



Rialtas na hÉireann
Government of Ireland



Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Irish Construction Materials

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March 2026

Aggregate Demands

- 12 tonnes aggregates per capita per annum
- 1 billion tonnes of aggregates needed to 2040
- ~61% Replenishment rate



Cost of poor quality aggregates



An Bord Réitigh um Pirít
Pyrite Resolution Board

- 2,851 houses
- €196 million (*end 2024*)
- Pyrite Remediation Scheme will close for submission of applications on 30th November 2026
- Dun Laoghaire-Rathdown, Fingal, Kildare, Meath, Offaly, Limerick, Westmeath, South Dublin CoCo, & Dublin City

Defective Concrete Blocks Grant Scheme

- €2.2 billion (*Sept 2025*), current total spend since June 2020 is €250.3m
- Cap of €462,000
- 3135 applications (*Dec 2025*)
- Remediation options range from rebuild outer leaf and affected walls only to demolish and rebuild entire dwelling
- Clare, Donegal, Limerick, Mayo, Sligo



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage



Support Market Surveillance Authorities

- State's geologists
- Trained and competent to assess raw geological materials
- Respond to MSA requests
- Not Market Surveillance or Authorised Officers
- Can make 'reasoned requests'

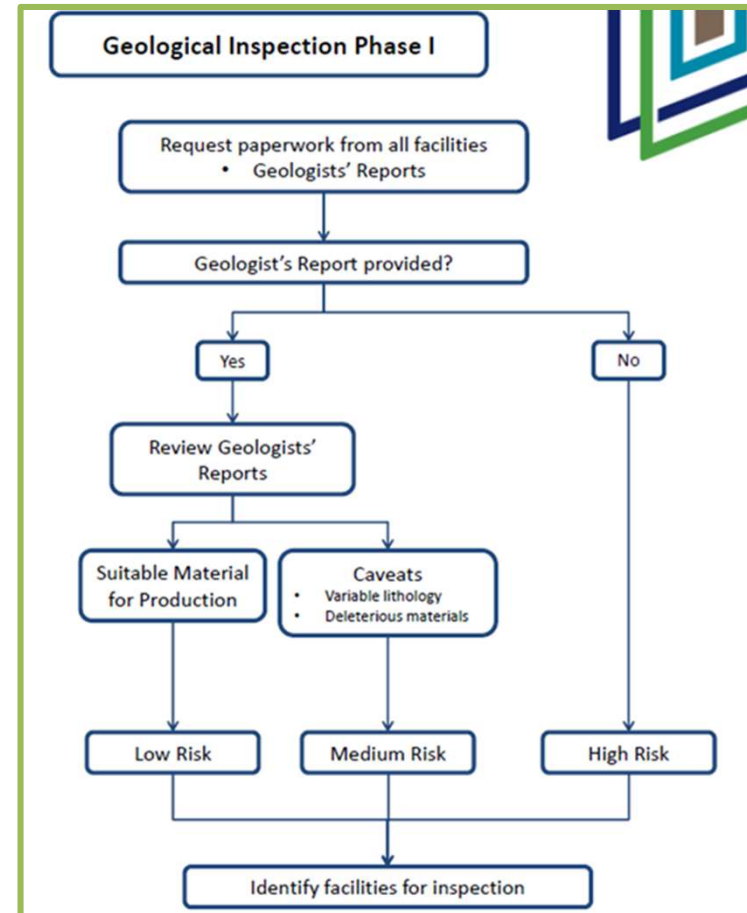
Support Market Surveillance Authorities

3 Phase Risk Assessment

1. Review of Geologist's Report
2. Site Visit
3. Analysis of samples



Submission of Report to MSA





Competent National Authority

- 8th January 2026: S.I. No. 669/2025 - European Union (Construction Products) Regulations 2025
 - All LA's are Competent National Authorities
 - Minister for Climate, Energy and the Environment: Product Code 24 (aggregates)
 - Overlap with TII
- Various NSAI Technical Committees
 - I.S. EN 12620: 2002 + A1 2026
 - I.S. 465 The Remediation of Dwellings Damaged by the Use of Defective Concrete Blocks Act 2022 under review
 - Defective Concrete Block Steering Group

