

# MHS PROJECT MANAGEMENT SERVICES

## PREQUALIFICATION DOCUMENT



## Applications

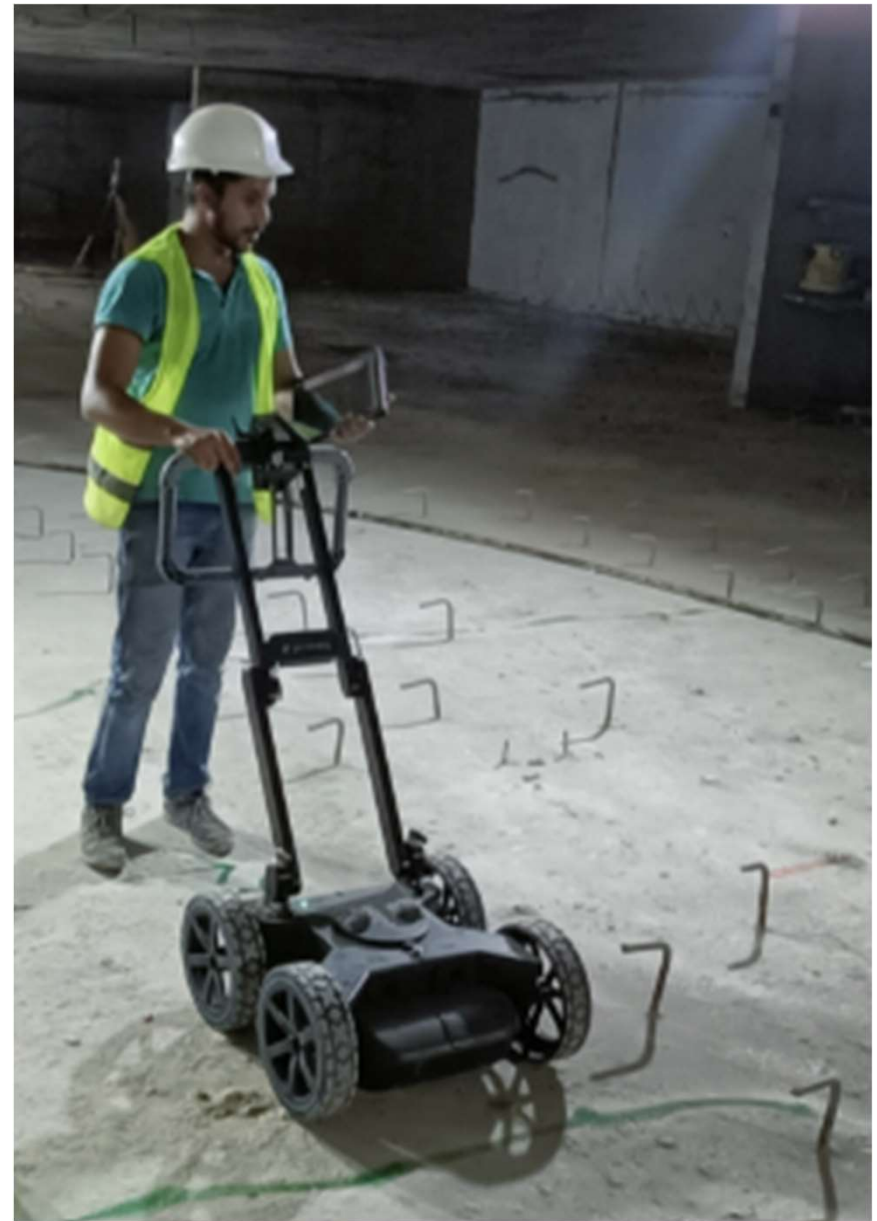
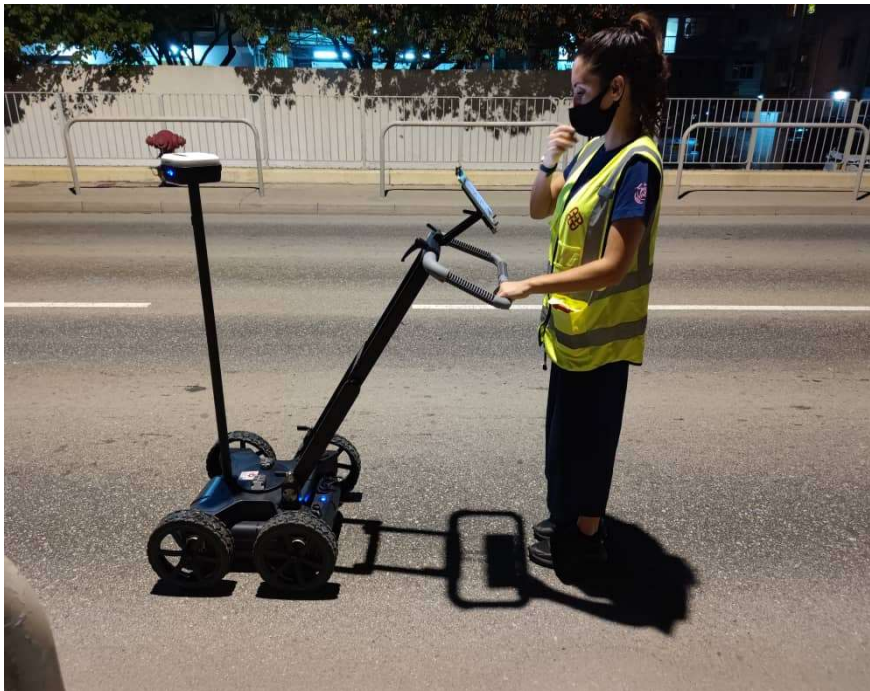
Utility Mapping (+ cavities and water leakage)

Civil Structures

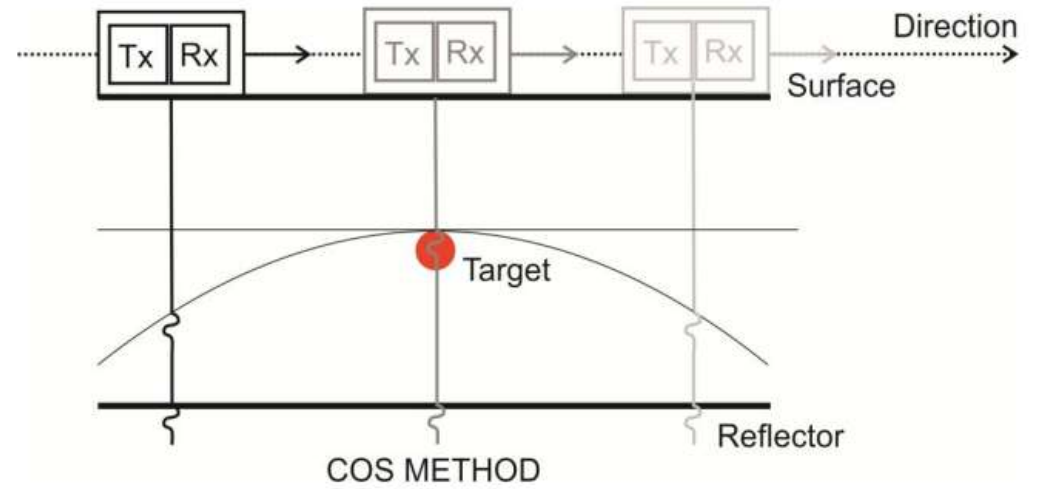
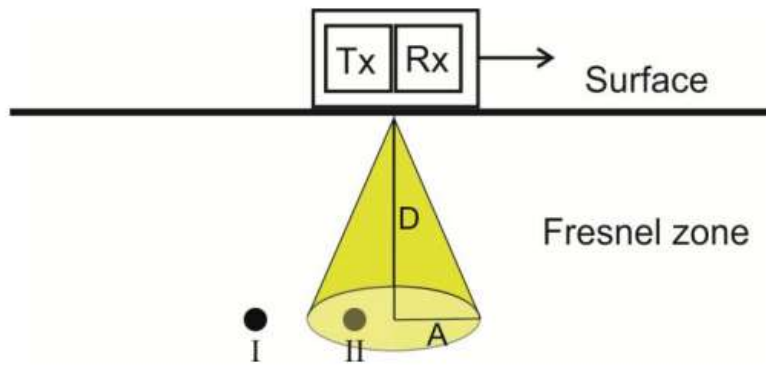
Heritage

Archaeology

Geology / Water table



# GPR Theory



(Conyers and Goodman, 1997)

## GPR equipment



### Sensors

Radar technology	Stepped-Frequency Continuous-Wave GPR
Modulated frequency range <sup>2</sup>	40 – 3440 MHz
Effective bandwidth	3200 MHz



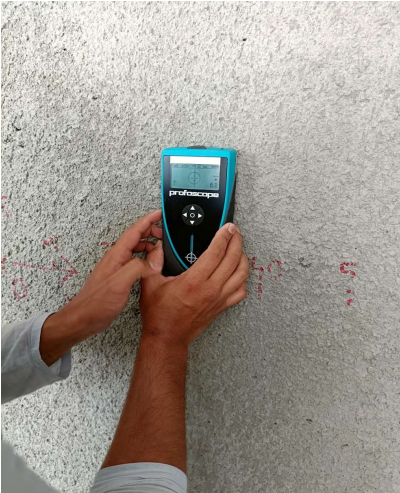
2.4 GHz antenna

High accuracy GPS  
Total Station





# GPR equipment





GPR equipment





## UTILITY SURVEYS ACCORDING TO PAS128



# The problem

## Utility Vault Explodes Near Union Square, Shutting Down Several Streets

BY [JAY BARMANN](#) IN [NEWS](#) ON [MAY 19, 2017 2:20 PM](#)

An underground utility vault, the kind that [occasionally explodes and sends a manhole cover flying](#), exploded this morning at 9:40 a.m. at the intersection of Mason and Cyril Magnin Streets, near Union Square. [The Examiner reports](#) that PG&E arrived at the scene and that several streets were blocked off as a result, but the incident did not lead to any power outages in the area.

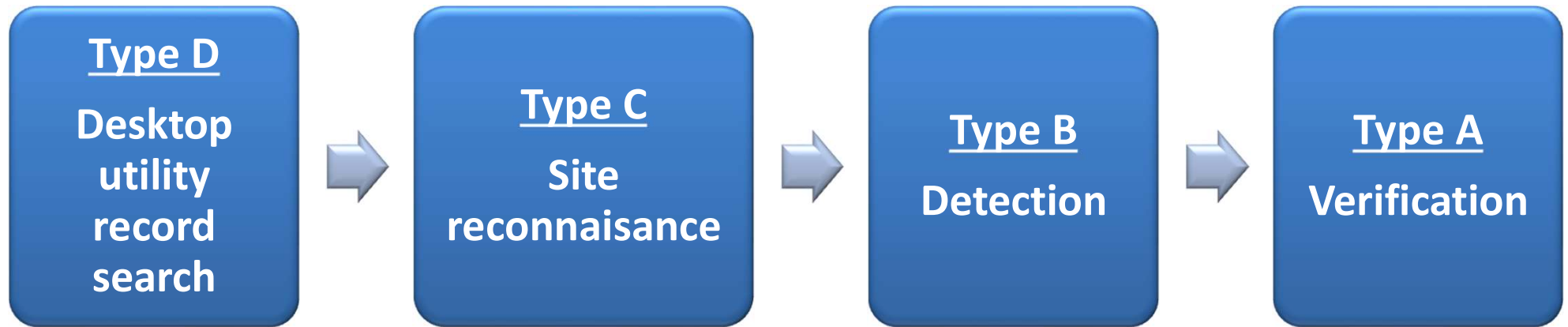
San Francisco Police Sgt. Frank Fagan told the paper that the streets were blocked as a precaution because "These manholes covers are very heavy... [and] they could blow off."

SF had a spate of [exploding manholes](#) for several years, the most recent incident we reported on here having been in [August 2016](#).





