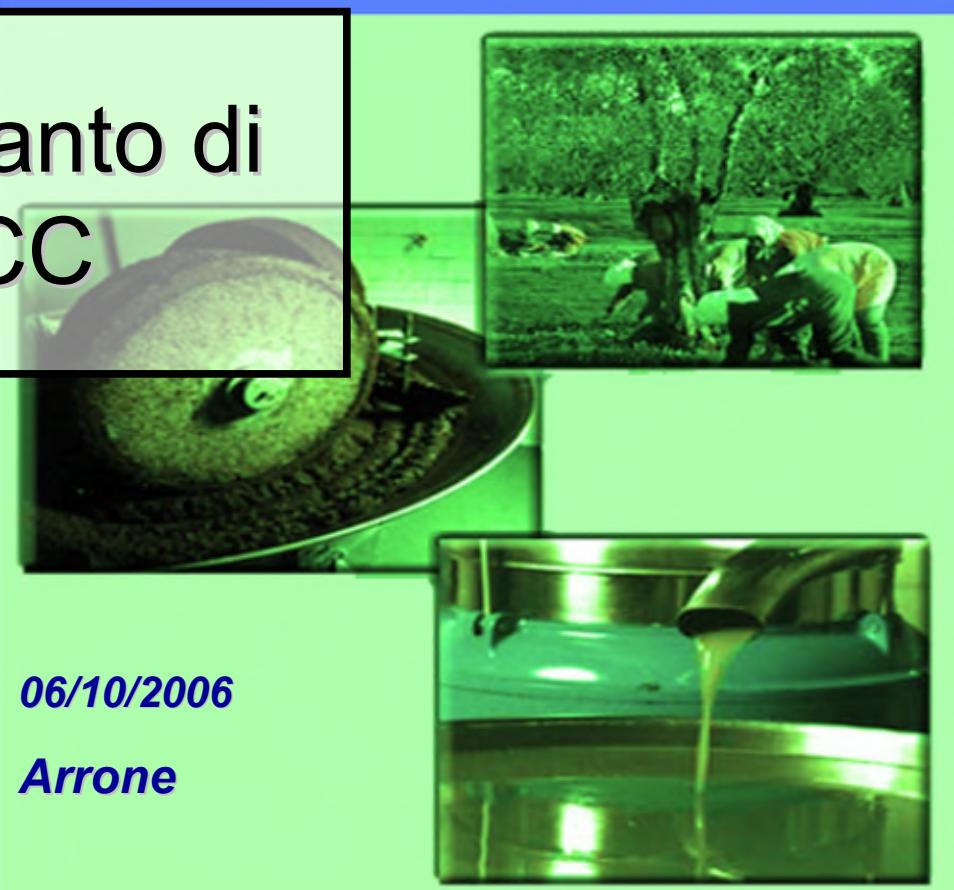




L'Impianto di FCC



06/10/2006

Arrone



Refluo oleario: *problematiche*

- Acidità, elevato carico organico e componente fenolica
- Carattere rurale degli opifici
- Ingenti volumi prodotti in un periodo limitato di tempo



Le attività

- **I fase:** *in lab* 5 anni di ricerche sullo studio dell'effetto rizosfera (in collaborazione con Istituti di Agraria dell'Univ. di Perugia e di Viterbo)
- **II fase:** *in lab* 1 anno di sperimentazione sul modello “vassoio assorbente”
- **III fase:** *in campo* realizzazione di due impianti dimostrativi



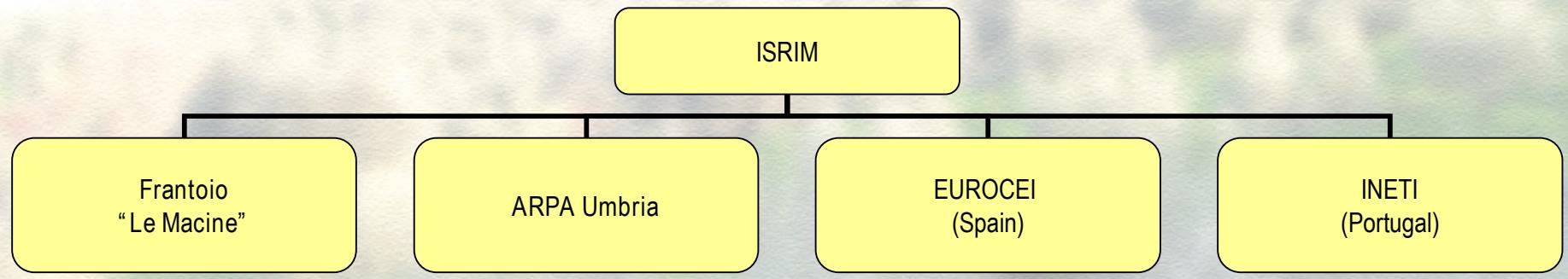
IL PROCESSO

Il processo di fitodepurazione proposto permette, sfruttando il fenomeno della resilienza, di introdurre nell'impianto il refluo oleario durante il periodo di molitura (nov–feb), smaltirlo nel resto dell'anno per poi avere a novembre l'impianto “vuoto”, “riequilibrato” e quindi “pronto” per iniziare un nuovo ciclo.



Oléico

Progetto di dimostrazione LIFE ENV IT 04/409



OSCAR srl

Progetto di ricerca industriale
cofinanziato dal MIUR ai sensi dell'art.14 DM593/2000



Oléico Demonstration project LIFE ENV IT 04/409

Location of the pilot plant

Paciano



Pilot plant description

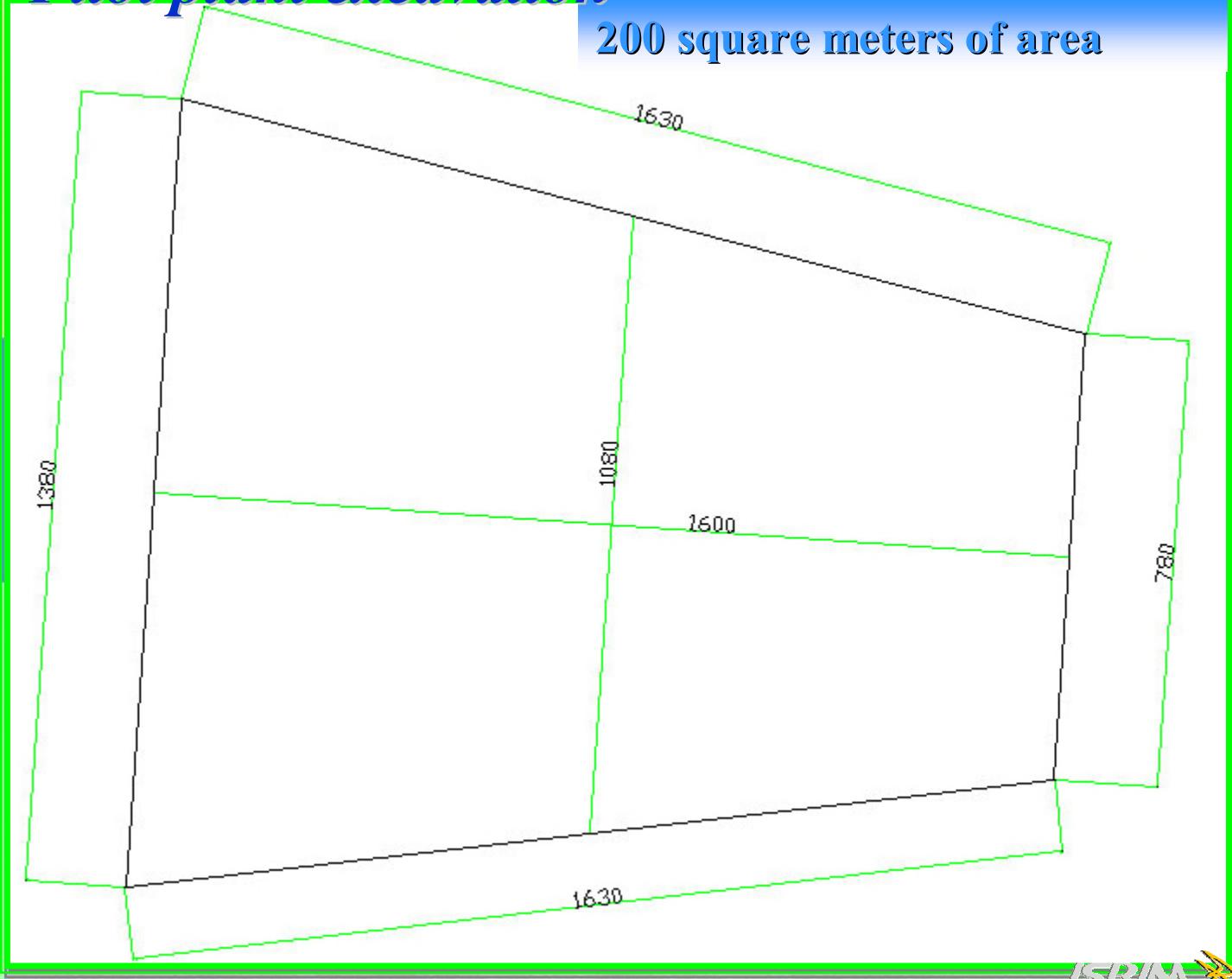
Oléico pilot plant - LIFE ENV

- 200 m² of area;
- 4.0 meters of depth;
- 60 m³ OMW/year.



