

PONTEY 1 & 2 CASCADE PLANTS EVERY SINGLE DROP OF WATER IS WORTH EXPLOITING FOR SHP: THE LONG AND SUCCESSFUL WAY TO IMPLEMENTATION

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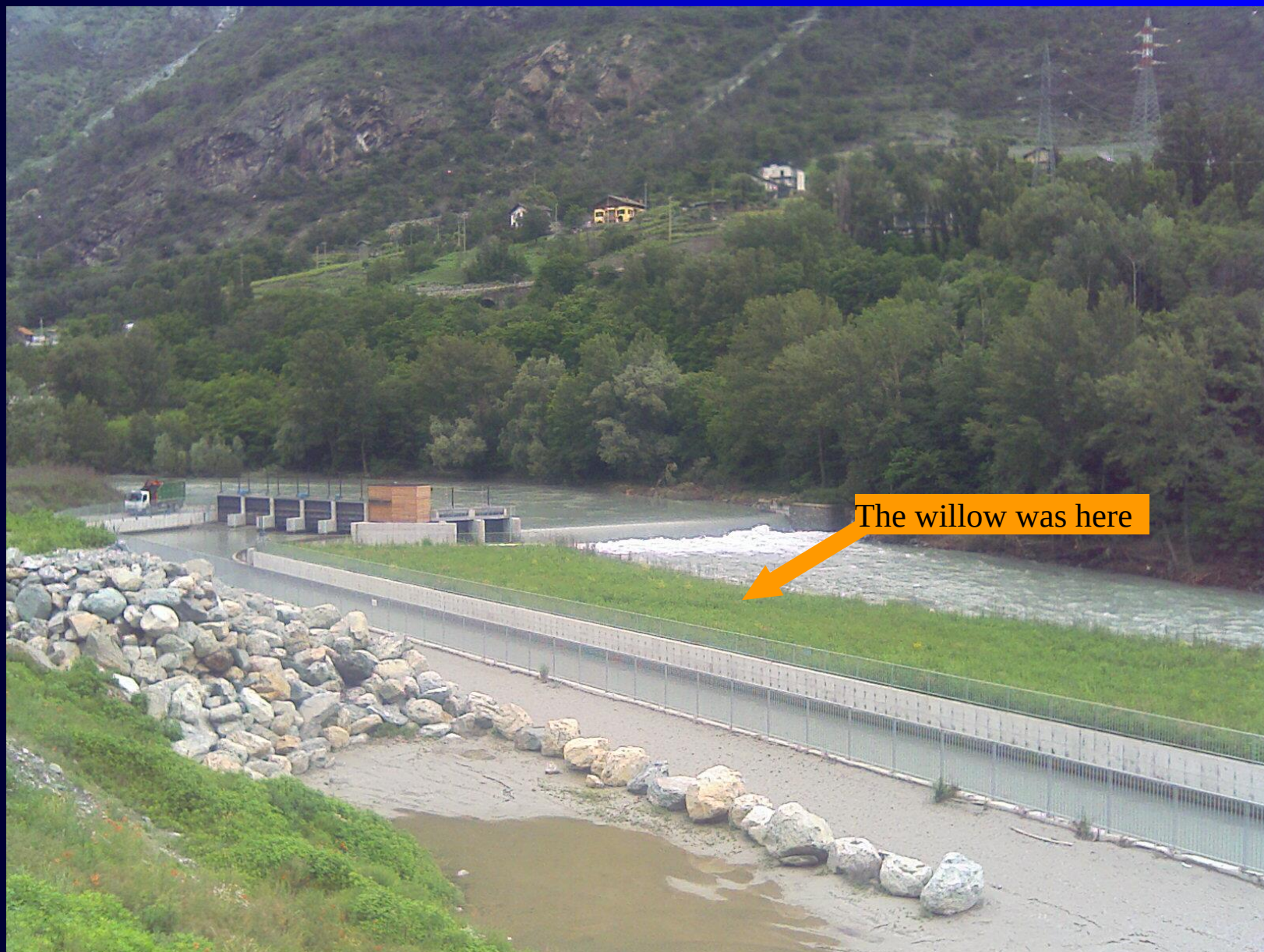
Studio Frosio - Brescia

