

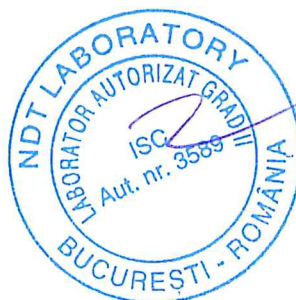
RAPORT INCERCARI NEDISTRUCTIVE 199 /2023



CLADIRE "ARCUB" ,STR.BATISTEI 14 ,BUCUREȘTI .

Intocmit: Specialist incercari nedistructive
Dr. ing. Teodor PAVLU

Aprobat: Sef de Laborator & Specialist Incercari Nedistructive
ing. Bogdan DORNESCU



RAPORT INCERCARI NEDISTRUCTIVE nr 199 / 2023

privind

“Determinarea de
armaturi prin pahometrie /radar”

Cap.1 – DATE GENERALE

Prezenta documentatie a fost intocmita la solicitarea **EXPERT TEHNIC MLPAT**.

1. Numar contract: 158 /2023
2. Scopul testarilor: Evaluarea armare si cal . betonului din elementele structurii

Adresa unde s-au facut incercarile:

CLADIRE "ARCUB" ,STR.BATISTEI 14 ,BUCUREȘTI .

Cap.2 – DESCRIEREA OBIECTIVULUI INCERCAT

ARTCUB . Incercarile au fost realizata pe structura beton

Cap.3 – INCERCARI SOLICITATE

Cerinte:

1. Controlul calitatii betonului si determinare armaturi.

Elementele supuse testarii au fost stabilite de catre proiectant si expert tehnic.

Cap. 4 – DESCRIEREA INCERCARILOR

1. Data executarii testelor : 2023
2. Temperatura aerului la locul de incercare: +15°C
3. Date privind compozitia si clasa betonului:
 - varsta betonului: > 6 luni
 - corpuri de proba: nu exista
4. Date privind structura de rezistenta:
 - ARTCUB
5. Pregatirea obiectelor de incercat: conform NP 137-2014
6. Pahometrul: INNOVATEST TC110,RADAR GSSI ,HILTI PS 200
7. Sclerometrul: PROCEQ Schmidt tip N,O
8. DUROMETRU DRC
9. Betonoscop: PUNDIT ,PULSAR
10. Rezultatele incercarii si prelucrarea acestora: conform Anexa1,2

Pentru testele efectuate exista incertitudini de masurarea cu privire la rezultatul acestora cauzate de precizia metodelor aplicate. Pentru metoda combinata abaterile sunt in limita a 15% - 20%



Cap. 5 – CONCLUZII

1. Rezistențele betonului pe fiecare element încercat sunt după cum urmează:
 - a. STALP PARTER -met combinata -echiv beton C12 /15 -FISURAT
 - b. STALP SUBSOL -met combinata -echiv beton C 12/15
2. Măsurătorile privind poziția armaturilor pe elementele de b.a. precum și dimensiunea acestora sunt descrise în ANEXA 2

Cap. 6 – OBSERVAȚII

Rezultatele obținute sunt prezentate în Anexe 1 și 2

Documentele emise: Raportul de încercare; Anexe 1 și 2

Este interzisă reproducerea parțială sau totală a raportului de încercare sau a documentelor însoțitoare.

Rezultatele obținute sunt valabile la data efectuării testelor și limitate la elementele încercate.

Prezentul raport cuprinde 4 pagini + pagini anexe

S.C. PAVLU DESIGN CONSTRUCT S.R.L. declară ca încercările efectuate nu au fost făcute sub presiuni de orice natură.

Cap. 7 – ANEXE

Anexa 1 – Datele înregistrate și rezultate raport Anexa 2 – Poze

Intocmit: Specialist încercări nedistructive

DR. ing. Teodor PAVLU



Aprobat: Șef de Laborator

ing. Bogdan DORNESCU



CLADIRE "ARCUB" ,STR.BATISTEI 14 ,BUCURESTI .

DETRMINAREA VALORII REZISTENTEI EFECTIVE

Nr. Crt.	Element	Secțiune	Punct	Distanța (cm)	Timp (μs)	Viteza ultrasonica V_L (m/s)		Indice de recul N (div)		$f_{c,ref} - C_t = 1$ (N/mm ²)	C_t	C_v	Rezistența efectivă $f_{c,ef}$ (N/mm ²)		
						ind.	med.	ind.	med.				sect.	med. elem.	
1	STALP PARTER	A	1	35.00	93.00	3763		38		21	1	0.9	19		
			2	35.00	92.00	3804		38					19		
			3	35.00	90.00	3889		38					19		
		B	1	35.00	92.00	3804		38		21	1	0.9	19		
			2	35.00	90.00	3889		38							
			3	35.00	90.00	3889		38							
		C	1	35.00	92.00	3804		38		38	21	1	0.9	19	19
			2	35.00	90.00	3889		38							
			3	35.00	90.00	3889		38							
		D	1	35.00	90.00	3889		38		38	21	1	0.9	19	
			2	35.00	92.00	3804		38							
			3	35.00	93.00	3763		38							
		E	1	35.00	90.00	3889		38		38	21	1	0.9	19	
			2	35.00	90.00	3889		38							
			3	35.00	90.00	3889		38							

$f_{c,med,el}$ → 19 N/mm² → f_{ck} 14 N/mm²
 $f_{c,min,sect}$ → 19 N/mm² → f_{ck} 14 N/mm²



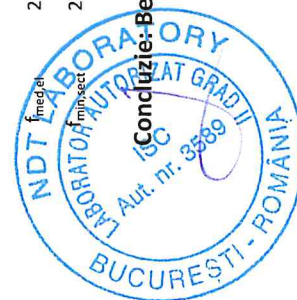
CLADIRE "ARCUB" ,STR.BATISTEI 14 ,BUCURESTI .

DETRMINAREA VALORII REZISTENTEI EFECTIVE

Nr. Crt.	Element	Sectie	Punct	Distanța (cm)	Timp (μs)	Viteza ultrasonica V _L (m/s)		Indice de recul N (div)		f _{c,ref} - C _t =1 (N/mm ²)	C _t	C _v	Rezistența efectivă f _{c,ef} (N/mm ²)	
						ind.	med.	ind.	med.				sect.	med. elem.
2	STALP 2 SUBSOL	A	1	20.00	53.00	3774		40		22	1	0.9	20	20
			2	20.00	54.00	3704		40						
			3	20.00	53.00	3774		40						
		B	1	20.00	53.00	3774		40		22	1	0.9	20	20
			2	20.00	53.00	3774		40						
			3	20.00	54.00	3704		40						
		C	1	20.00	53.00	3774		36	38	22	1	0.9	20	20
			2	20.00	53.00	3774		36						
			3	20.00	54.00	3704		36						
		D	1	20.00	53.00	3774		36		22	1	0.9	20	20
			2	20.00	54.00	3704		36						
			3	20.00	53.00	3774		36						
		E	1	20.00	53.00	3774		36		22	1	0.9	20	20
			2	20.00	53.00	3774		36						
			3	20.00	53.00	3774		36						

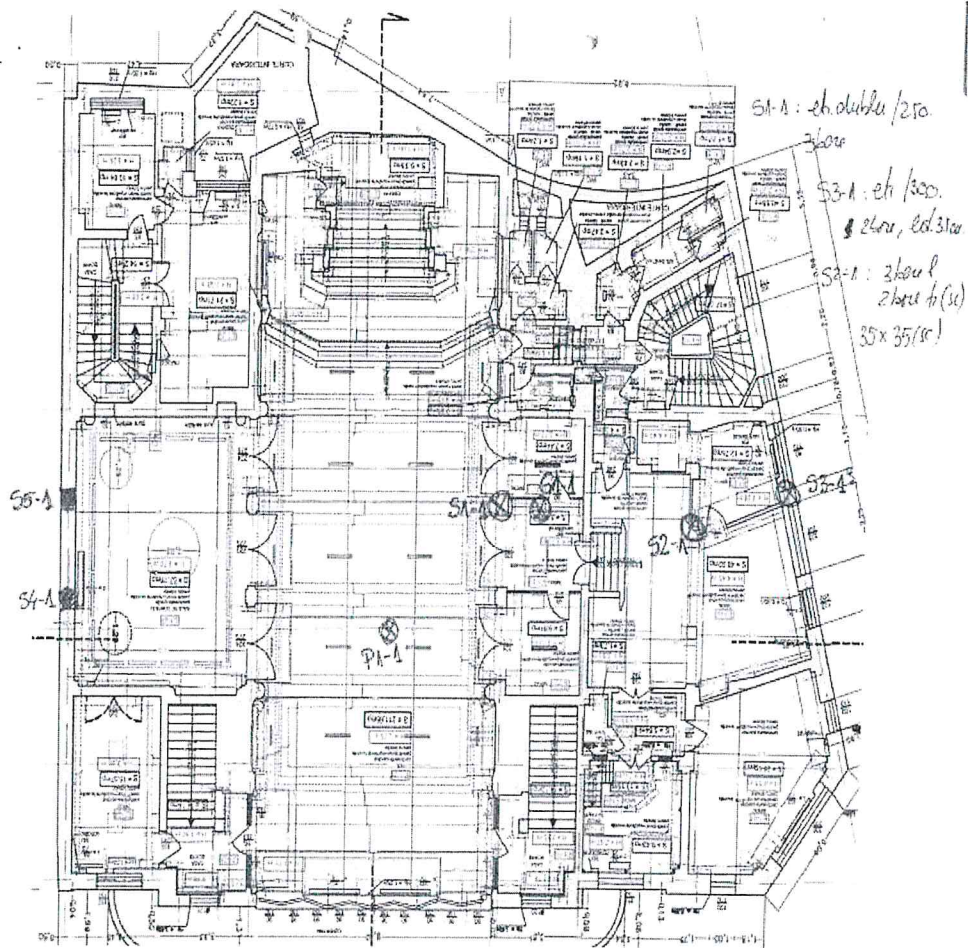
$20 \text{ N/mm}^2 \rightarrow f_{c,k,med,el} \rightarrow 15 \text{ N/mm}^2$
 $20 \text{ N/mm}^2 \rightarrow f_{c,k,min,sect} \rightarrow 15 \text{ N/mm}^2$