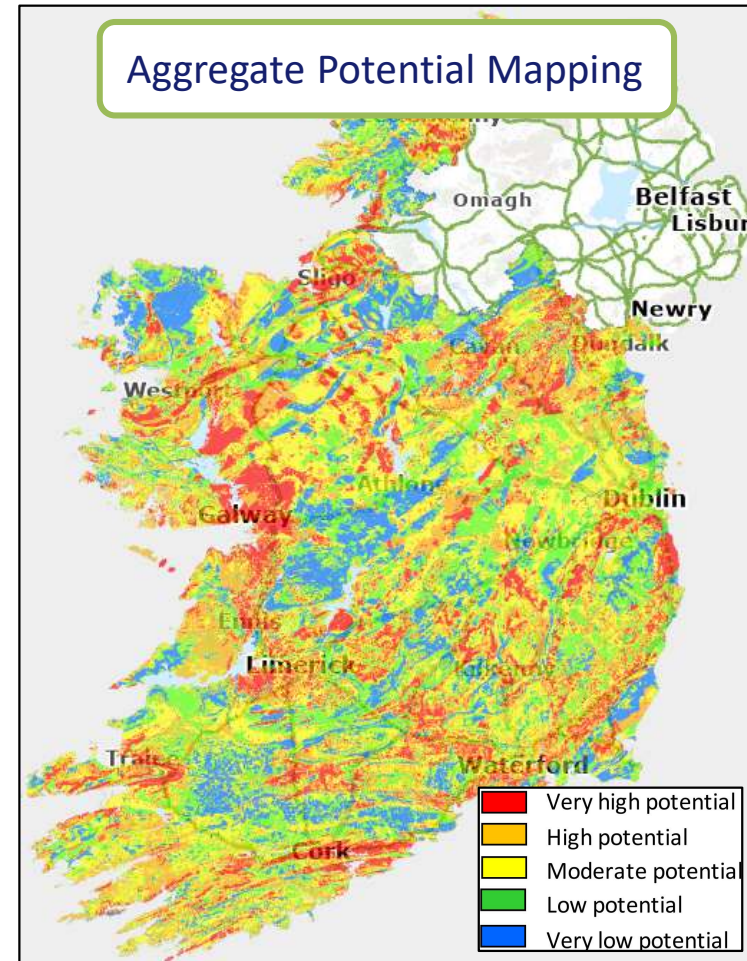
National Register of Extractive Industries

- Single, regularly updated, national quarry register
 - National quality checks
 - Up to date mapping of sites

Quarries & the Local Authority Development Plan, OPR Case Study Paper CSP07

- Supply & demand
- Avoid sterilisation of resources

How many quarries there are in the country and what do they produce?

