



INTERSOL 2013

**LOOPING THE LOOP OF SOIL REMEDIATION : FROM RAW MATERIAL
BACK TO AGRICULTURAL PRODUCTION**

jf.david@experts-judiciaires.org

**Expert près la cour d'appel de Versailles, expert agréé par la cour
de cassation**

Compagnie Nationale des Experts de Justice en Environnement

Jean-Baptiste ARTRU

LAFARGE GRANULATS SEINE NORD

Jean-baptiste.artru@lafarge.com

INTERSOL – LYON March 26th 2013

SUMMARY

☐ SCOPE AND APPROACH

- Preliminary Licensing
- Rules for operations :
 - ☐ Public regulations
 - ☐ Private contracts

☐ END OF OPERATION : STEPS AND PUBLIC SUPERVISION

☐ AGRICULTURAL REMEDIATION

- Ways and means
- Technical model
- Confidence building
- Shared benefits

Preliminary licensing for quarries

- ☐ Public regulations
 - “Code de l’Environnement” Installations registered for environmental purposes
 - Environment impact statement : conditions to manage end of operations
 - EU regulation : Council decision 2003/33
 - ☐ Admitting inert wastes
 - ☐ Rules and conditions

Rules for operations

☐ Compliance with

■ Public Licensing provisions :

- ☐ Check depth, volumes, shapes, slopes,

■ Private contracts with land owners,

- ☐ Reports at due dates (to calculate the fee for the owner)

☐ Preparation of end of operation

- Save surface soil, arable land

- Gather that topsoil in a temporary bund

Land use mode 1

☐ Full ownership :

- Quarry operator has bought the land and will determine what future land use will be
- Discussion
 - ☐ will be part of the licensing process,
 - ☐ Will take place with various stakeholders (city council, NGO's)
 - ☐ Will often lead to wildlife protection projects

Land use mode 2

- ☐ Rent to a private owner for operation under a fee
- ☐ According to private contract, end of operation must lead to a situation so close as possible of previous one, i.e.:
 - Ability
 - ☐ to re-develop agricultural activity,
 - ☐ In the long run, on a sustainable way,