Concluzie: Betonul corespunde clasei de beton C12/15

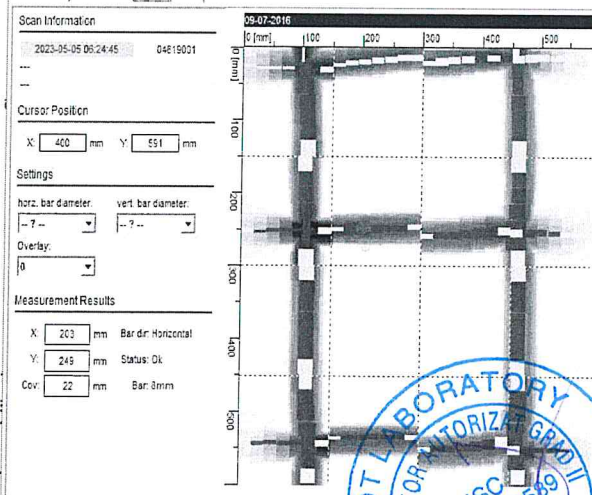


ANEXA 2- raport 199 /2023

CLADIRE "ARCUB" ,STR.BATISTEI 14 ,BUCURESTI .

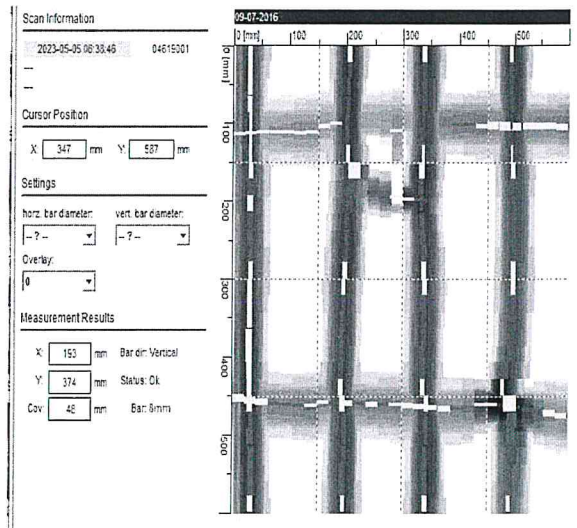


1) -POZITIE TESTE PARTER

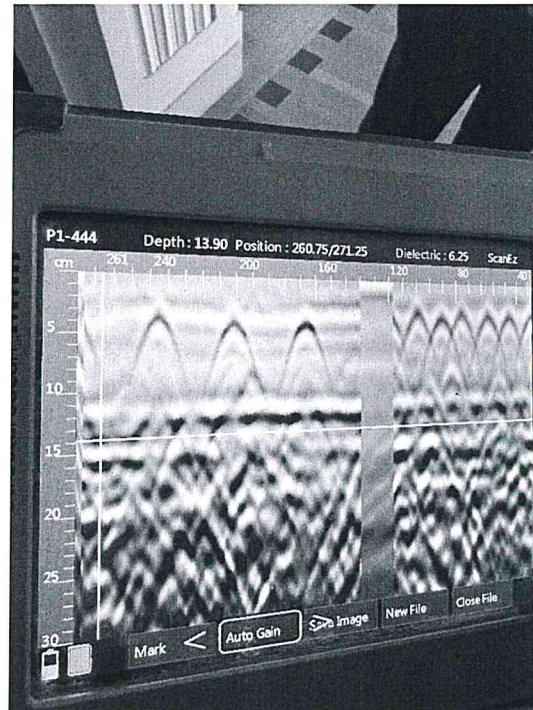
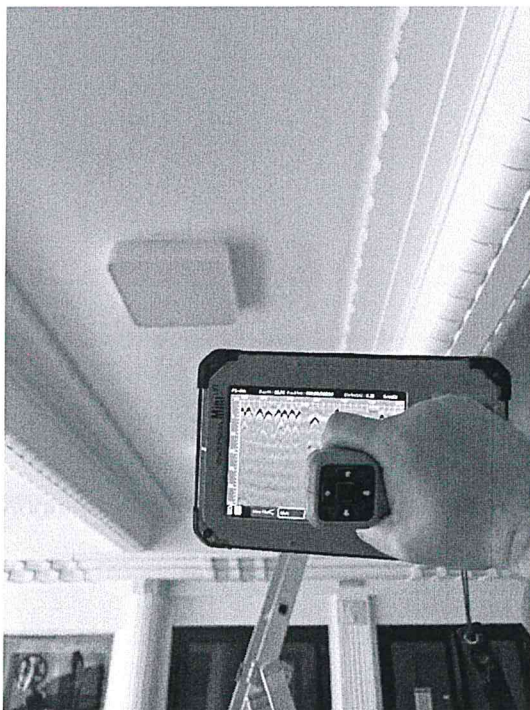