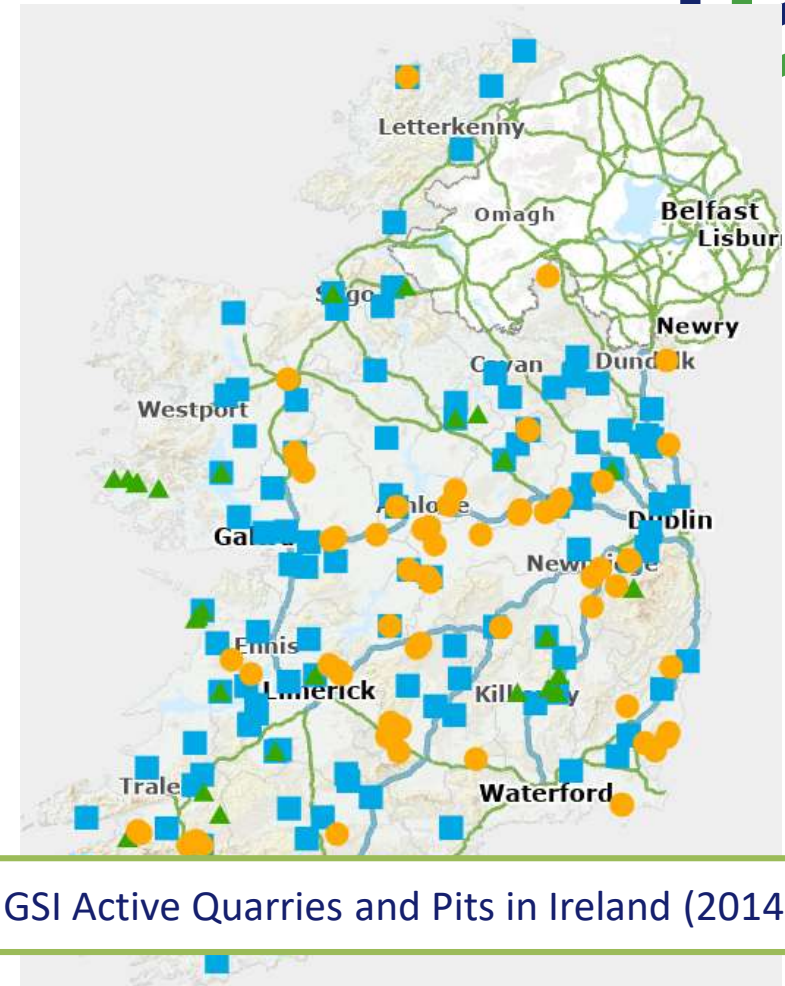


National Register of Extractive Industries

Sources

- EPA's Extractive Industries Register
- Local Authority Development Plans
- HSA Database
- S261/S261A Registers
- Directory of Active Quarries and Pits in Ireland (2014)
- NMSO Database

How many quarries there are in the country and what do they produce?



GSI Active Quarries and Pits in Ireland (2014)

National Register of Extractive Industries

- Collating known registers
- Contacting all producers of certified aggregates material
- Site visits / ground truthing



An tArdán Aire,
 Fuinnimh agus Comhshaoil
 Department of Climate,
 Energy and the Environment

Aggregate Production Site Information Form

Site Details	
Site Name	
Site Address	
Eircode	
Telephone Number	
Email Address	
Site Manager / Contact Person	

Production Details
(Please tick all below materials produced at the above-named site)
☐ EN 12620 / SR 16 - Aggregates for concrete
☐ EN 13043 / SR 17 - Aggregates for bituminous materials
☐ EN 13139 / SR 18 - Aggregates for mortars
☐ EN 13242 / SR 21 - Aggregates for unbound and hydraulically bound materials
☐ EN 13450 - Aggregates for railway ballast

Additional Notes (Optional)

Declaration
I confirm that the information provided above is accurate to the best of my knowledge.
Name: _____
Position: _____
Date: _____
Signature: _____



Defective Concrete Blocks

- Recent estimates: 9,500 public and private dwellings affected
- 6,500 Donegal, 1,100 Co Mayo, 860 Co Clare, 700 Co Limerick, 300 in Co Sligo
- 2017 Expert Panel on Concrete Blocks
- 2020 Defective Concrete Block Scheme Established
- Questions remained