Model for remediation

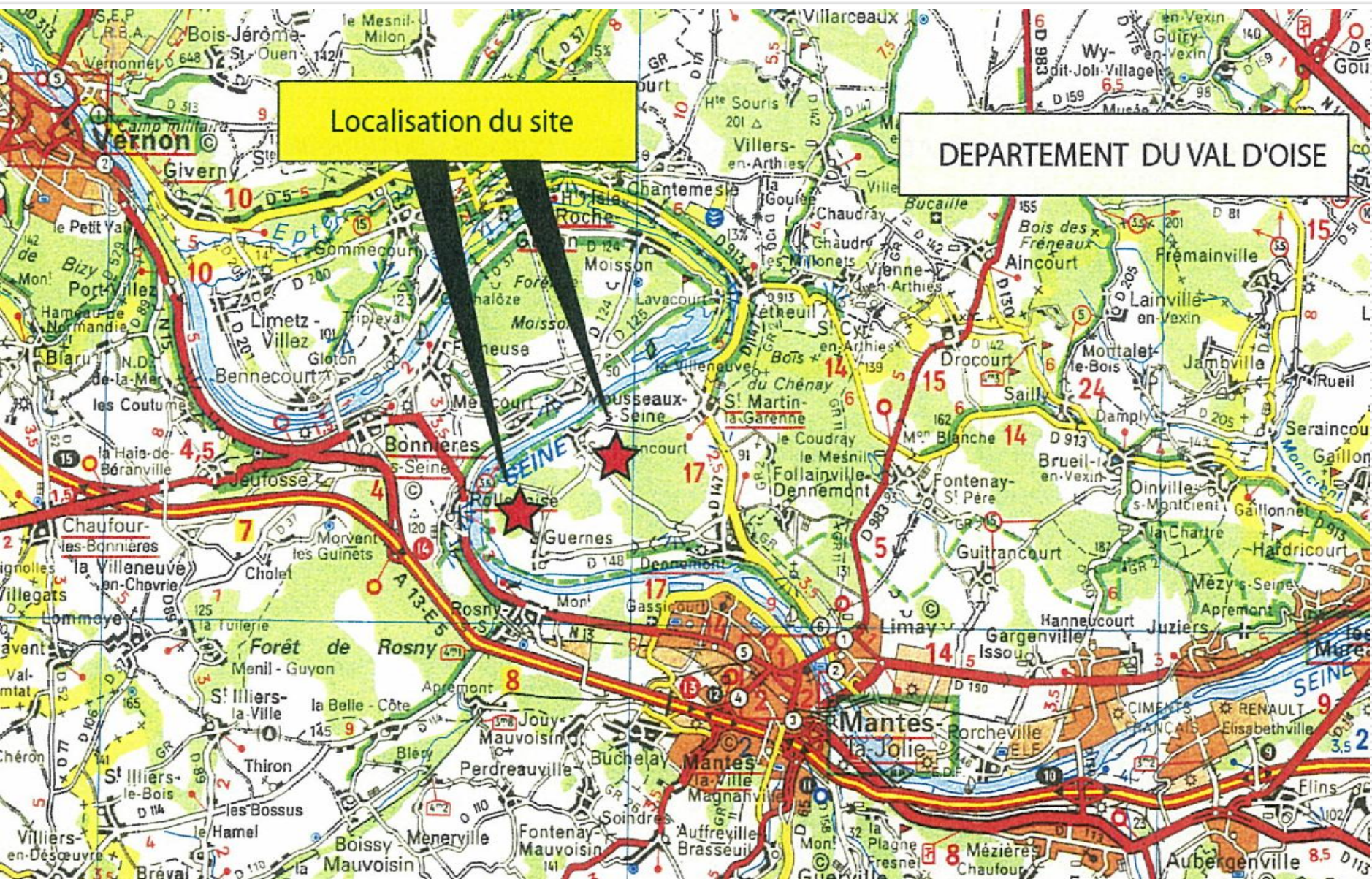
- ❑ The main model is shifting quarry material (sand and aggregates) for replacement by inert waste
- ❑ Remediation for wildlife protection purpose can afford a partial refilling of excavation
- ❑ Remediation for agriculture must give back a subsoil and topsoil suitable for agriculture **on the long run**

What inert waste is

- ❑ Selected construction and demolition waste (C & D waste): with low contents of other types of materials (like metals, plastic, soil, organics, wood, rubber, etc). The origin of the waste must be known.
- ❑ — No C & D waste from constructions, polluted with inorganic or organic dangerous substances, e.g. because of production processes in the construction, soil pollution, storage and usage of pesticides or other dangerous substances, etc., unless it is made clear that the demolished construction was not significantly polluted.
- ❑ — No C & D waste from constructions, treated, covered or painted with materials, containing dangerous substances in significant amount