2) PAHOM STALP 5-1 - 2 BARE 20 MM +ETR 8 MM /25 CM

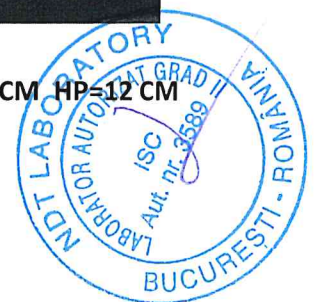


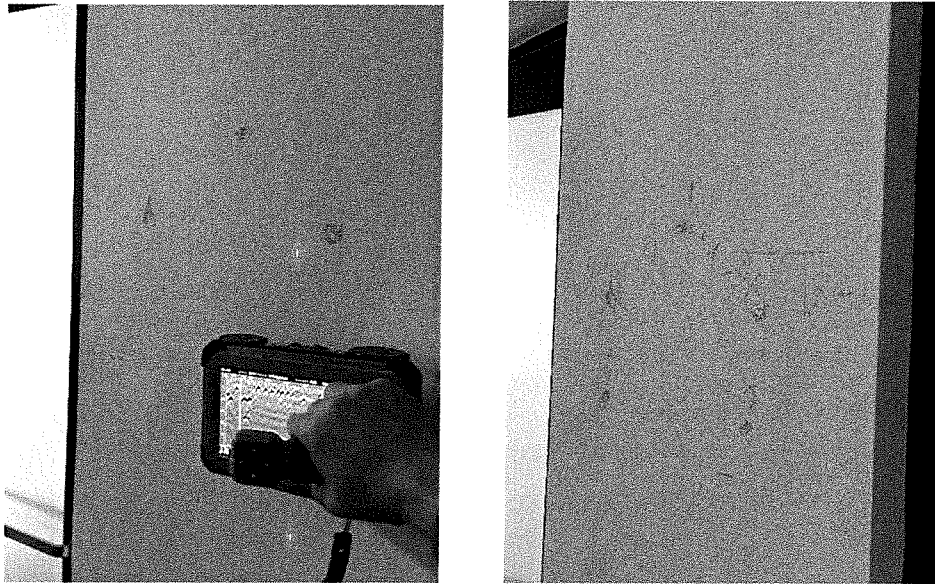


3) PAHOM PLANSEU PARTER - PLASA BARE 8 MM /15 CM +6MM/30 CM

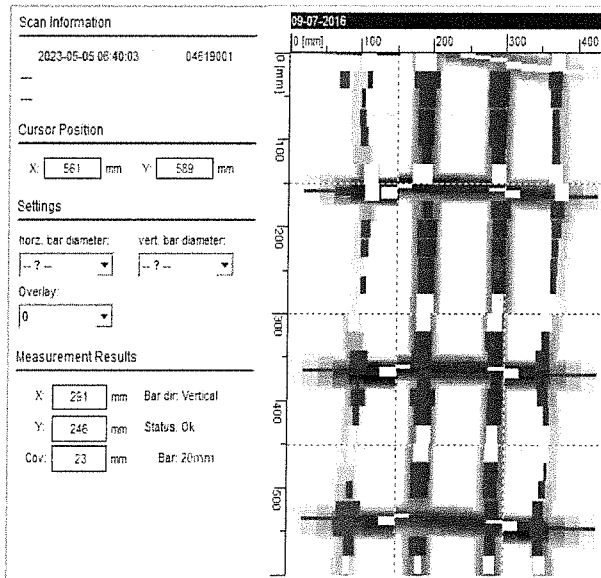


4) RADAR PLANSEU PARTER - PLASA BARE 8 MM /15 CM +6MM/30 CM HP=12 CM

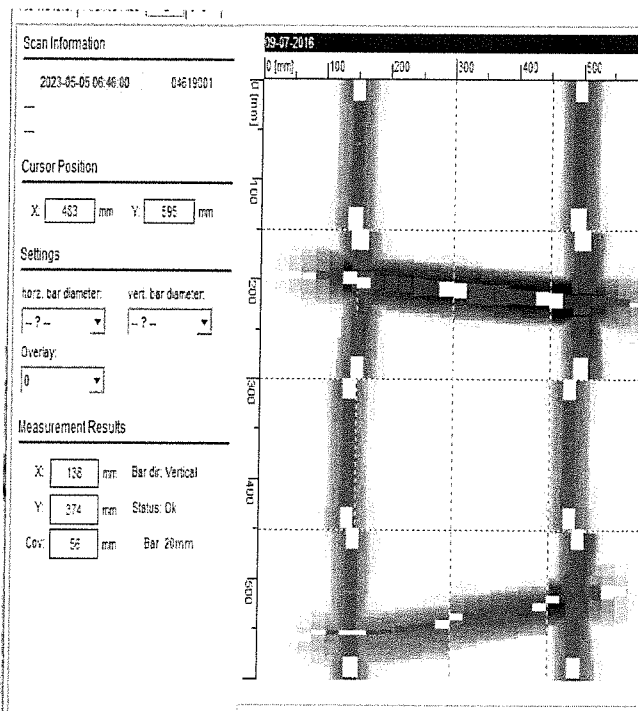
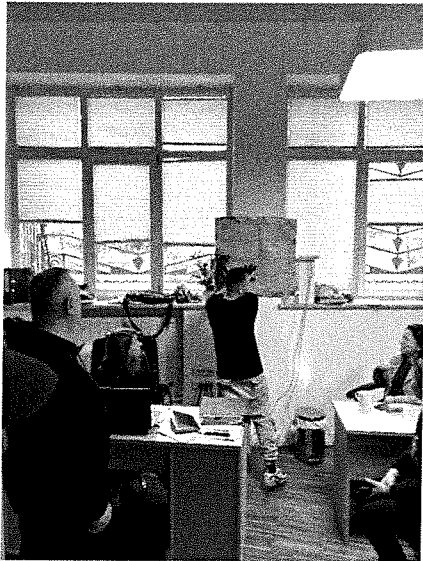




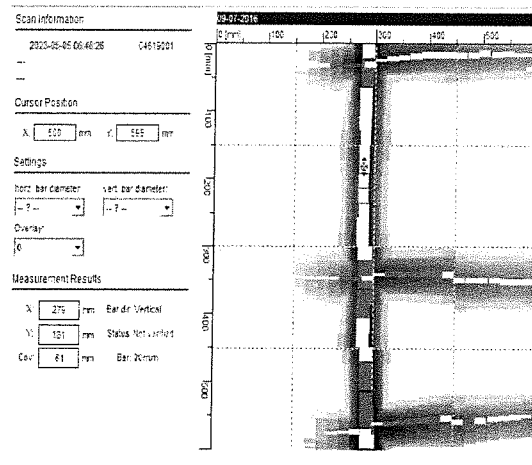
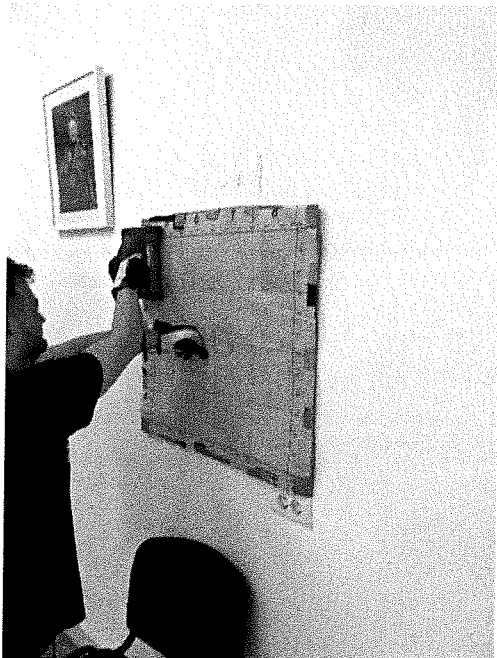
5) RADAR STALP 1-1 - 4 BARE +ETR /15 CM



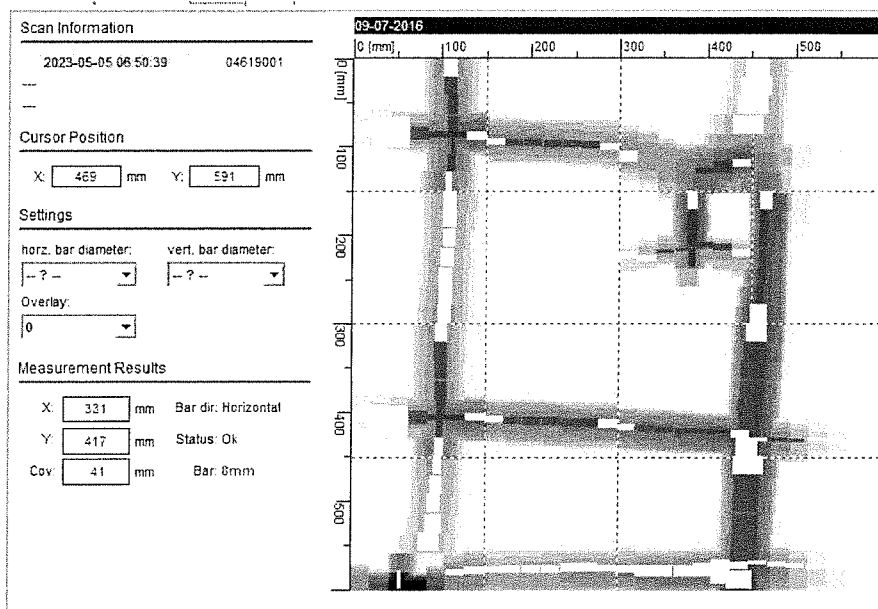
6) PAHOM GR 1-1 - 4 BARE 16+ 20 MM +ETR 8 MM /15 CM



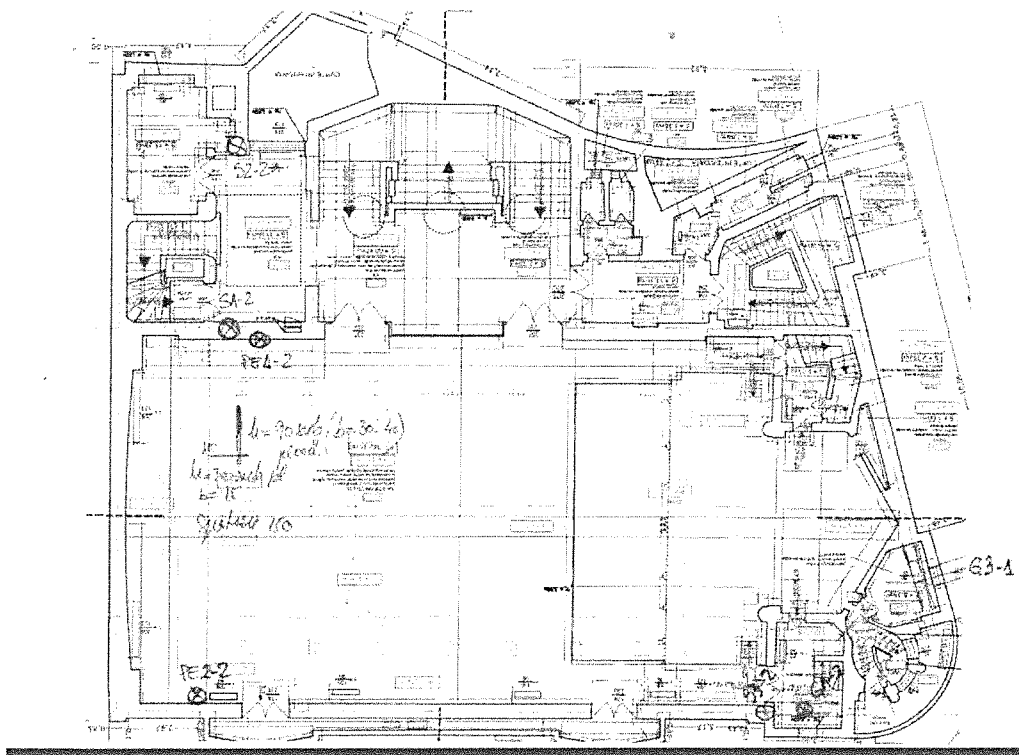
9) PAHOM ST 3 -1 LAT 1 40 CM -2 BARE 20 MM +ETR 8 MM /25 CM