$\text{KAl}_2(\text{AlSi}_3\text{O}_{10})$
Mica

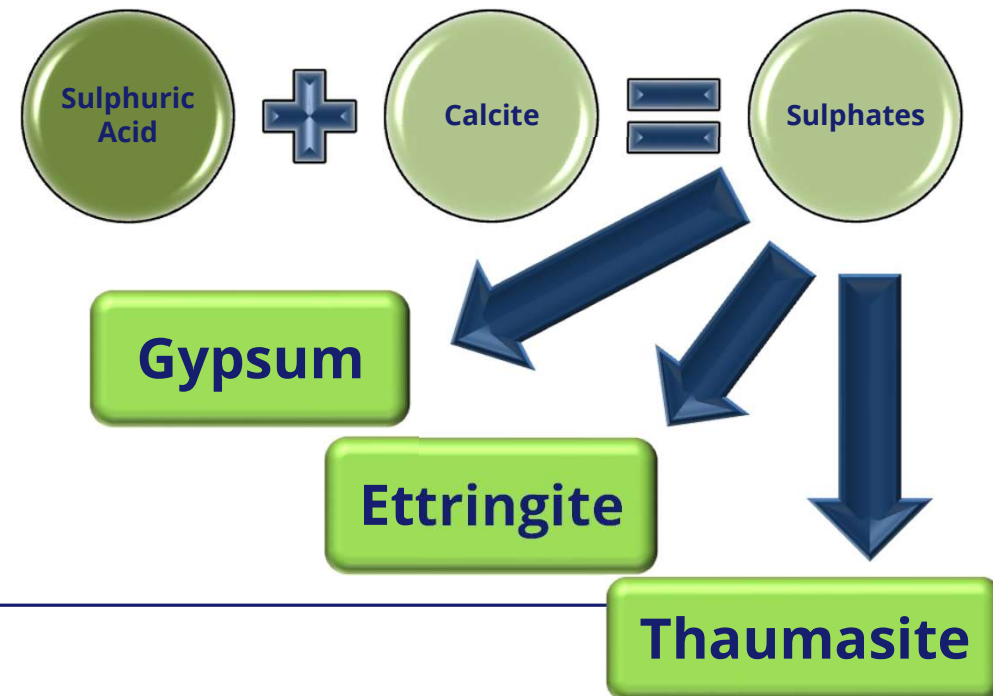
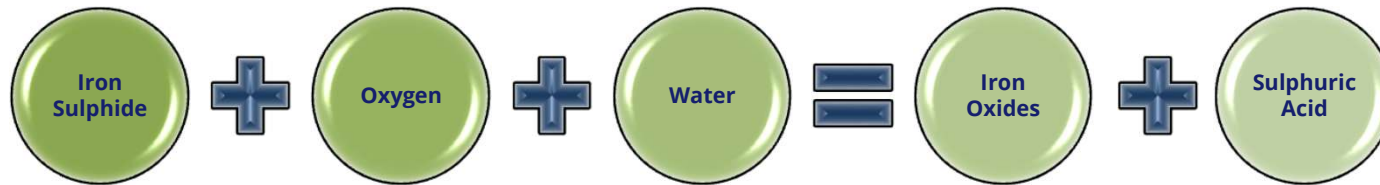


$\text{Fe}_{(1-x)}\text{S}$
Pyrrhotite



FeS_2
Pyrite

Basics of Internal Sulphate Attack



Research Questions

Two project teams funded to answer;

1. Long term performance of concrete blocks
2. Oxidation potential of pyrrhotite
3. Risk of oxidation occurring in Ireland
4. Effects of oxidation on the blocks
5. Risk of retention

Defective property with a characteristic expansive crack along the corner, image taken February 2024 from a property constructed in 2005. A. Leemann et al.