Pilot plant excavation

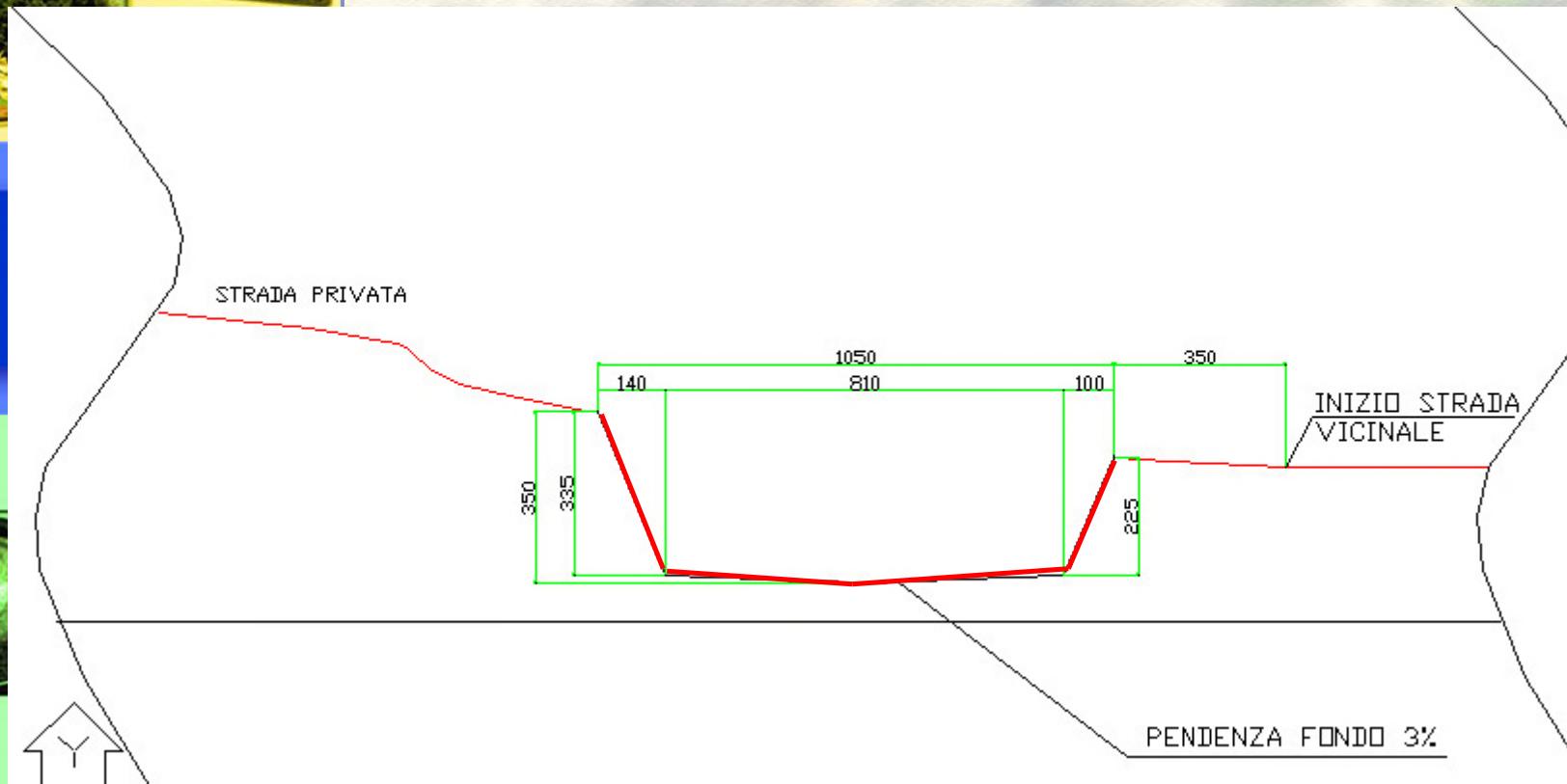
200 square meters of area





Pilot plant excavation

Shape: trunk pyramidal



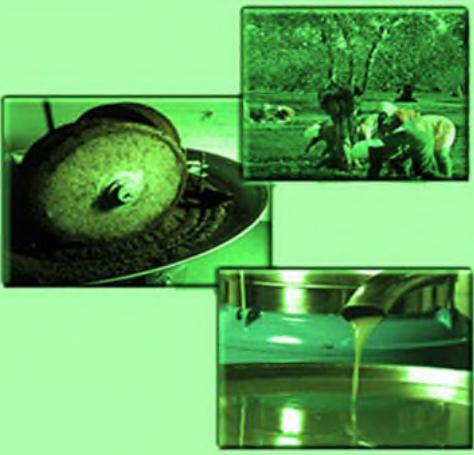
PHYTODEPURATION PILOT PLANT



ISRIM



PROGETTO LIFE 04ENV/IT/000409



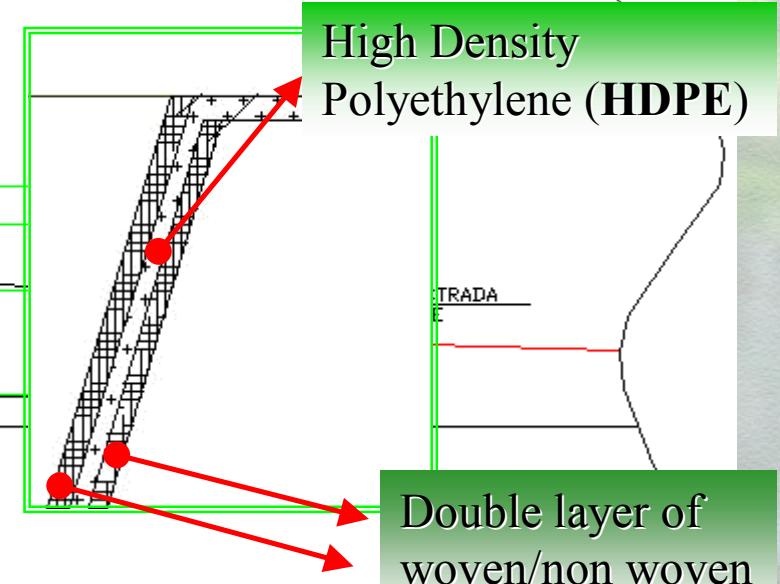
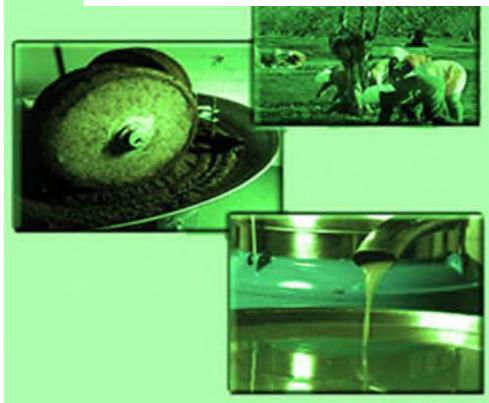
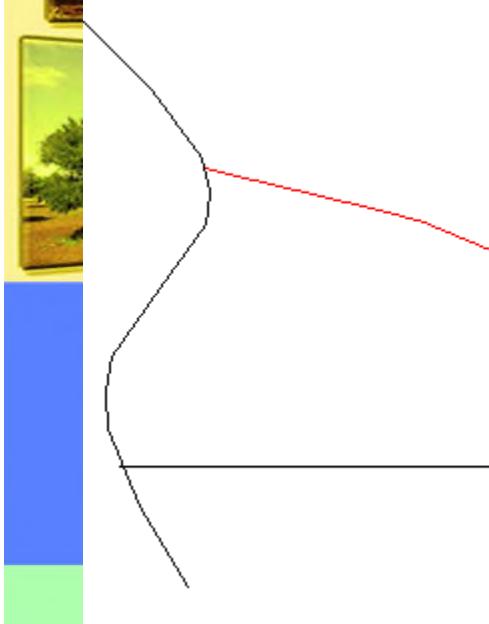
**445 m³ of volume;
4.0 meters of depth**

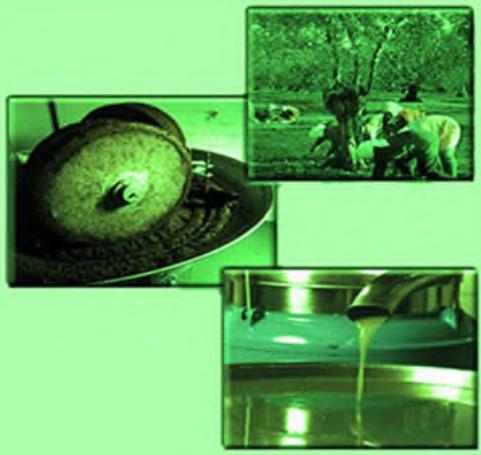


- A layer of superficial alteration;
- A lithoid layer.