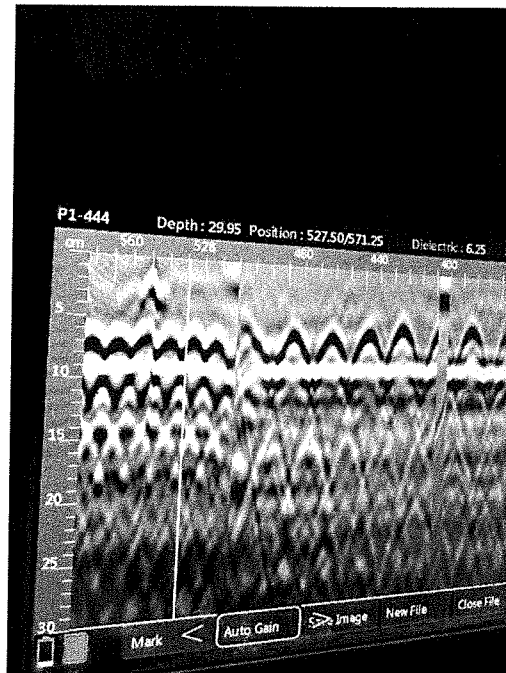
10) PAHOM ST 4 -1 LAT 1 40 CM -2 BARE 20 MM +ETR 8 MM /25 CM



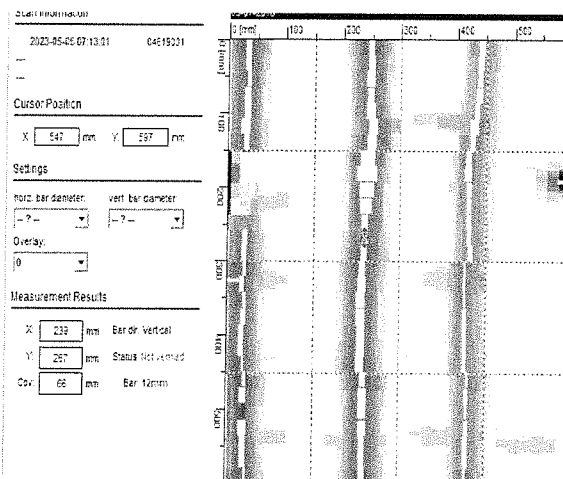
13) PAHOM ST 5 -1 LAT 1 40 CM -2 BARE 20 MM +ETR 8 MM /25 CM



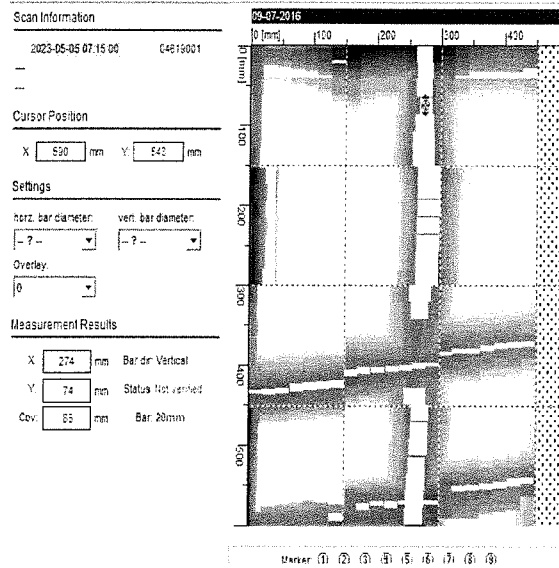
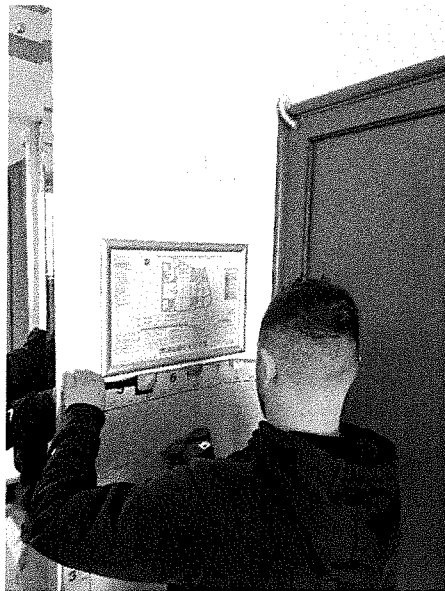
14) -POZITIE TESTE ETAJ 1



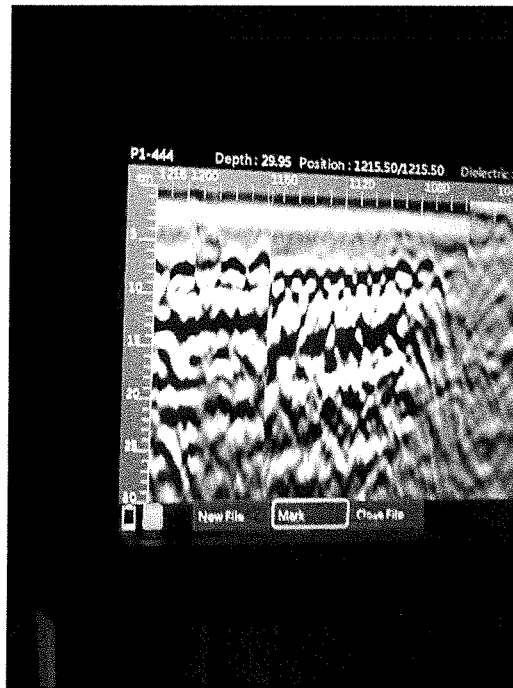
15) RADAR PERETE PER 1-2 BETON -PLASA BARE /10 /20 CM



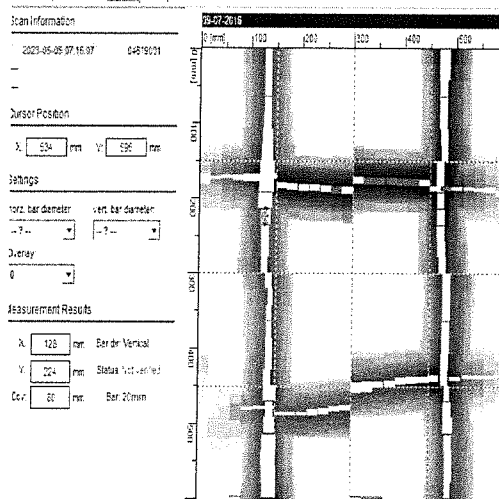
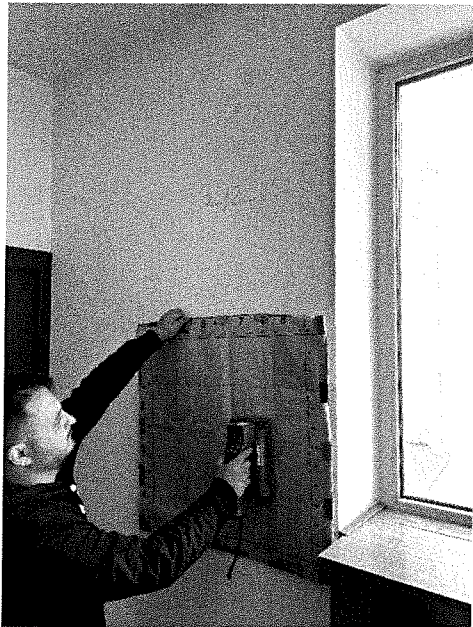
16) PAH PERETE PER 1-2 BETON -PLASA BARE VERT 10-12MM /20 CM +ORIZ 8MM /10 CM