# Survey Type



# Type D

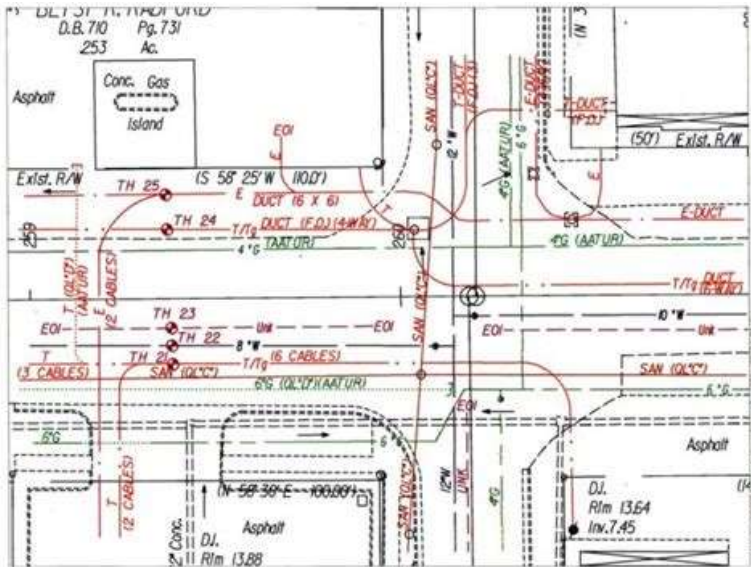
## Desktop Utility Record Search

- a) Identify known utility owners with the area
- b) Request asset information from identified utility owners
- c) Collate all data on utility owners and their assets

Water



Electricity



Gas



## Type C - Site reconnaissance

On-site checks shall document

- a) The presence, type and markings of utility-related surface features
- b) Measurements between known Surface features on the ground and compare to plans
- c) Differences between the map/drawing or digital features supplied and their extent





## Type B - Detection

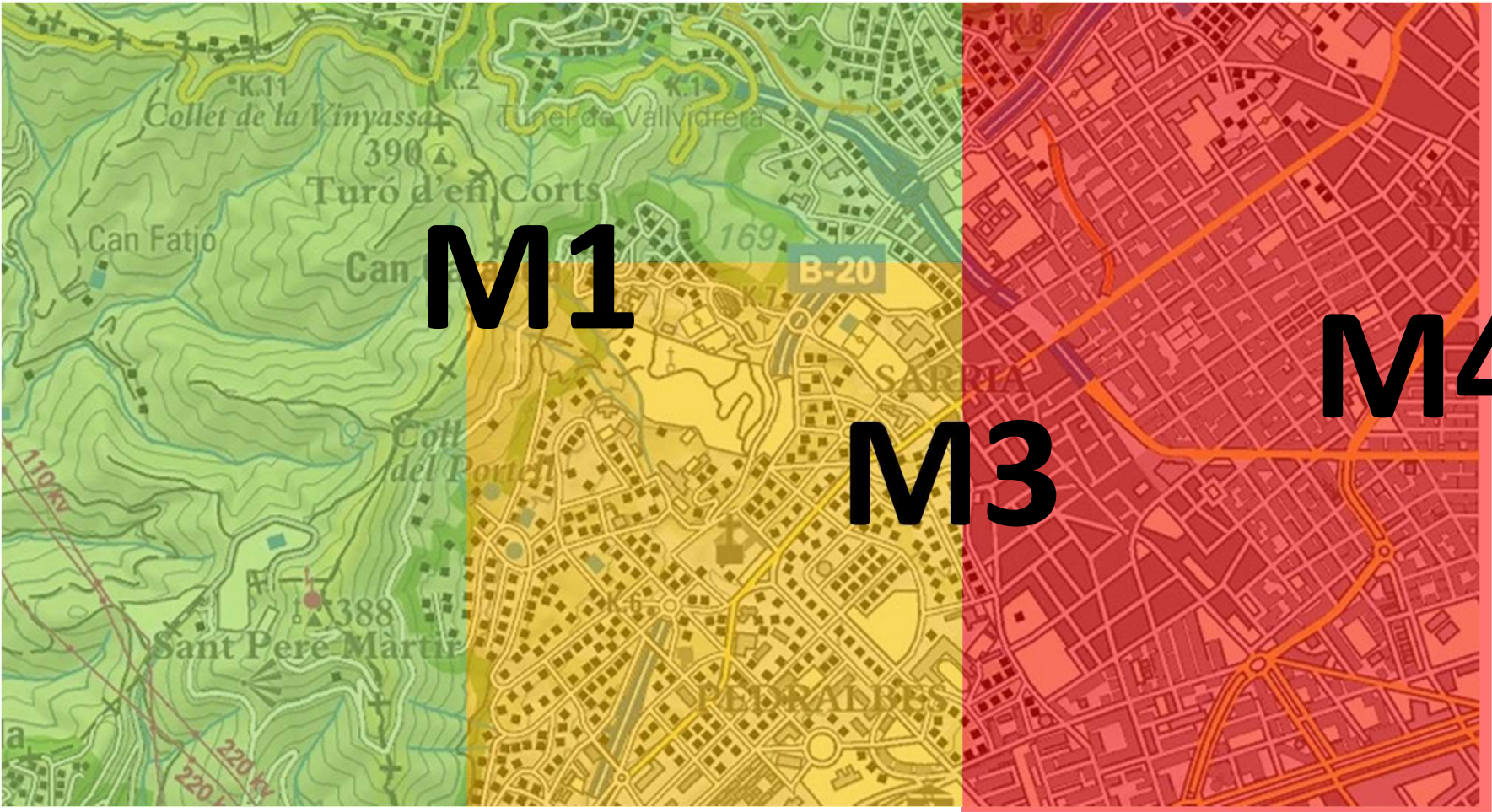
- a) Use geophysical techniques to detect and identify utilities within the area
- b) The quality level (accuracy) achieved shall be documented as QL-B1, QL-B2, QL-B3, QL-B4
- c) If Post-processed, add suffix P



# Methods

Typical Application	Quality Levels (achievable)	Survey Grid				METHOD
		Other Techniques	GPR		EML	
			Post-process	General		
Greenfield/Undeveloped	B1,B2,B3,B4	< 5m Grid	No	Use as applicable	Grid<10m  Trace-5m	M1
	B1P,B2P,B3P		Yes			M1(P)
Suburban area	B1,B2,B3,B4	< 5m Grid	No	< 2m  Orthogonal	Grid<5m  Trace-2m	M2
	B1P,B2P,B3P		Yes			M2(P)
Busy urban area or small scale clearance	B1,B2,B3,B4	< 5m Grid	No	< 1m  Orthogonal	Grid<2m  Trace-1m	M3
	B1P,B2P,B3P		Yes			M3(P)
Congested city areas- areas with high density of services	B1,B2,B3,B4	< 5m Grid	No	< 0.5m  Orthogonal	Grid<2m  Trace-0. 5m	M4
	B1P,B2P,B3P		Yes			M4(P)

# Methods





## Type A - Verification

Data shall be obtained through visual inspection of the utility

- a) at access points such as in a manhole or inspection chamber
- b) by its excavation and exposure



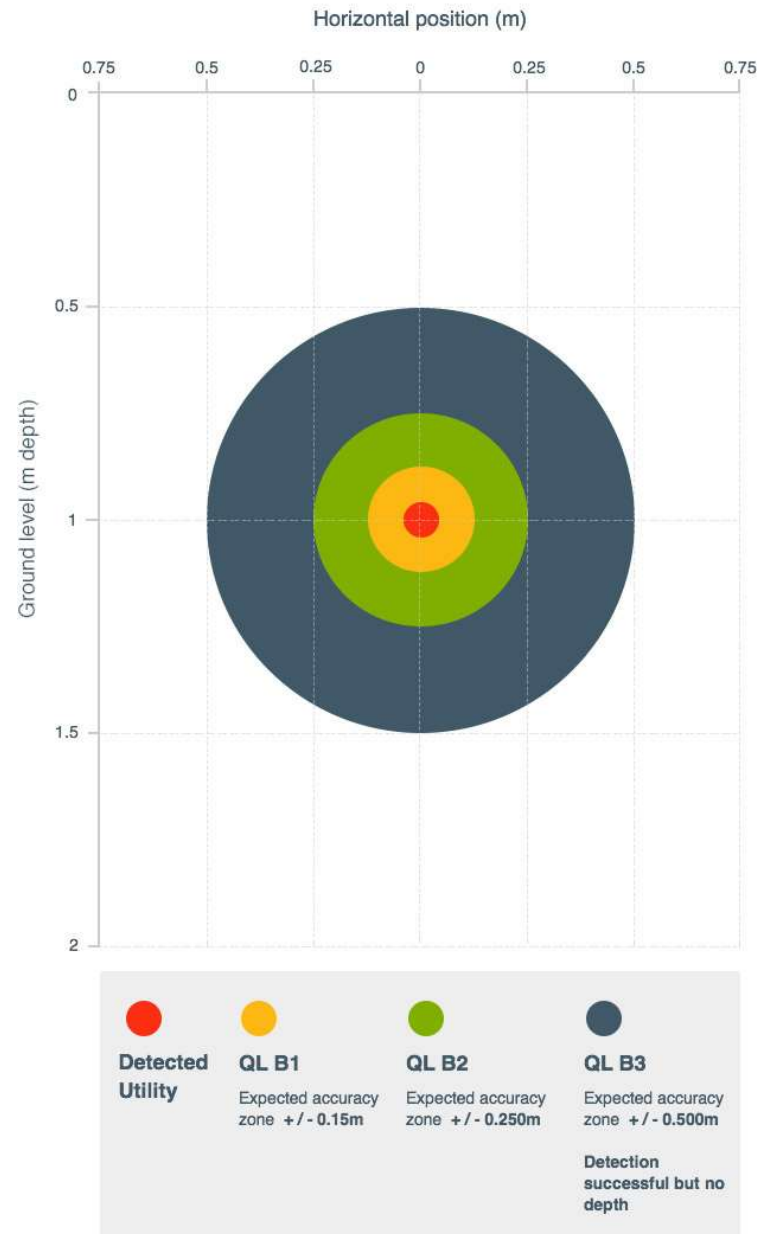
# QL – QUALITY LEVEL

Supporting Data	Location Accuracy		Post Processing	Quality level (Practitioner to determine post survey)	Survey type (Establish with client prior to survey)	
	Vertical	Horizontal				
—	Undefined	Undefined	-----	QL-D	Desktop utility records search	D
A segment of utility whose location is demonstrated by visual reference to street furniture ,topographical features or evidence of previous street works (reinstatement scar	Undefined	Undefined	-----	QL-C	Site reconnaissance	C
A utility segment which is supposed to exist but has not been detected and is therefore shown as an assumed route	Undefined	Undefined	No	QL-B4	Detection	B
Horizontal location only of the utility detected by one the geophysical techniques used	Undefined  (No reliable depth measurement possible)	± 500mm	No	QL-B3		
			Yes	QL-B3P		
Horizontal or vertical location of the utility detected by one geophysical techniques used	40% of detected depth whichever is greater	± 250mm or 40% of detected depth whichever is greater	No	QL-B2		
				QL-B2P		

Horizontal or vertical location of the utility detected by multiple geophysical techniques used	15% of detected depth whichever is greater	± 150mm or 15% of detected depth whichever is greater	No	QL-B1		
			Yes	QL-B1P		
Horizontal or vertical location of the top and/or bottom of the utility.	± 25mm	± 50mm	-----	QL-A	Verification	A



