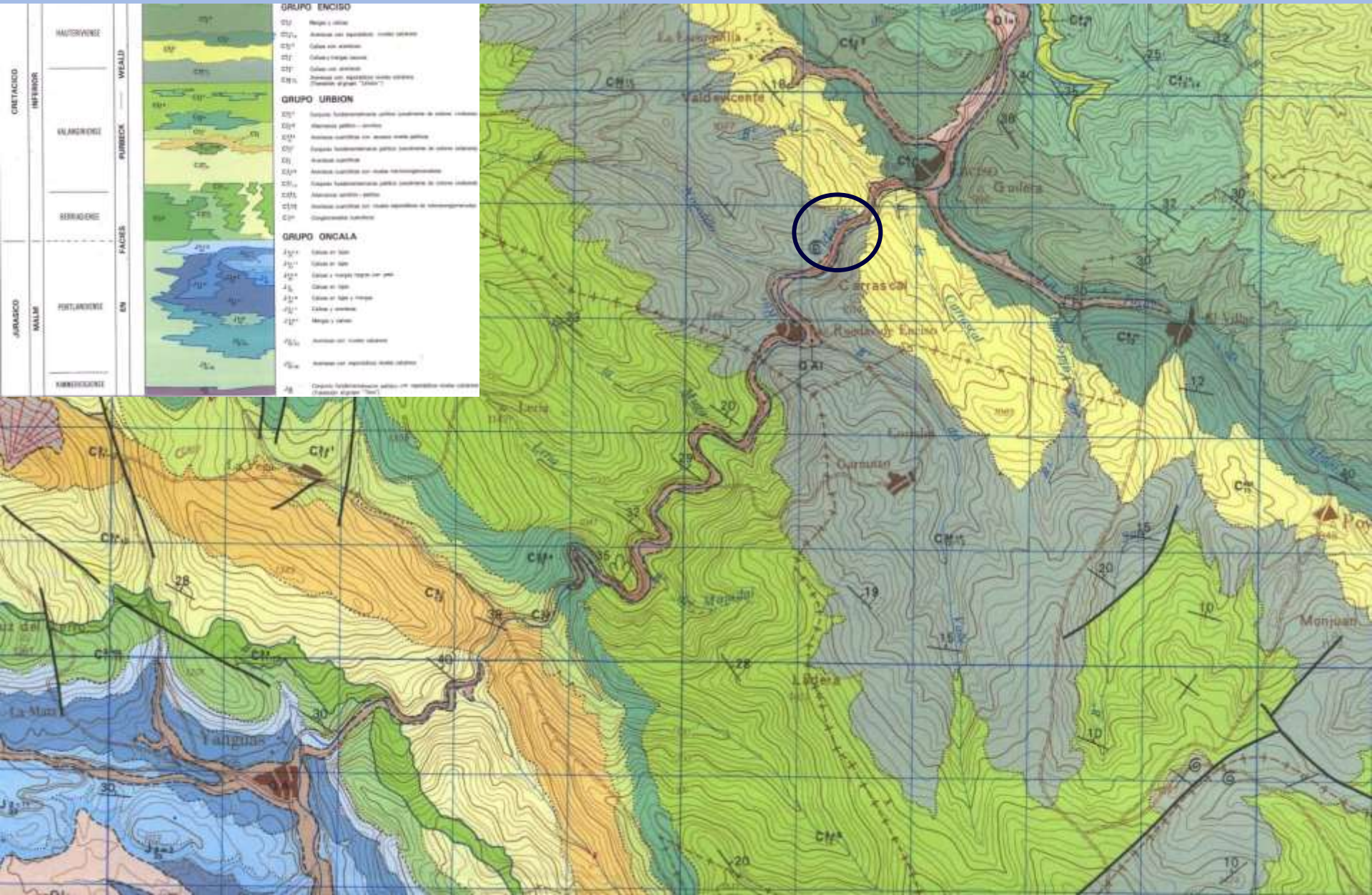
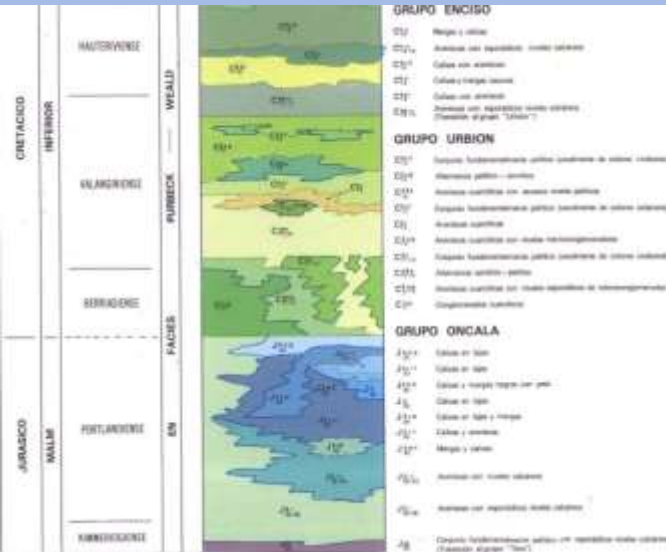
Antonio Soriano Peña



Presa de Enciso: Aspectos geológicos y geotécnicos

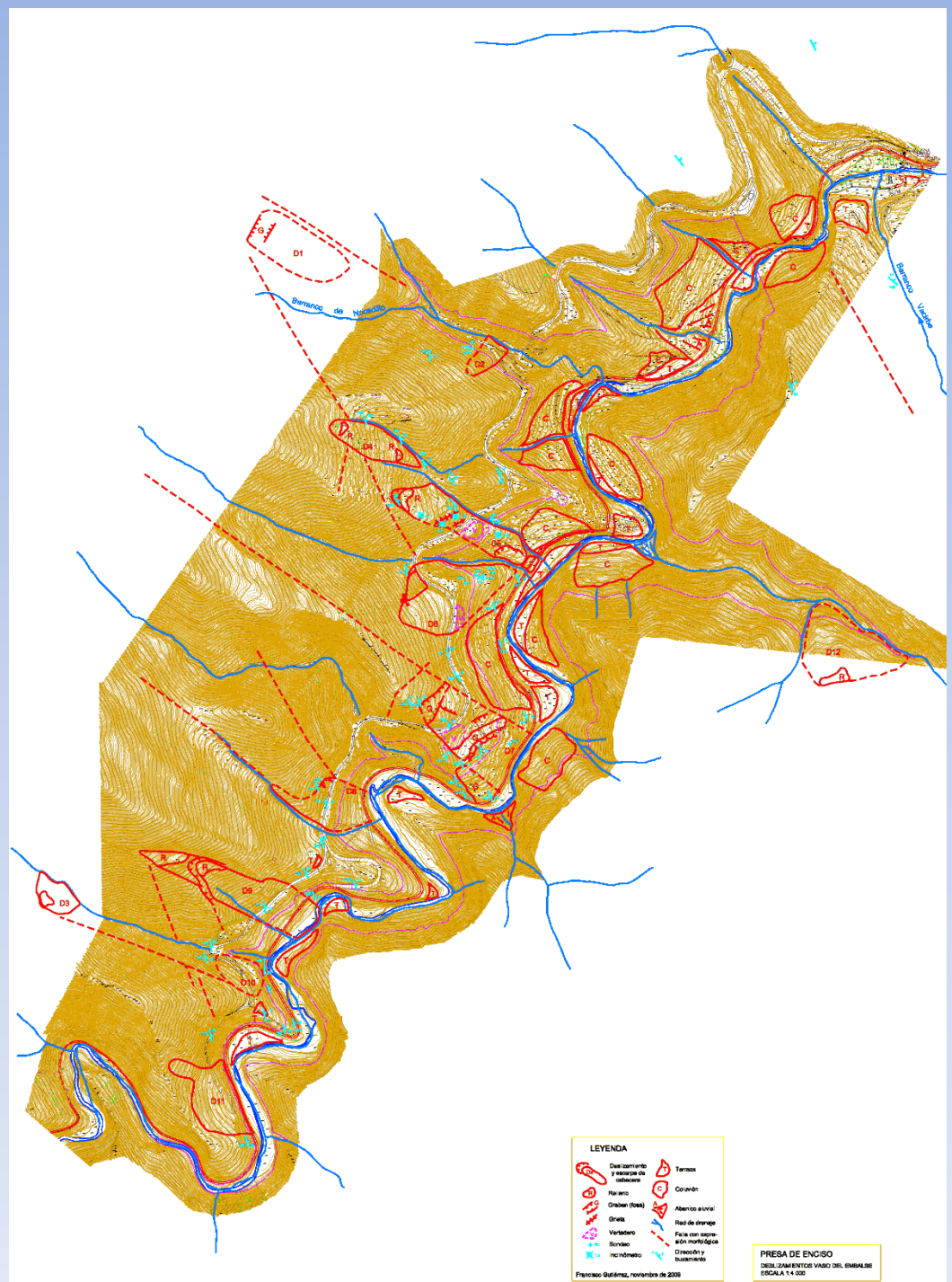
- Geología del vaso
- Geología de la cerrada
- Excavaciones
- Tratamiento del cimientto
- Investigación geotécnica
- Cálculos de estabilidad y deformaciones