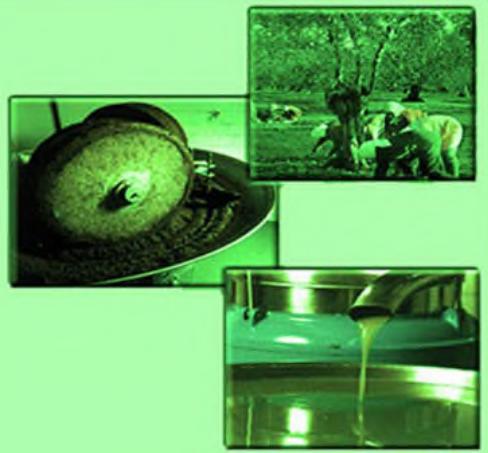
Waterproofing





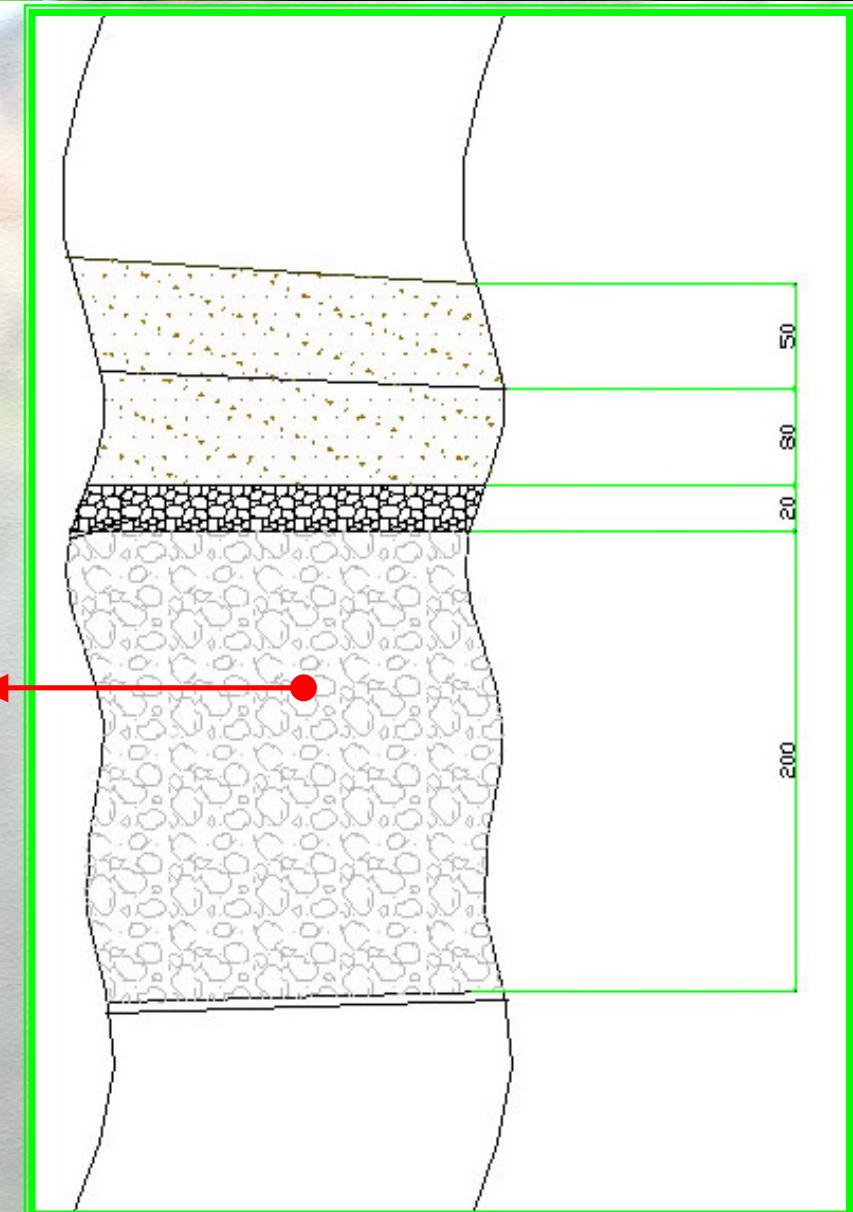
Waterproofing

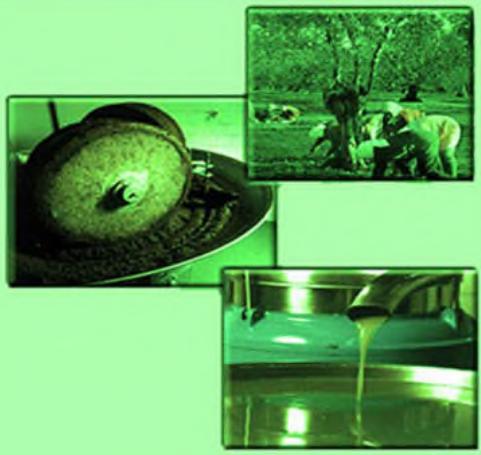




Filling

Draining layer:
calcareous gravel





Draining layer



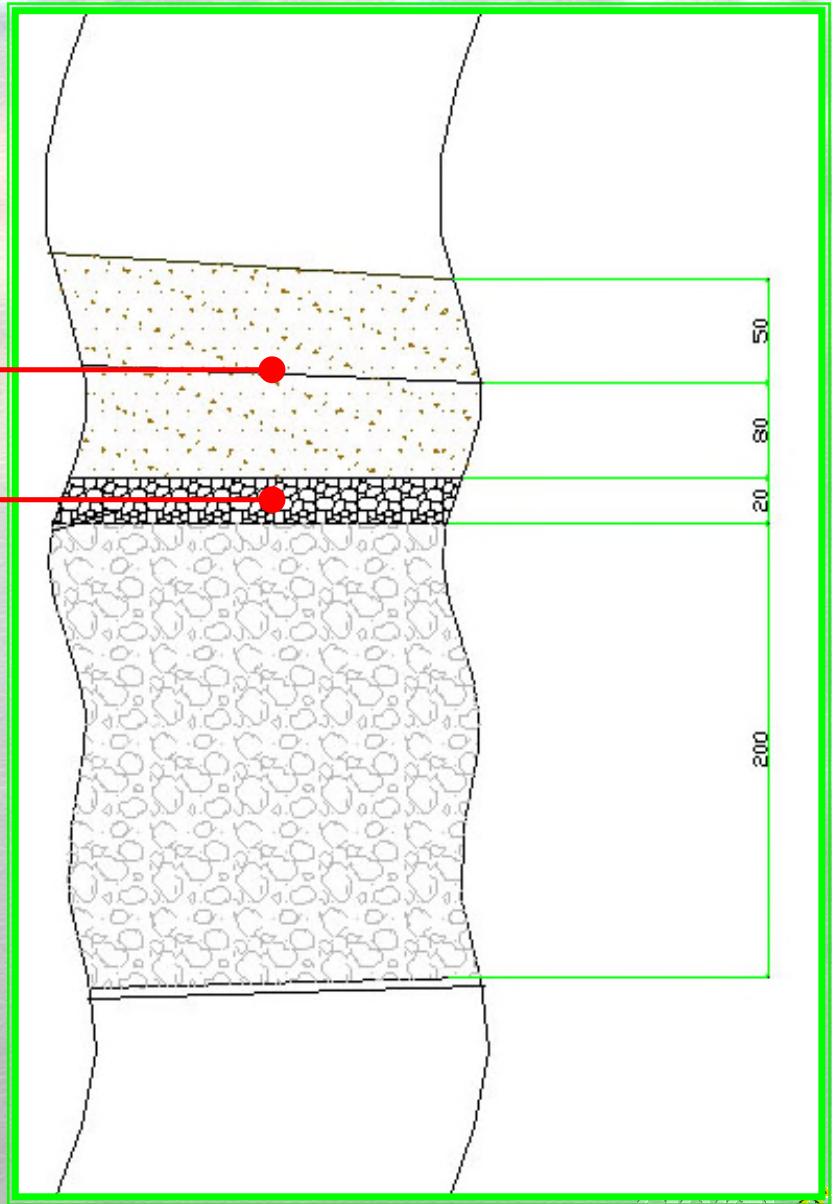
The pilot plant is able to hold **60 m³** of olive mill waste water



Filling

Soil

Separating layer
(dim 5-15 mm)



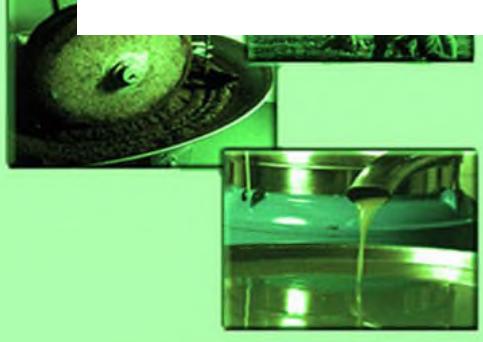
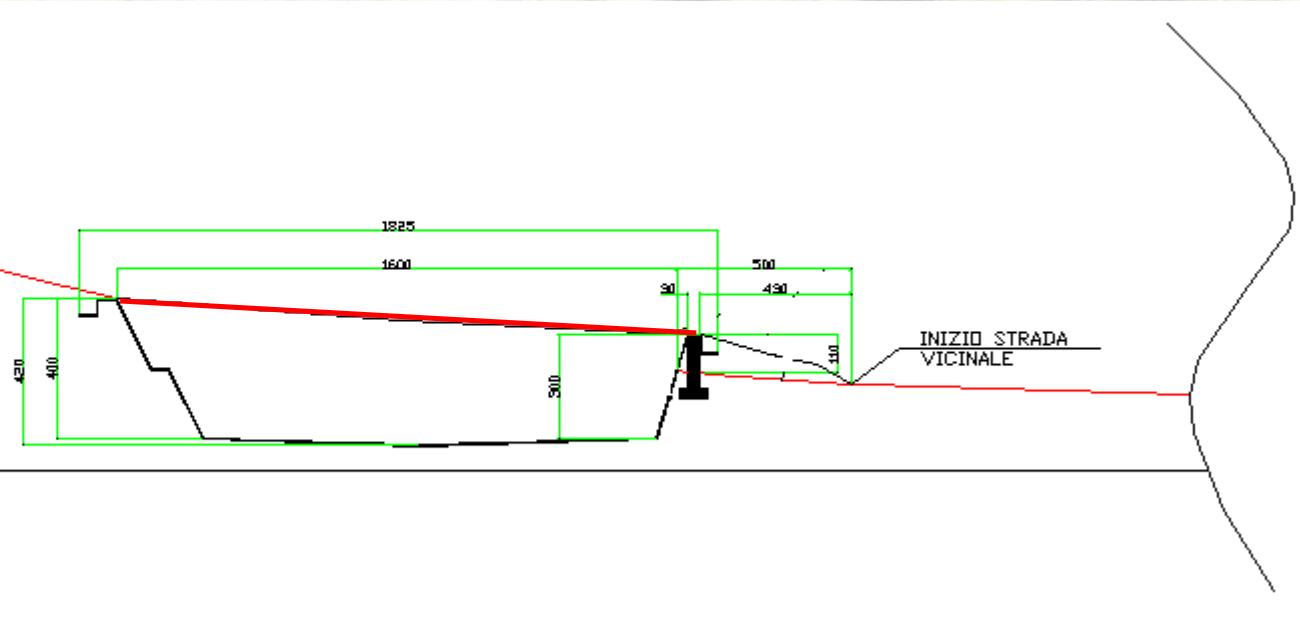
ISRIM