# Accuracy level



# Delivery reports



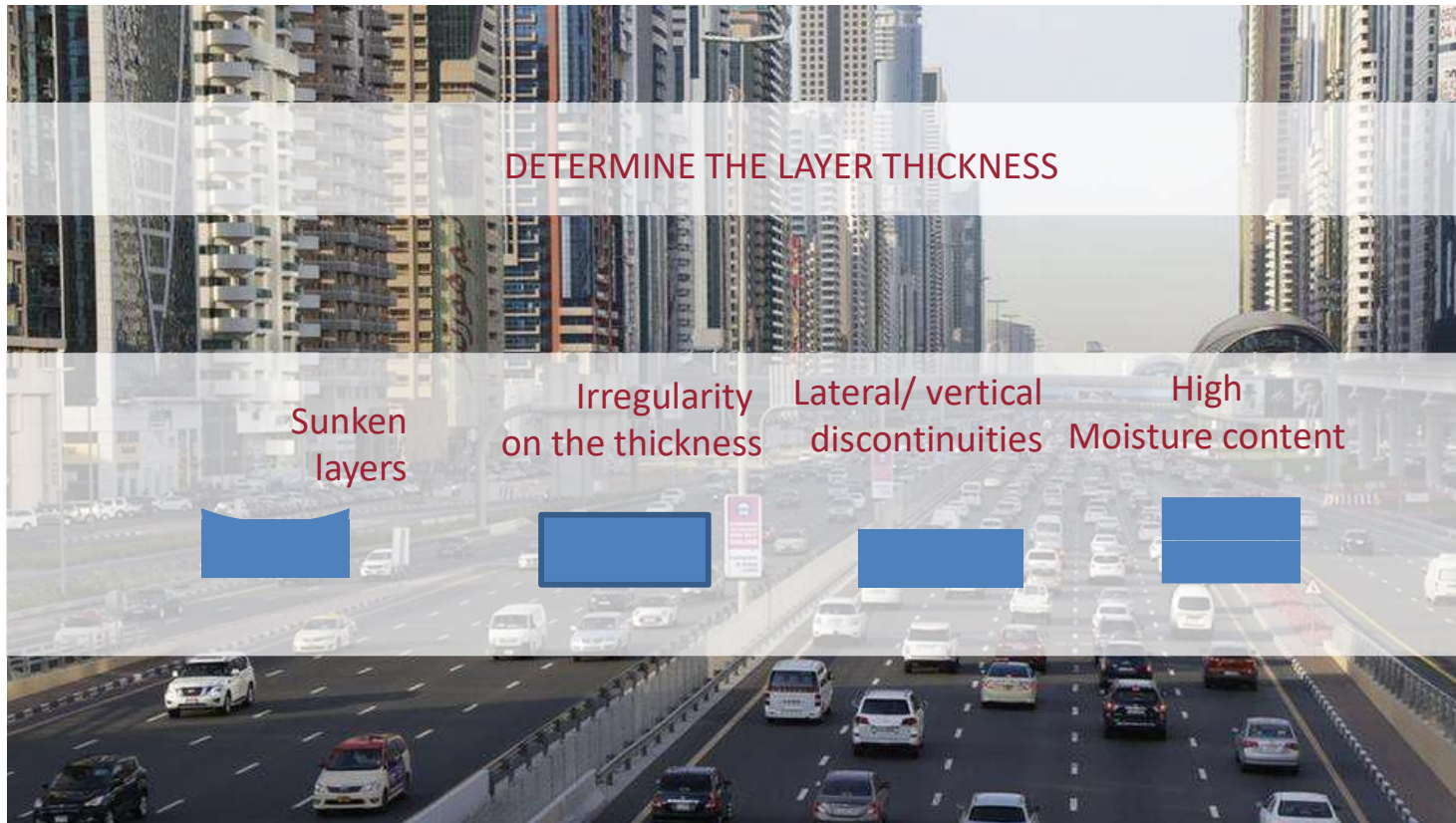
# HIGHWAYS AND BRIDGES

## From a geophysical perspective

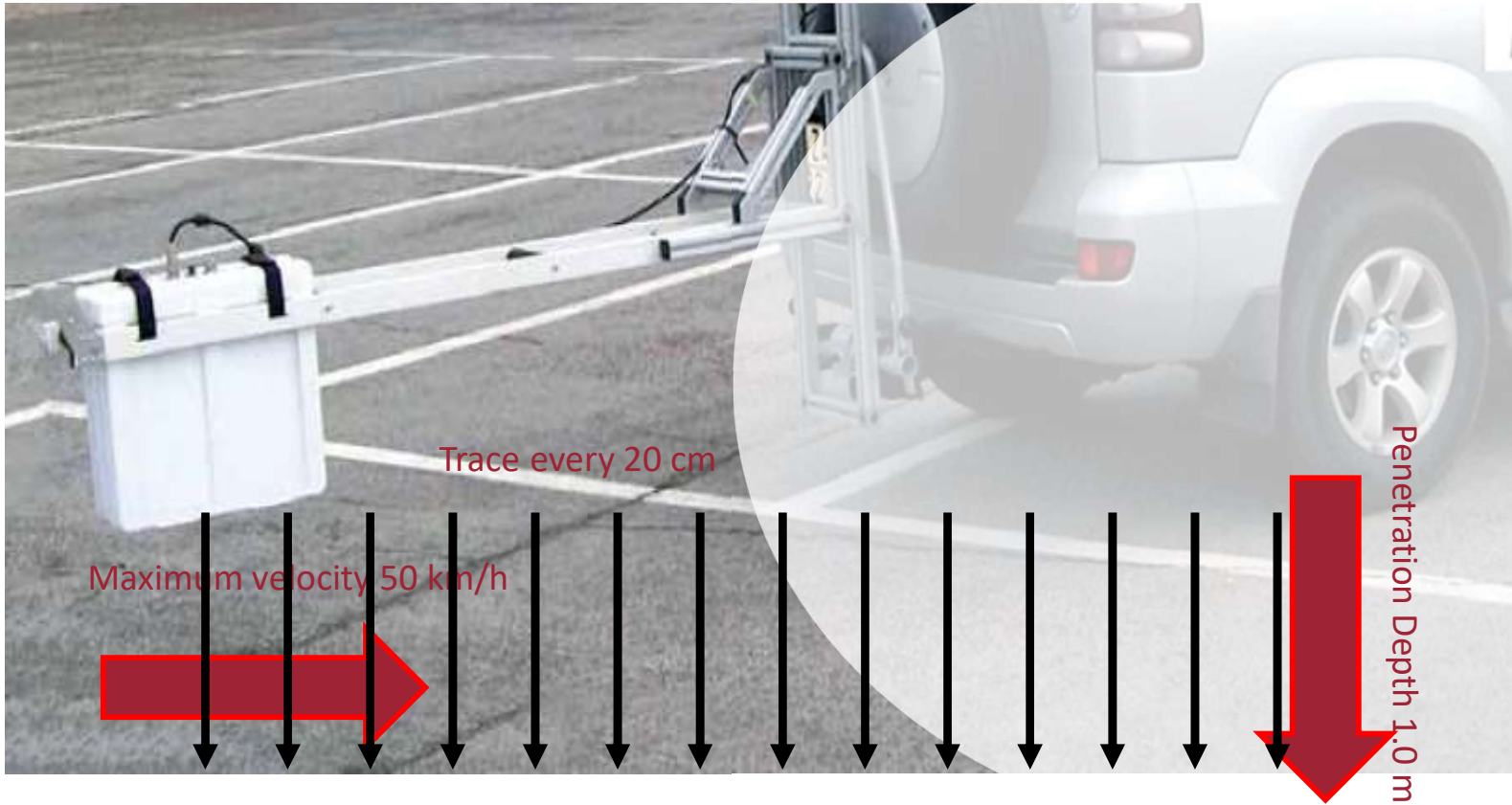




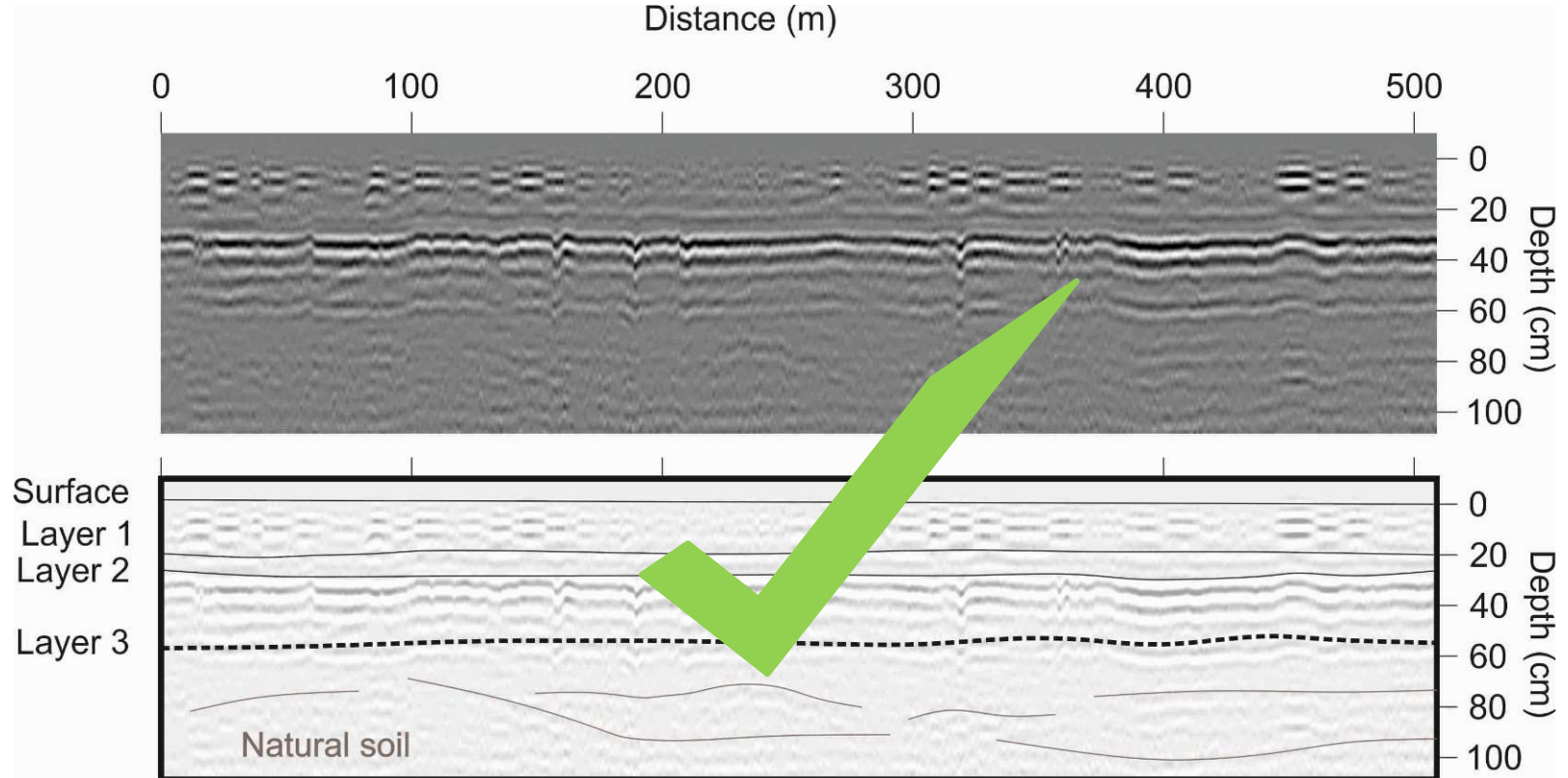
# Objective



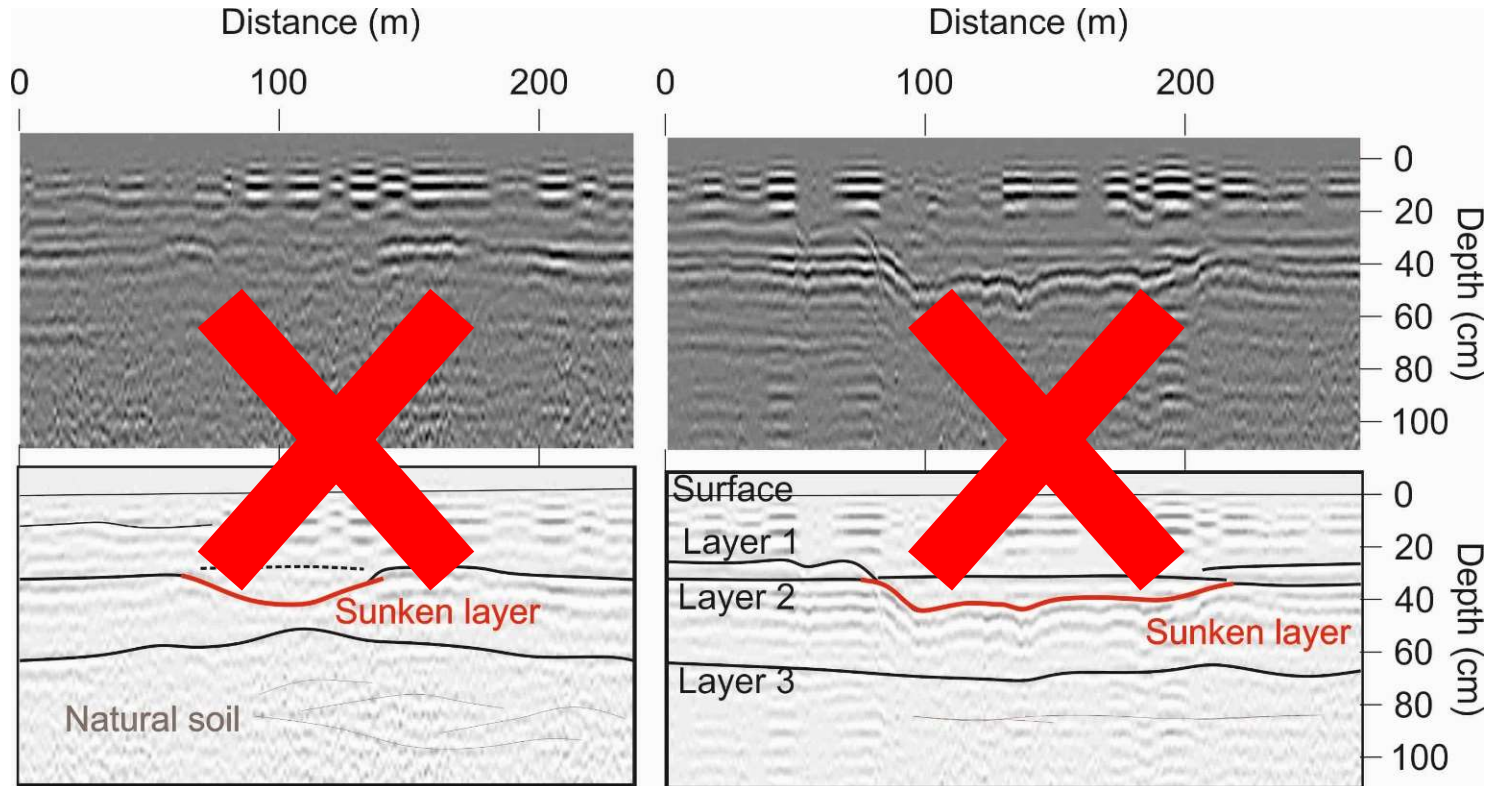
# Survey



# Highways

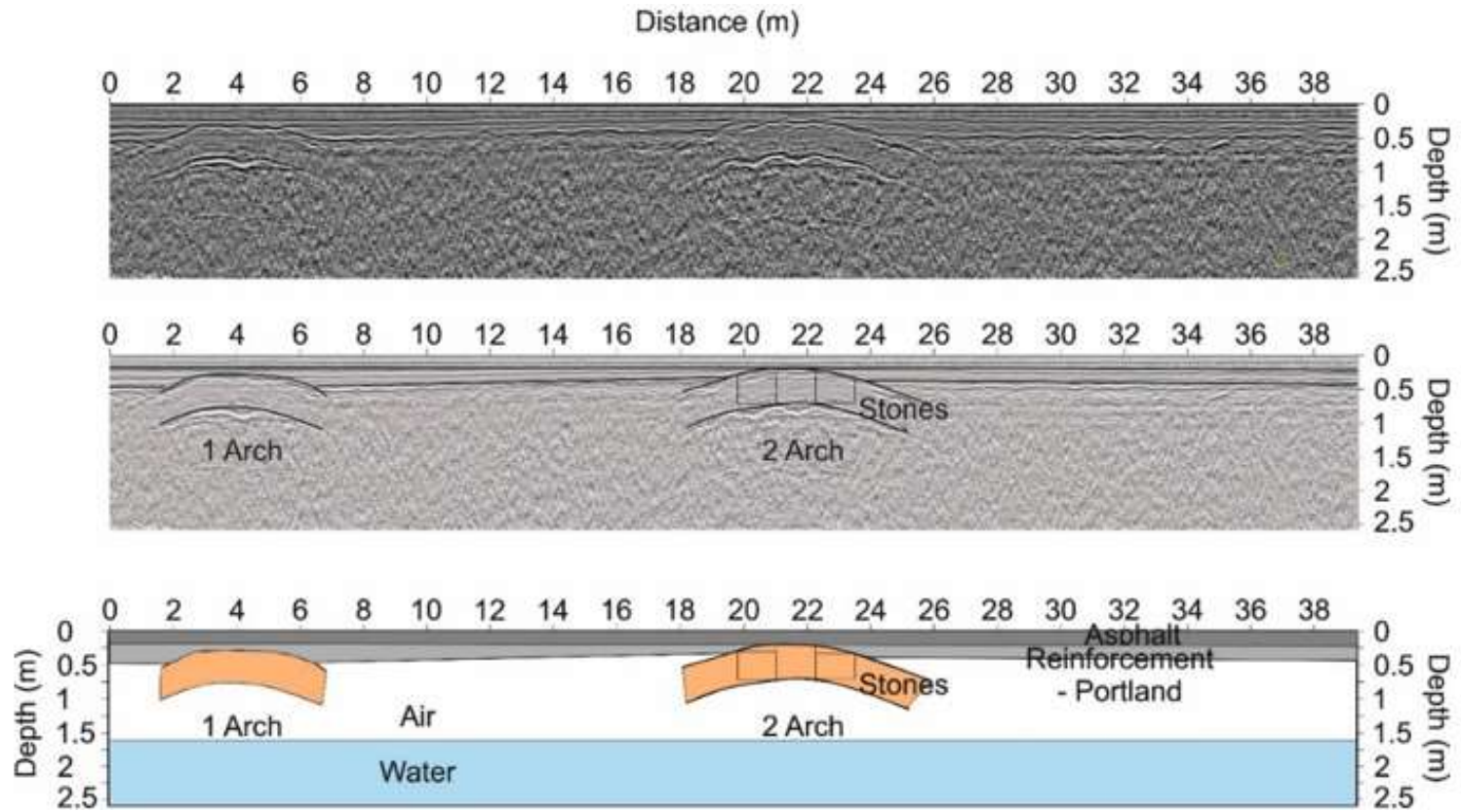