Geología del vaso

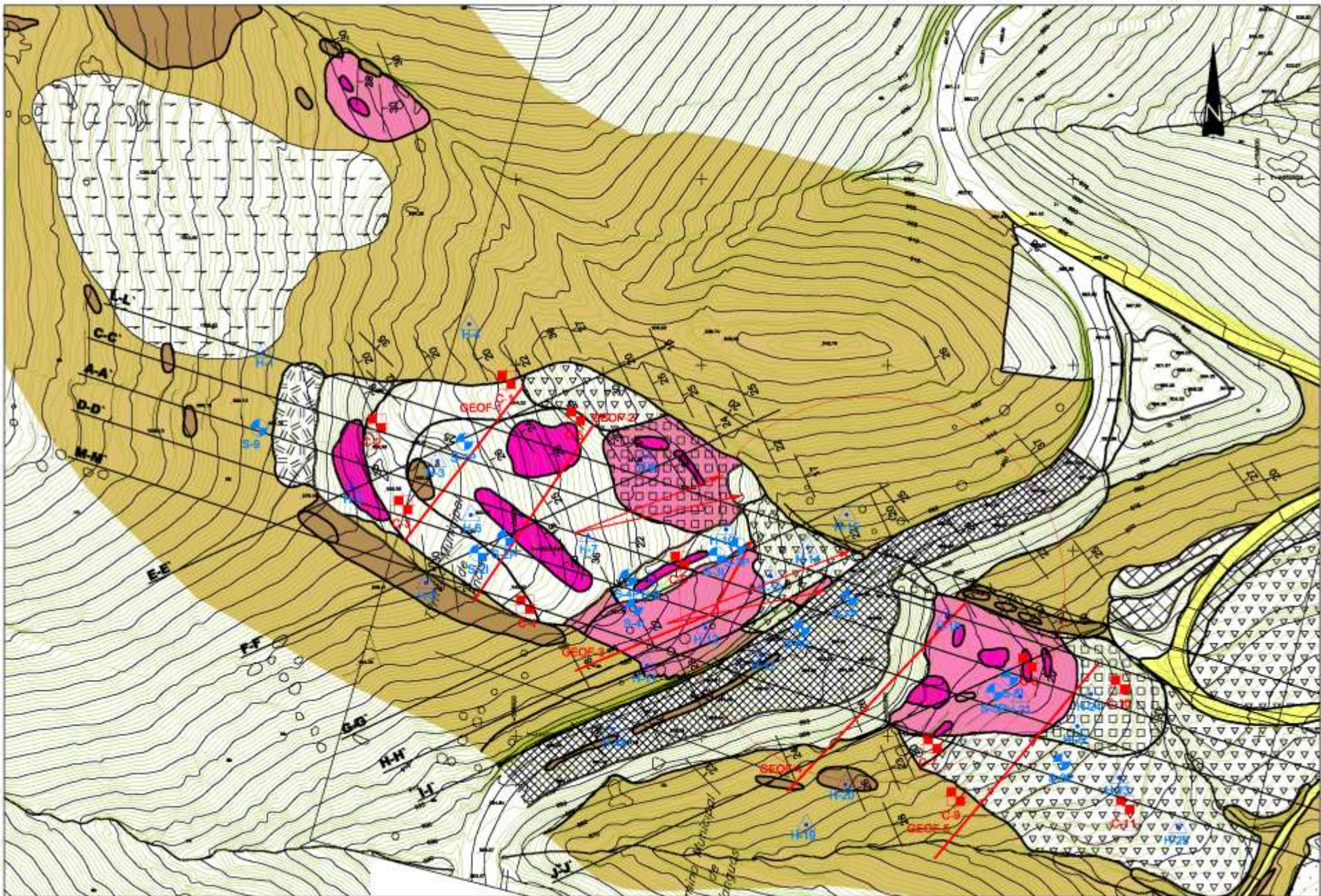


Geología del vaso

Ubicación de deslizamientos fósiles

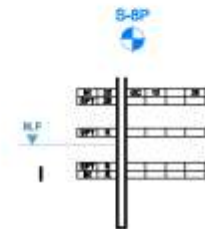


Geología del vaso

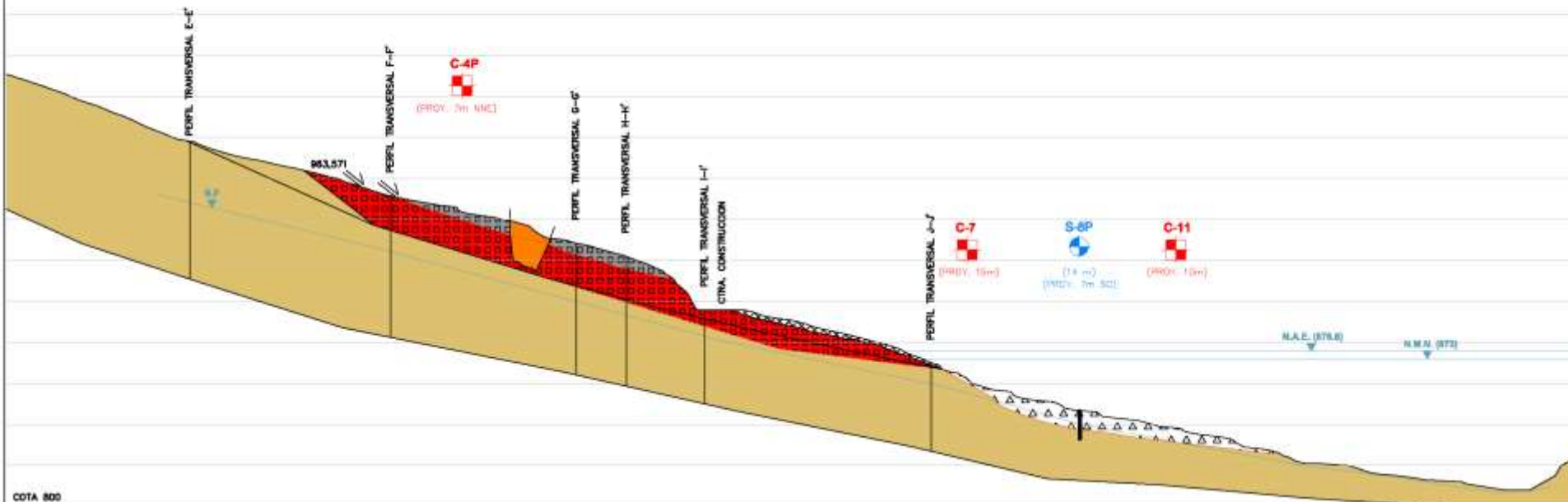


Geología del vaso

DETALLE DE SONDEOS A ESCALA 1:500



PERFIL M-M'