Italy





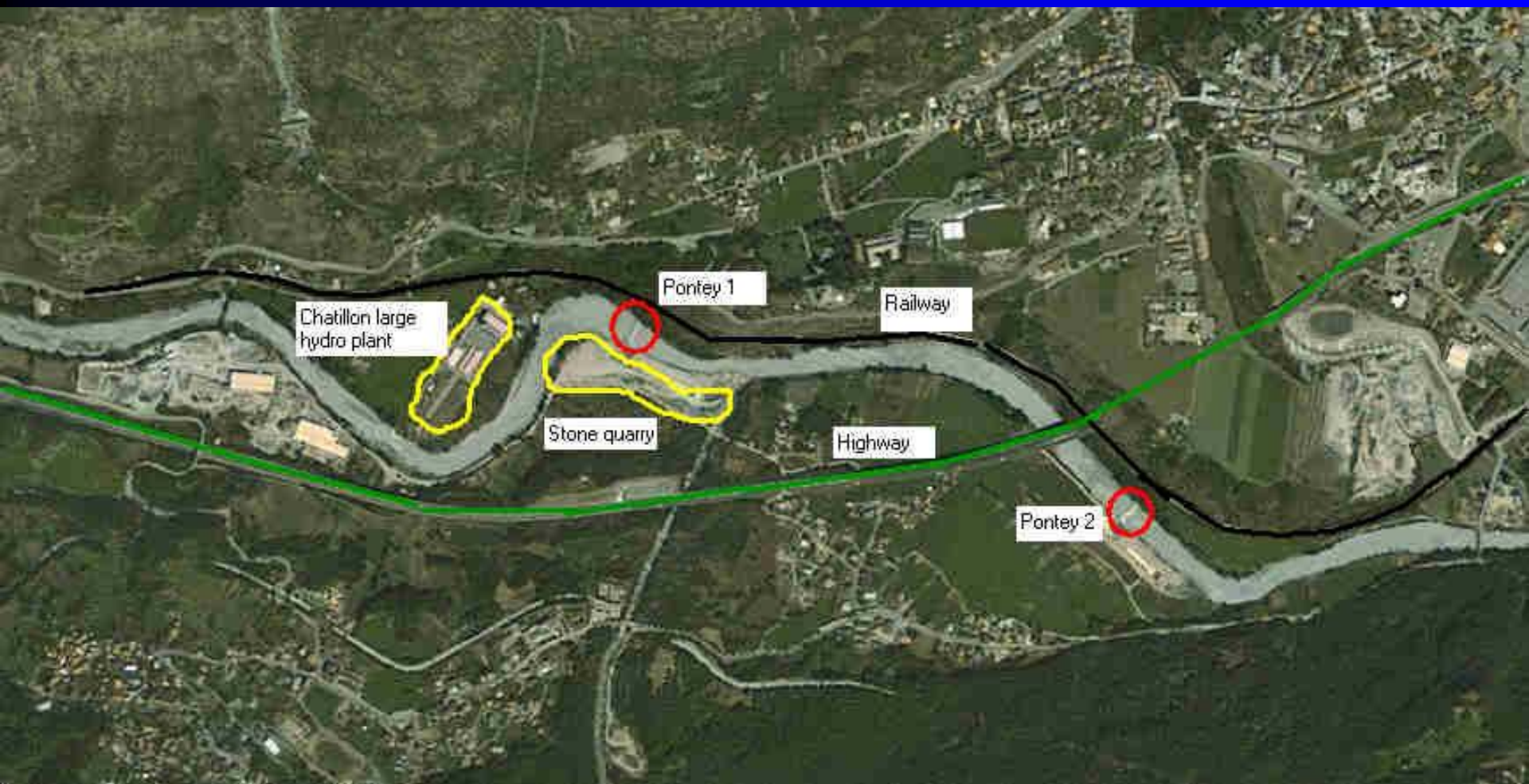




The willow was here



The context



The long road

- Nov-93 request of environmental impact assessment procedure
- Jun-94 positive environmental impact assessment
- Oct-03 preliminary approval of the construction of a new weir in the river
- Nov-03 building license
- Apr-04 water right concession
- Jan-05 authorisation to build, operate and maintain a weir on a river
- Feb-05 hydraulic offices authorisation for provisional works in the riverbed
- Apr-05 Works start
- Nov-05 fish passages approval
- Jun-06 positive advice of regional environmental office on minor variations
- Dec-06 Plants commissioning

THREE TABLES

	Pontey 1	Pontey 2
Rated flow	34,7 m ³ /s	27,7 m ³ /s
Nominal head	3,70 m	4,50
Average plant flow rate	16,1 m ³ /s	14,4 m ³ /s
Installed capacity	870 kW	1.000 kW
Average capacity	413 kW	504 kW
Number of units	2	2
Expected production	3,2 GWh/yr	3,8 GWh/yr
Reserved flow	4,487 m ³ /s	4,2 m ³ /s