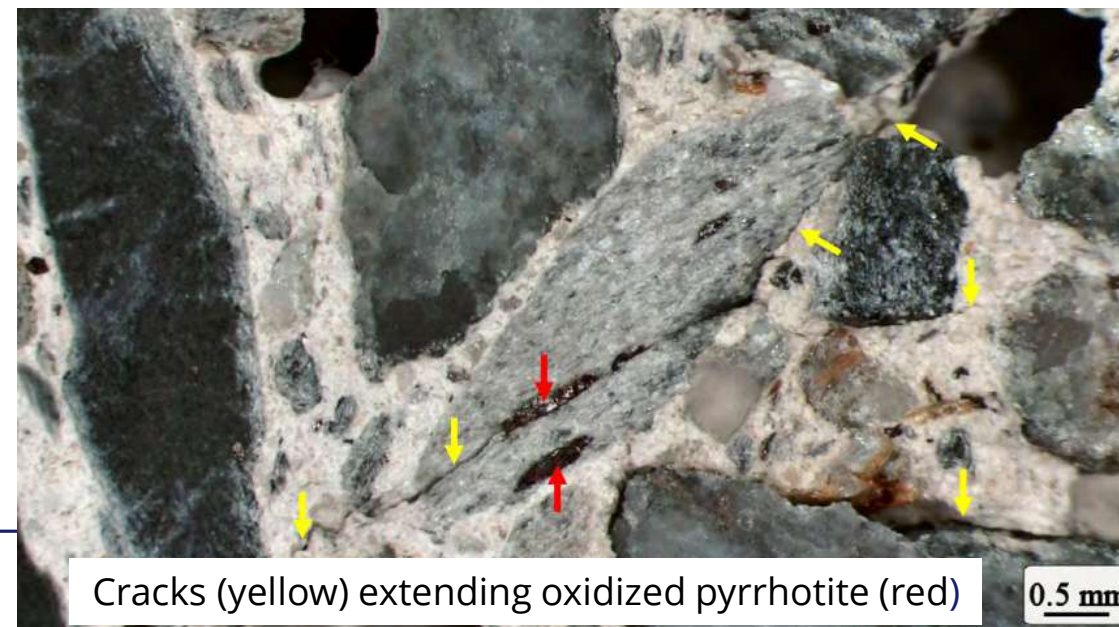
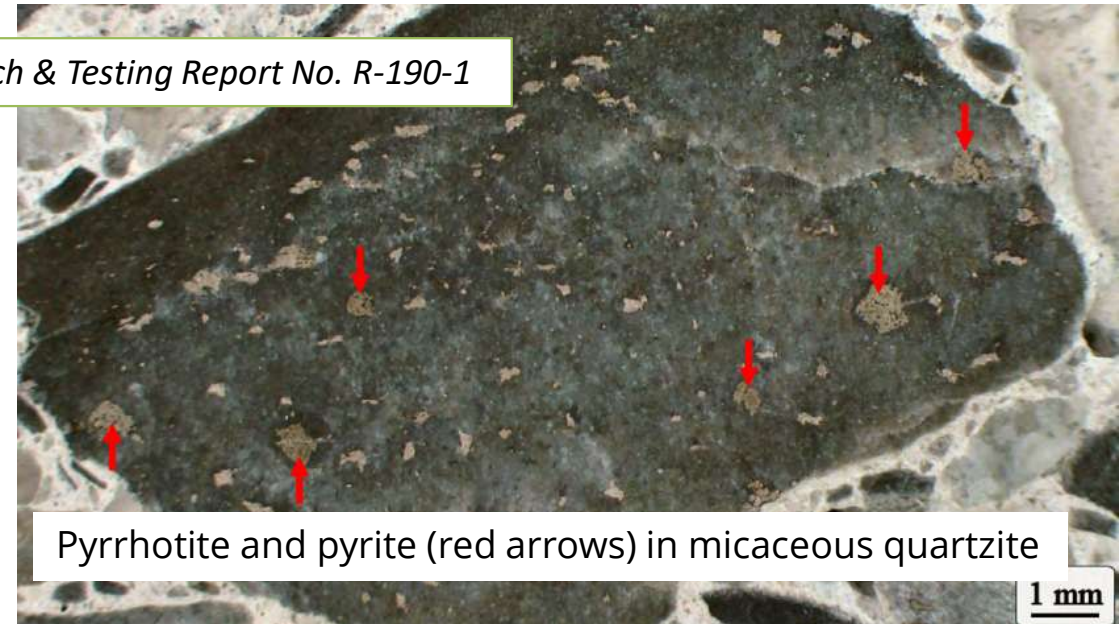
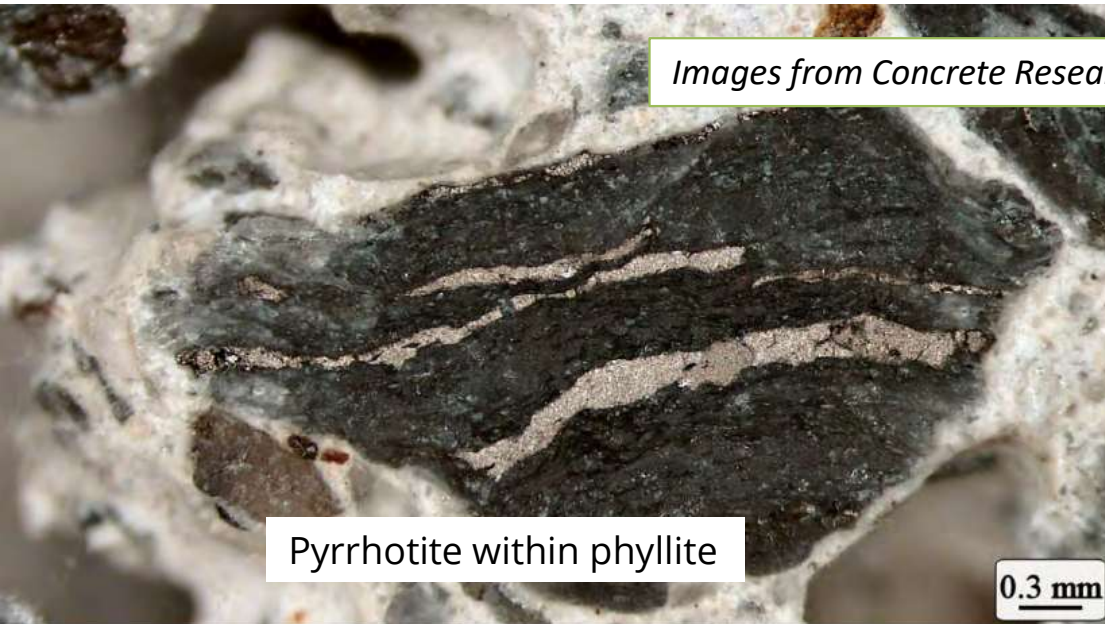