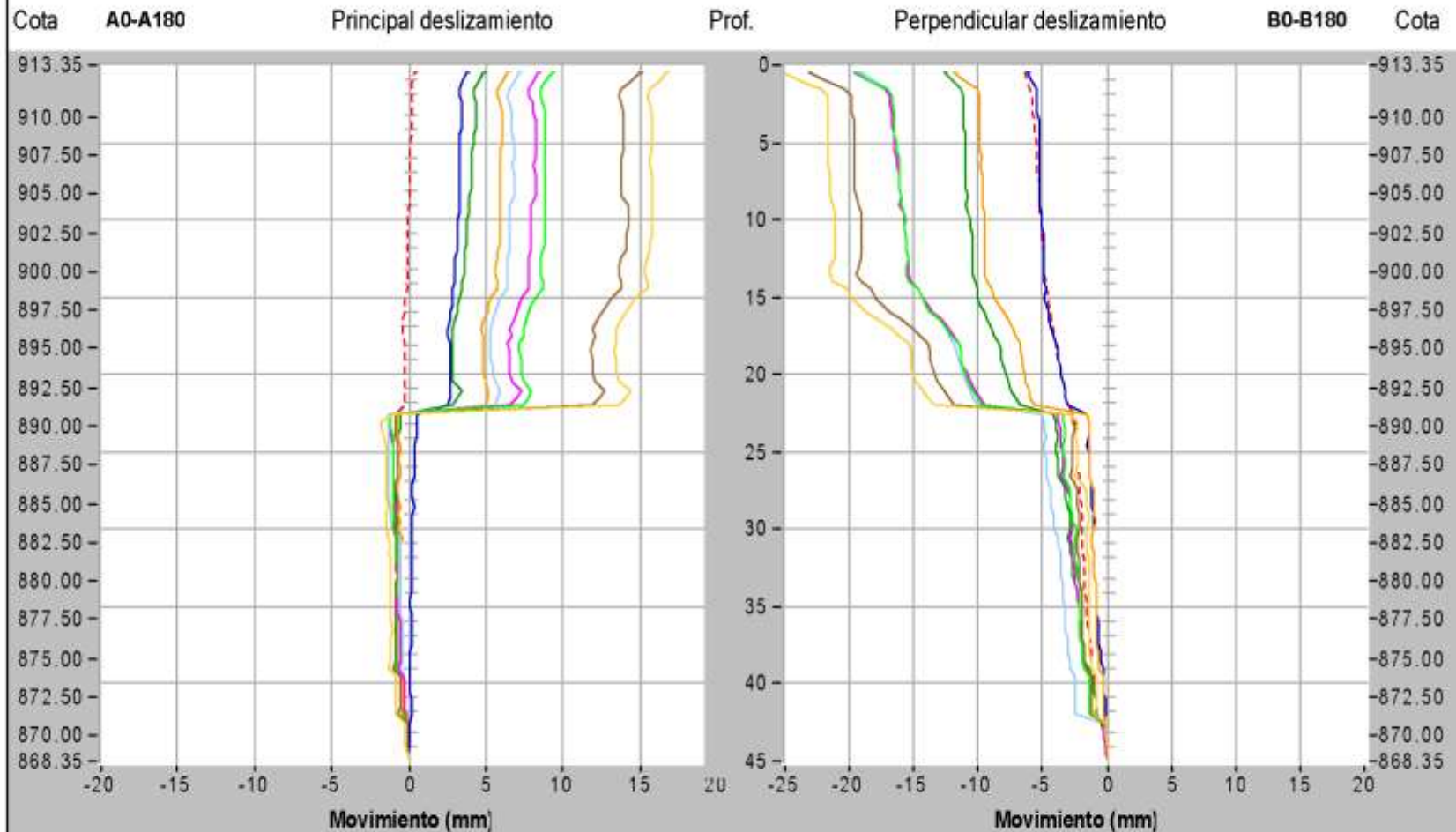
Geología del vaso

09/10/2007

ENCISO Deslizamiento 1

Gráfico de movimientos horizontales

Inclinómetro: Inc3



Lectura inicial: [002] 14-02-2006

[004] 08-03-2006

[005] 25-04-2006

[006] 27-06-2006

[007] 30-08-2006

[008] 10-11-2006

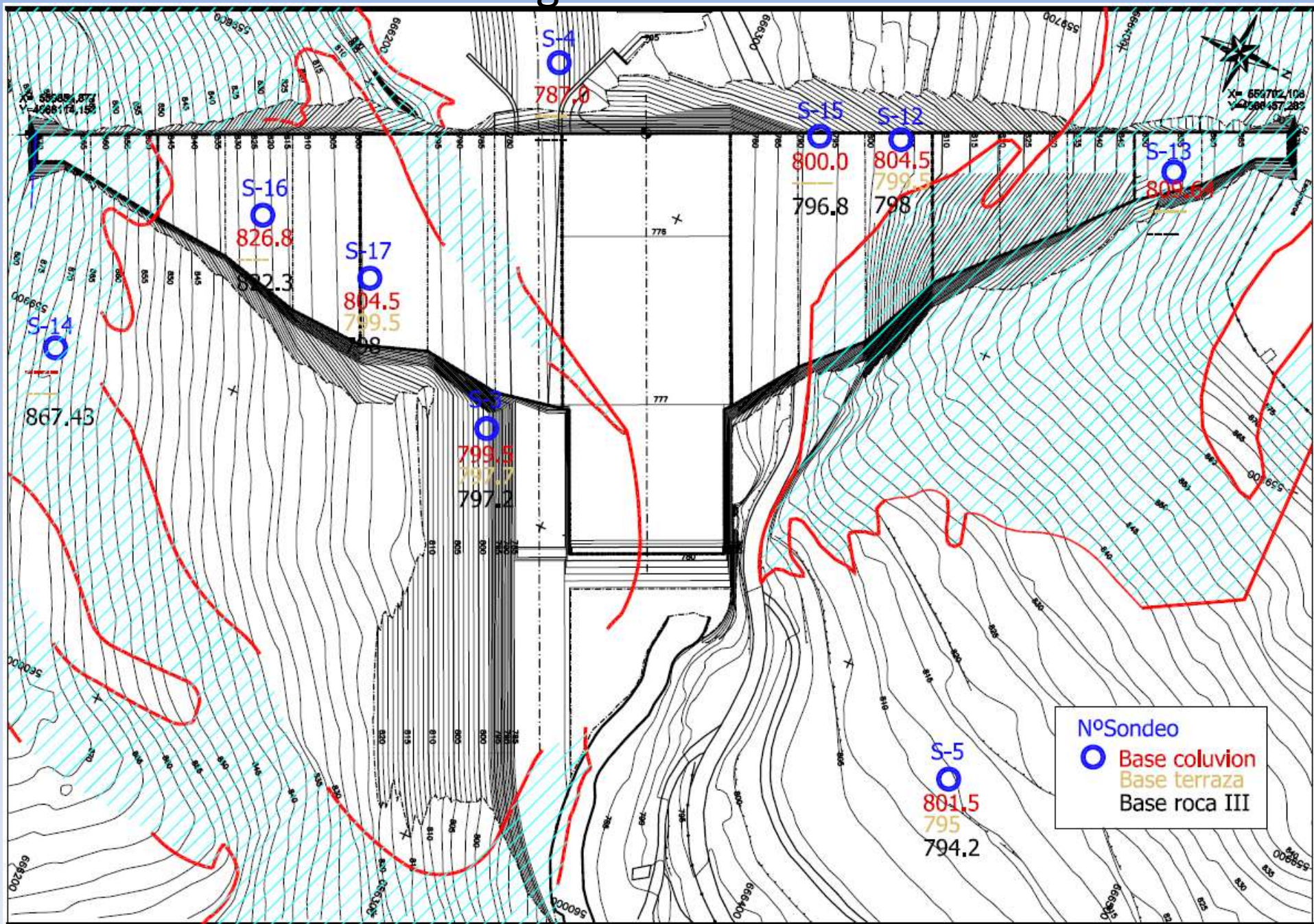
[009] 11-01-2007

[010] 15-03-2007

[011] 28-06-2007

[012] 28-09-2007

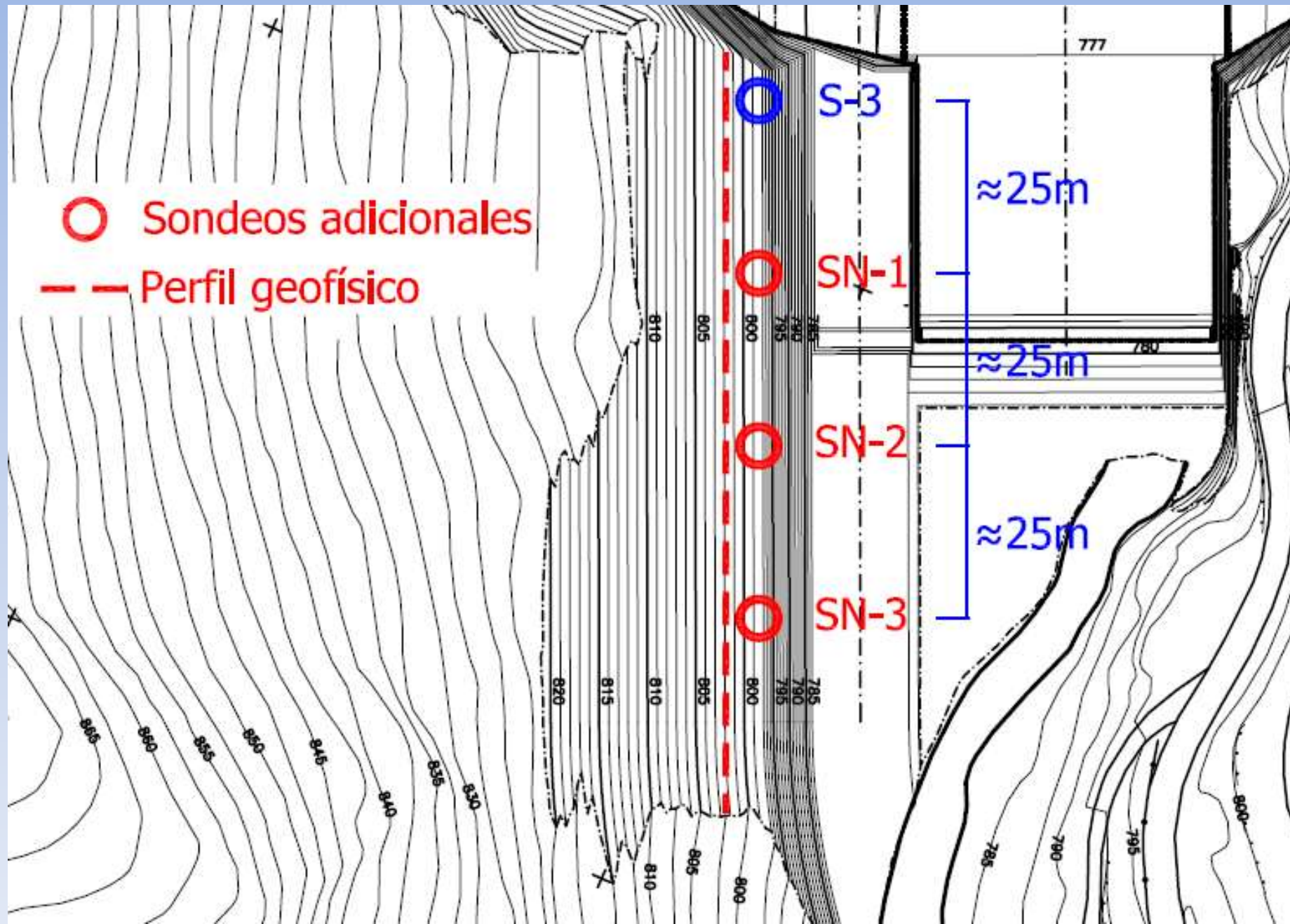
Geología de la cerrada



Axis

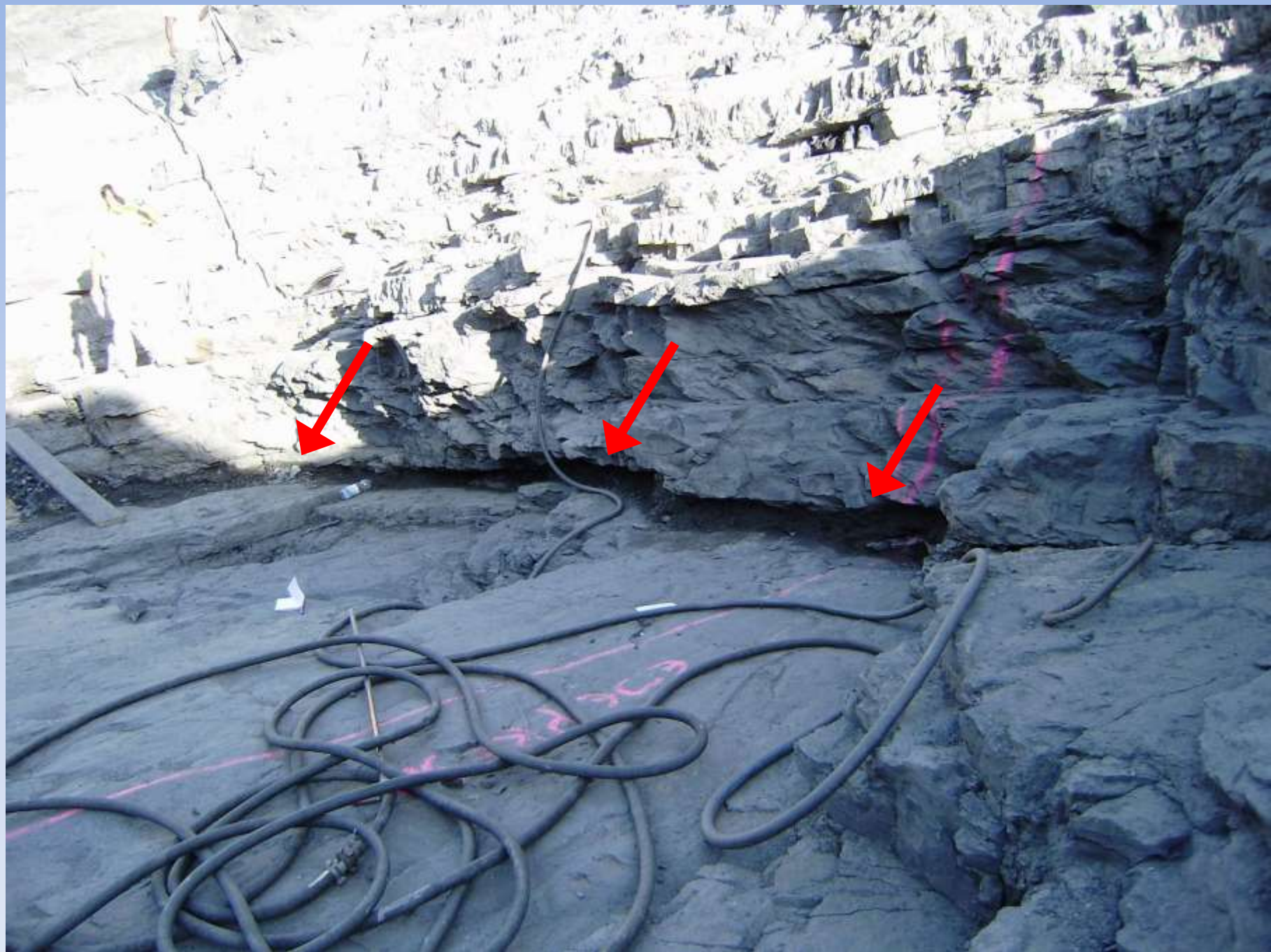