END OF OPERATION : STEPS AND PUBLIC SUPERVISION

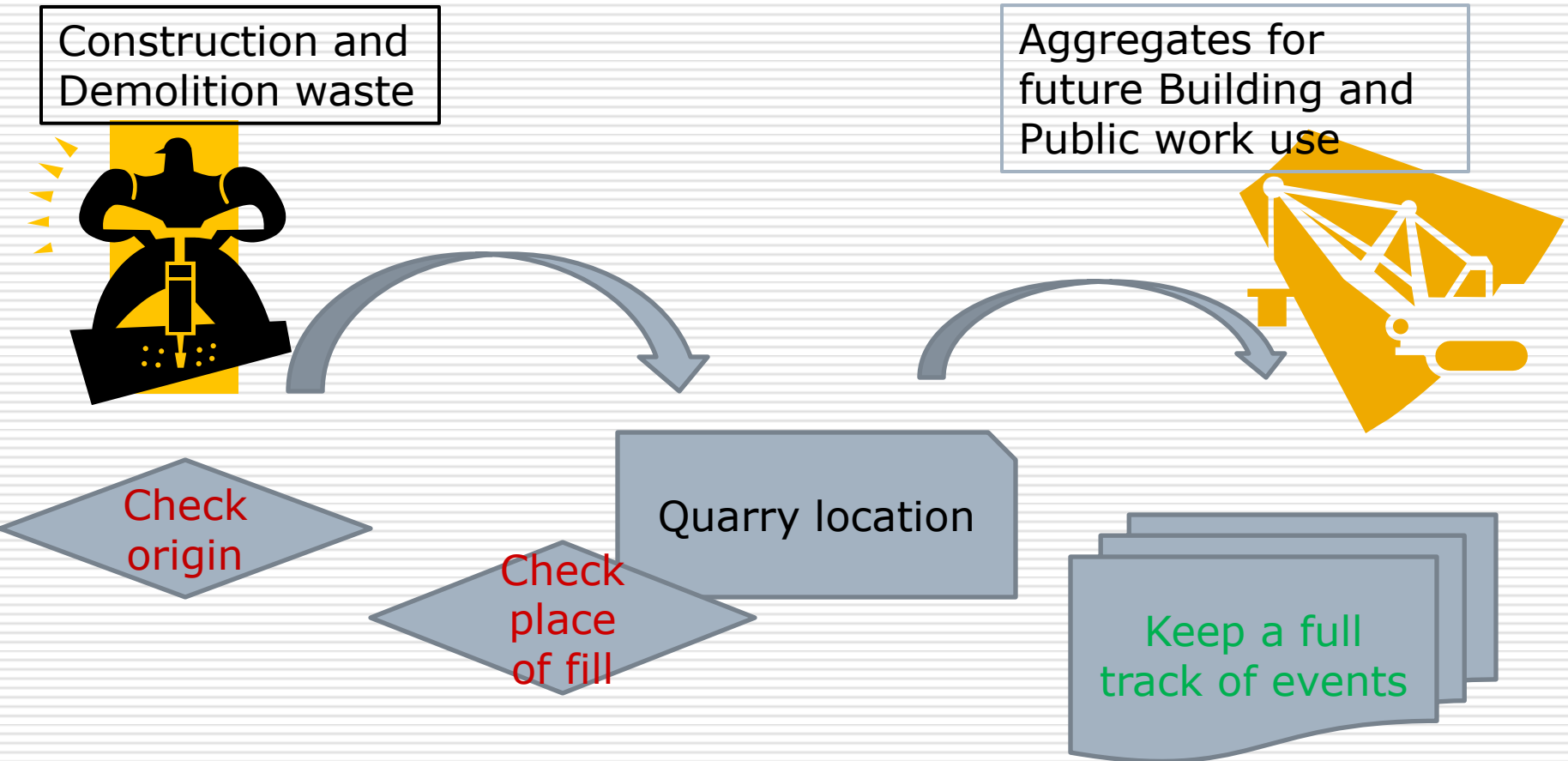
- ❑ A public process with public information : Local Information Commission (commission locale d'information)
- ❑ City council Information through a specific report
- ❑ A specific organisation between quarry operator and land owner