# Highways

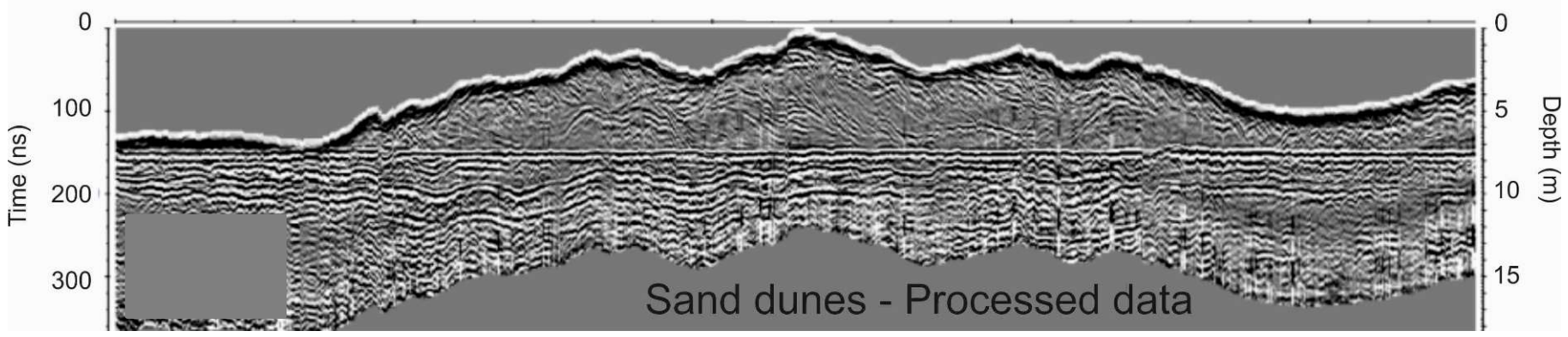
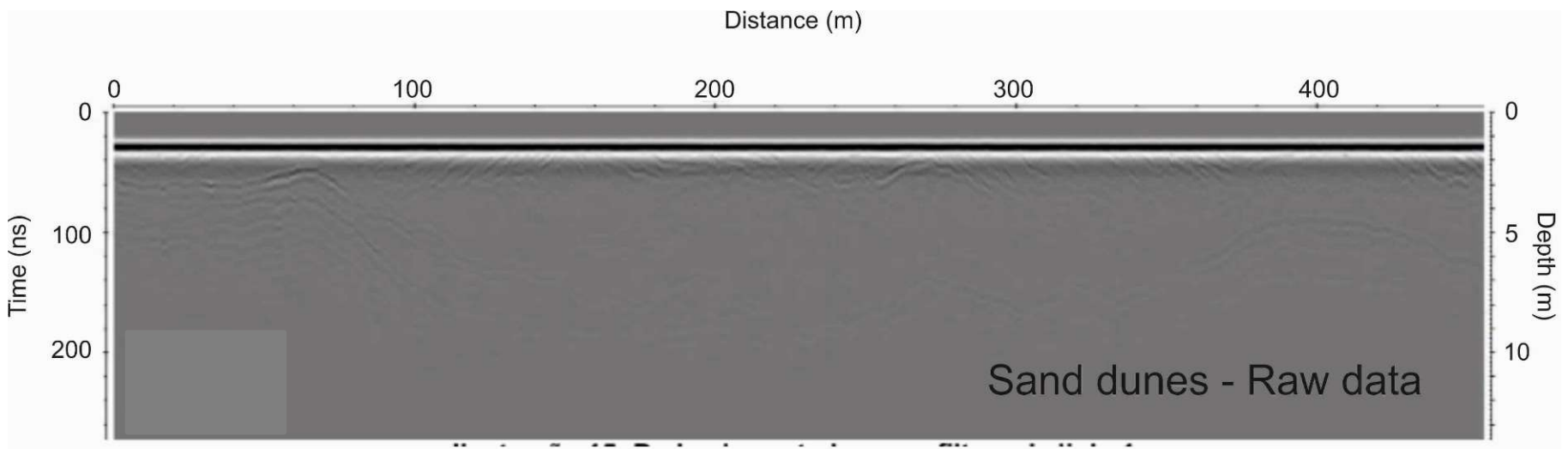




# Bridges



# Sand Dunes





# Objective

**Building Structural Maintenance (regular)**

**Add-on Weight**

**Lack of plans - HERITAGE**



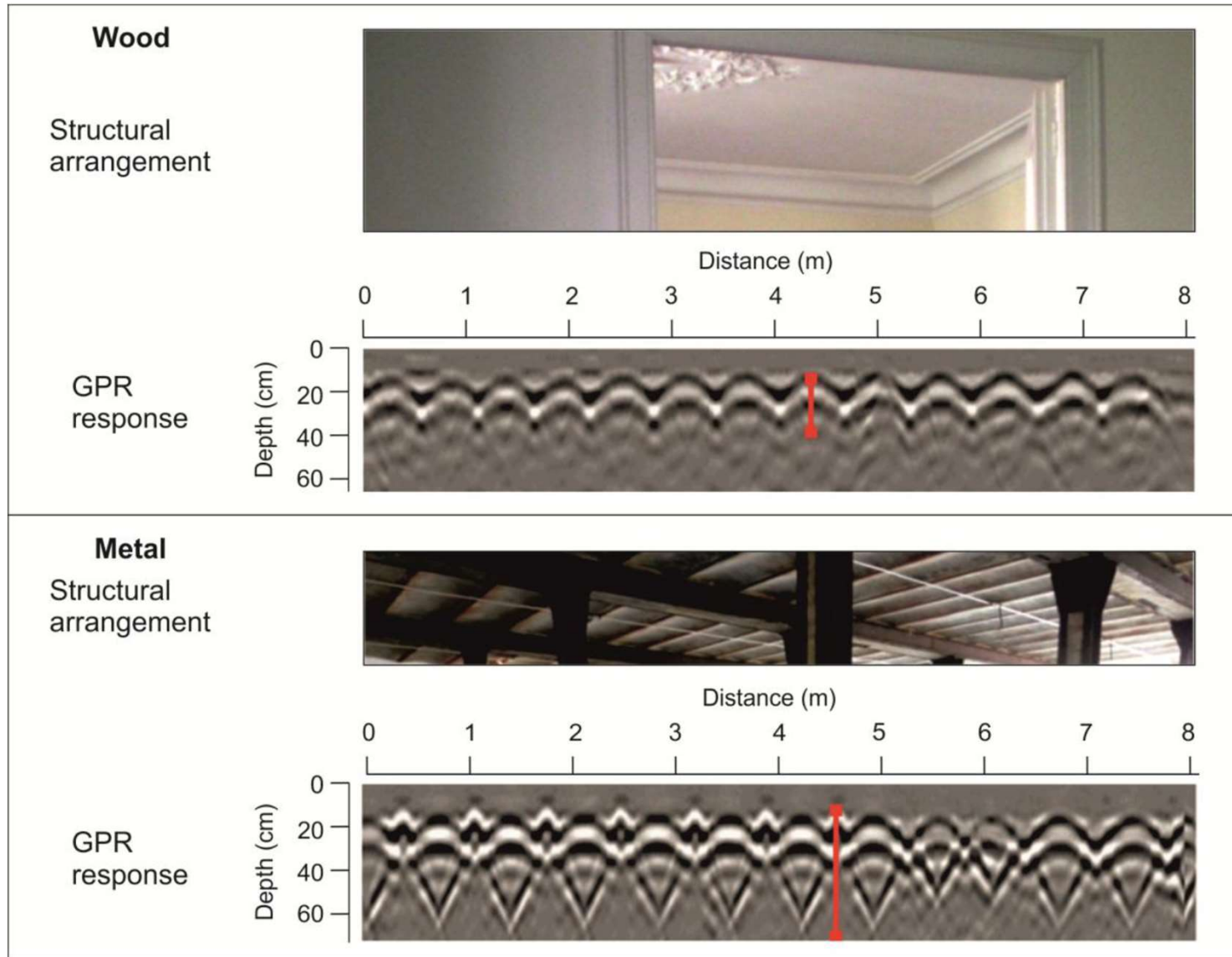
**Unknown Structural  
arrangement and material type**