Geología de la cerrada



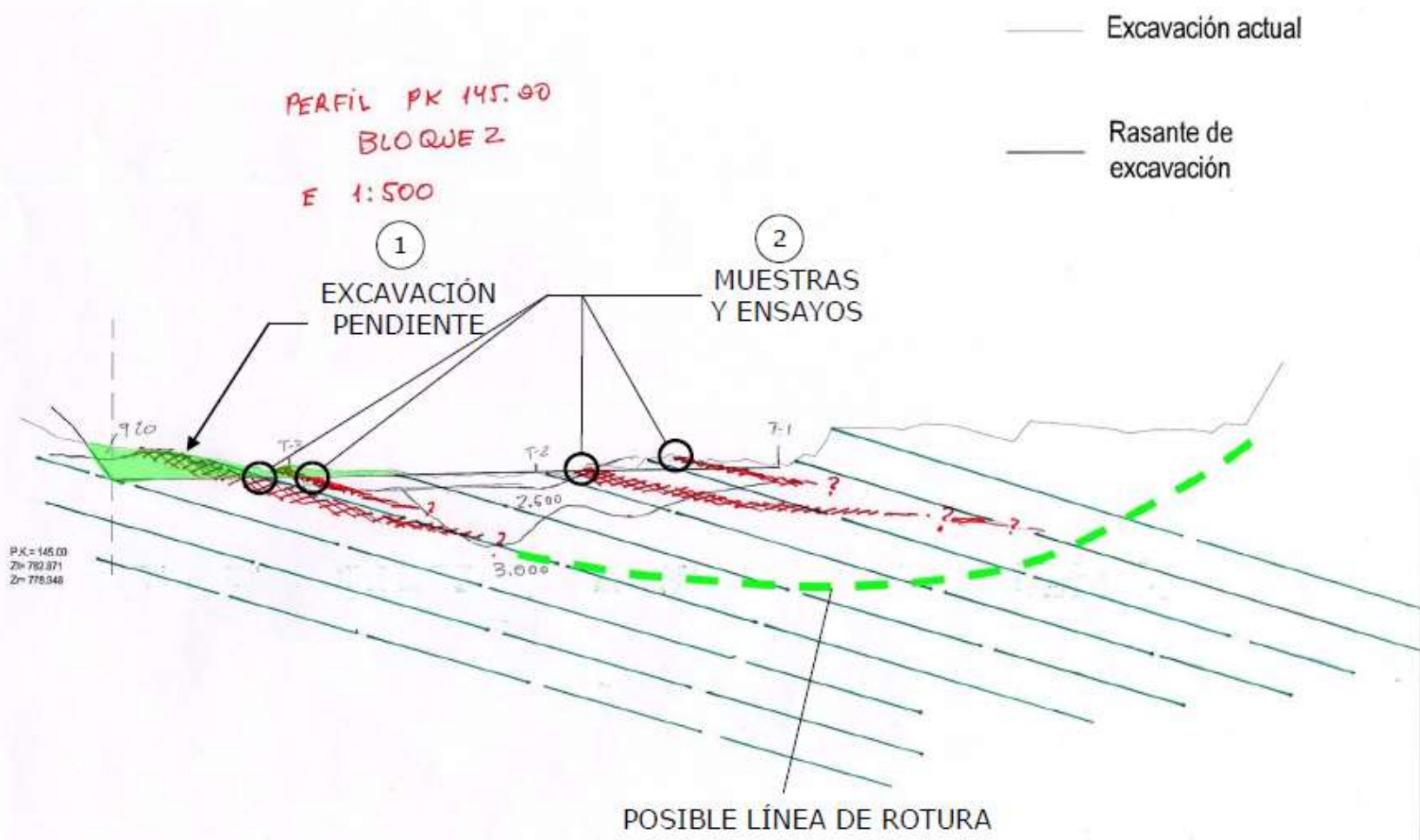
Geología de la cerrada











Excavaciones



Excavaciones

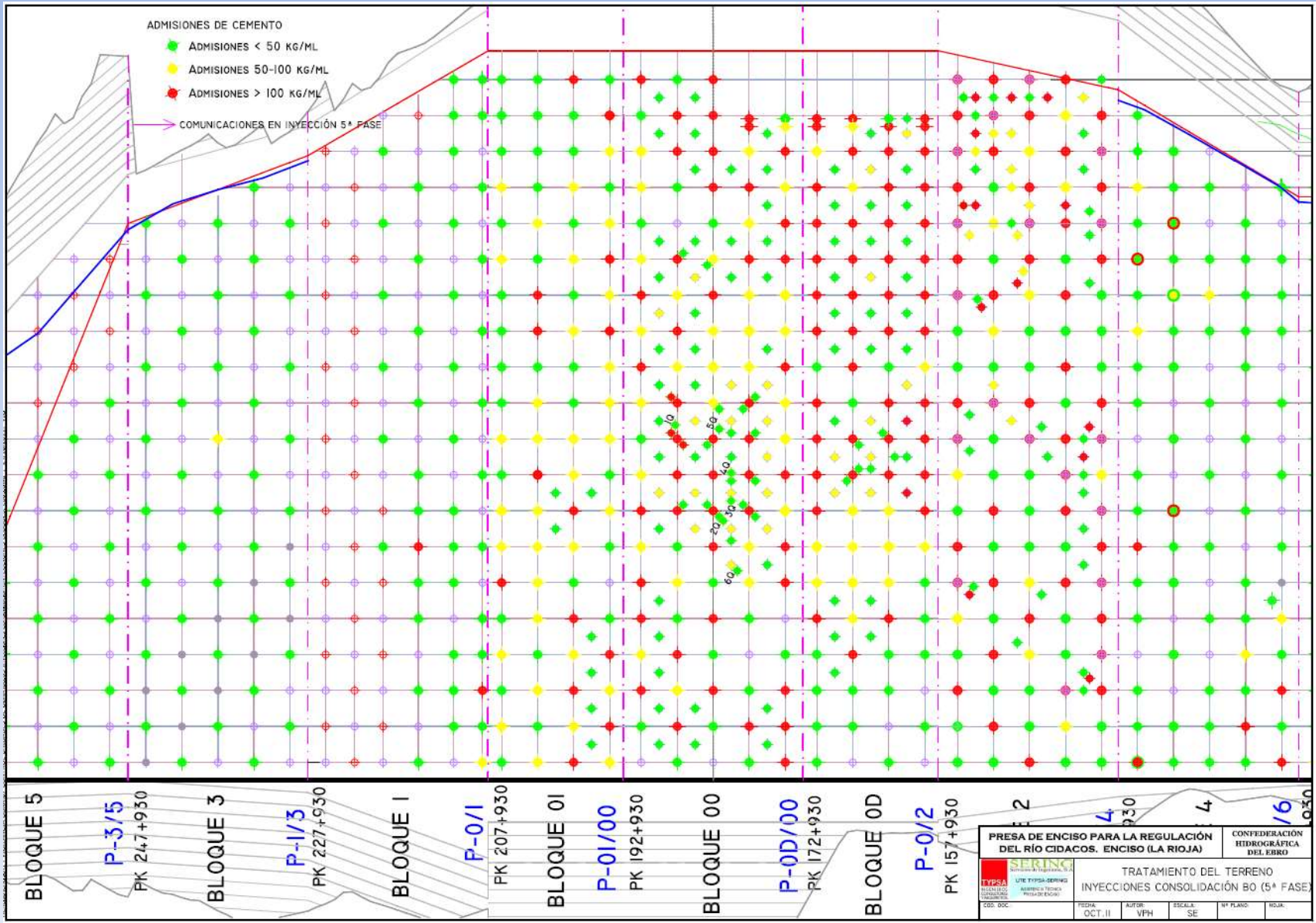




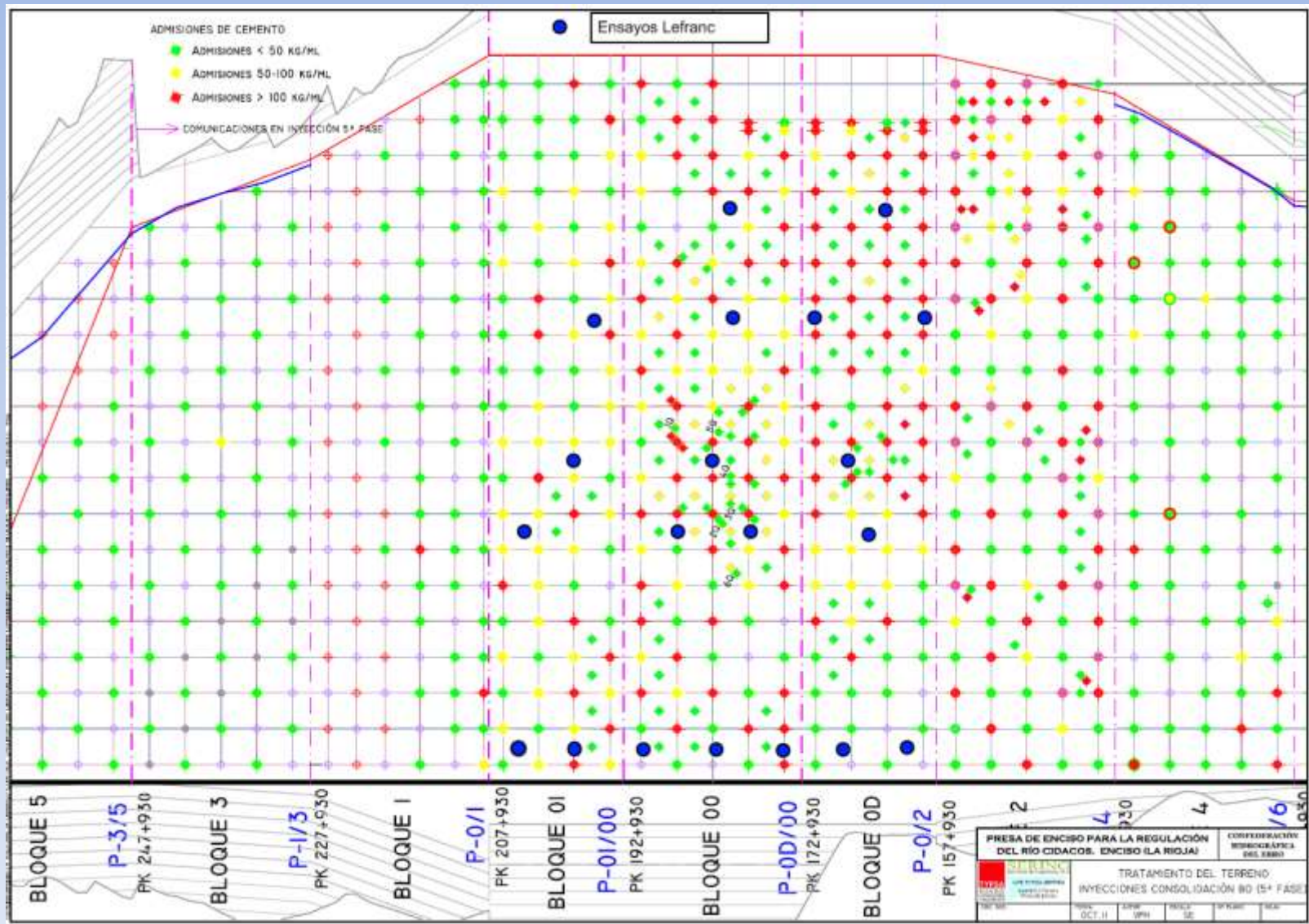




Tratamiento del cemento



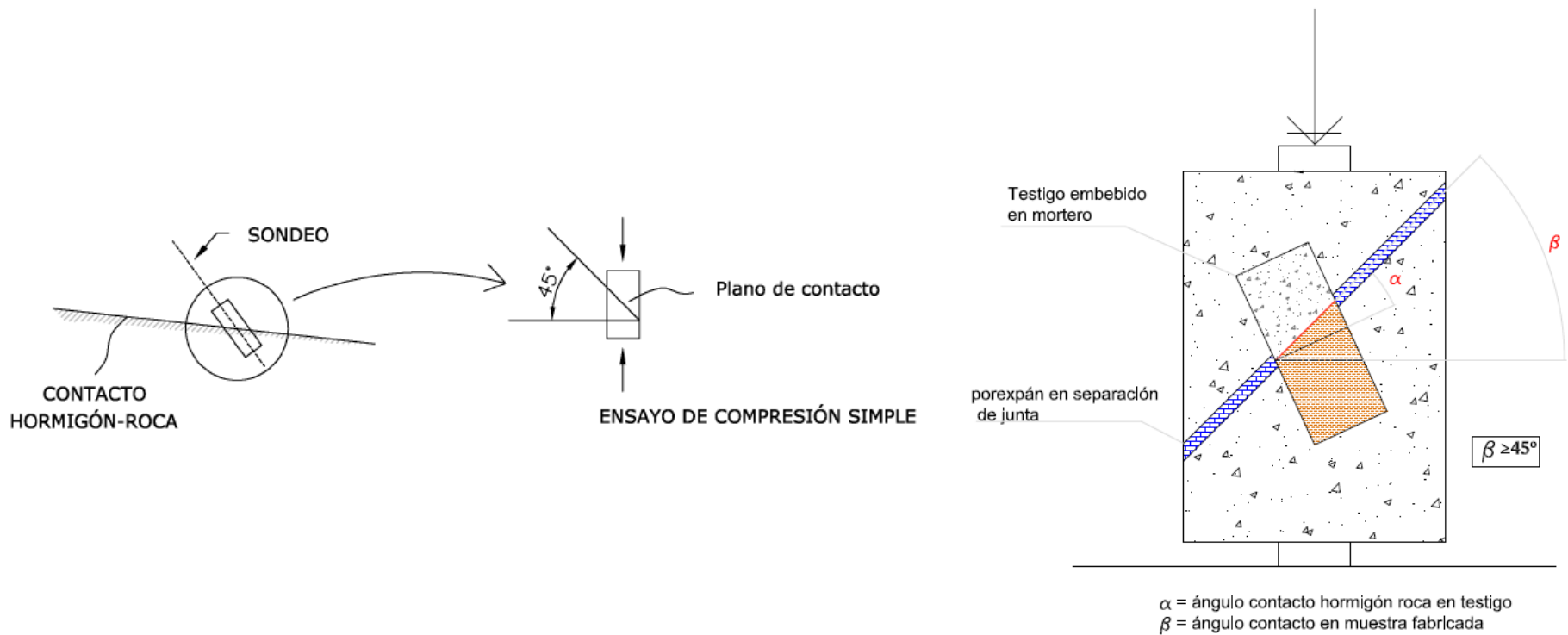
Tratamiento del cimiento



Investigación Geotécnica



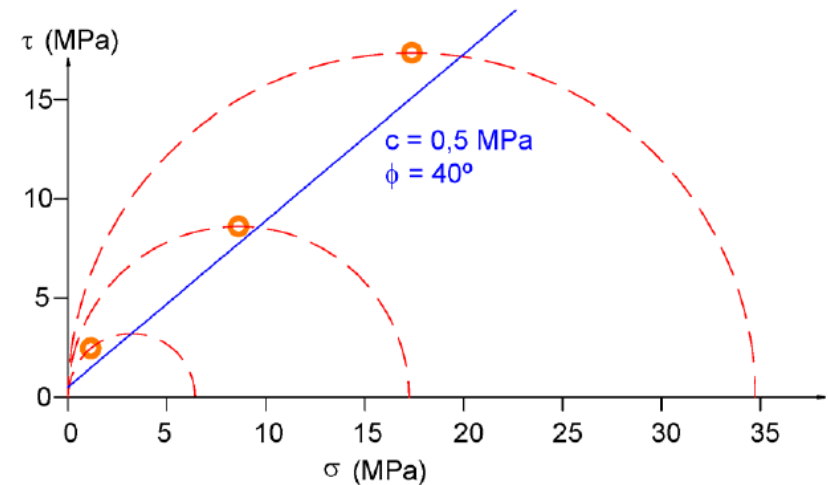
Investigación Geotécnica

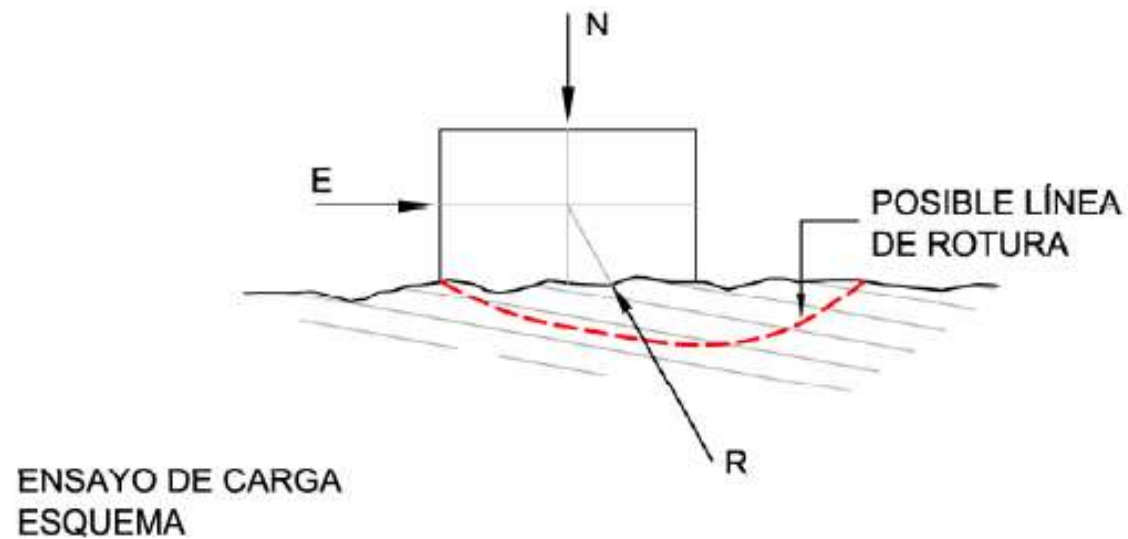
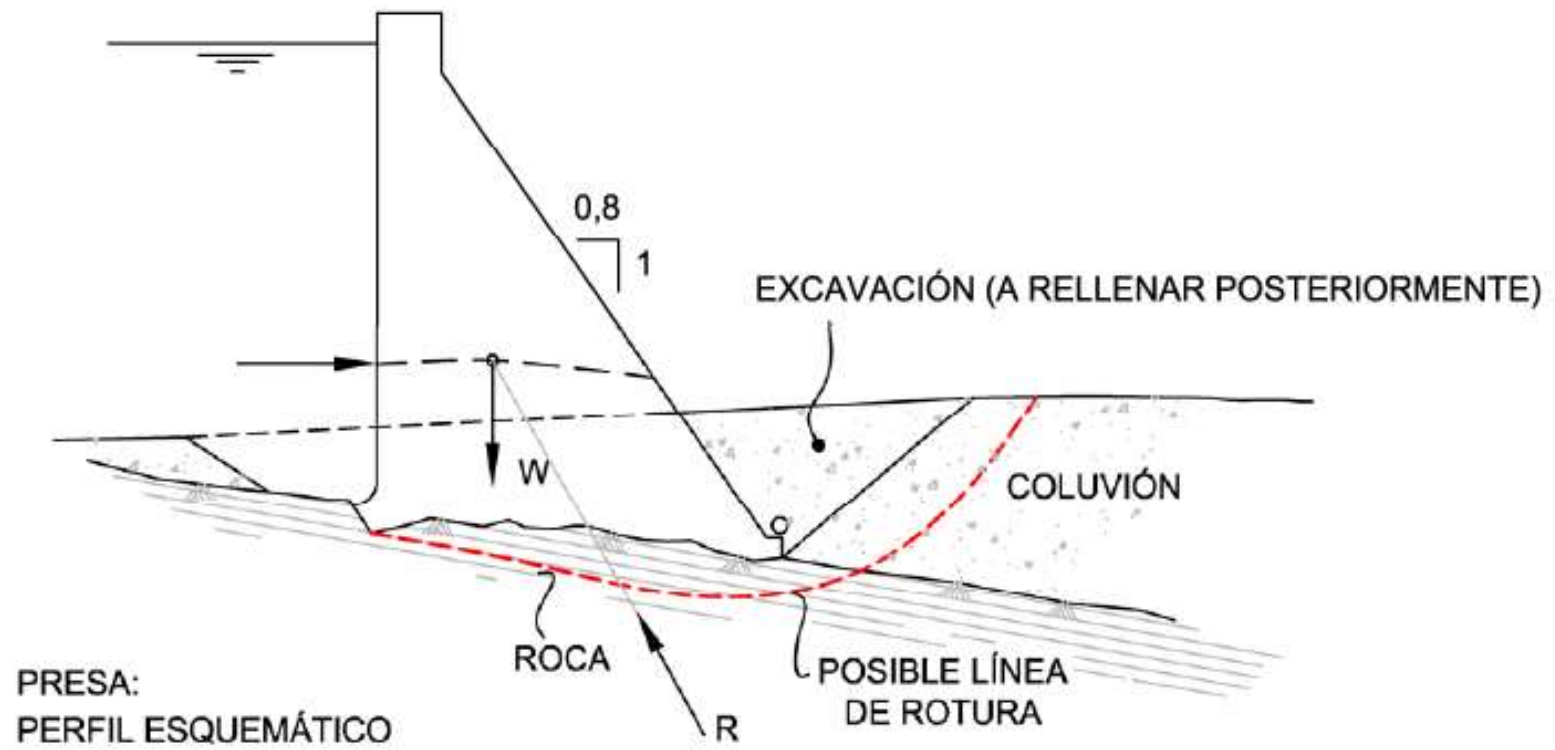