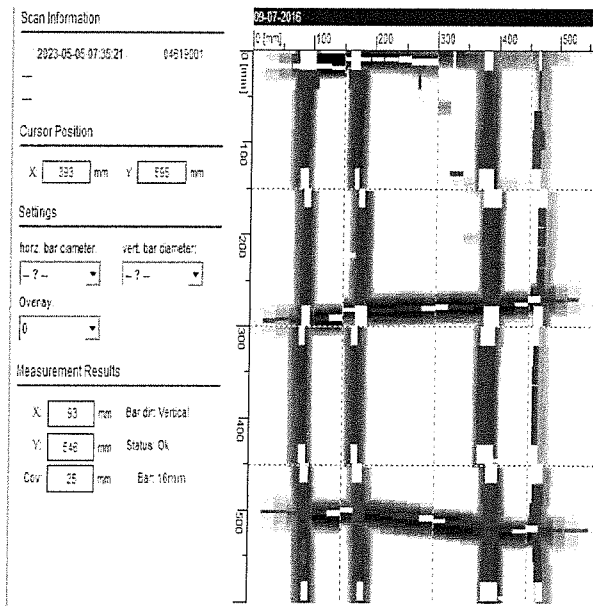
17) PAHOM ST 1-2 LAT 1 40 CM -2 BARE 20 MM +ETR 8 MM /25 CM



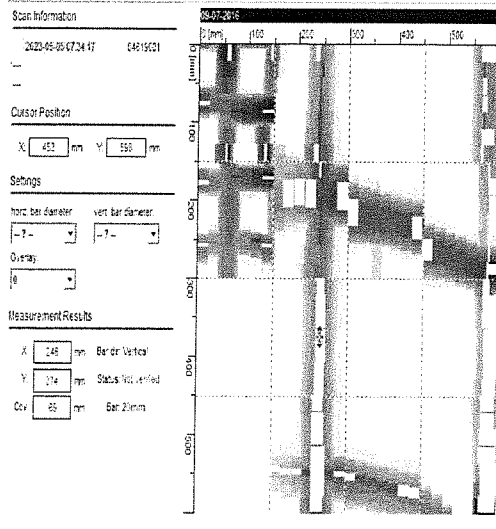
18) RADAR PERETE PER 2-2 BETON -PLASA BARE /10 /20 CM



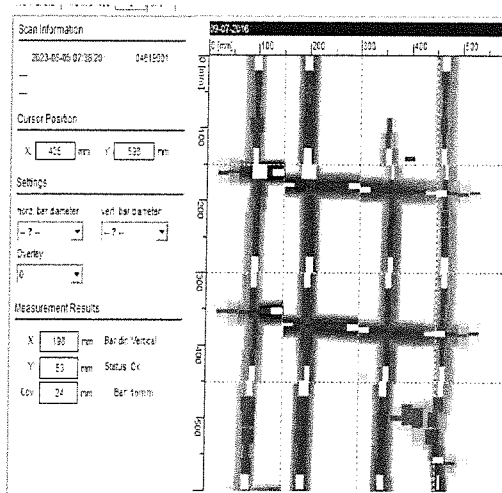
19) PAHOM ST 2-2 LAT 1 40 CM -2 BARE 20 MM +ETR 8 MM /25 CM



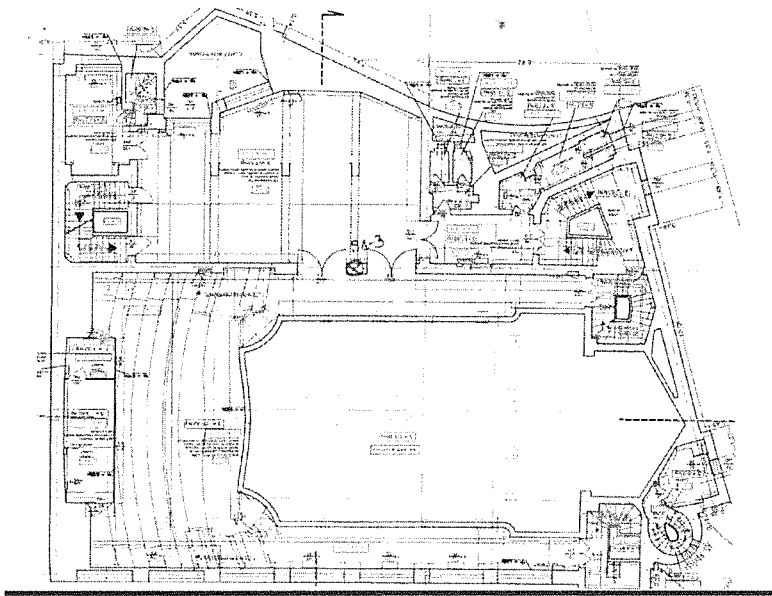
20) PAHOM GR 3-1 40 CM -4 BARE 16 MM +ETR 6 MM /25 CM



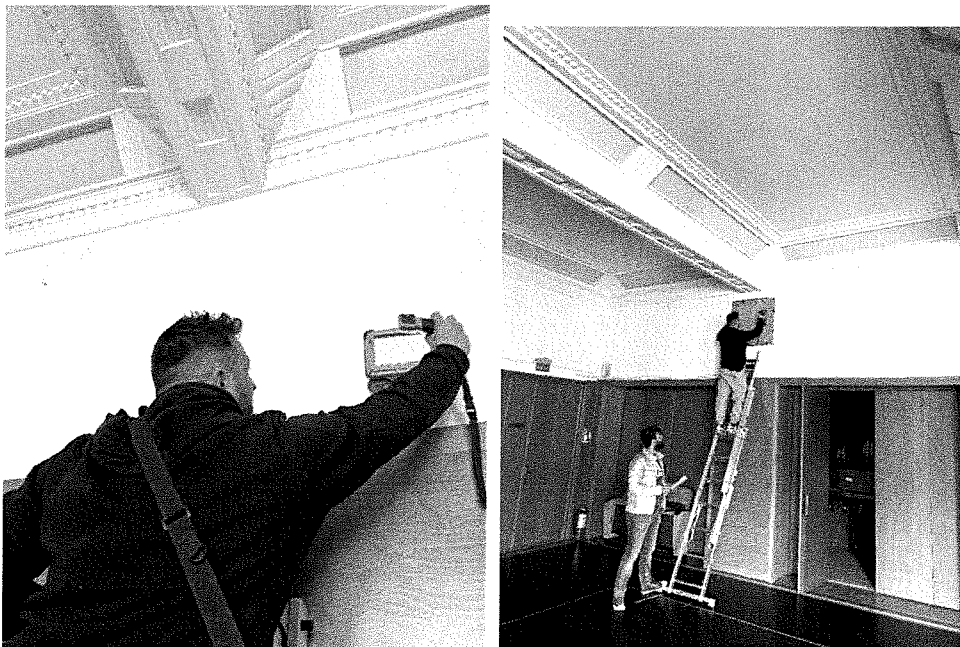
21) PAHOM ST 3-2 LAT 1 40 CM -2 BARE 20 MM +ETR 8 MM /25 CM



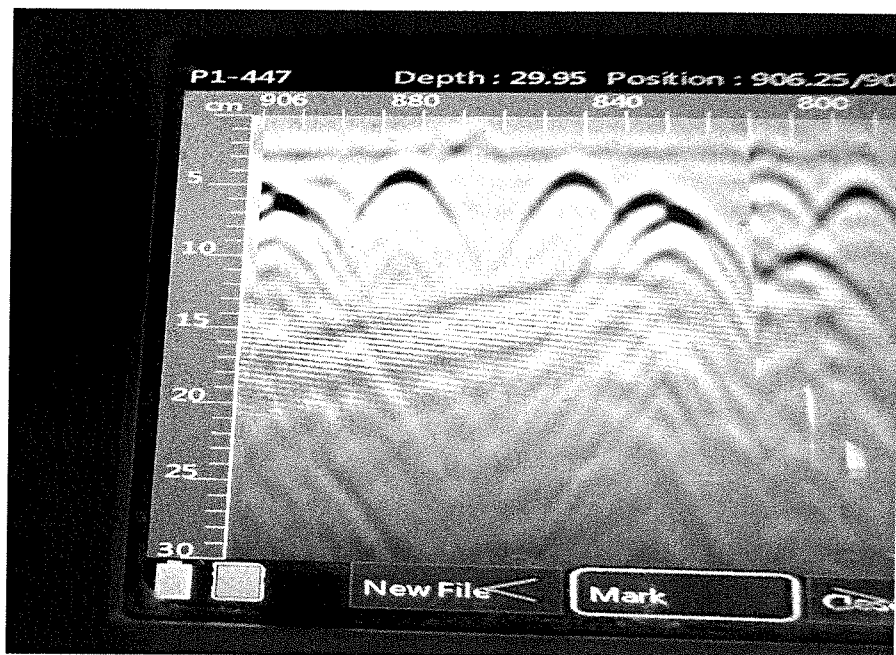
22) PAHOM GR 3-1 40 CM -4 BARE 16-18 MM +ETR 6-8 MM /25 CM
-POSIBIL BARE CU COTA VARIABILA- URCA PE REAZEM