**Unknown Structural  
Pathologies**





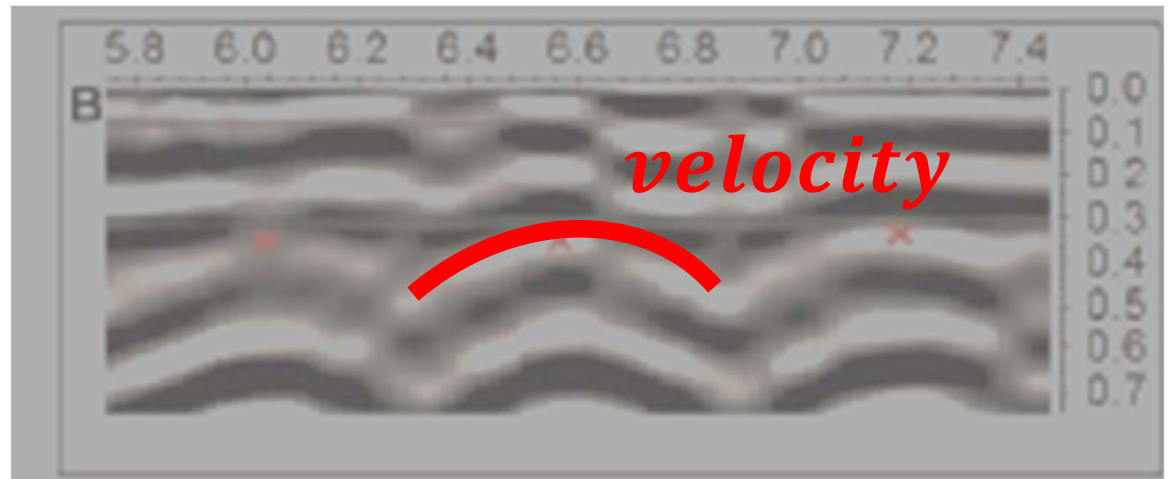
# Material Type



# Qualitative Moisture Content

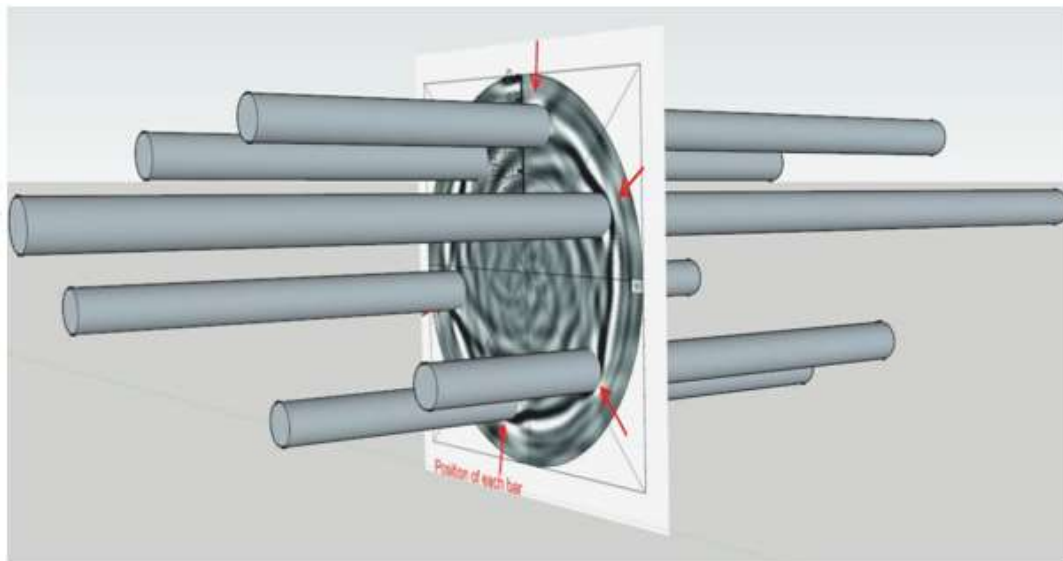


$$\text{Moisture content} = \frac{1}{\text{velocity of propagaion}}$$

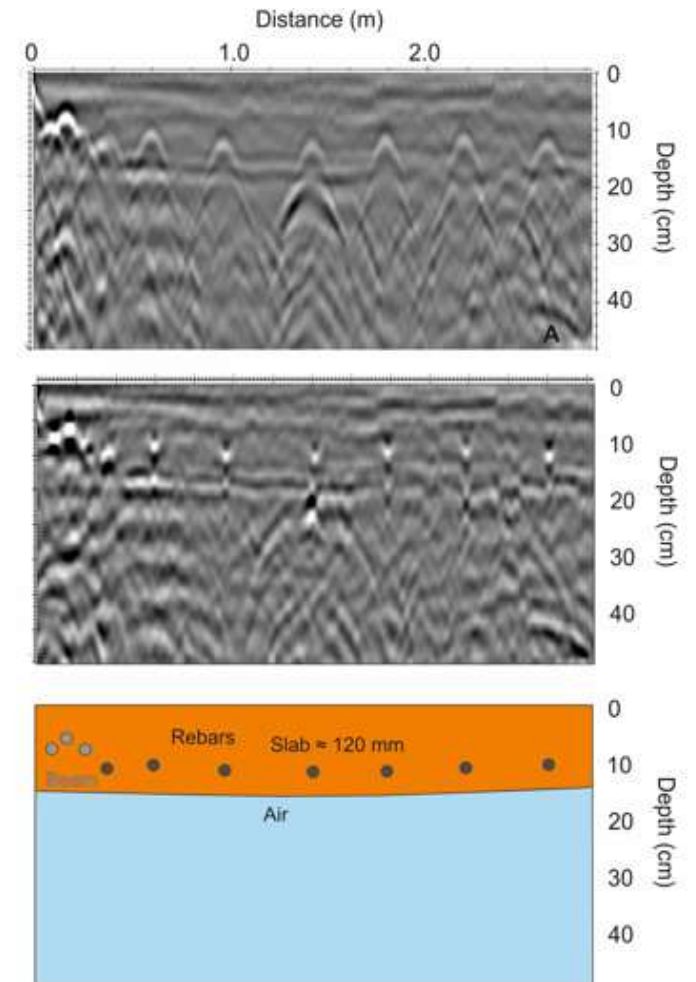


# Structural arrangement Rebar

## Columns

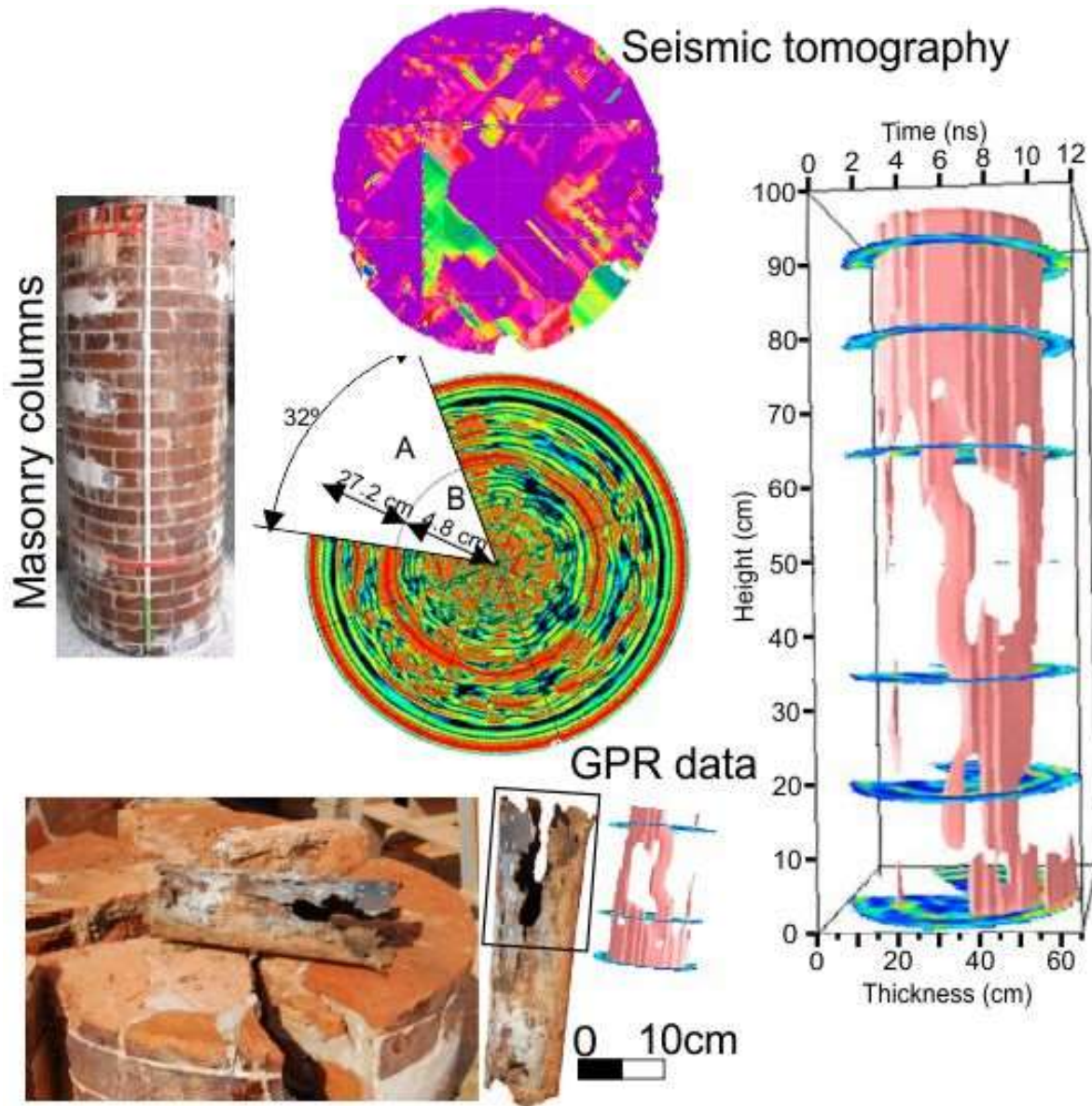


## Concrete slab

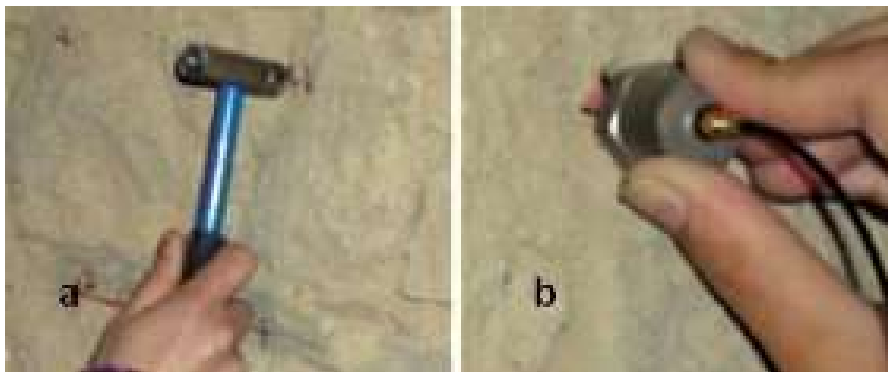




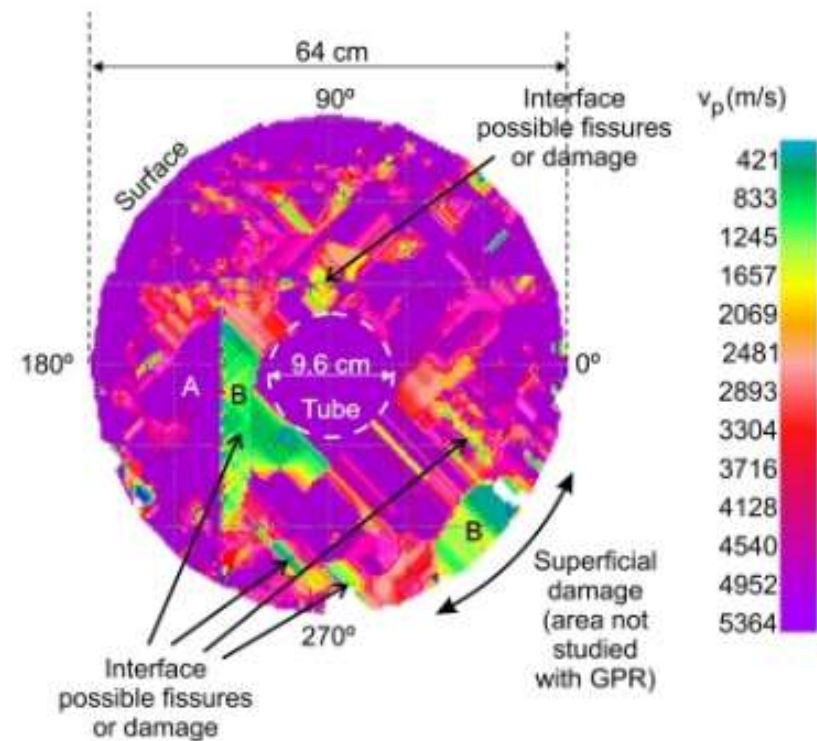
# Structural arrangement



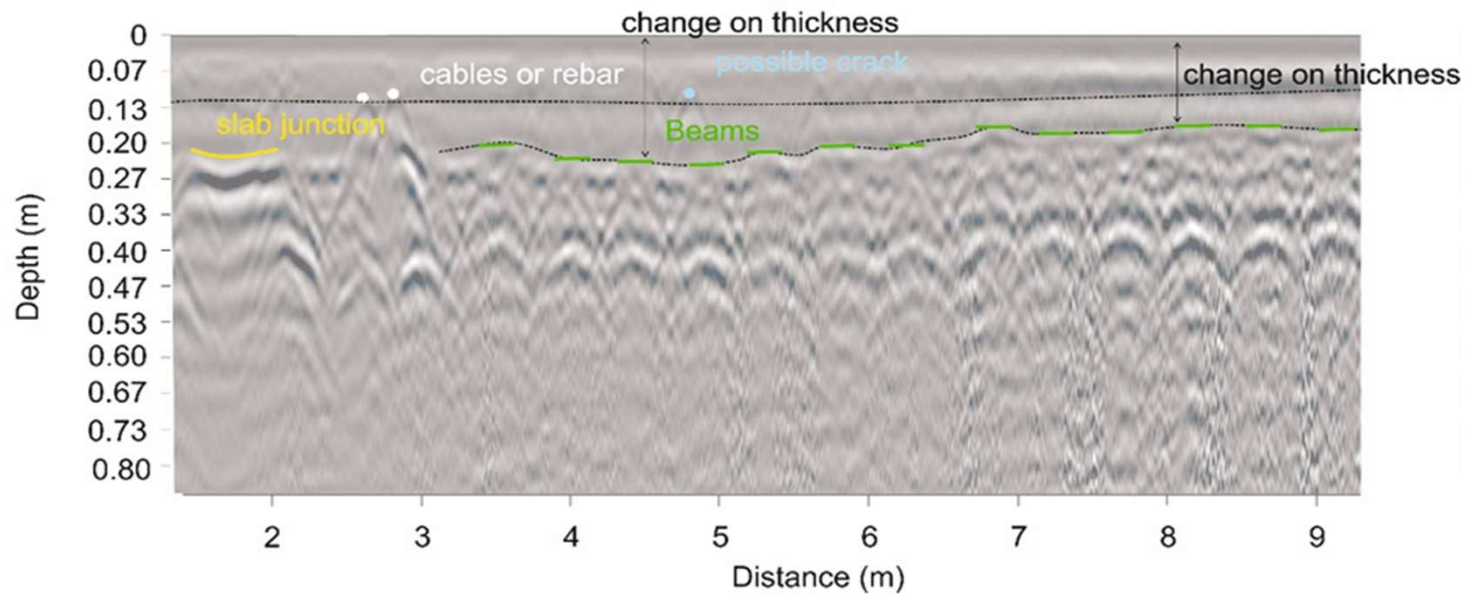
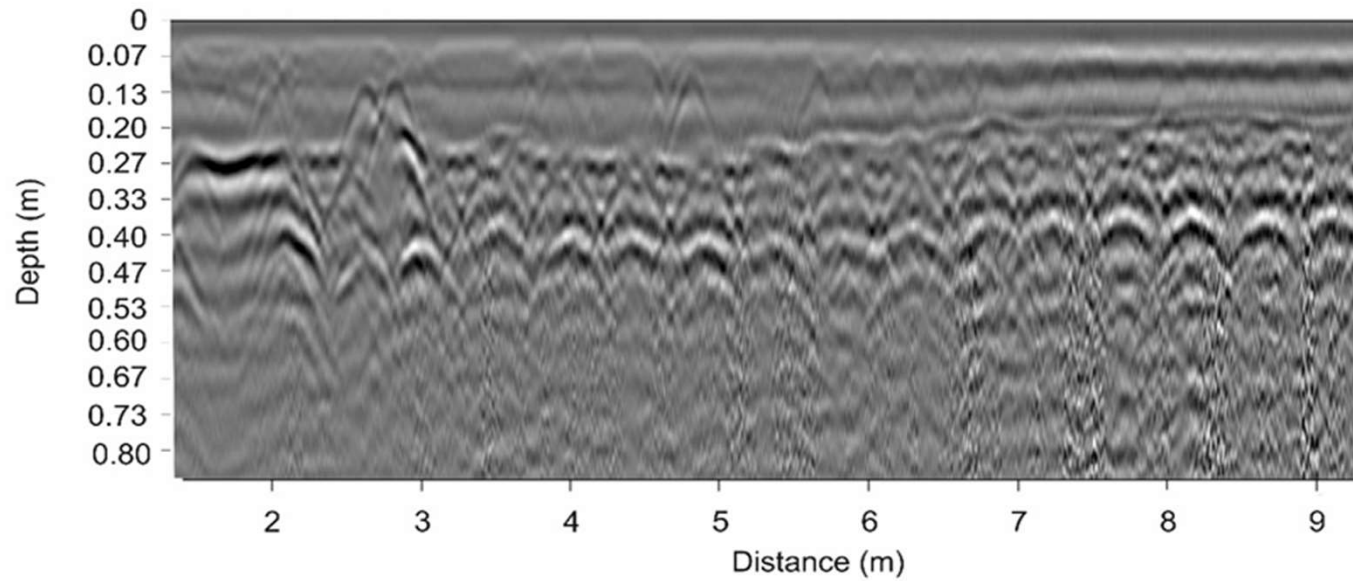