THREE TABLES

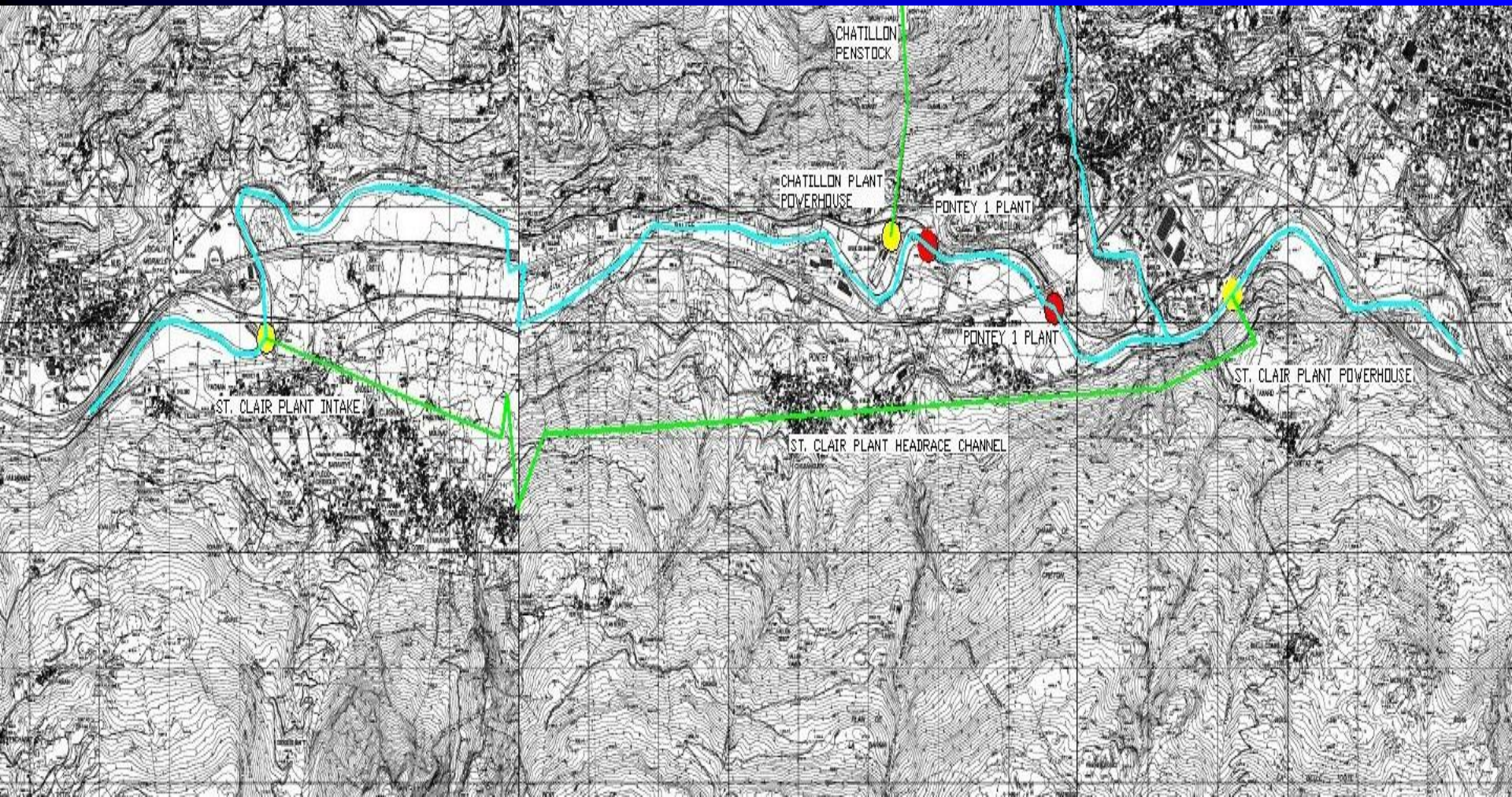
Inflatable dams	600.000
Electromechanical equipment	2.500.000
Gates and TRCM	750.000
Connection to the grid	200.000
Civil works	3.200.000
Design, supervision, PM	250.000
Other costs	100.000
Contingencies	400.000
<i>Total</i>	<i>8.000.000</i>