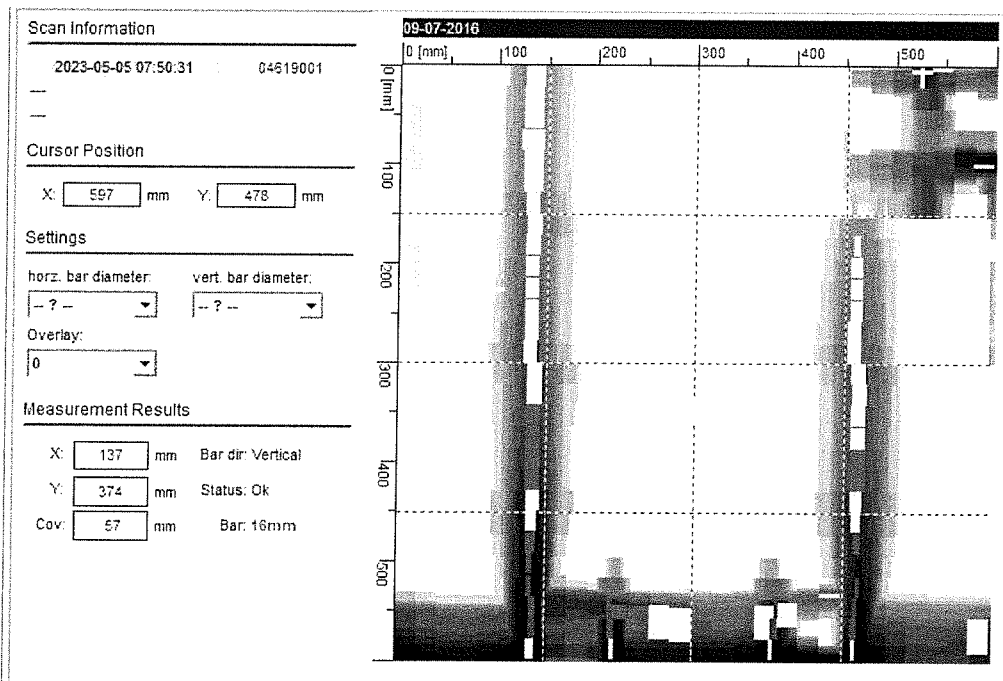
23) -POZITIE TESTE ETAJ 2



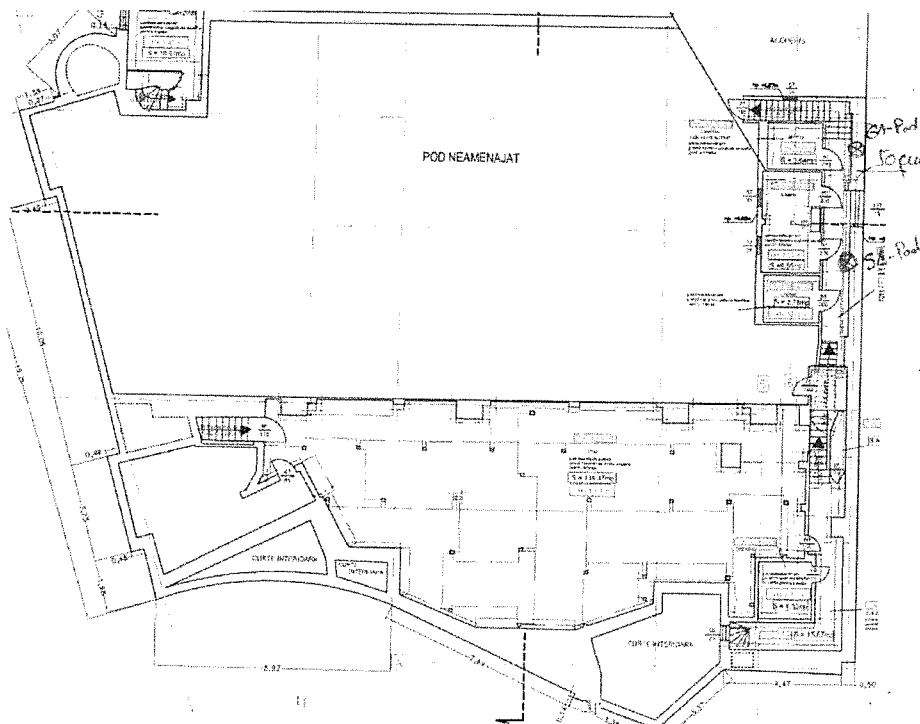
24) PAHOM ST 1-3 40 CM -2 BARE +ETR 6-8 MM /25 CM
-POSBIL BARE 2 +2 STANGA /DREAPTA SAU PROFILE - 20 CM ST+DR BETON



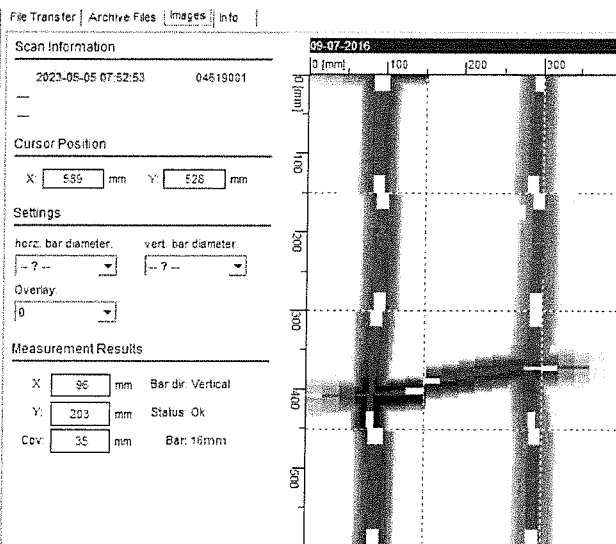
25) PAHOM ST 1-3 40 CM -2 BARE +ETR 6-8 MM /25 CM
-POSBIL BARE 2 +2 STANGA /DREAPTA SAU PROFILE - 20 CM ST+DR BETON



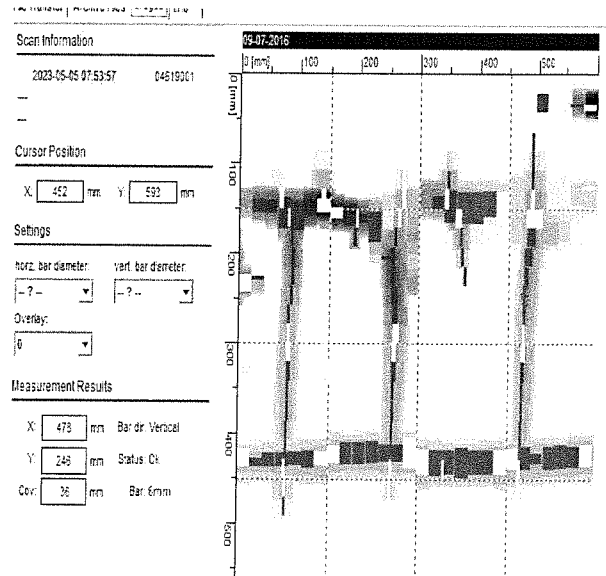
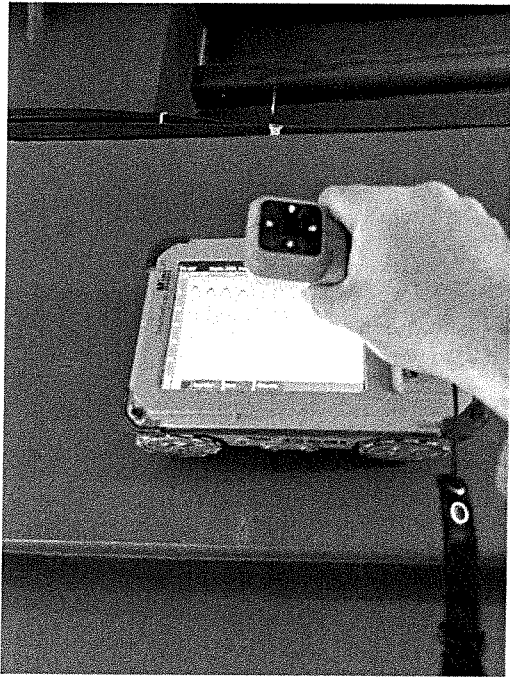
26) PAHOM ST 1-3 40 CM -2 BARE +ETR 6-8 MM /25 CM
-POSBIL BARE 2 +2 STANGA /DREAPTA SAU PROFILE - 20 CM ST+DR BETON