PROGETTO LIFE 04ENV/IT/000409

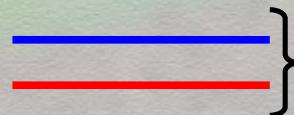
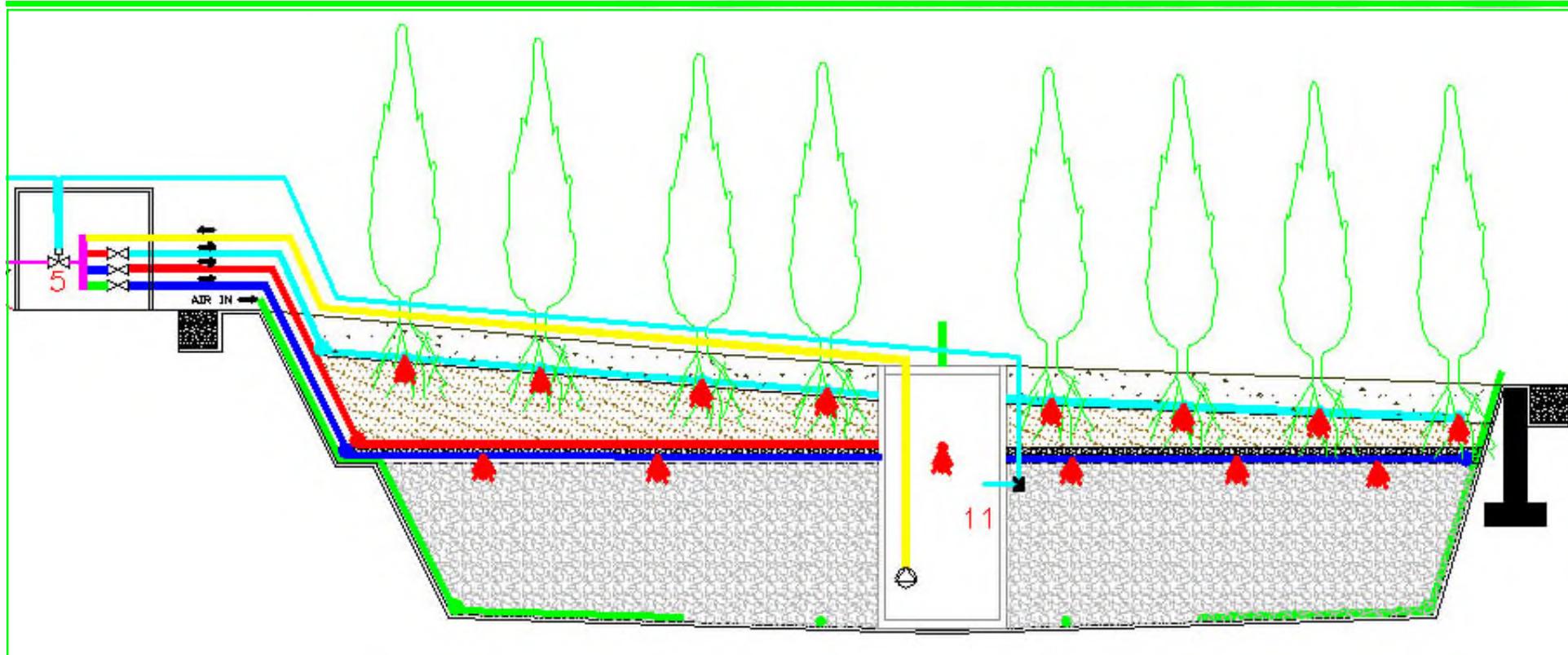


Filling

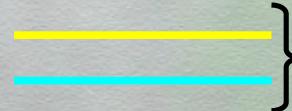


The plant surface presents a slope of 8% degree, to reduce rain water infiltration.