# Seismic Tomography



Site Class	Ground Profile Name	Average properties in Top 30 m Average Shear wave velocity, $V_s$ (m/s)
A	Hard rock	$V_s > 1500$
B	Rock	$760 < V_s \leq 1500$
C	Very dense soil and soft rock	$360 < V_s \leq 760$
D	Stiff soil	$180 < V_s \leq 360$
E	Soft soil	$V_s \leq 180$
F	Other soils	Site specific evaluation required

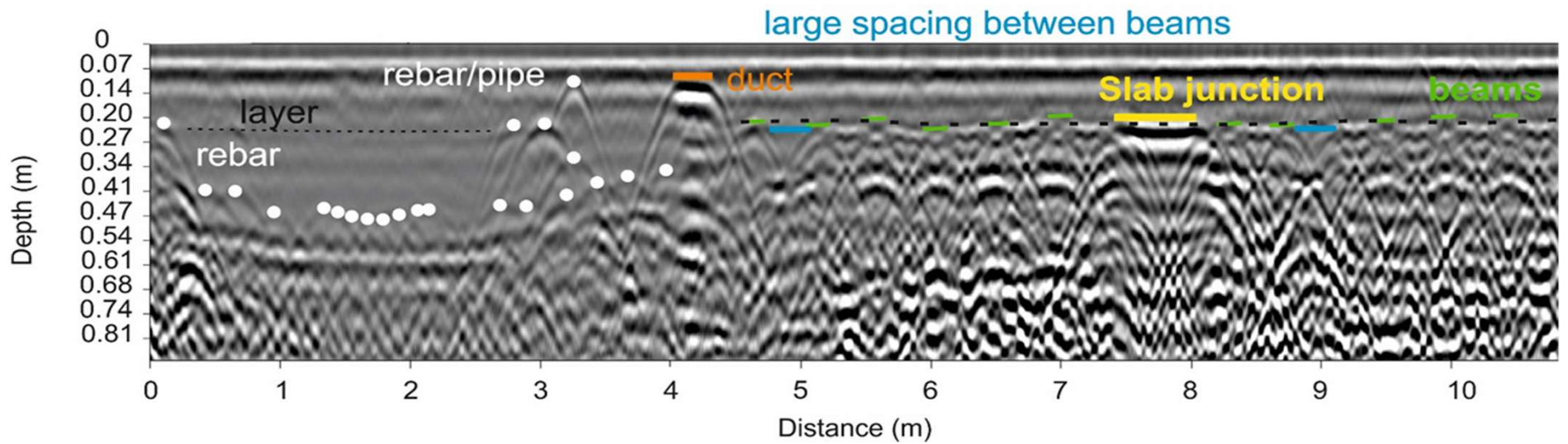
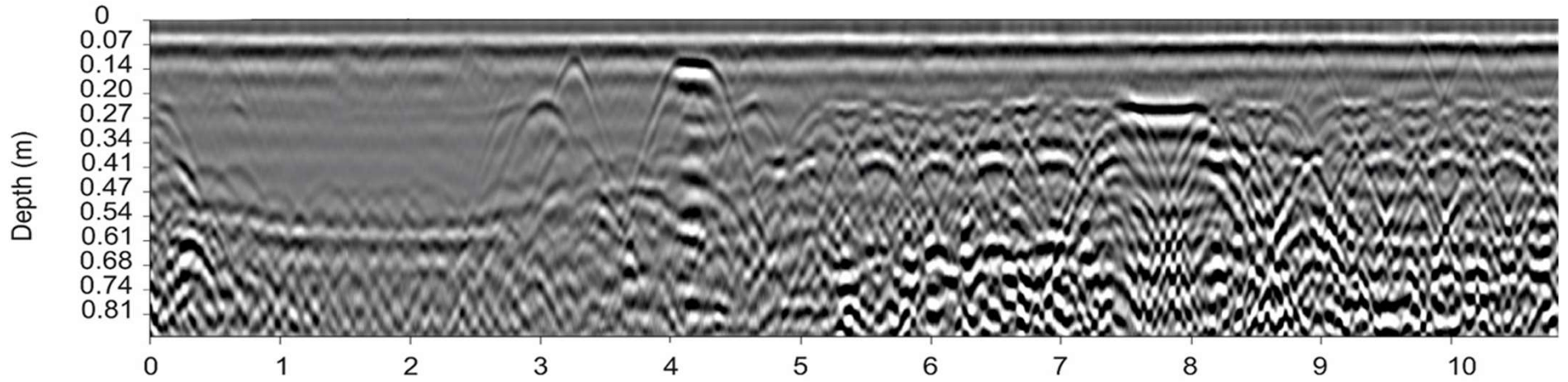


# Buildings





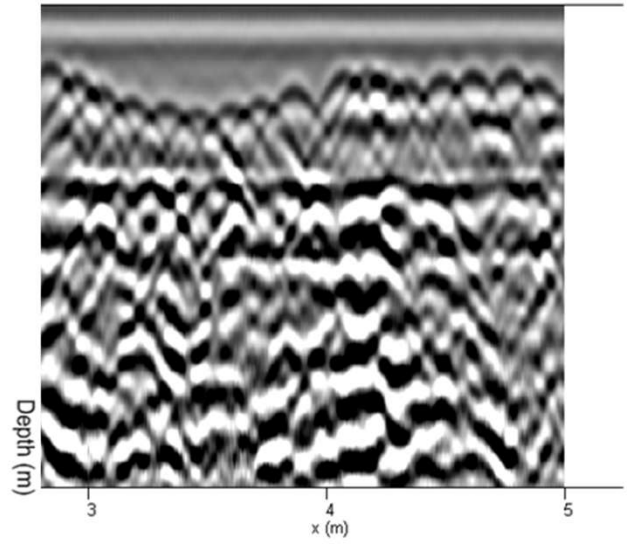
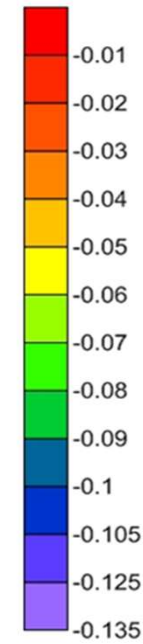
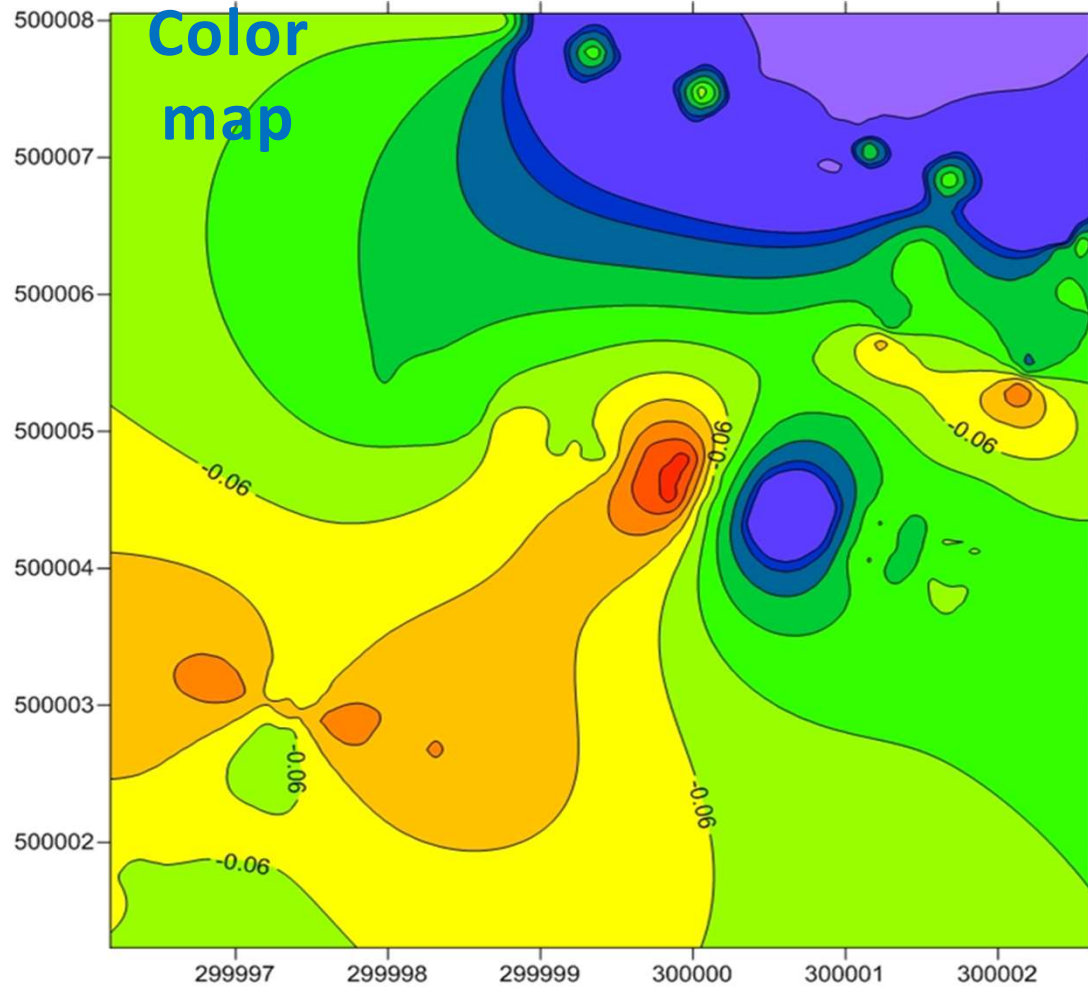
# Buildings