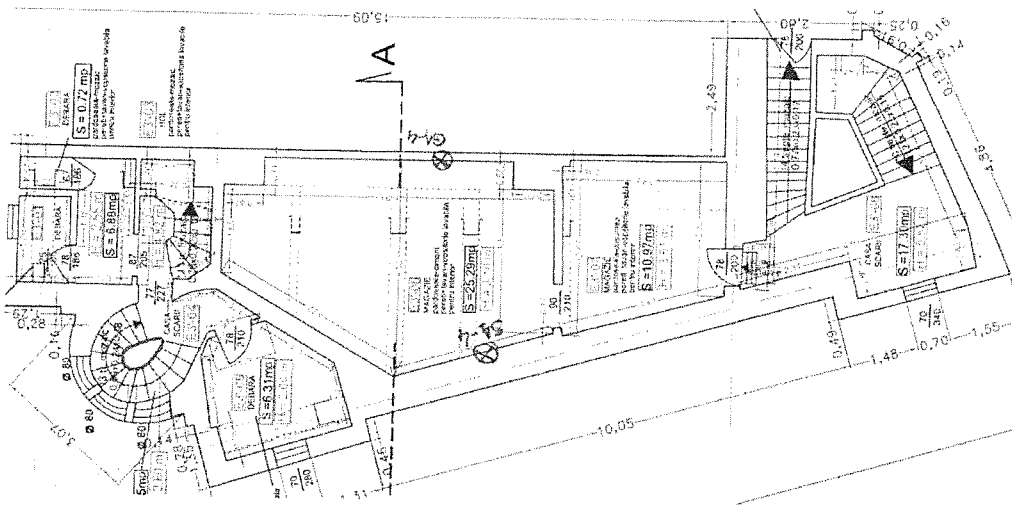
27) -POZITIE TESTE POD 1



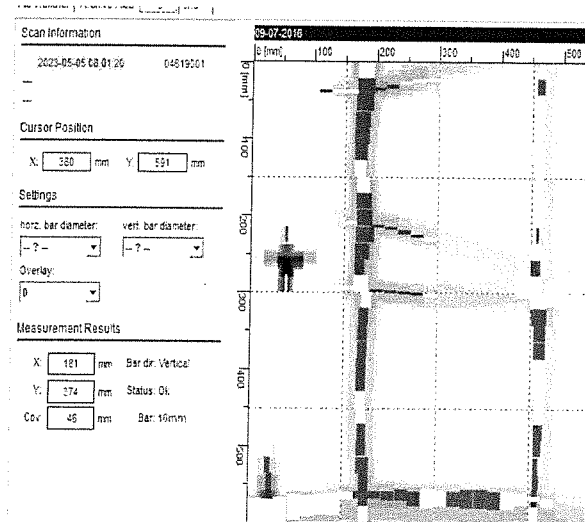
28) PAHOM ST 1-POD LAT 1 30 CM -2 BARE 20 MM +ETR 8 MM /25 CM



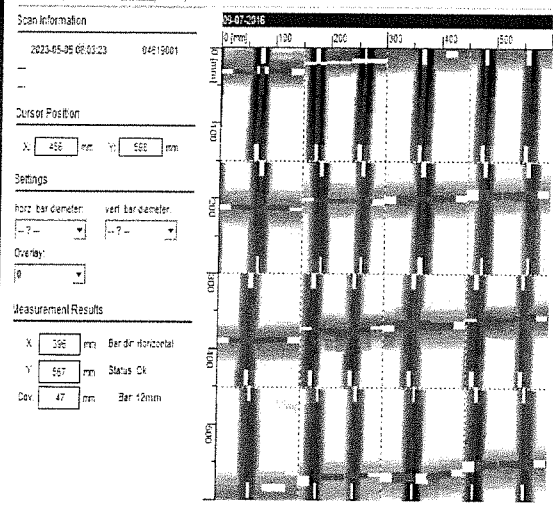
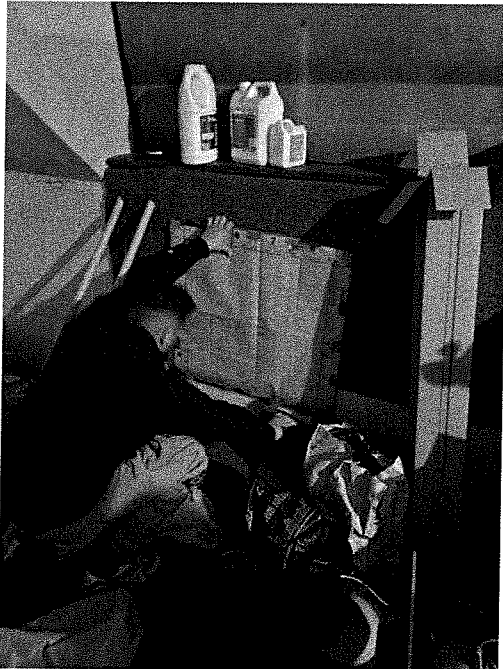
29) PAHOM GR 1 POD LAT 1 30 CM -2 BARE 16 MM +ETR 6 MM /20 CM



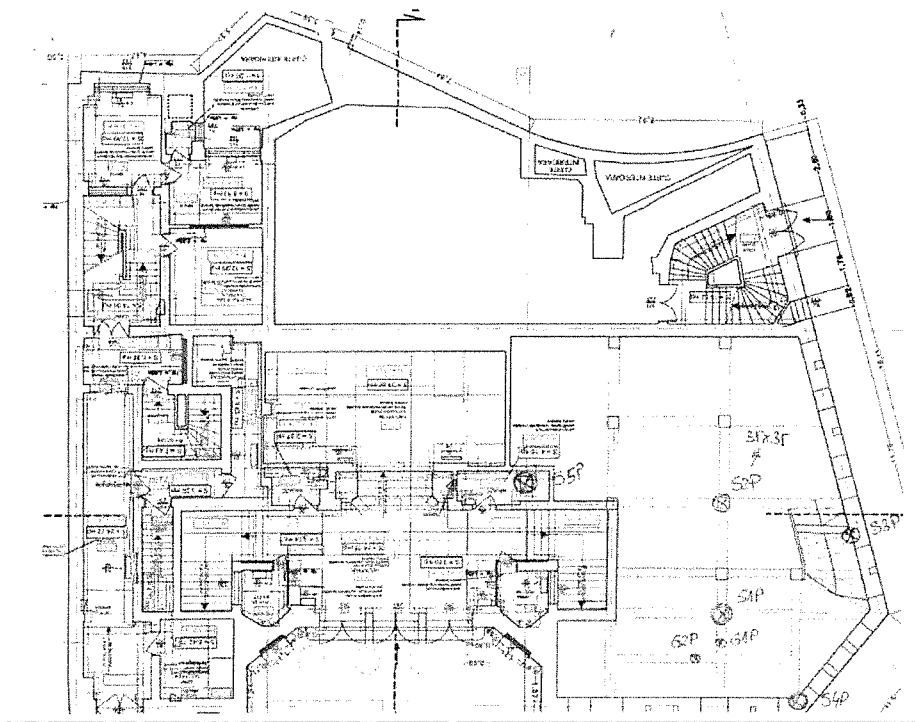
30) -POZITIE TESTE POD 2



31) PAHOM ST 1-4 LAT 1 40 CM -2 BARE 20 MM +ETR 8 MM /25 CM



32) PAHOM GR 1-4 LAT 1 100 CM - BARE VERT ETR 8 MM /10 CM +ORIZ 10-12 MM /20CM .