Piping system



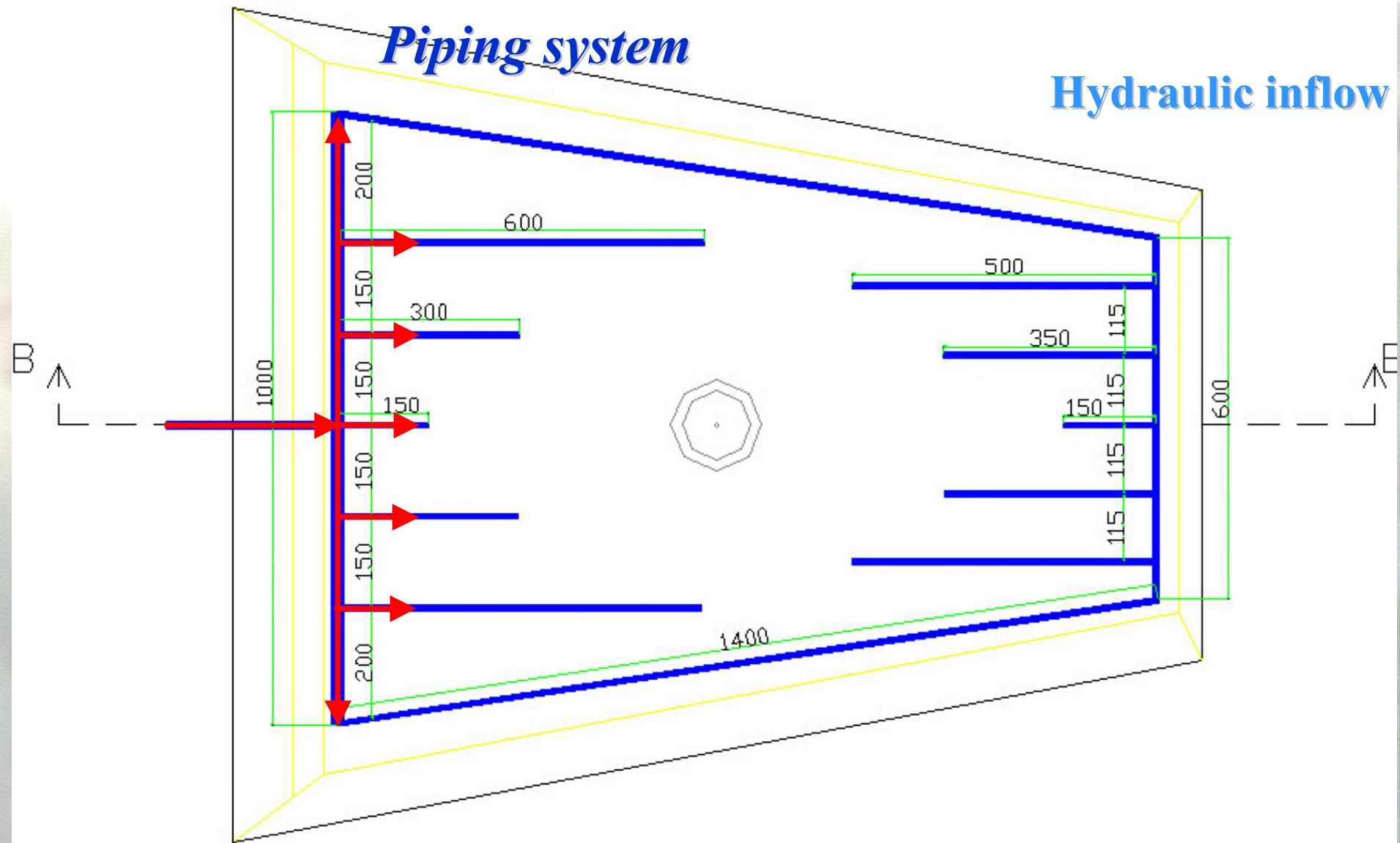
Waste inflow system



Subsurface irrigation system

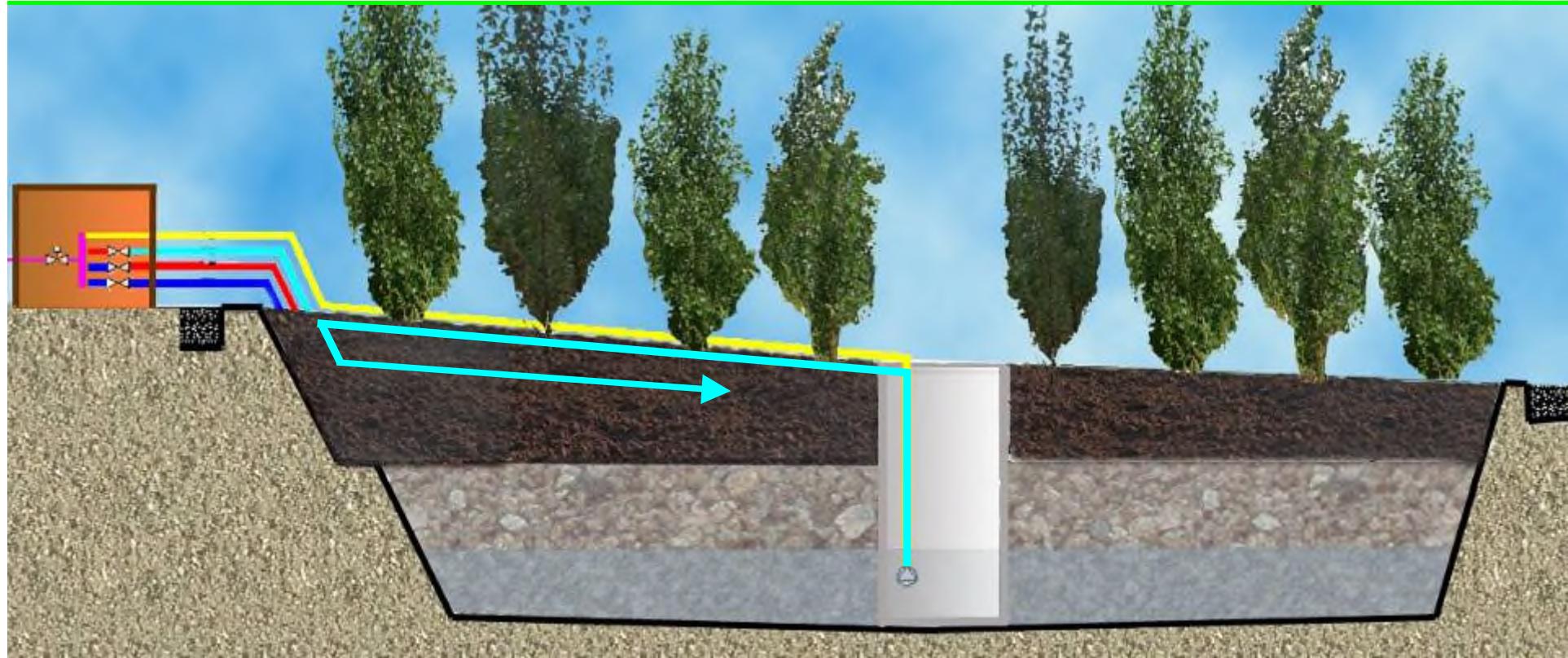
Piping system

Hydraulic inflow



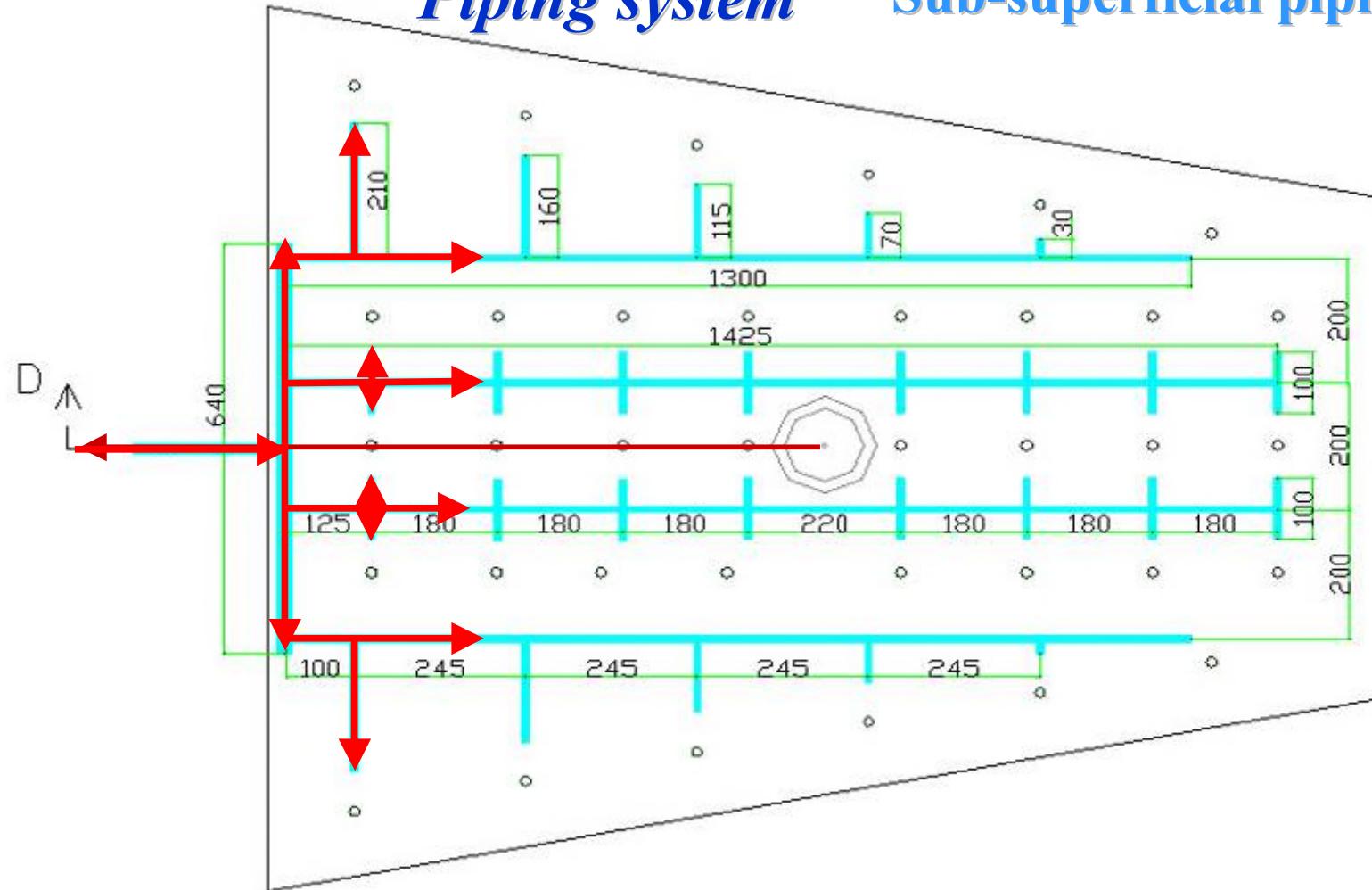
Piping system

Sub-superficial piping system

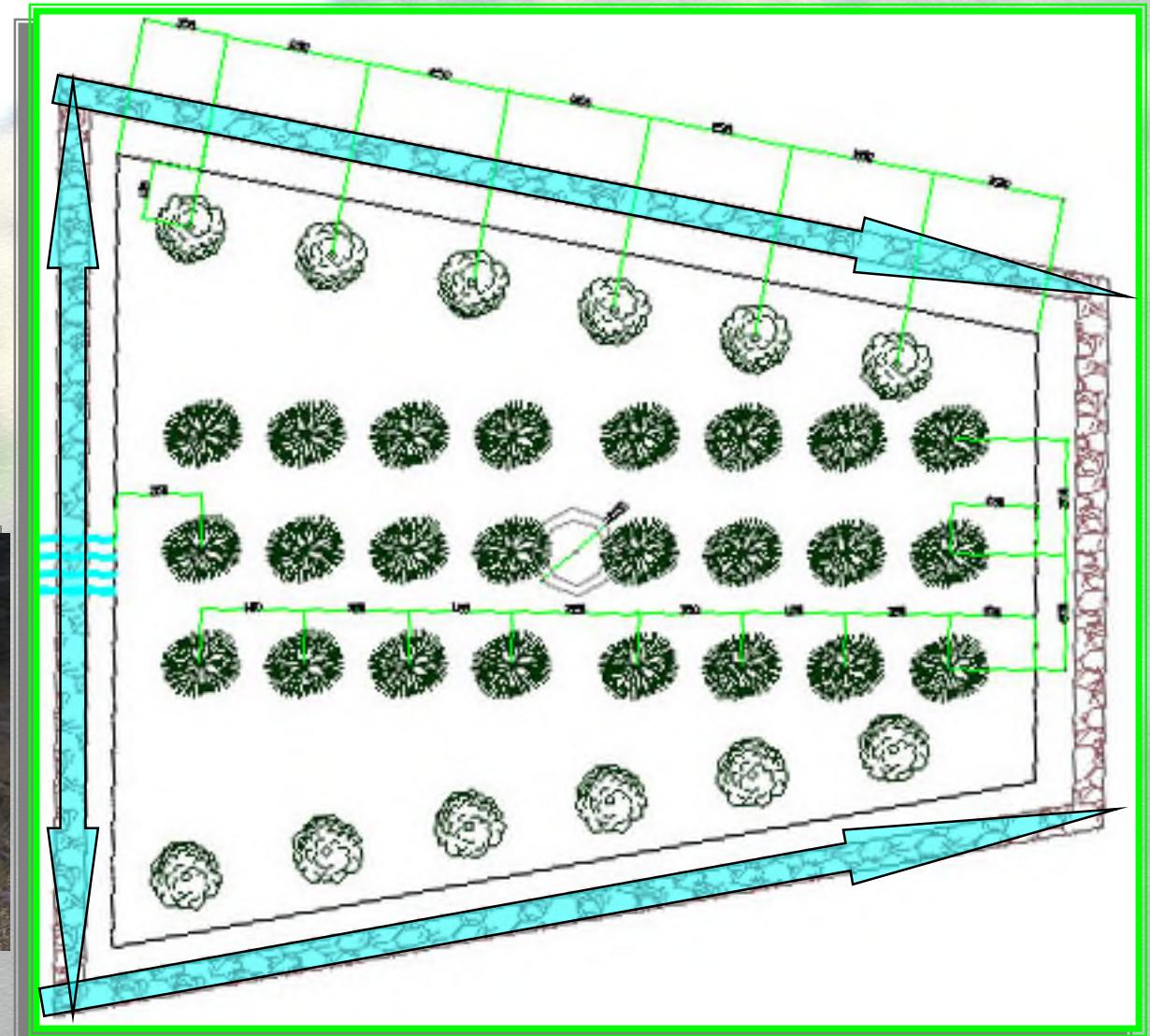


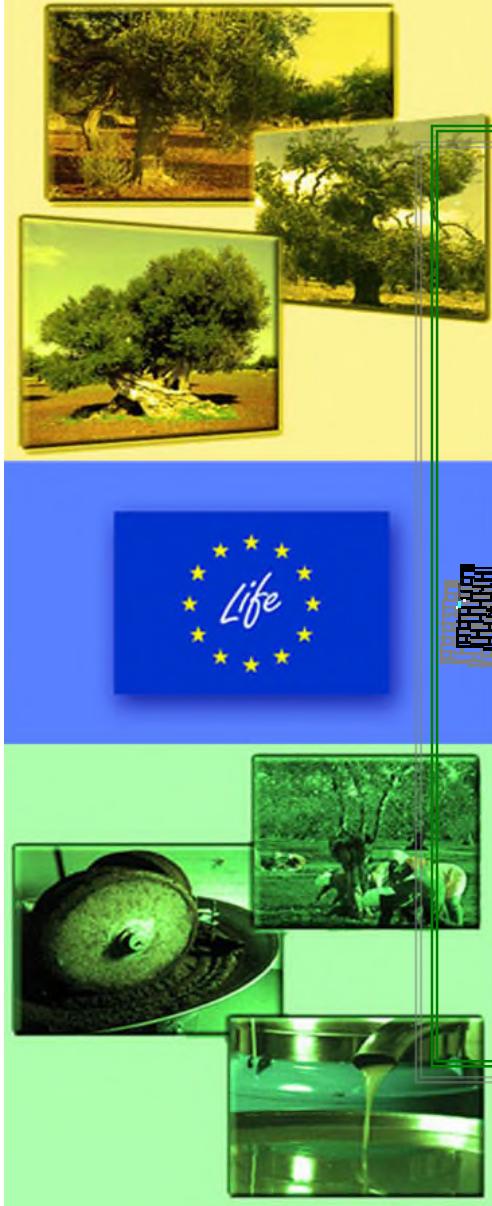
Piping system

Sub-superficial piping system

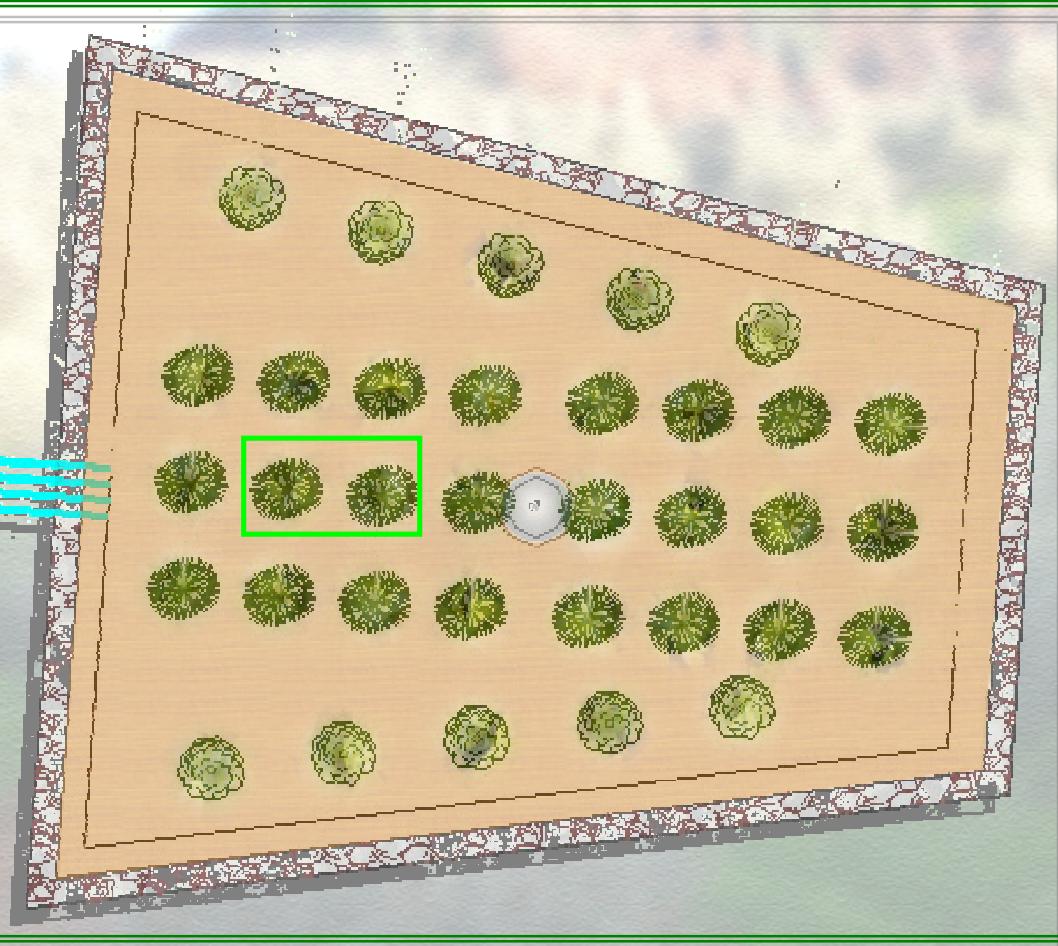


External draining system





Planting design



34 trees:

24 poplars

10 cypresses

2.00 m
Row
spacing

1.80 m
Tree-to-tree-
in-row
spacing



Planting design