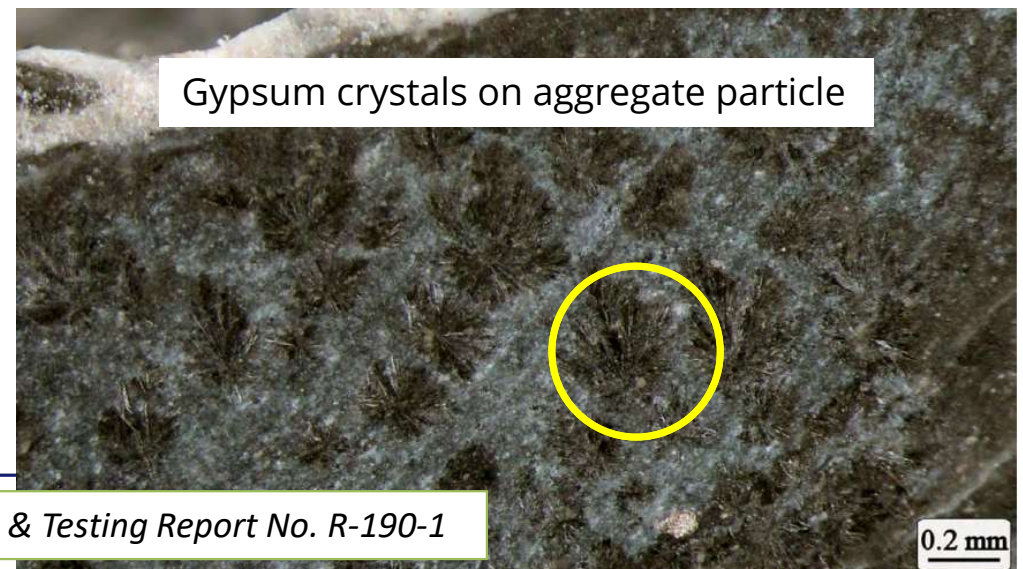
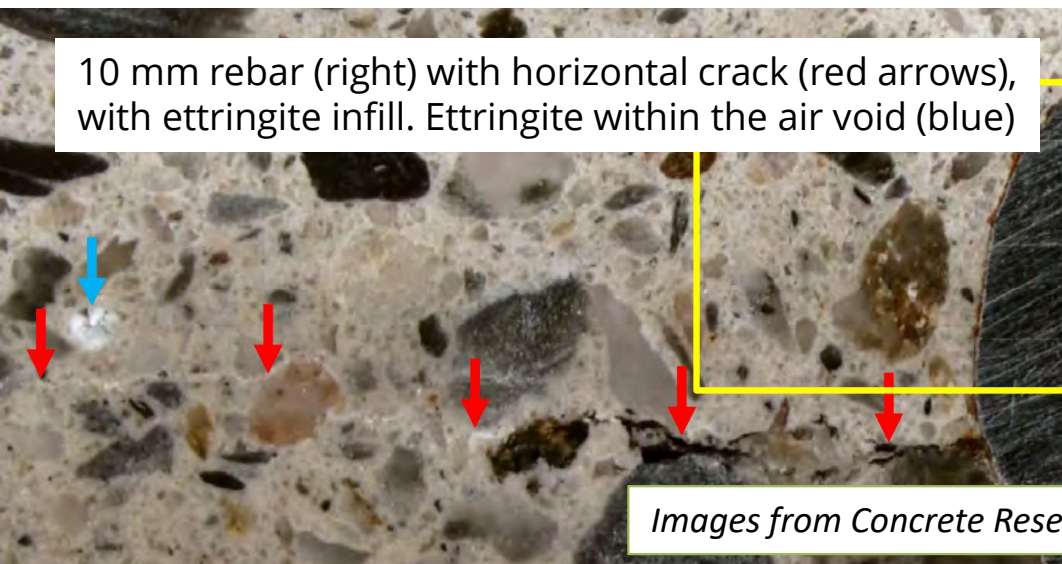