# Buildings

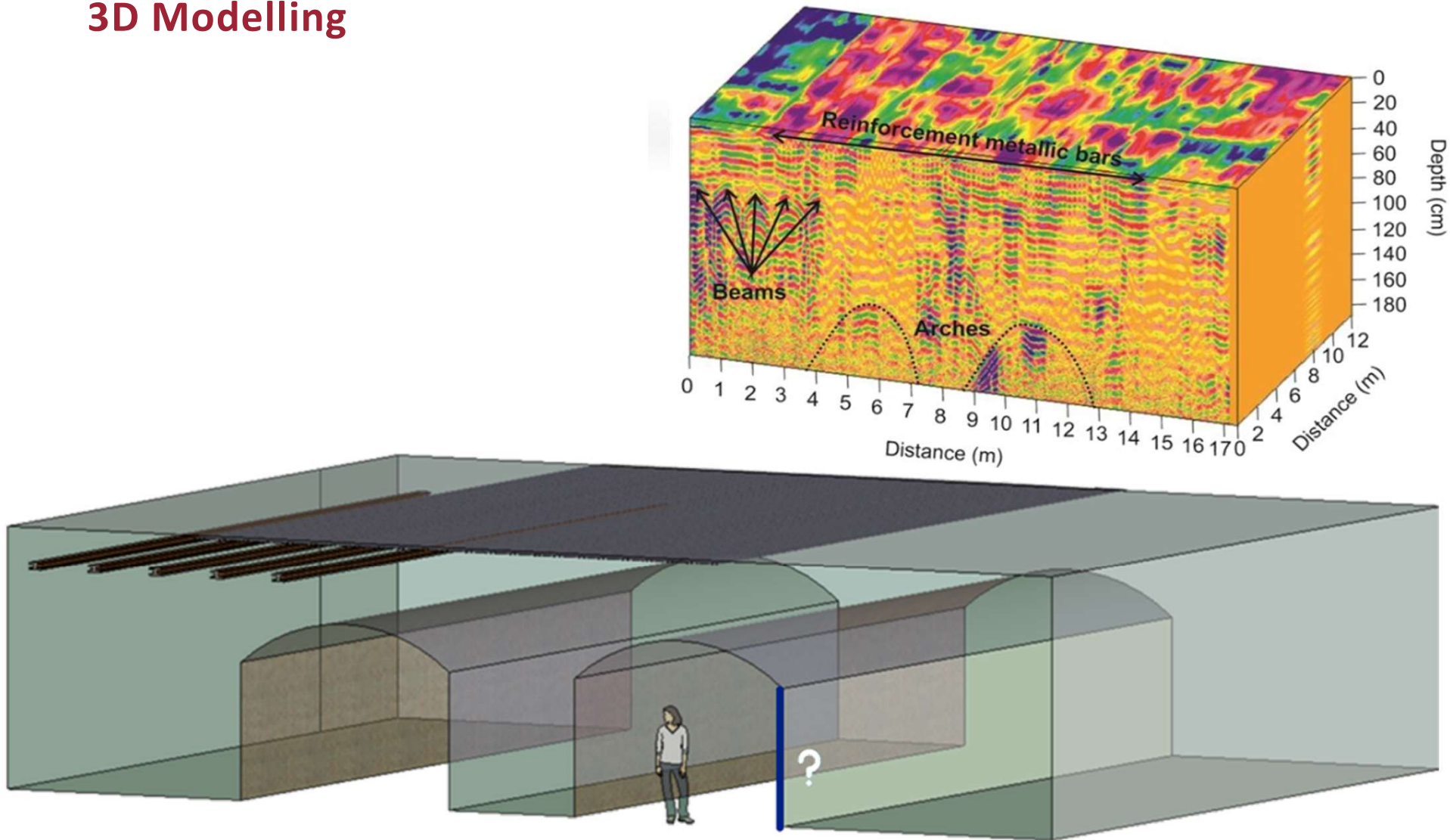
Output

Color  
map



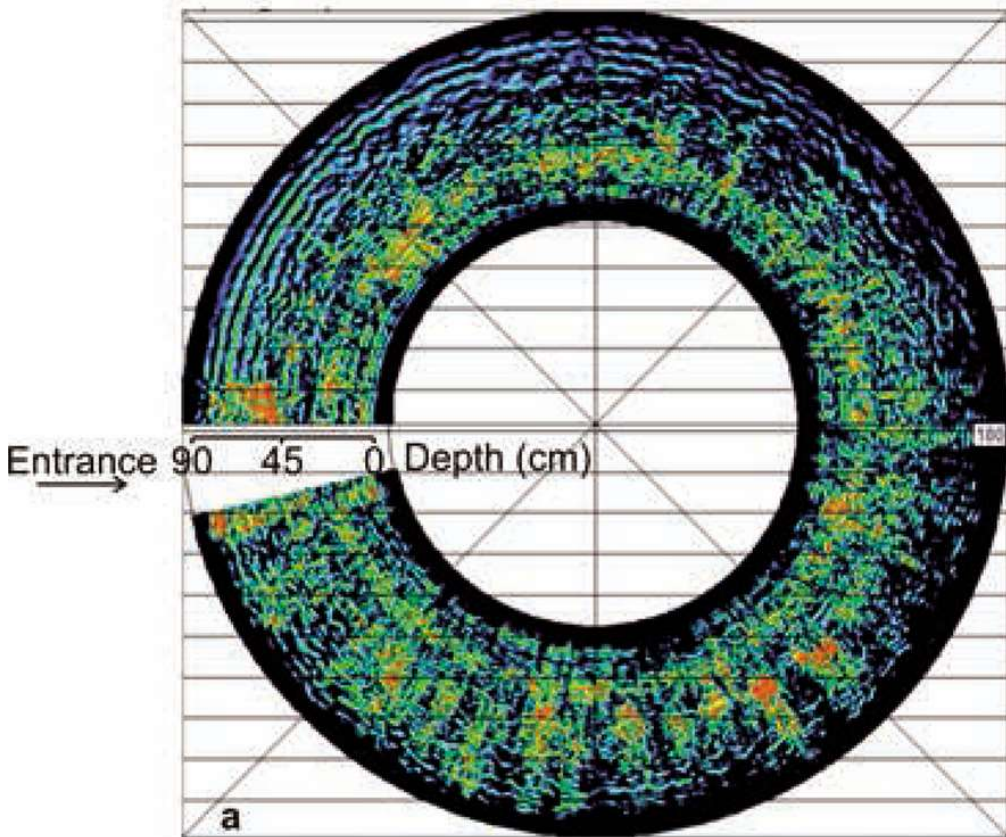
# Civil Engineering - Heritage

## 3D Modelling



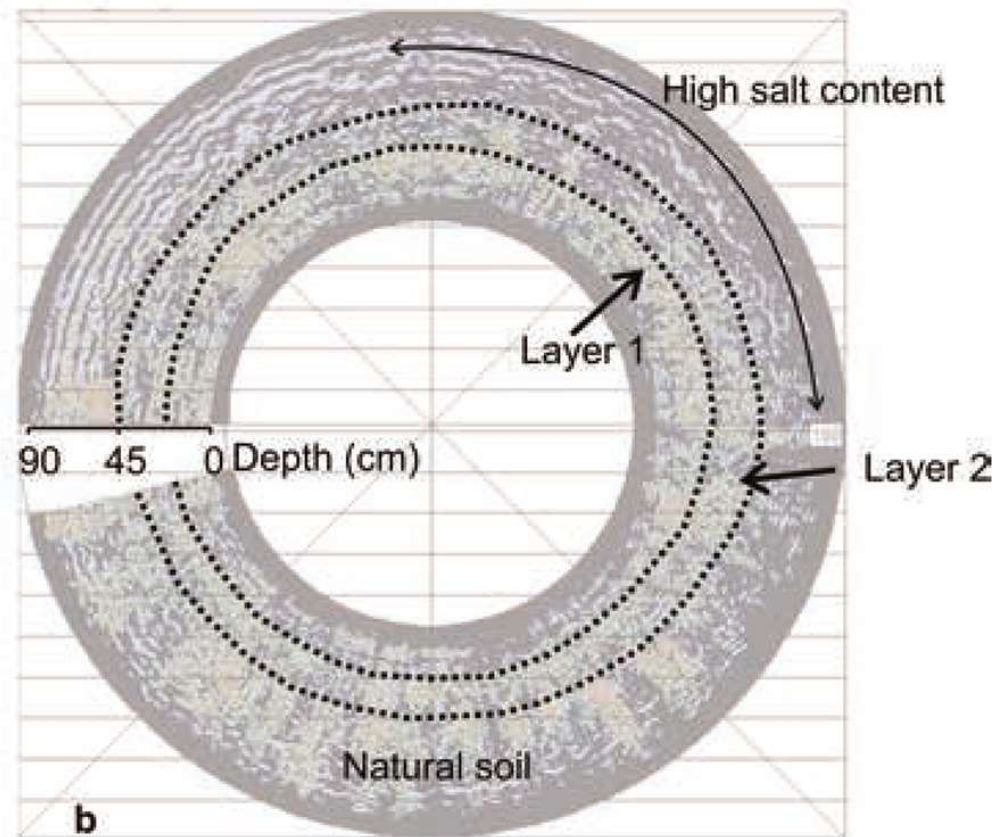


# Archaeology



a

Distance (m)



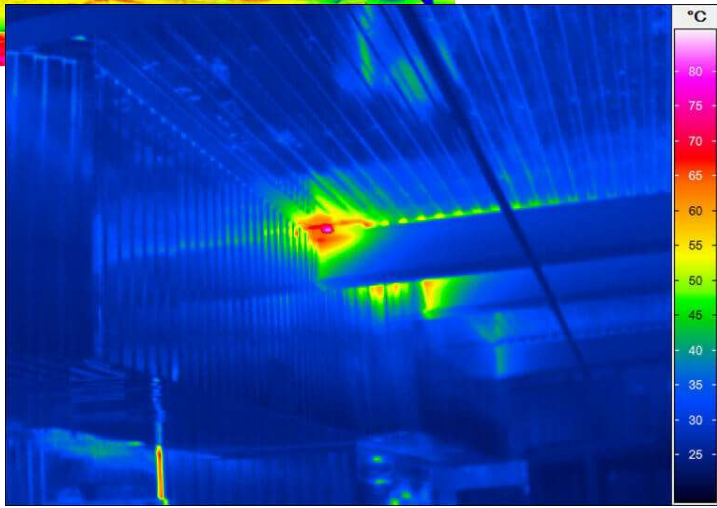
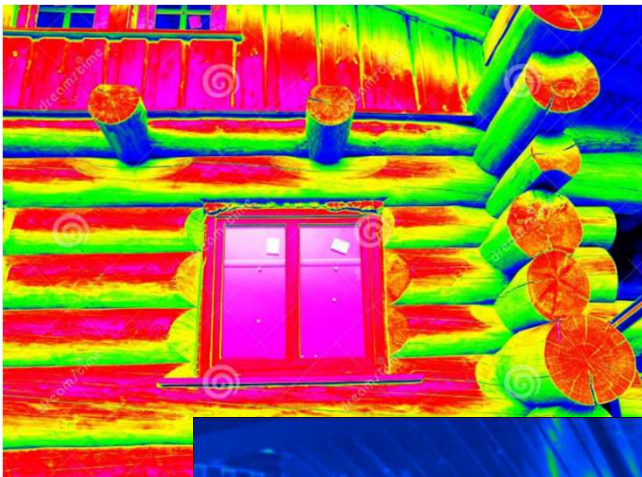
b

Distance (m)