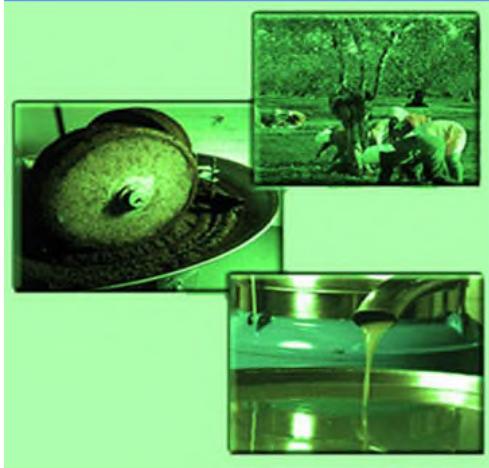
PHYTODEPURATION PILOT PLANT



ISRIM



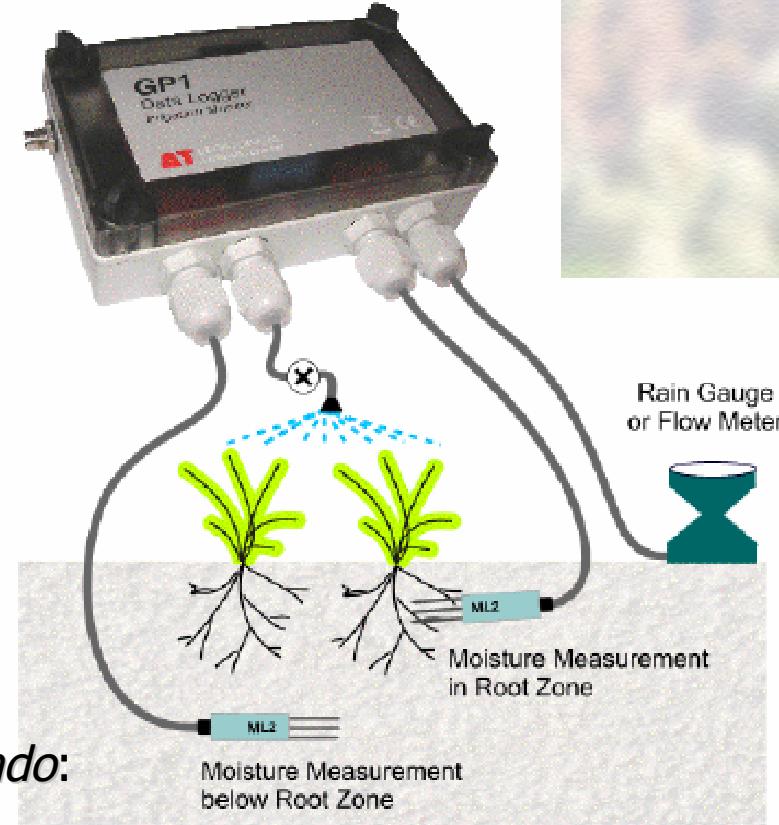
PROGETTO LIFE 04ENV/IT/000409



Esempio

Sub-irrigare quando:

Umidità del terreno <30%



Bloccare sub-irrigazione quando:

Umidità del terreno >50% o pioggia > 4 mm/ora

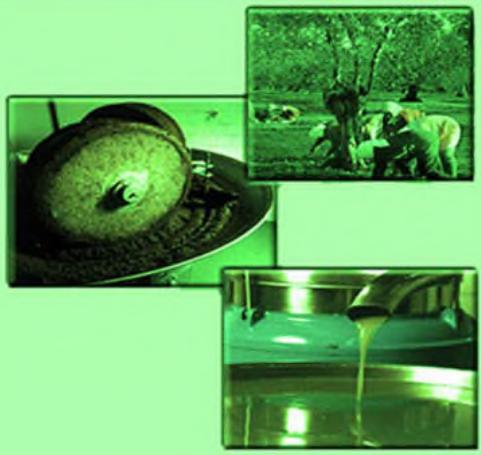
PHYTODEPURATION PILOT PLANT

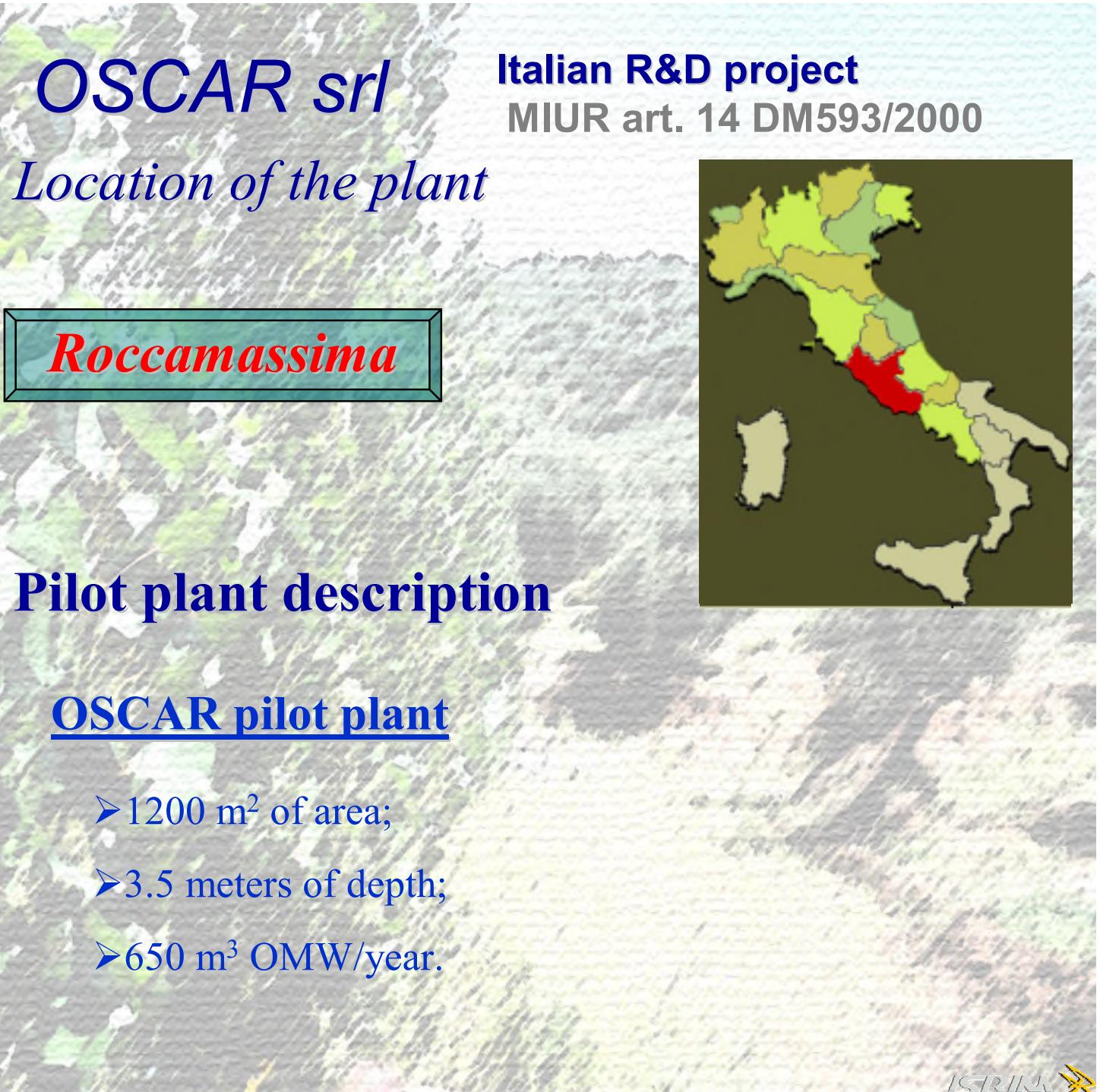


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PROGETTO LIFE 04ENV/IT/000409





Pilot plant description

OSCAR pilot plant

- 1200 m² of area;
- 3.5 meters of depth;
- 650 m³ OMW/year.

OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR



OSCAR







RHIZOPOP

Italian R&D project Ministero Ambiente DM 1183/2005

Location of the plant

Terni

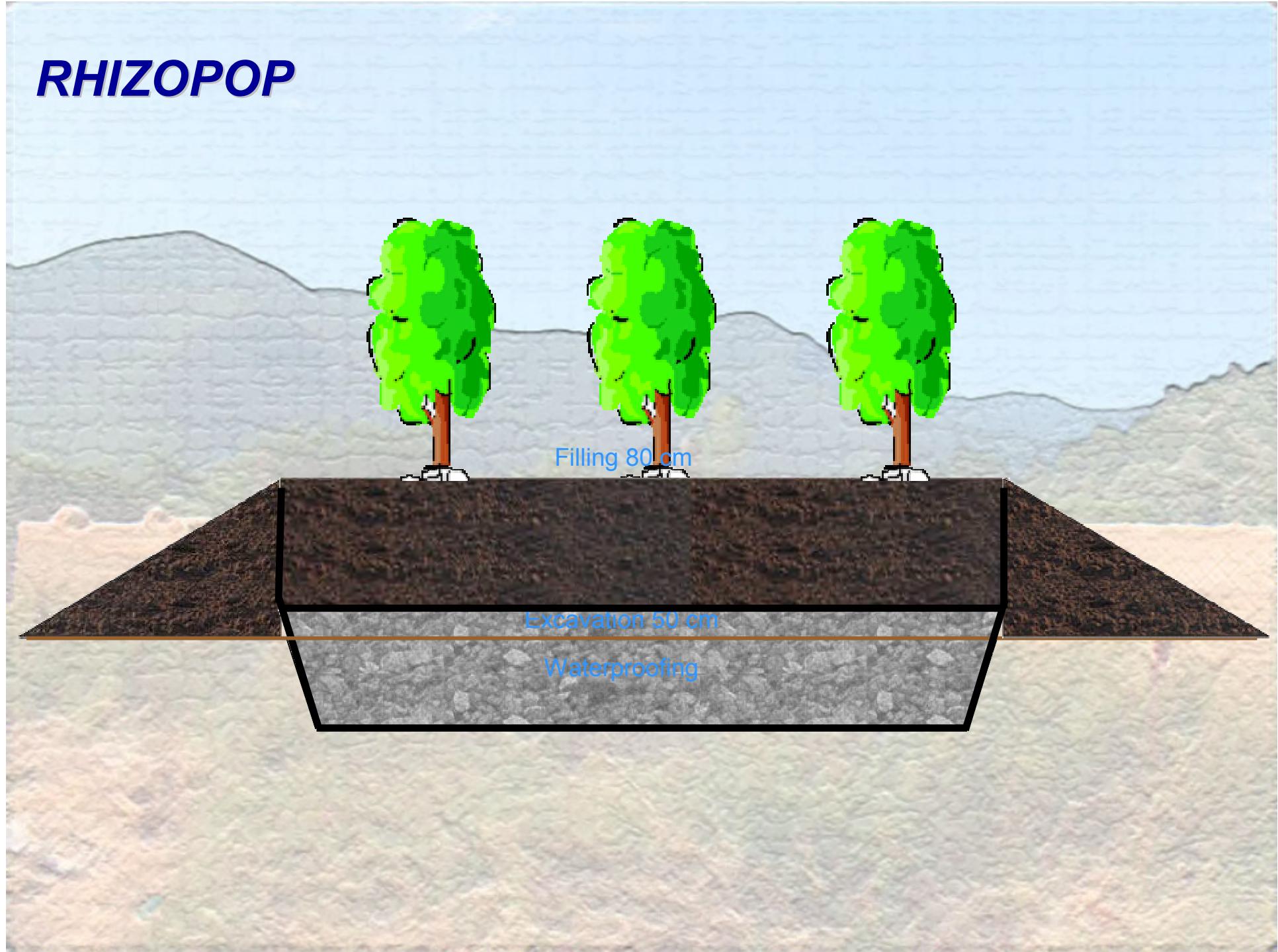
Plant description

RHIZOPOP plant

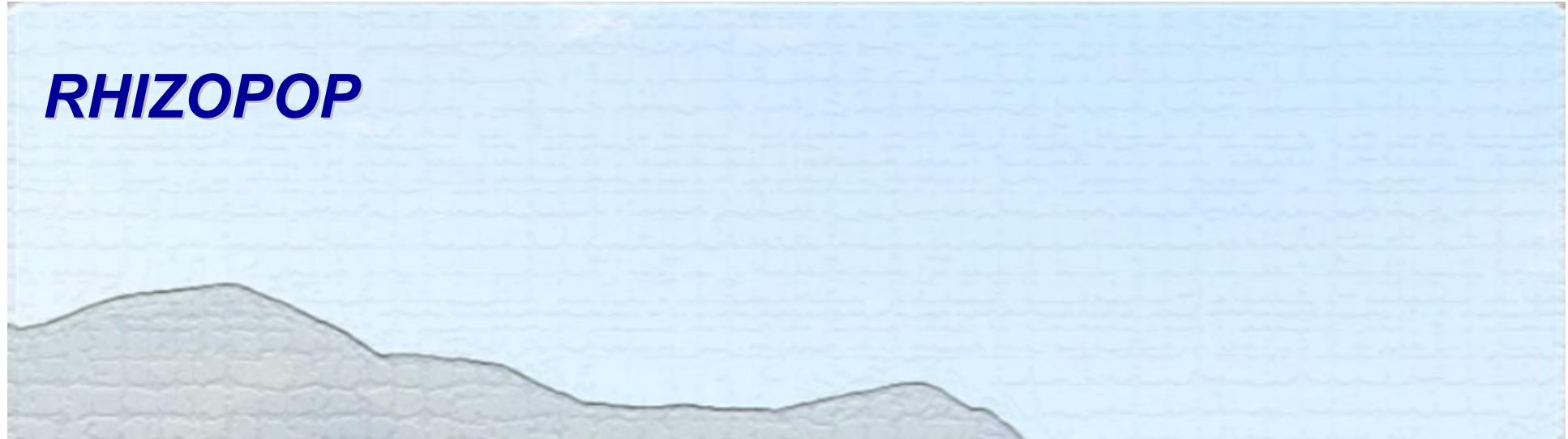
- 5400 m² of area;
- 0.50 meters of depth;
- 1200 m³ OMW/year.