Several ways of remediation linked with nature and wildlife

- Pond, and water life
- Forest, fauna
- Mixed of bushes and dry fallows

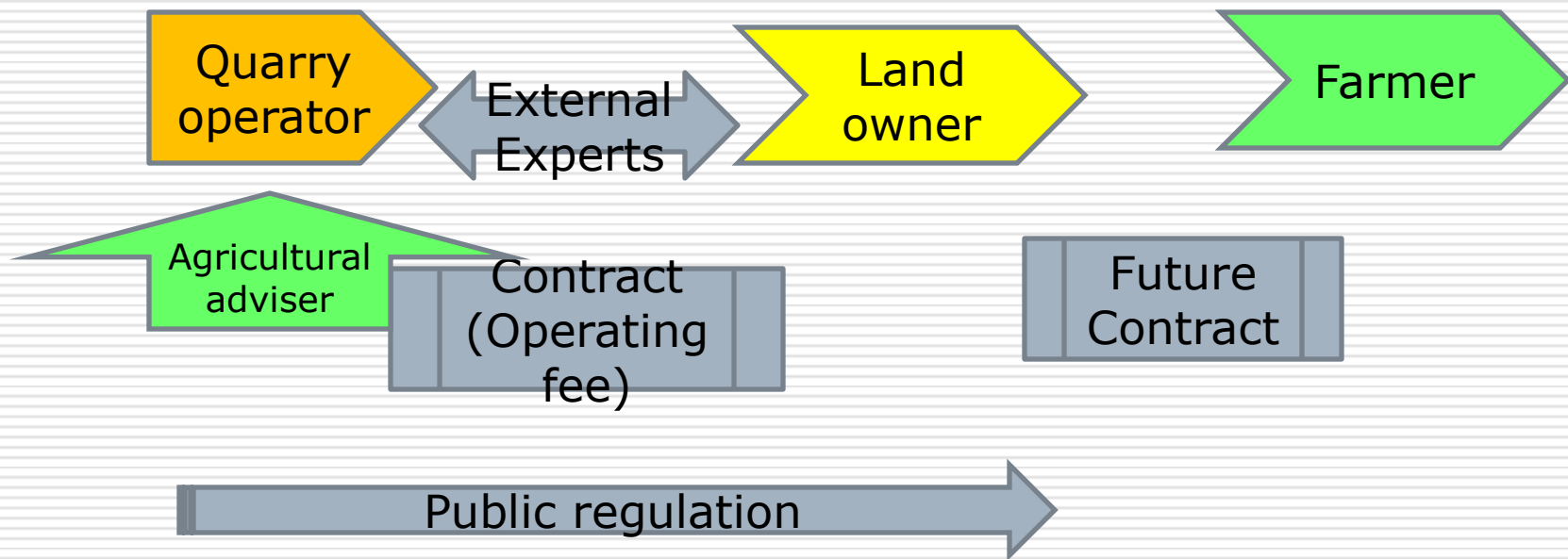
Modelisation : Looping the loop of construction lifecycle



AGRICULTURAL REMEDIATION

- ☐ Mixing recycling Construction & Demolition wastes (under regulatory provisions)
- ☐ Reuse of top soil