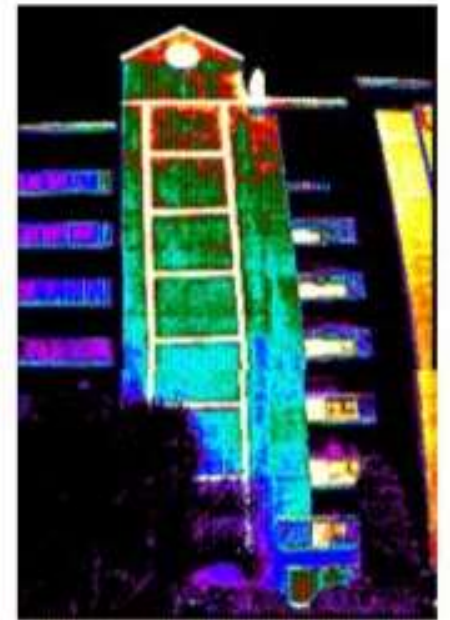
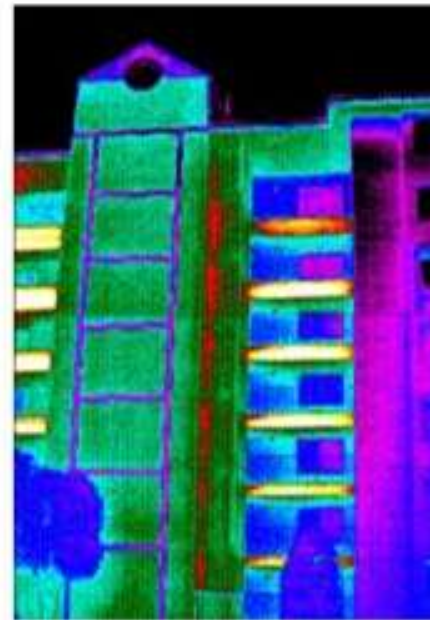


# Thermal Imaging

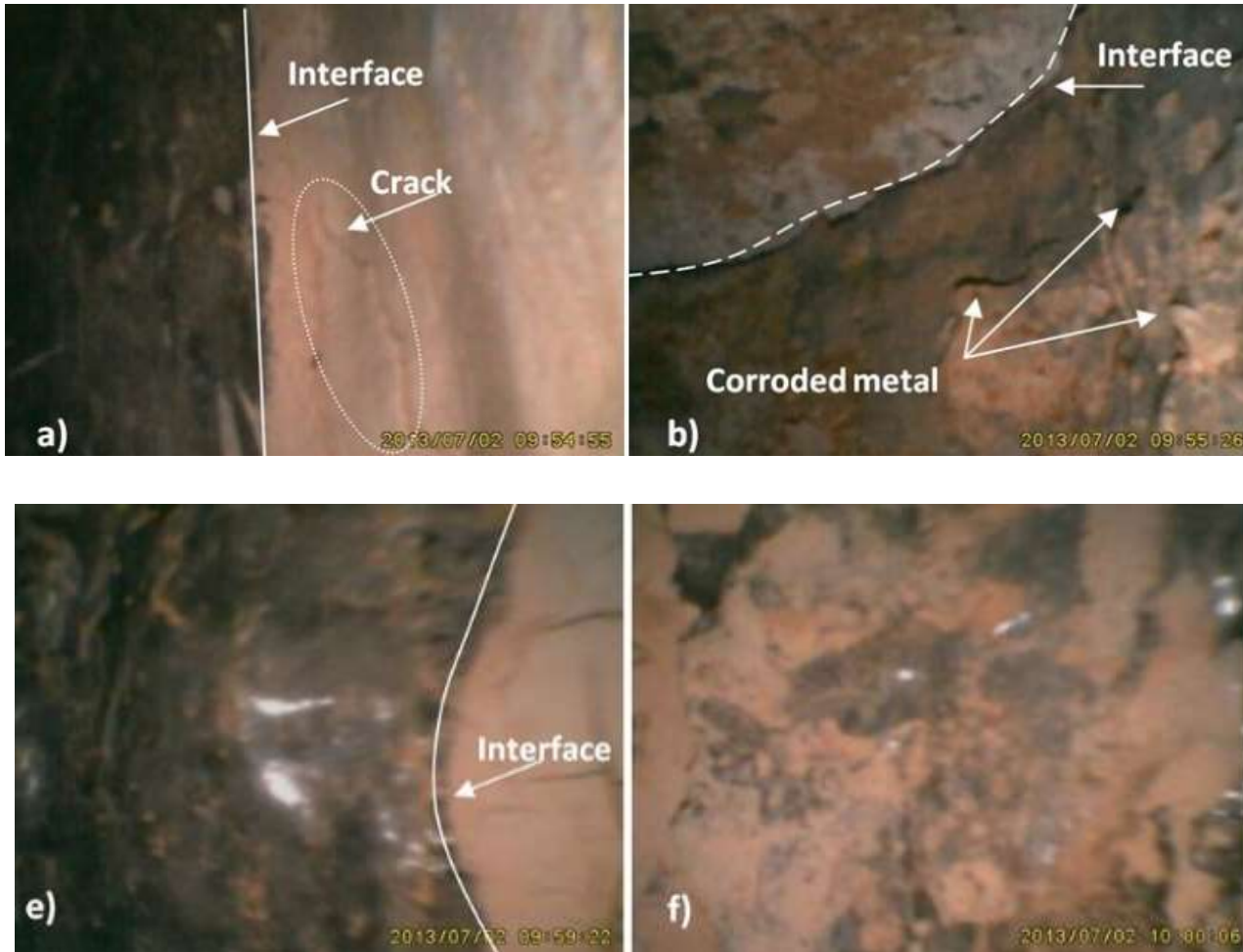
## Poor Thermic Insulation



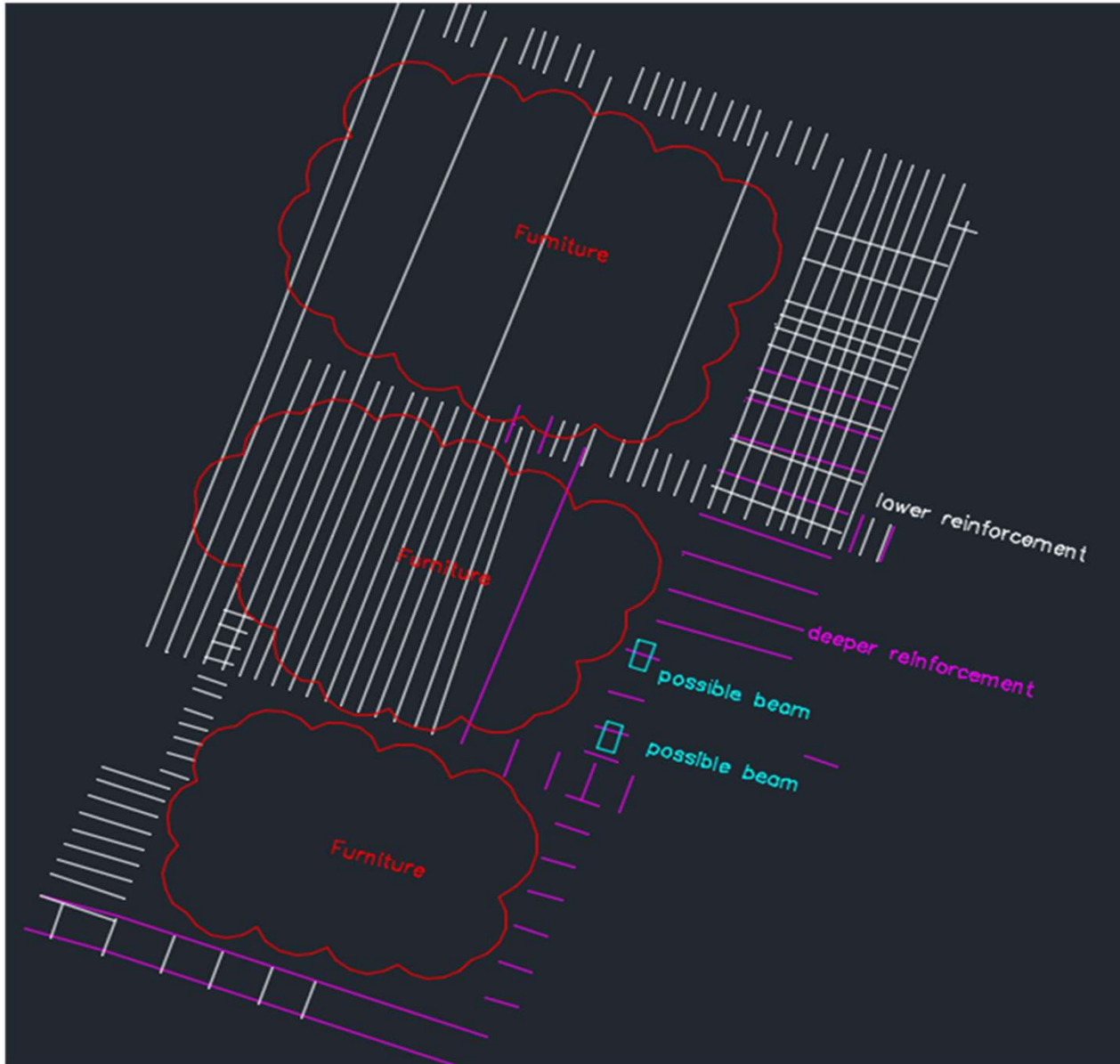
## High Moisture Content



# Structural Endoscopy



# Delivery reports





# Limitations

Clay



Salt



Roots



Type and Location





## Conclusions

Completely **Non-Destructive**: will not modify the existent structure.

**Economic**, when comparing with traditional methods.

**100% Safe** and reduces the risk of hitting an anomaly when drilling the soil or civil structures.

**Time saving** due to quick fast data acquisition and processing.

Efficient to determine **structural arrangement** and **pathologies**.

Simple and clear **output**



رخصة مهنية  
Professional License

تفاصيل الرخصة / License Details

License No.	1013761	رقم الرخصة
Trade Name	MOHAMMED HUSSAIN SHAZ PROJECT MANAGEMENT SERVICES	الإسم التجاري
Legal Type	Sole Establishment	الممثل القانوني
Expiry Date	15/12/2022	تاريخ الإصدار
D&B D-U-N-S ®	0	رقم الرخصة الأم
Register No.		عضوية الغرفة

الأطراف / License Members

Share / الحصص	Role / الصفة	Nationality / الجنسية	Name / الإسم	No / رقم الحصص
	Est. Owner / مالك مؤسسة	India / الهند	محمد حسين شاز عبدالقادر بجبي حسين	1040641
	Agent / وكيل خدمات	United Arab Emirates / الإمارات	MOHAMMED HUSSAIN SHAZ ABDUL KHADER BAJPE HUSSAIN موسى اقبال محمد علي موسى MOOSA IQBAL MOHAMMAD ALI MOOSJI	441063

نشاط الرخصة التجارية / License Activities

Project Management Services خدمات إدارة المشاريع

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Fax No	فاكس	Parcel ID	رقم الطعنة
Mobile No	هاتف محمول		مكتب رقم 43-44 ملك بلدية دبي - بر دبي - دبي
			البريد الإلكتروني / Email: Haseeb@alghafgolden.com

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الإدارة العامة للأقامة وشؤون الأجانب

الإسم: محمد حسين شاز لخدمات إدارة المشاريع  
Name: MOHAMMED HUSSAIN SHAZ PROJECT MANAGEMENT

العنوان بالتوقيع: موسى أقبال محمد علي موسى  
الصفة: وكيل خدمات  
العنوان: دبي المنطقة البدع  
هاتف: 050-4266615  
تاريخ الإنتهاء: 2022-12-15

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Certificate of Registration for Value Added Tax in the United Arab Emirates

The Federal Tax Authority certifies that the entity below is a registered person for Value Added Tax in the UAE  
تشهد الهيئة الاتحادية للضرائب أن الجهة التالية مسجلة لضريبة القيمة المضافة في الامارات العربية المتحدة

Full Arabic legal name محمد حسين شاز لخدمات إدارة المشاريع الاسم القانوني الكامل باللغة العربية  
Full English legal name MOHAMMED HUSSAIN SHAZ PROJECT MANAGEMENT SERVICES الاسم القانوني الكامل باللغة الانجليزية  
Registered address 218-D, Hayat Boulevard-1A, Al Yelayiss 2, Dubai, Dubai, United Arab Emirates, 1111, العنوان المسجل  
+971544290205  
Tax Registration Number 100496187400003 رقم التسجيل الضريبي  
Effective Registration Date 01/06/2022 تاريخ التسجيل الفعلي  
First VAT Return Period 01 Jun 2022 - 31 Aug 2022 and quarterly thereafter فترة أول إقرار لضريبة القيمة المضافة  
VAT Return due date 28 Sep 2022 تاريخ استحقاق إقرار ضريبة القيمة المضافة

Start and end dates of Tax periods: 1 Mar to 31 May, 1 Jun to 31 Aug, 1 Sep to 30 Nov, 1 Dec to 28/29 Feb  
بداية ونهاية الفترات الضريبية

Trade License(s) Details:

تفاصيل الرخص التجارية

Licensing Authority Name / اسم جهة الترخيص	Trade License Number / رقم الرخصة التجارية
Dubai Department of Economic Development	1013761

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Issuing Date:

17/05/2022

تاريخ الإصدار



# **MHS PROJECT MANAGEMENT SERVICES**



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#724 , 7<sup>th</sup> floor Nshama town square/ 218-0, Hayat Boulevard-1A.1, Al Yelayiss 2, Dubai, United Arab

Emirates.Tel Phone: 043390851, Phone: +971- 544290205, [info@mhs-gpr.com](mailto:info@mhs-gpr.com)

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