THREE TABLES

NPV _{7,5%-30yrs-0,2 €/kWh}	3,3 M€
Discounted Payback Time	11 years
PI	1,4
IRR	12,8 %

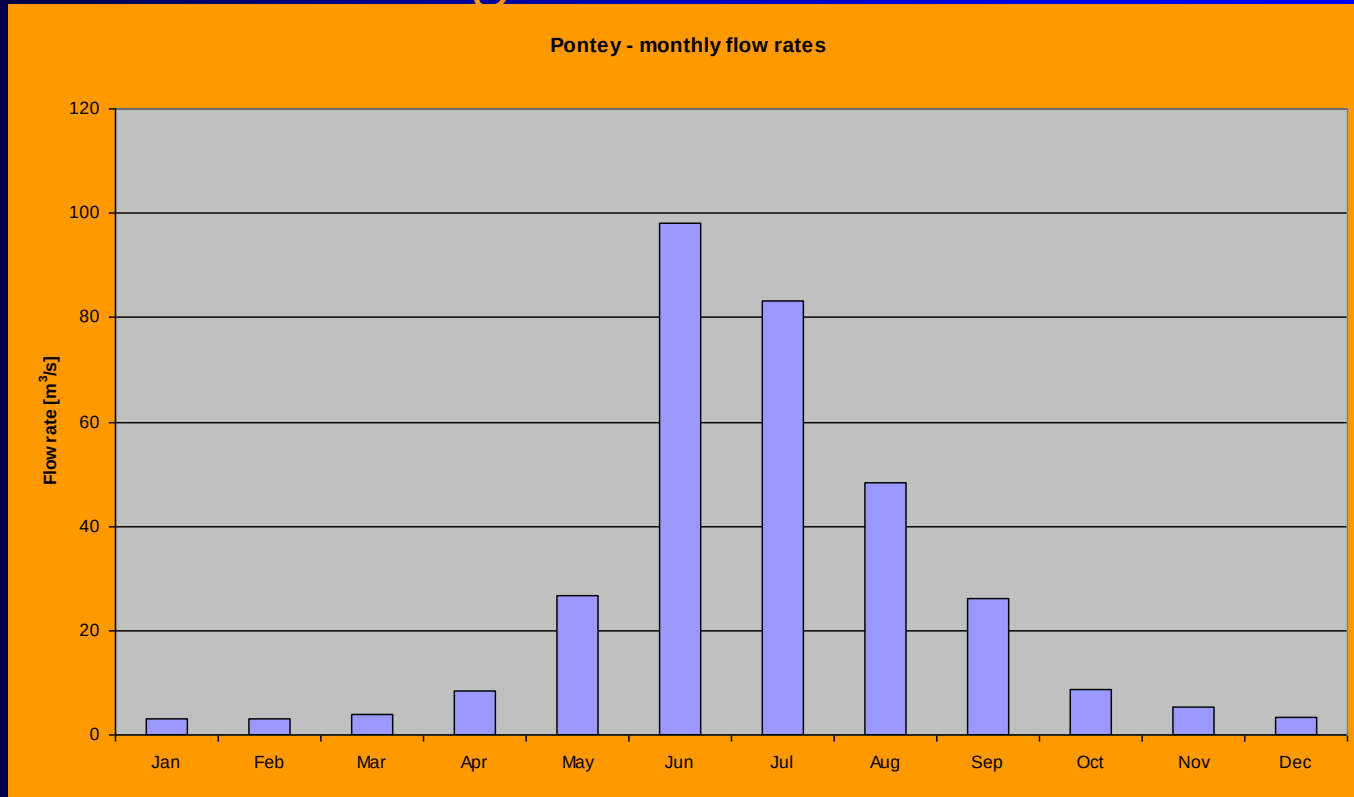
WHAT'S WORTH MENTIONING

They're located along a river stretch already diverted, that is they're located downstream of the intake works on Dora Baltea of a big hydro plant