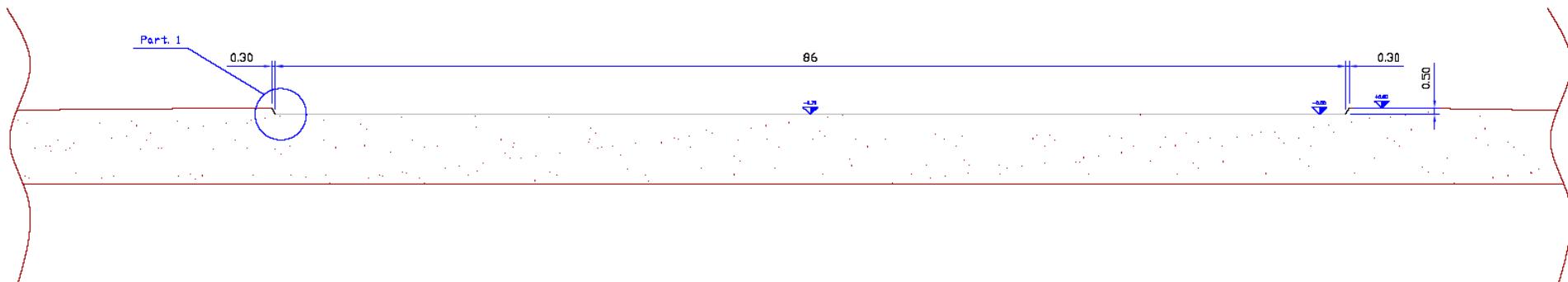
RHIZOPOP



RHIZOPOP

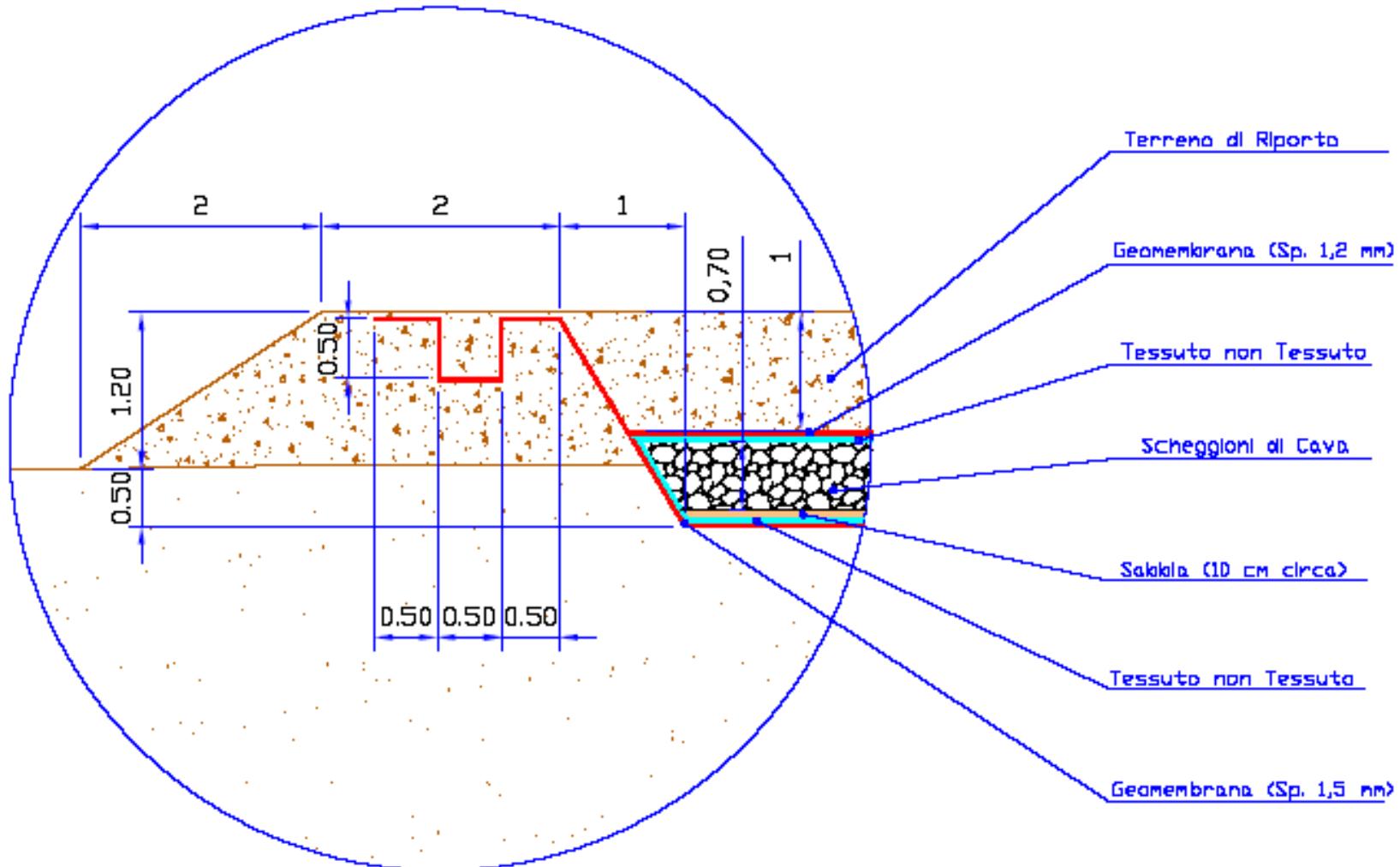


Sez. A-A - Scavo e Impermeabilizzazione

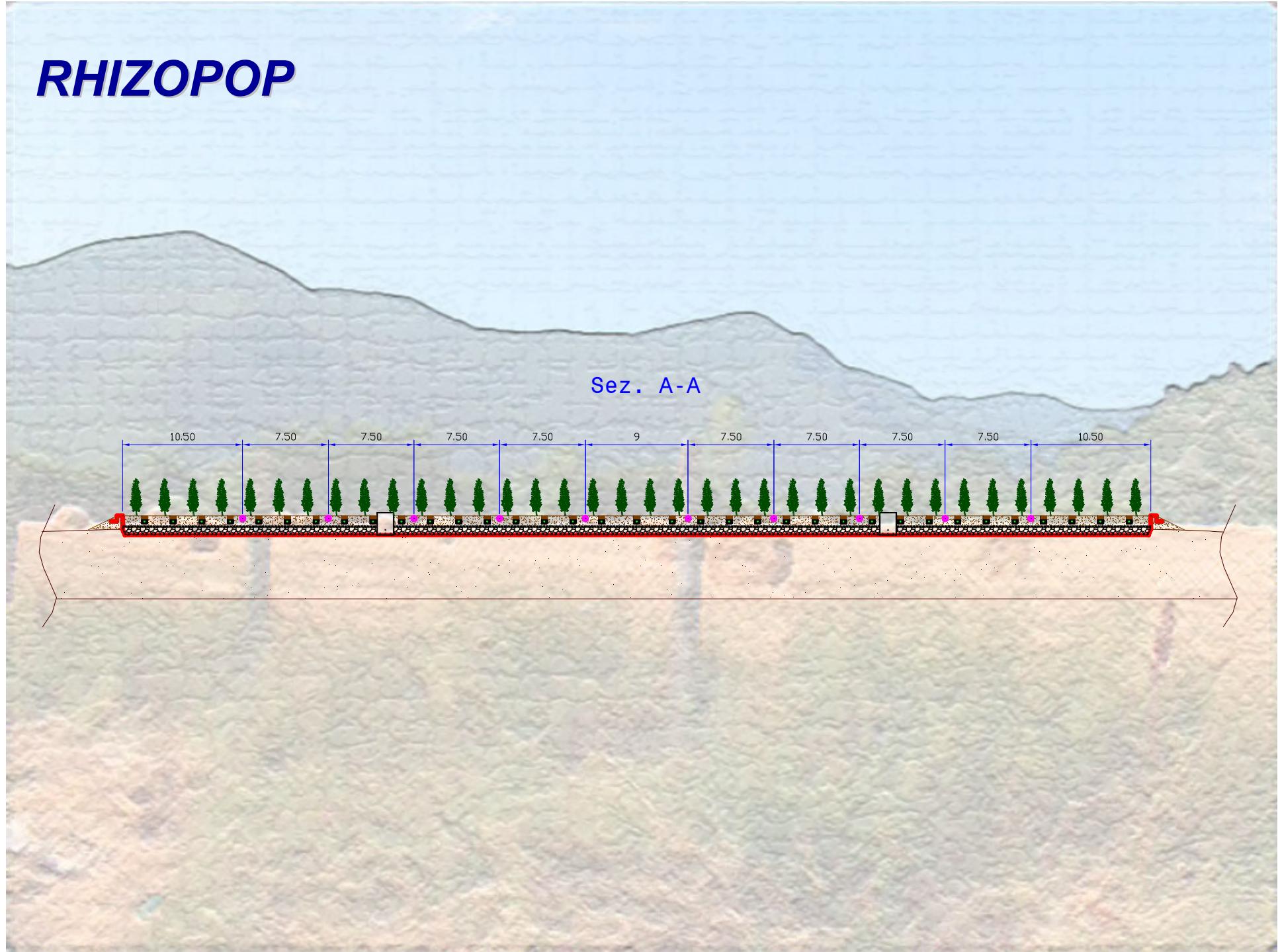


RHIZOPOP

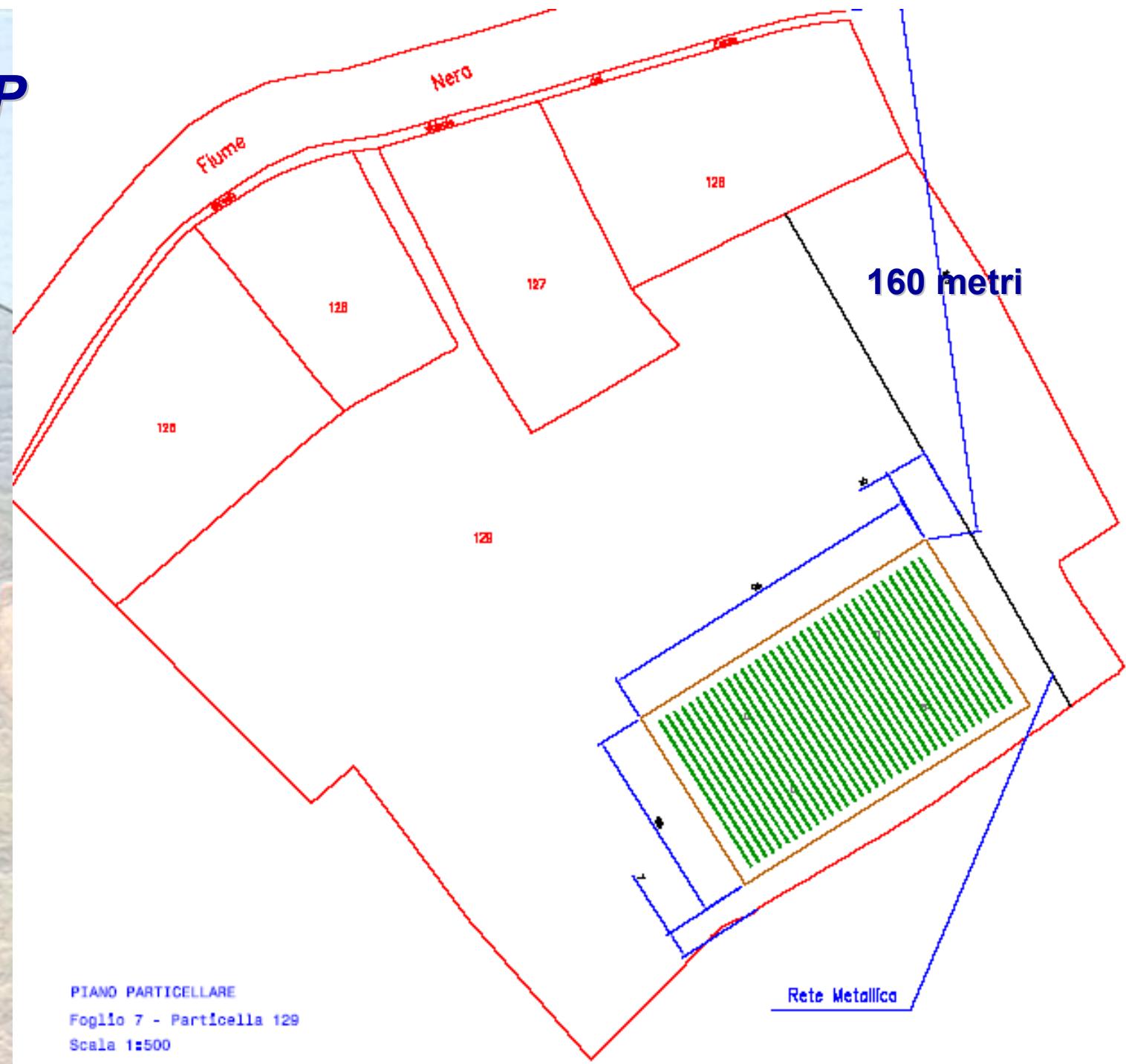
Rinterro e pendenze esterne
Scala 1:50



RHIZOPOP



RHIZOPOP





RHIZOPOP