Investigación Geotécnica

Ensayos RCS con testigos obtenidos en sondeos

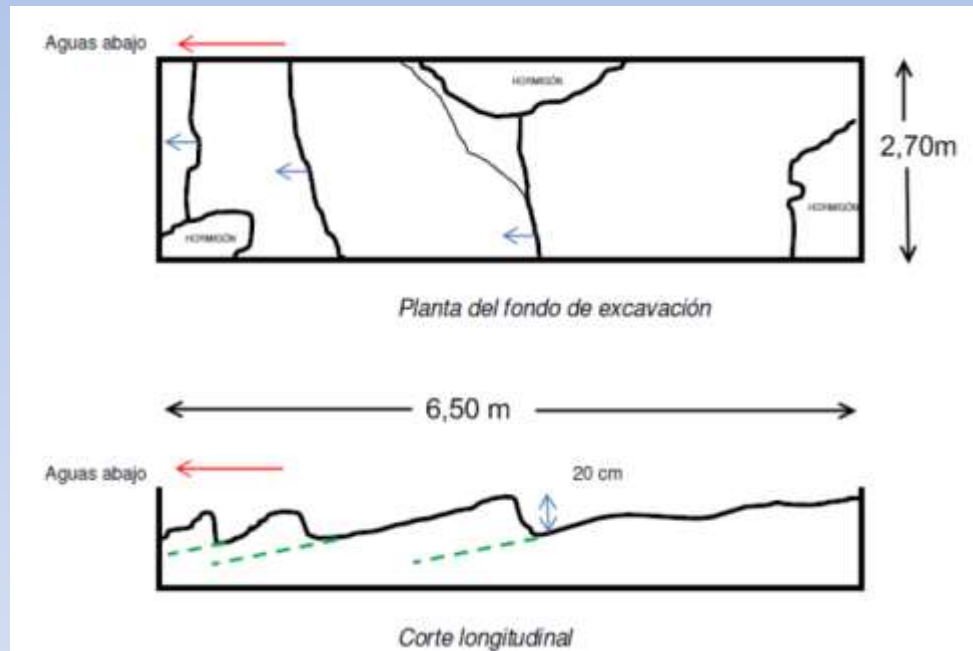
Sondeo	Inclinación contacto	RCS (Kp/cm ²)	Comentarios
S3-2	65°	64.1	Rompe por junta
S3-3	45°	347.5	Rompe bruscamente
S4-3	45°	172.3	Rompe por fisura distinta a la junta





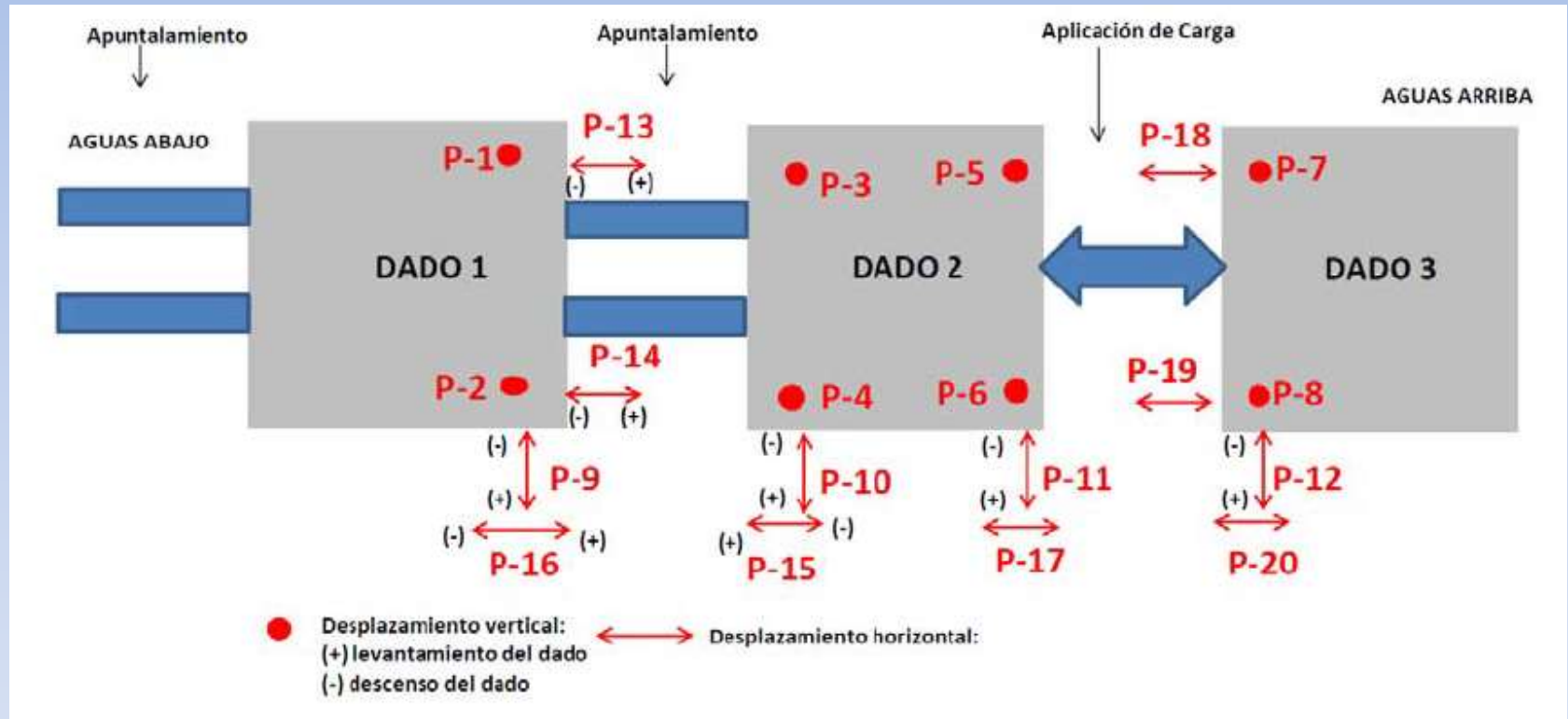
Investigación Geotécnica

PREPARACIÓN DEL ENSAYO



Investigación Geotécnica

AUSCULTACIÓN DISPUESTA

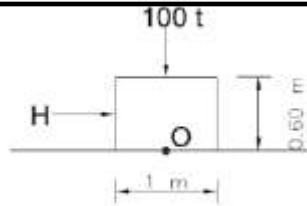


Investigación Geotécnica

DADOS DE ENSAYO



ESTIMACIONES PREVIAS



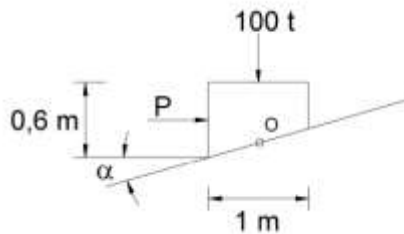
Momento en O = $0,3 \cdot H$

$e = M/N = 0,3 \cdot H/100 = 0,003 \cdot H$

$B^* = 1 - 2 \cdot e = 1 - 0,006H$

$H_{rot} = 100 \cdot \tan(\phi) + c \cdot B^* = 100 \cdot 0,8 + 50 \cdot (1 - 0,006H_{rot})$

despejando se obtiene que $H_{rot} = 100 \text{ t}$



$N = 100 \cdot \cos \alpha + P \cdot \sin \alpha$

$H = P \cdot \cos \alpha - 100 \cdot \sin \alpha$

$M = P \cdot 0,24$

$e = M/N$

$B^* = 1/\cos \alpha - 2 \cdot e$

$H_{rot} = N \cdot \tan \phi + c \cdot B^*$

FLAC3D 5.01

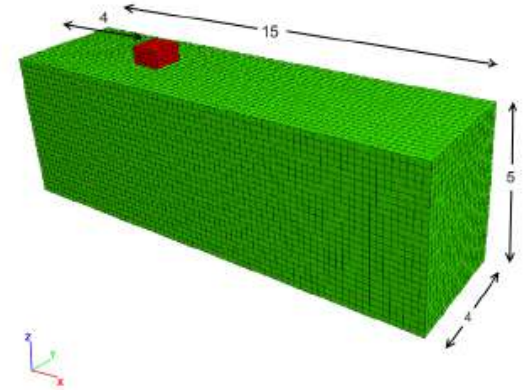
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Step 5315

13/10/2014 20:05:02

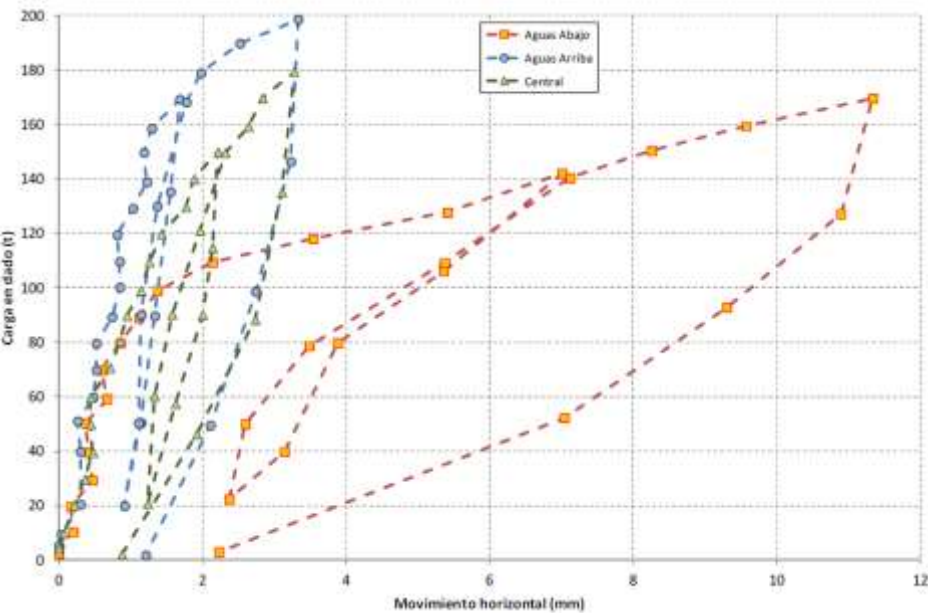
Zone

Colorby: Group Any
 Cimiento
 Dado
 Default

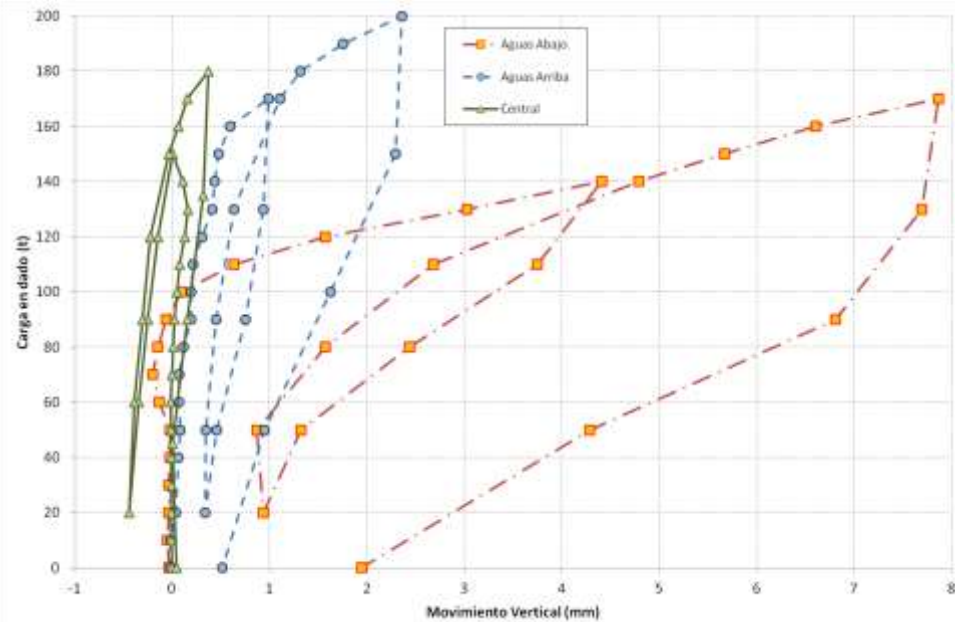


	Aguas Abajo	Aguas Arriba	Central
Cálculo Manual	1000	1280	1010
Flac 3D	1000/800*	1300	1100