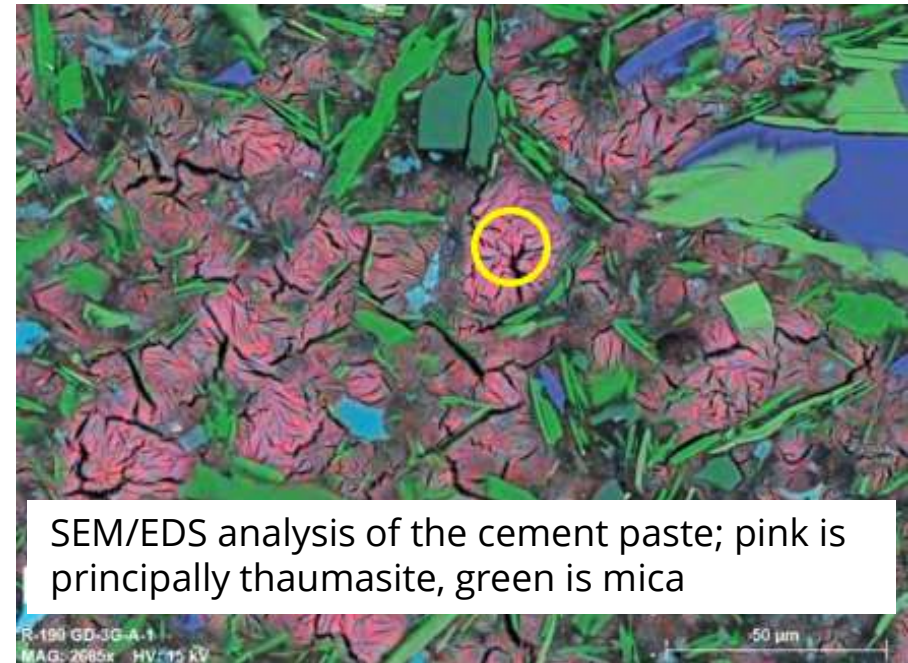
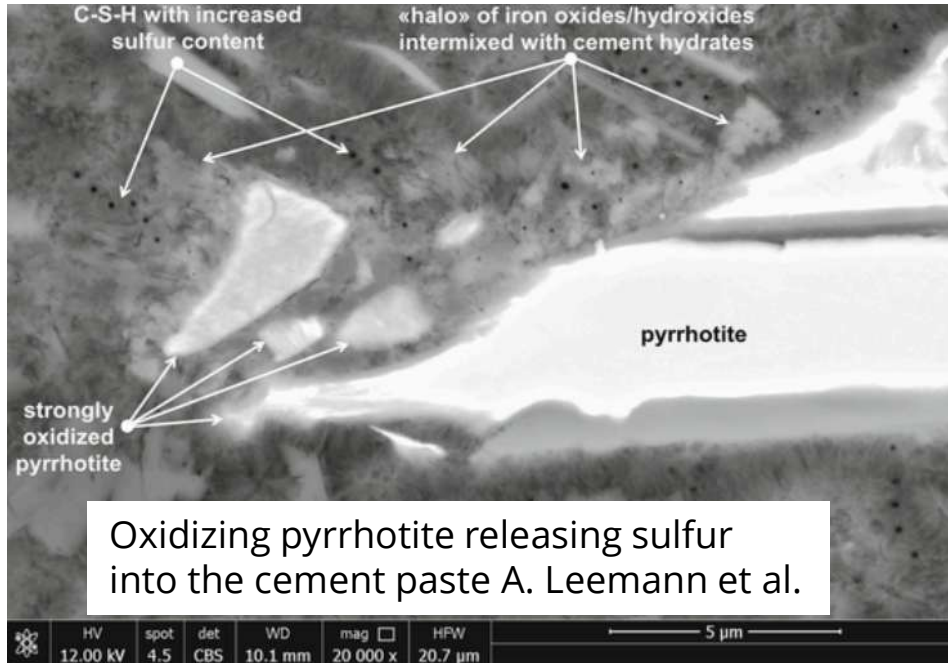
Sampling Process