WHAT'S WORTH MENTIONING

- Highly variable flow regime



- Fundamental effect of tributaries



ALSO SHPS ALONG RIVER STRETCHES ALREADY
DEPLETED CAN BE FEASIBLE

WHAT'S WORTH MENTIONING

- Powerhouse fitted to environment



•Powerhouse fitted to environment

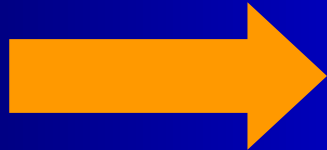




Reduction of visual impact

← Pontey

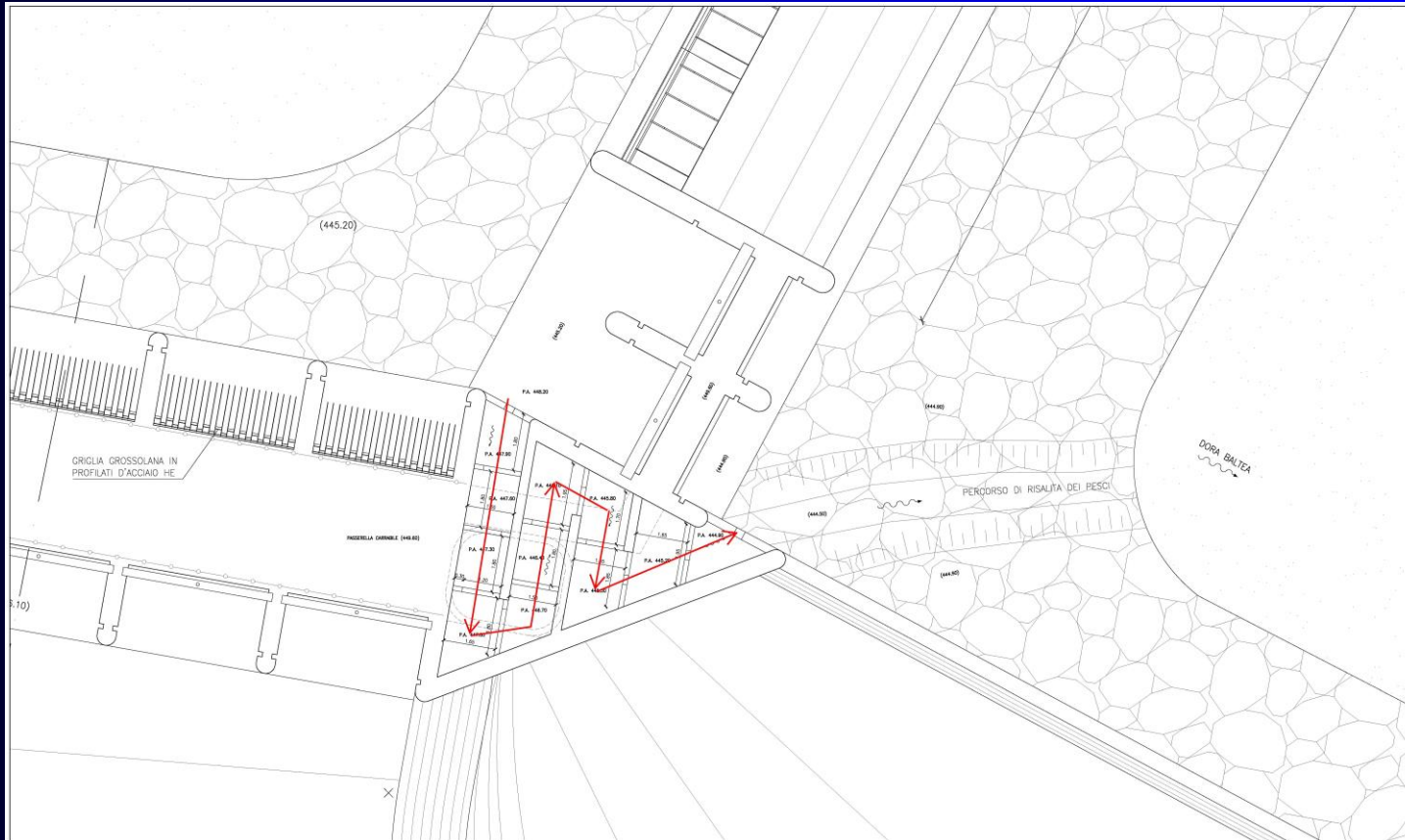
Conventional





WHAT ELSE?

Fish pass protected by heavy floods to make maintenance easier



Turbines regulation based on river water level instead of forebay water level to guarantee fish pass efficiency

SOME CONCLUSIONS

The exploitation of marginal water resources is possible provided that:

- 1. Challenging and innovative solutions are adopted to get the final goal of a sustainable hydropower production*
- 2. Environmental measures, both from the visual and riverine life point of view, are taken into due account in the earlier stage of design achieving a full-integrated-technical-environmental design*
- 3. Suitable value of the energy produced are guaranteed by some kind of incentives (in this case Green Certification system and fixed prices of the energy) [transl.: if you have money and good tariffs, you can nearly do miracles]*

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