RESULTADOS OBTENIDOS



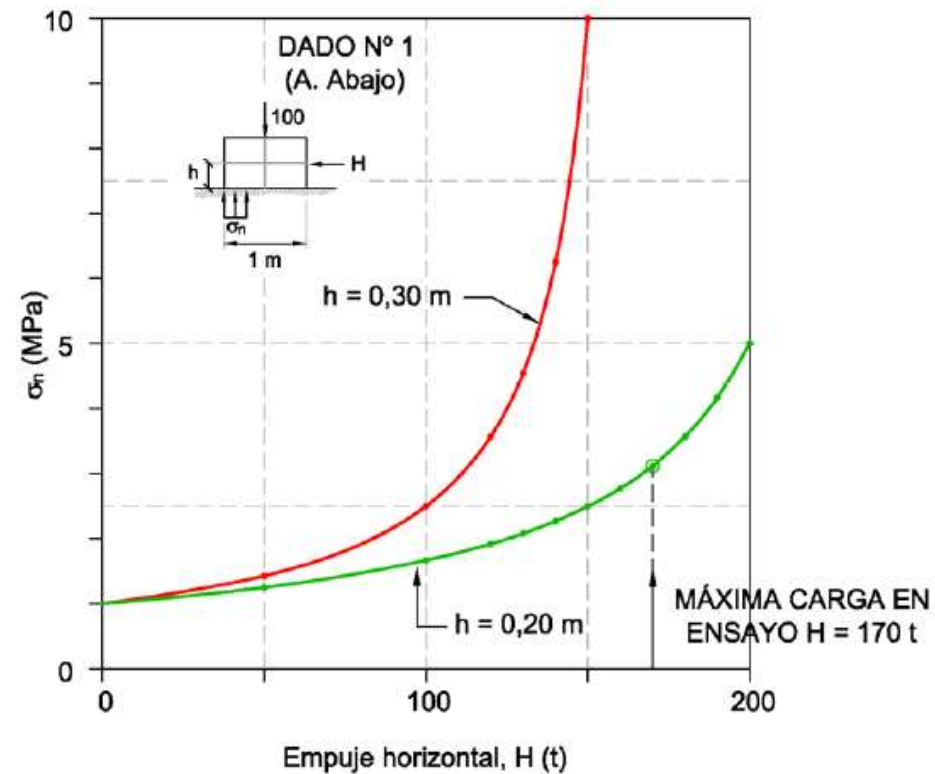
Movimientos horizontales



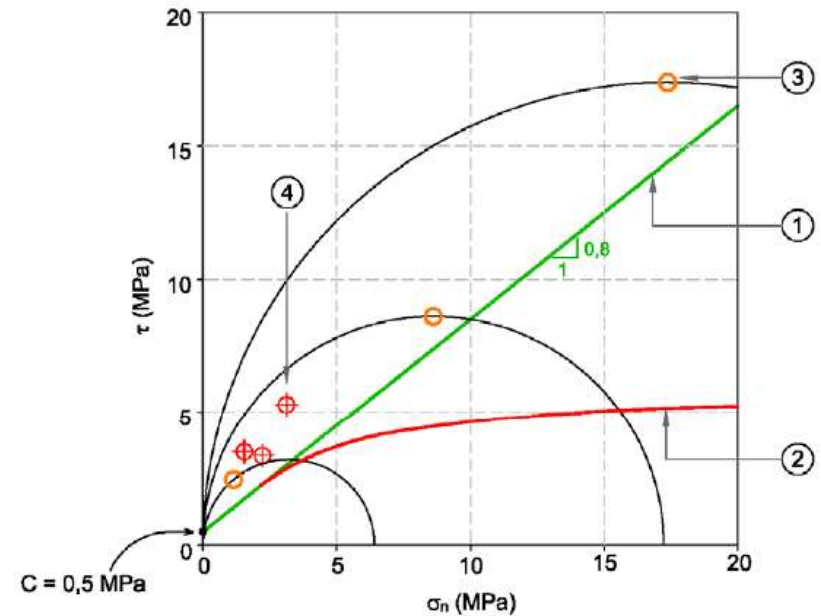
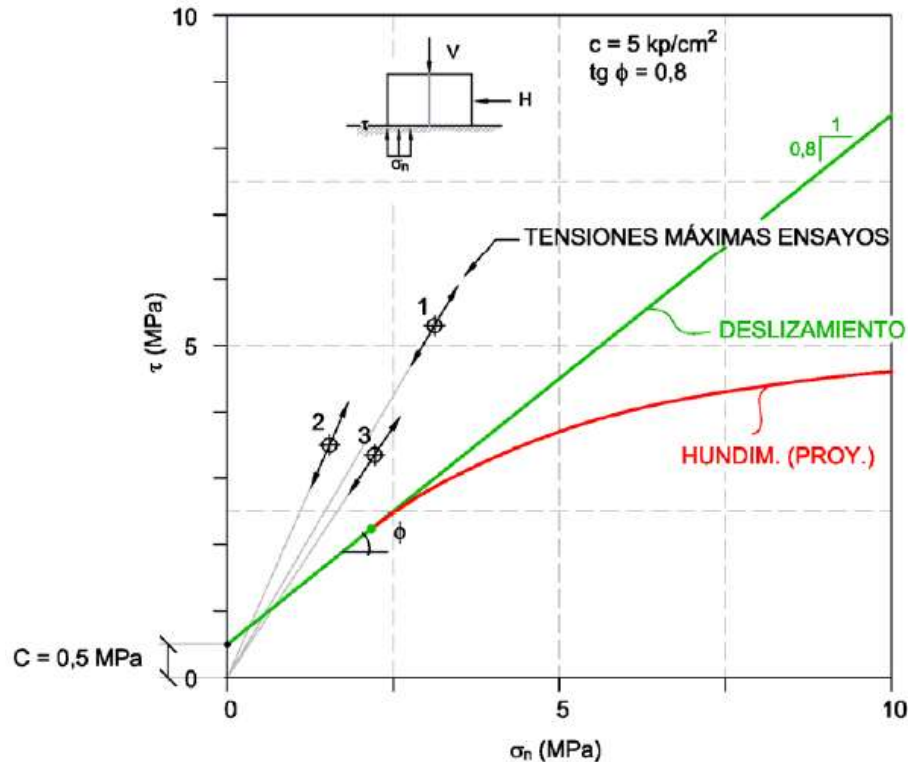
Movimientos verticales

RESULTADOS OBTENIDOS

Ensayo*	Carga horizontal de rotura (t)		
	Dado Aguas abajo	Dado Aguas arriba	Dado Central
Ensayo*	170 (100)	200 (150)	180 (140)
Cálculo manual	100	128	101
FLAC 3D	100	130	110
Juntas Ubicuas	80	--	--



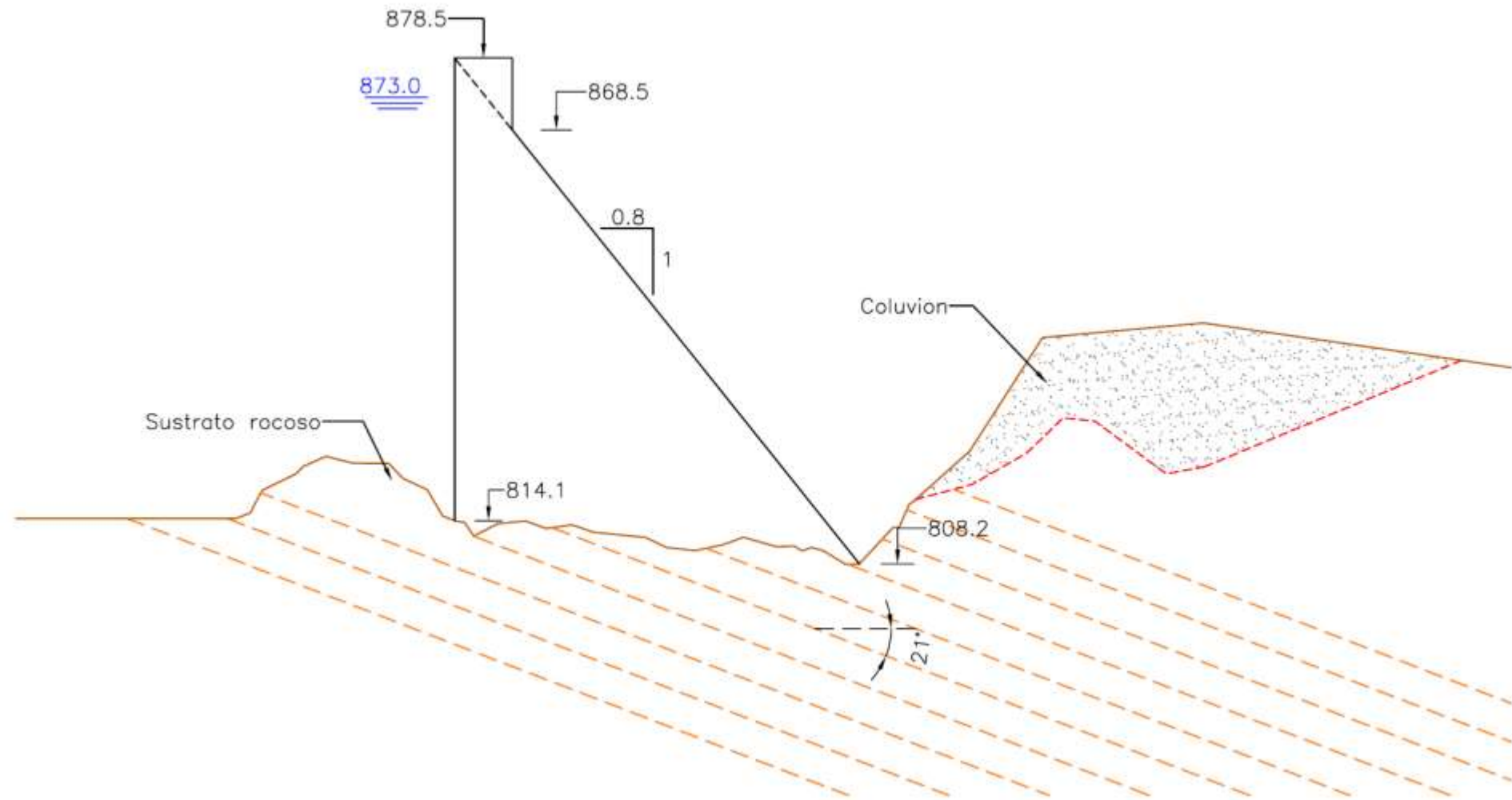
RESULTADOS OBTENIDOS

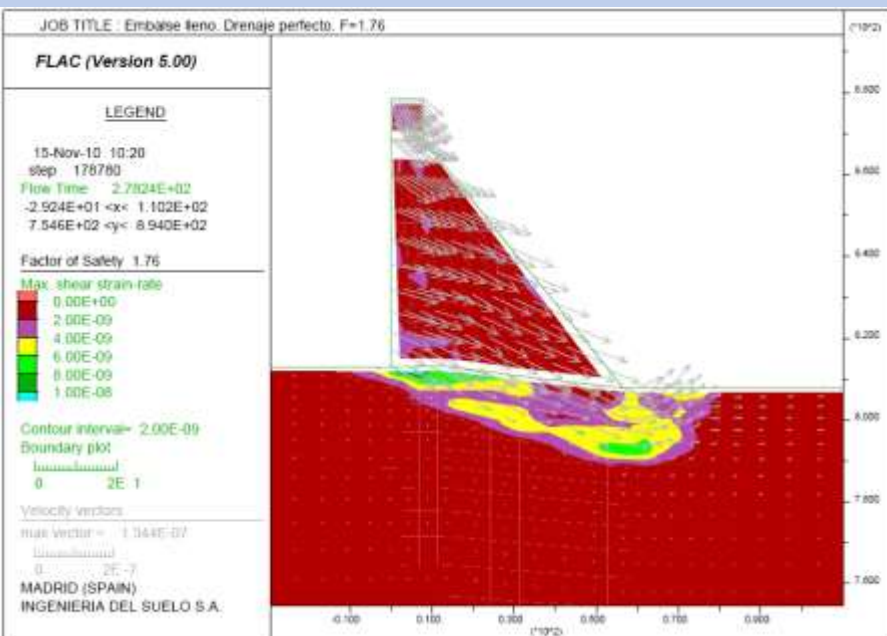
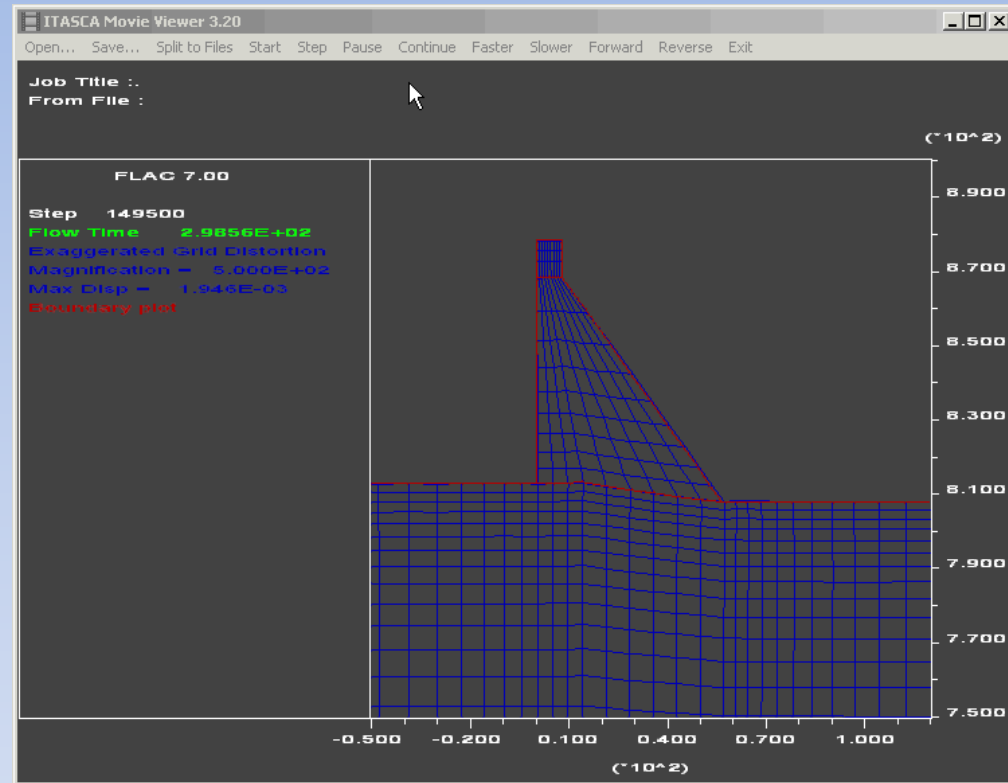
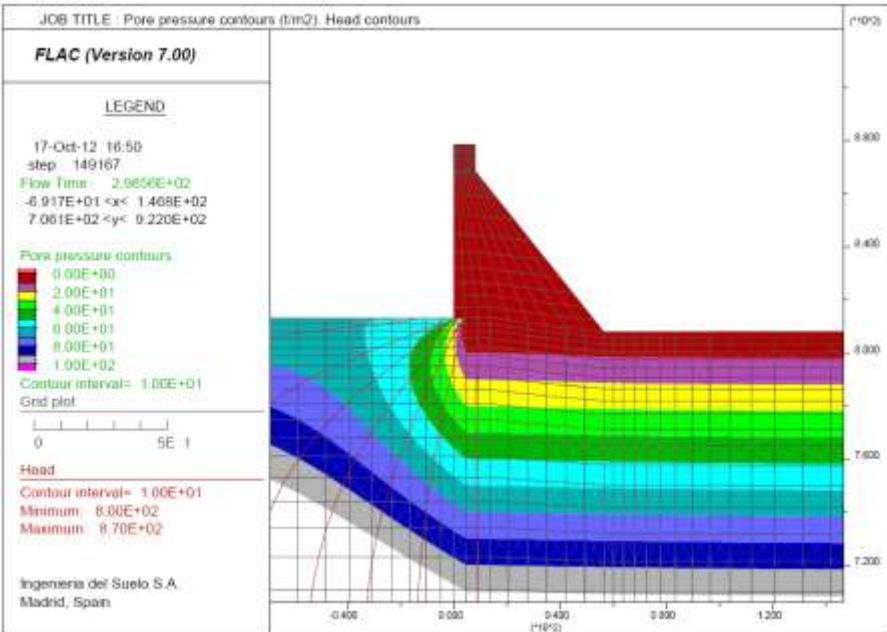