Building the process – Organisation scheme



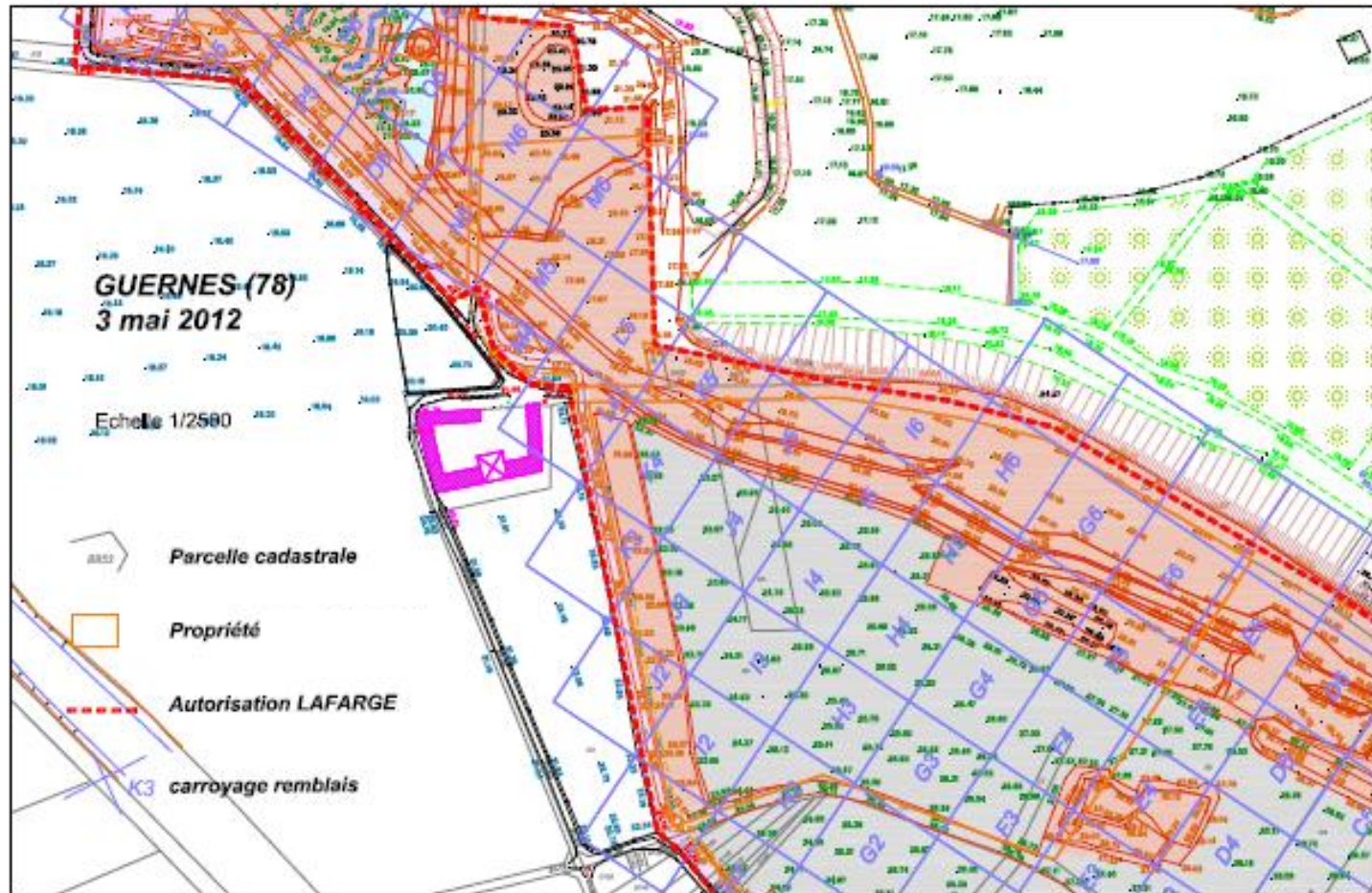
Building the process – Inert waste phase

- ❑ Manage the chain of construction and demolition, check origin of every lot, assess the waste are inert
- ❑ Locate the place where each lot of construction and demolition is dumped
- ❑ Use a grid and develop a semi permanent geometric check to insure the depth/height and future shape (at ground level) of topsoil will be properly achieved

Building the process – Topsoil phase

- Draw back the topsoil previously on the bund
- Check the material : granularity, size limit for stones (“plough compliant”)
- Check the agronomic quality of full cultural profile
 - Mineral analysis
 - Soil Structural assessment

Map with location grid for C&D inert wastes dumping



A key point : traceability

- Assess the origin of construction and demolition waste
- Quality assurance :
 - demolition process will absolutely separate inert waste from other wastes (metals, earth...),
 - Demolition and transport are
- Keeping information : keep a file of evidence (where does inert waste in square x,y come from)

Feed back :

- Agricultural remediation is a genuine sustainable remediation
 - Economic results will be a precise indicator of the accuracy of that process
- A minor set back : loss of part of tracked information, to be replaced by historical interpolation
- A process fairly different from nature and wildlife aimed remediation
 - Organisation needs more steps and actors

Expected results Sustainability assessment

- Agriculture driven remediation is both an ecological and economic challenge which lays upon further evidence of sustainability
- Demonstrating a sustainability gain builds trust and therefore support from stakeholders :
 - Other land owners, agreeing to go on with for further projects
 - Public regulator, confident in the operating ability of the operator
- So providing sustainable remediation greatly improves the chances of agreement between all stakeholders, and an acceptable and durable decision allowing quarrying and farming to live together.

Now, time for questions