Images from Concrete Research & Testing Report No. R-190-1









Reasons for deterioration

1. Oxidation of pyrrhotite triggering ISA
2. High mica content of aggregates leading to excessive permeability

- Concrete quality of the blocks is low
- Concrete of damaged homes have high mica contents
- Aggregates of damaged homes have significant amounts of iron sulphides
- Iron sulphide in aggregates of damaged homes is mainly pyrrhotite
- Phyllite aggregate used is a poor quality aggregate

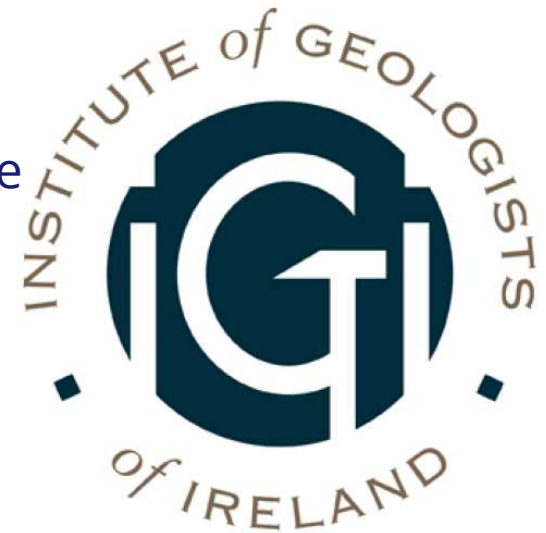
Geologist's Role

3 Aggregate Standards Require a Professional Geologist

- I.S. EN 12620: 2002 + A1 2026 - Aggregates for concrete
- I.S. EN 13139:2002 - Aggregates for mortar
- I.S. EN 13242:2002+A1:2007 – Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction

What is a Professional Geologist?

1. Listed as a Professional Member of the Institute of Geologists of Ireland
2. Competent Person; sufficient training, experience and knowledge appropriate to nature of the work
3. Established record of a minimum of 5 years of practical assessment of geological resources, with experience of quarries and aggregate deposits, and assessment of aggregates for proposed end-use suitability
4. Specialist Register [Pyrite-Register July-2025.pdf](#)





Knowledge of the raw material

- Geological assessment of the quarry; identify and map the main lithologies and their relative proportions within the quarry
- Change in lithology
- Maps: location and extraction plan
- A petrographic examination to determine the presence of potentially deleterious material

Do they understand the deposit given all the information available?



Knowledge of the aggregate product



- Take representative samples
- Identification of main mineralogy's, their relative proportions and distribution
- Ensure chemical and physical properties of product are compliant with standard requirements
- Petrographic assessment if required
- Statement of compliance for the proposed end use

Do they understand how the aggregate is likely to perform?





Summary

Competent National Authority

Available to assist with MSA queries

National Register of Extractive Industries

Site inspections

Research development's



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Thank you

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