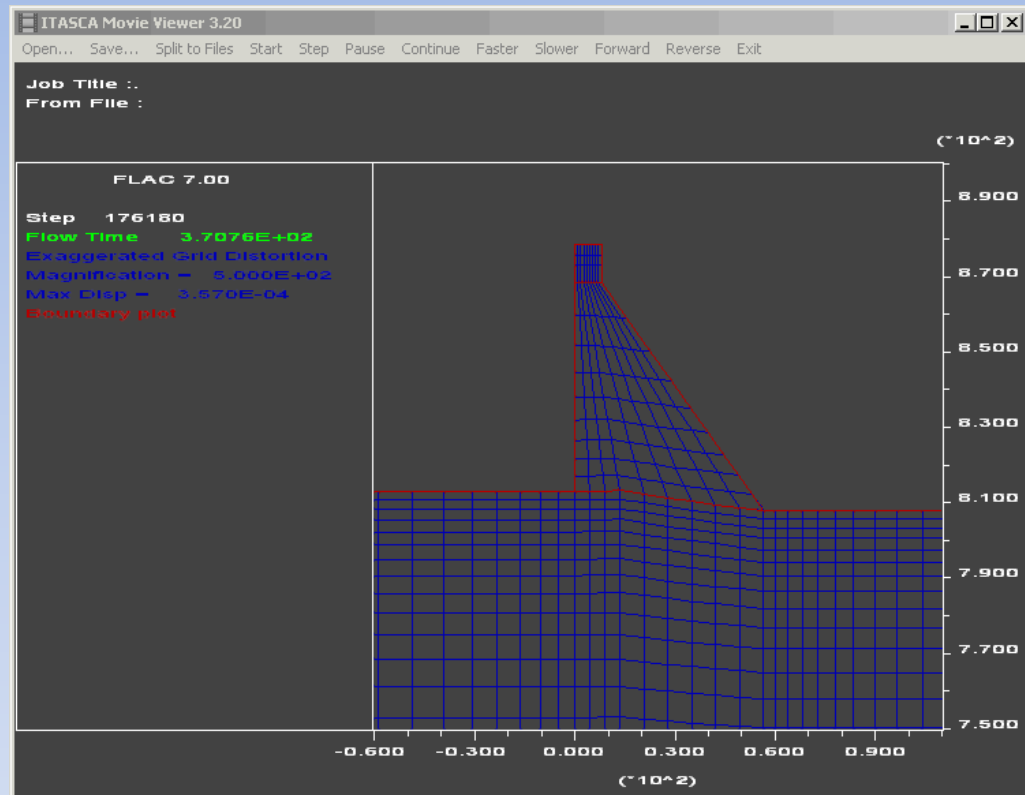
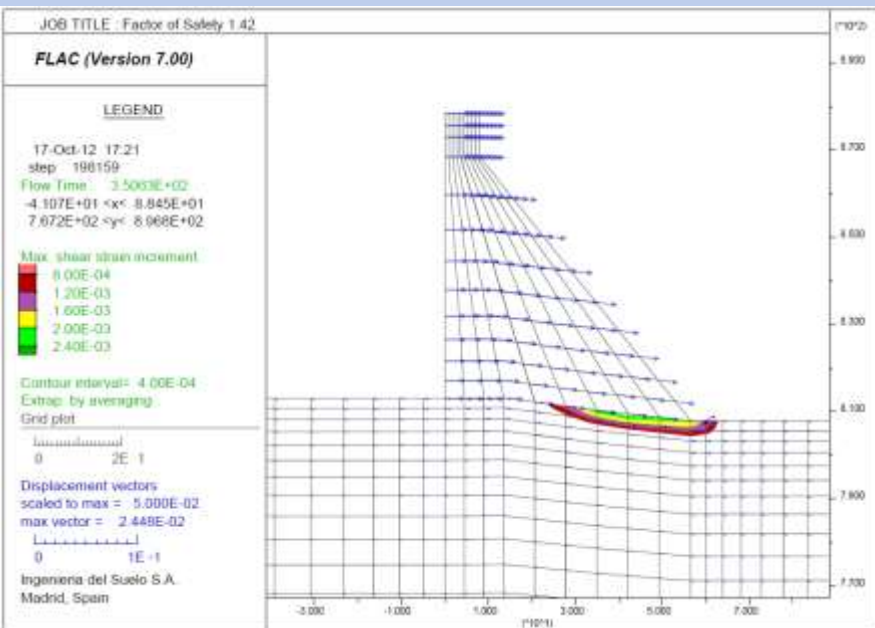
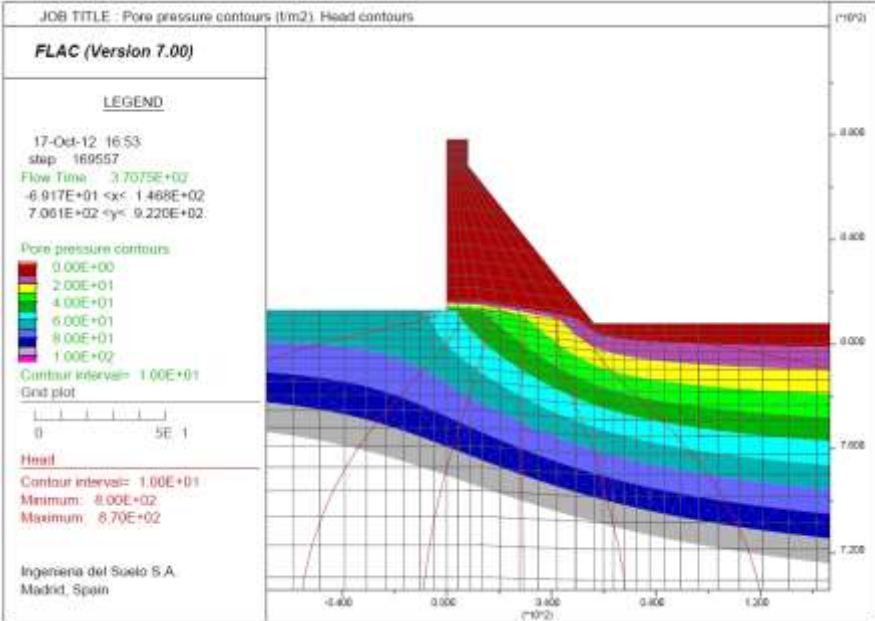
Nota: Las líneas de "deslizamiento" y "hundimiento" corresponden a la resistencia $c = 0,5 \text{ MPa}$; $\text{tg } \phi = 0,80$.

1. Deslizamiento
2. Hundimiento
3. Testigos del contacto roca-hormigón
4. Ensayo de carga "in situ"

Cálculos de estabilidad y deformaciones







Cálculos de estabilidad y deformaciones

FLAC3D 5.01

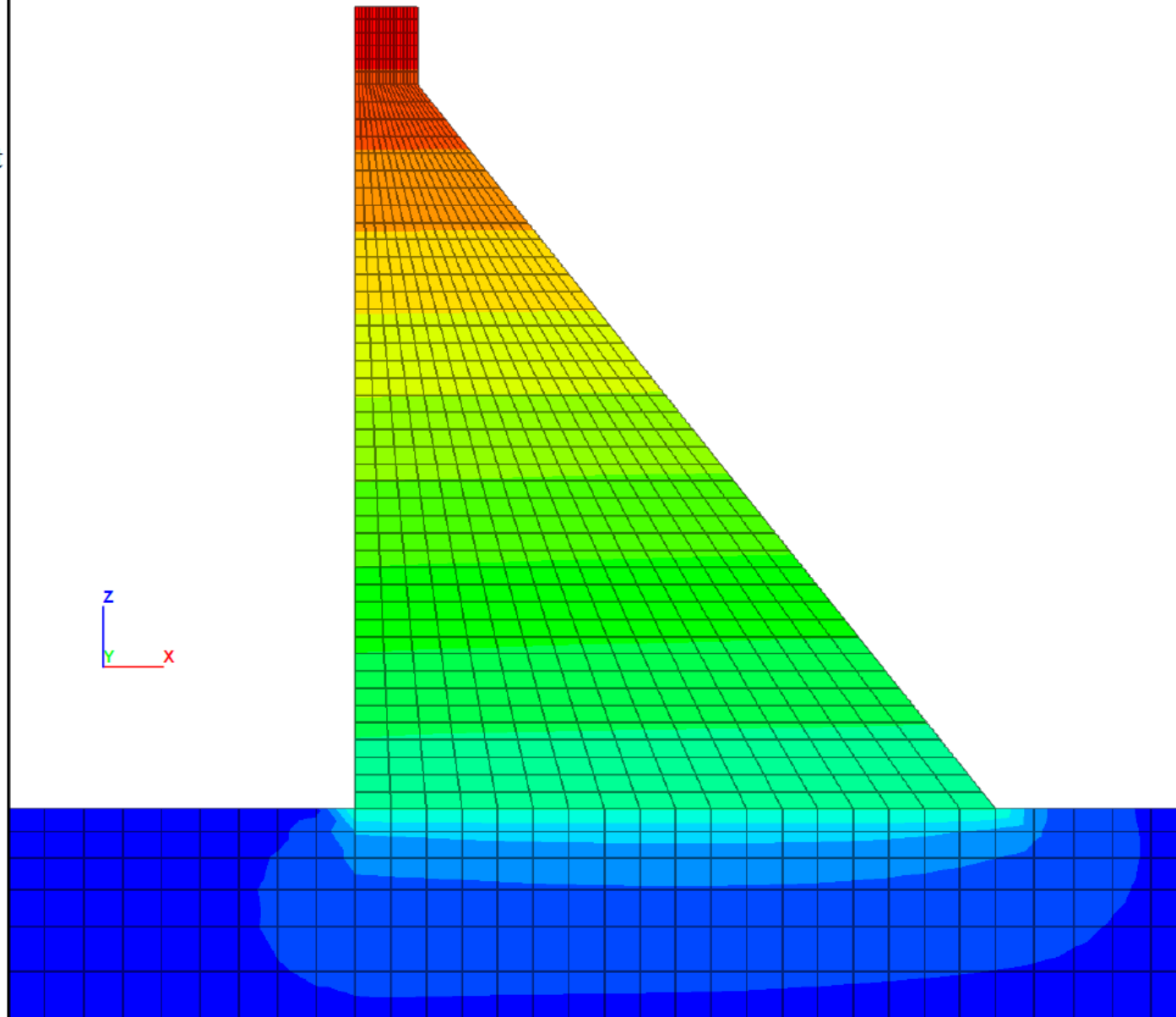
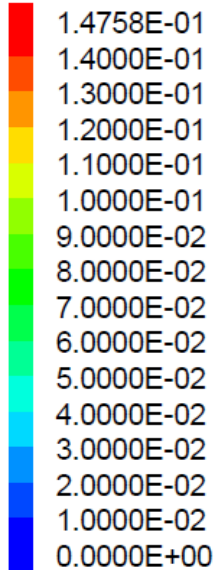
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Step 529239

27/04/2015 17:04:28

Contour Of X-Displacement

Plane: active on



Cálculos de estabilidad y deformaciones

FLAC3D 5.01

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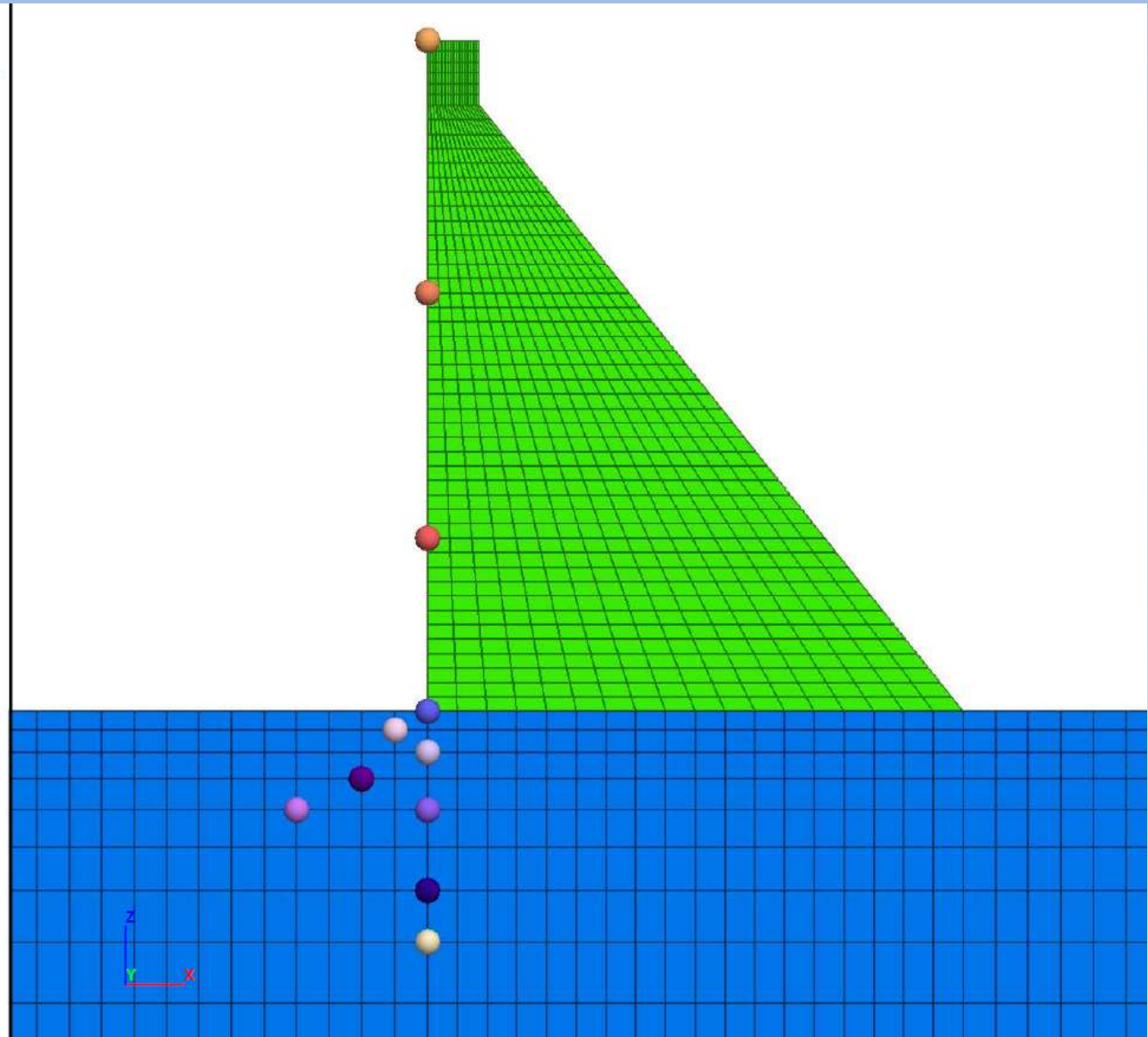
Step 529239

24/04/2015 9:27:12

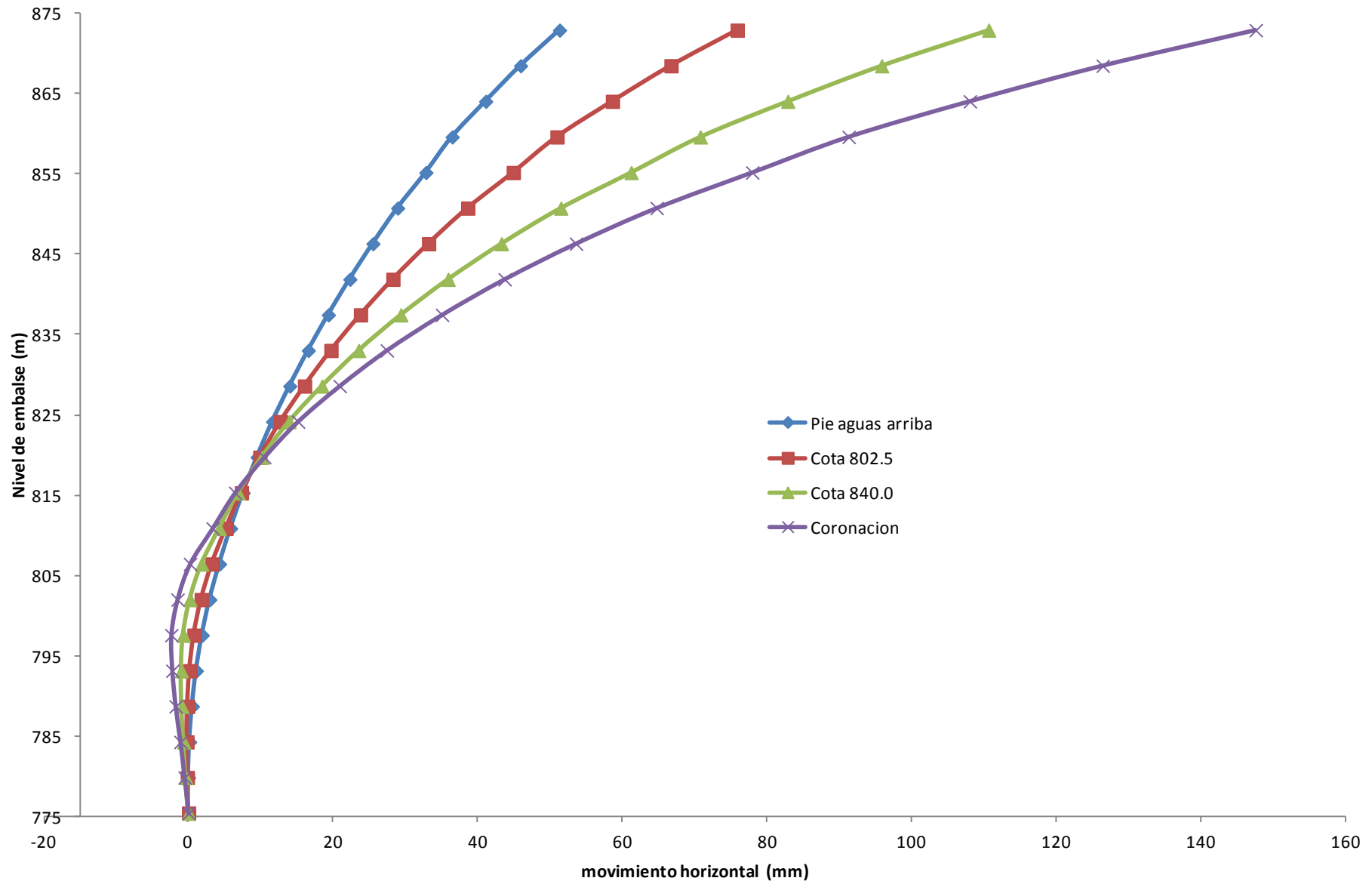
History Locations

Plane: active on

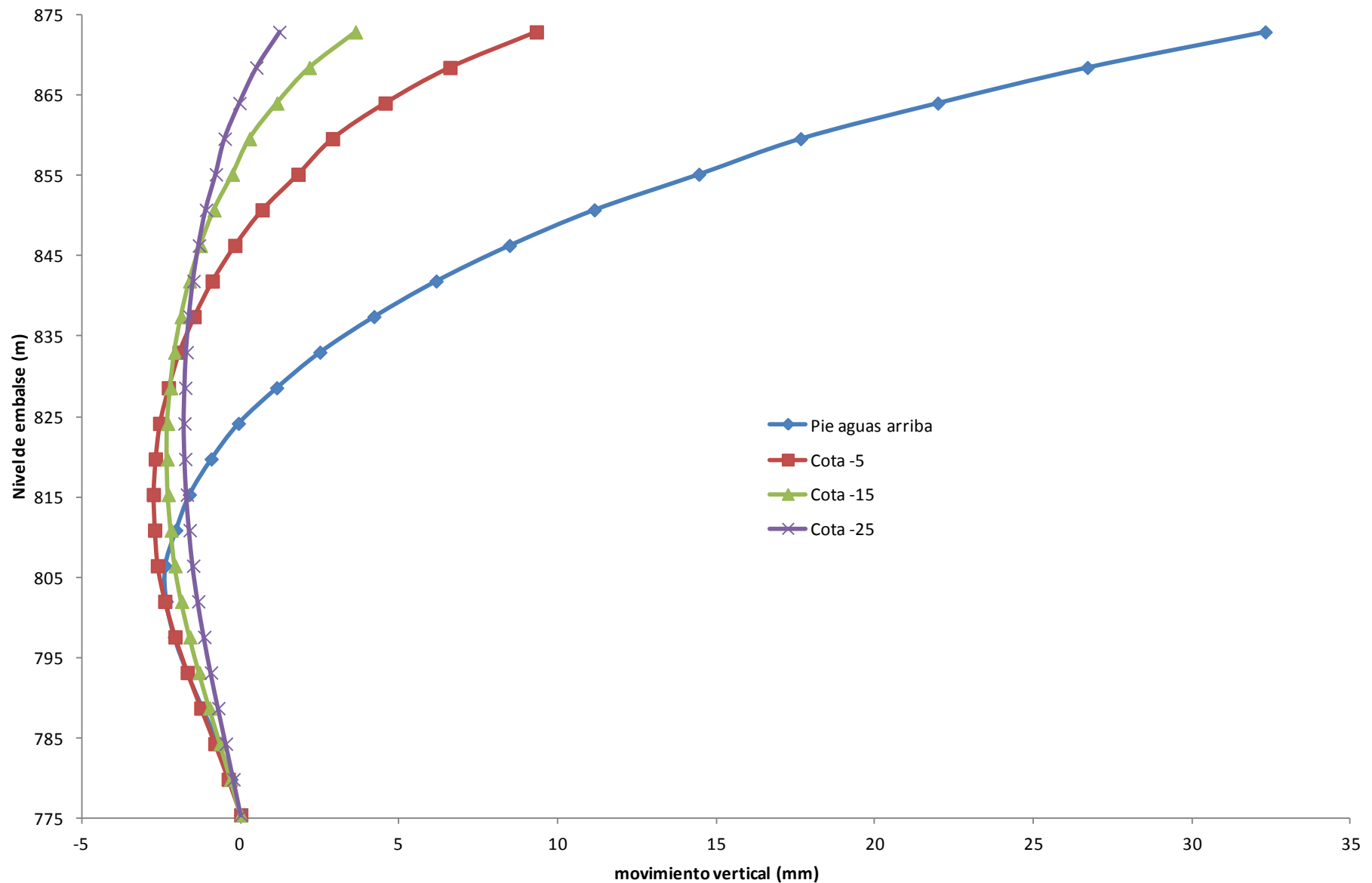
	X-displ of gp 19794
	X-displ of gp 19799
	X-displ of gp 20166
	X-displ of gp 20293
	X-displ of gp 20654
	X-displ of gp 23706
	X-displ of gp 23774
	X-displ of gp 26382
	X-displ of gp 26531
	X-displ of gp 26669
	X-displ of gp 26743
	X-displ of gp 26817
	X-displ of gp 26855
	X-displ of gp 28157
	X-displ of gp 28279
	Z-displ of gp 19794
	Z-displ of gp 19799
	Z-displ of gp 20039
	Z-displ of gp 20166
	Z-displ of gp 20285
	Z-displ of gp 20293
	Z-displ of gp 20531
	Z-displ of gp 20654
	Z-displ of gp 23706
	Z-displ of gp 23774
	Z-displ of gp 26382
	Z-displ of gp 26531
	Z-displ of gp 26639



Cálculos de estabilidad y deformaciones



Cálculos de estabilidad y deformaciones



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