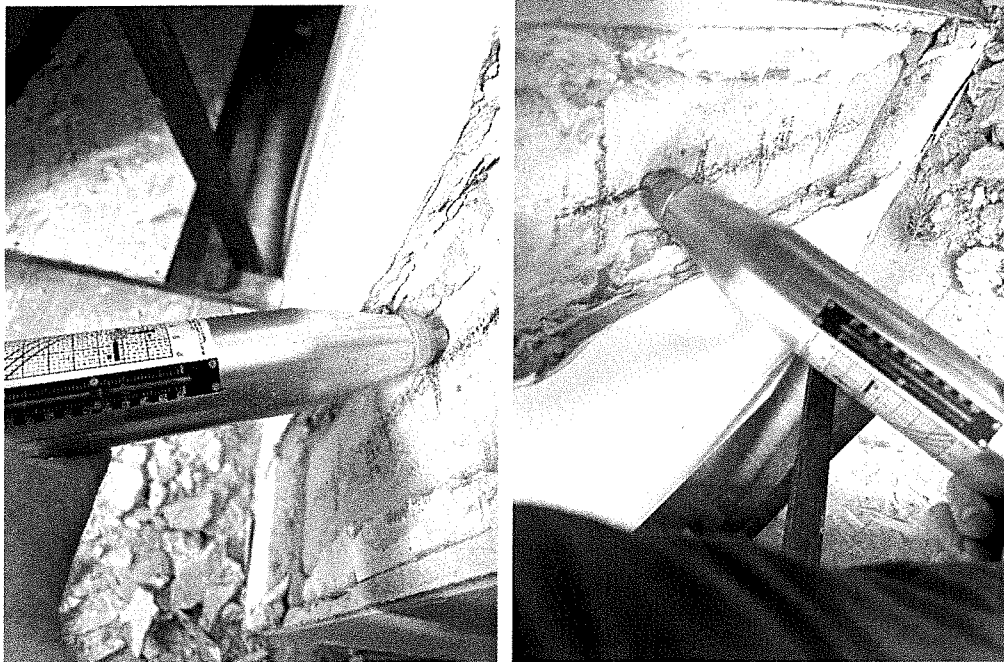


33) -POZITIE TESTE PARTER / SUBSOL 1 -ZONA RESTAURANT



Scan Information	
2023-05-05 08:16:31	04E19001
Cursor Position	
X: 568 mm	Y: 543 mm
Settings	
horz. bar diameter: [?] mm	vert. bar diameter: [?] mm
Overlay: [0]	
Measurement Results	
X: 181 mm	Bar dir: Horizontal
Y: 357 mm	Status: Ok
Cov: 55 mm	Bar: 8mm

34) PAHOM ST 2-P LAT 1 35 CM -2 BARE 20-22 MM +ETR 8 MM /25 CM



35) SCLEROMETRIE ST 2 P - ANEXA 1



36) BETONOSCOPIE ST 2 P - ANEXA 1

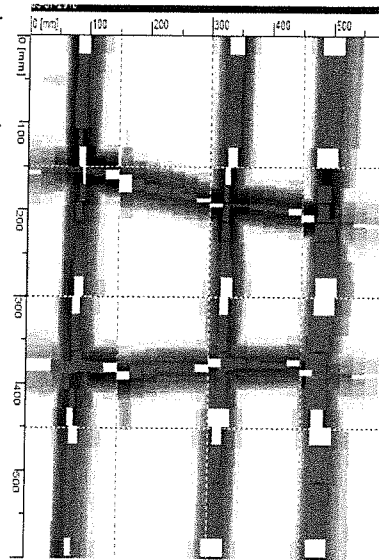


Scan Information
2023-05-05 05:19:02 04819001

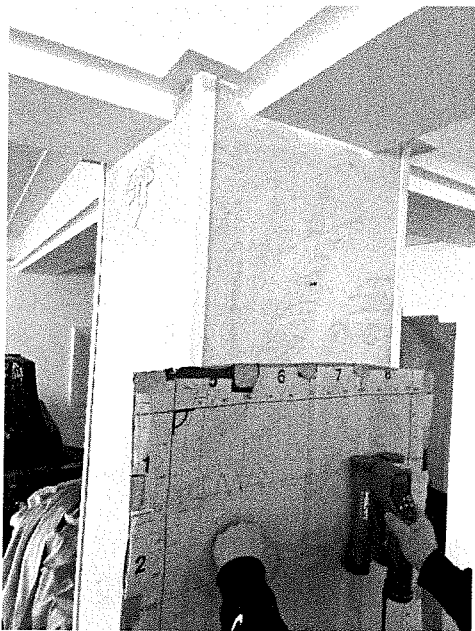
Cursor Position
X: 561 mm Y: 597 mm

Settings
horz. bar diameter: -7 mm vert. bar diameter: -7 mm
Overlay: 0

Measurement Results
X: 66 mm Bar dir. Vertical
Y: 74 mm Status Ok
Cov: 46 mm Bar 20mm



37) PAHOM ST 1-P LAT 1 50 CM LAT 1 -3 BARE 20 MM +ETR 8 MM /25 CM

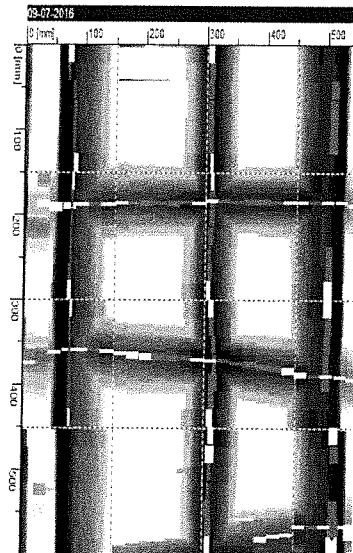


Scan Information
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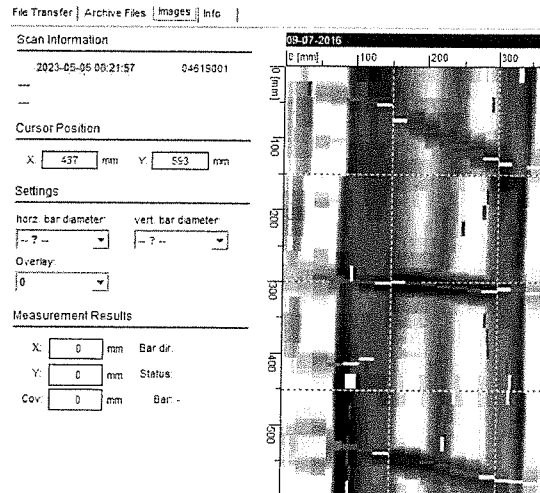
Cursor Position
X: 528 mm Y: 597 mm

Settings
horz. bar diameter: -7 mm vert. bar diameter: -7 mm
Overlay: 0

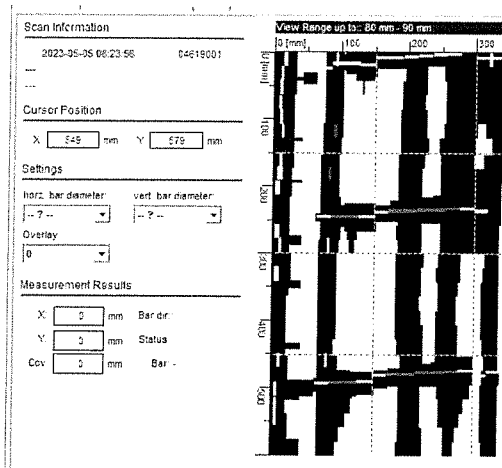
Measurement Results
X: 516 mm Bar dir. Vertical
Y: 527 mm Status Ok
Cov: 55 mm Bar 20mm



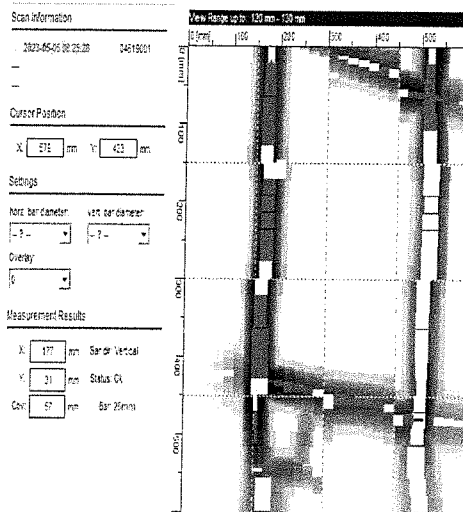
38) PAHOM ST 1-P LAT 2 50 CM LAT 1 -3 BARE 20 MM +ETR 8 MM /25 CM



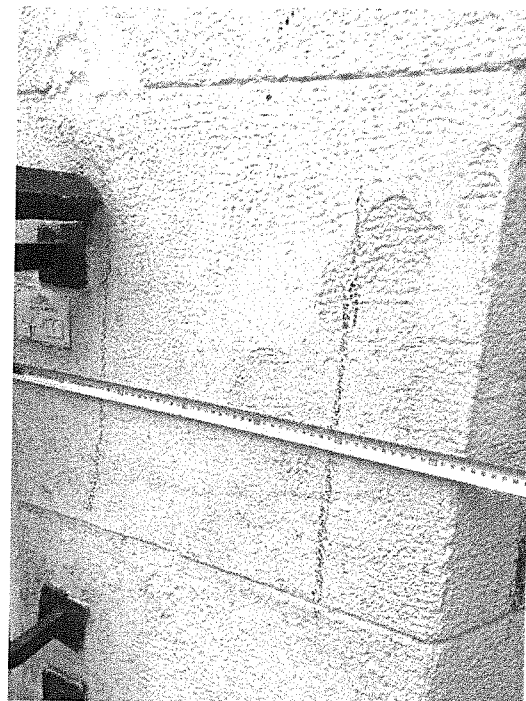
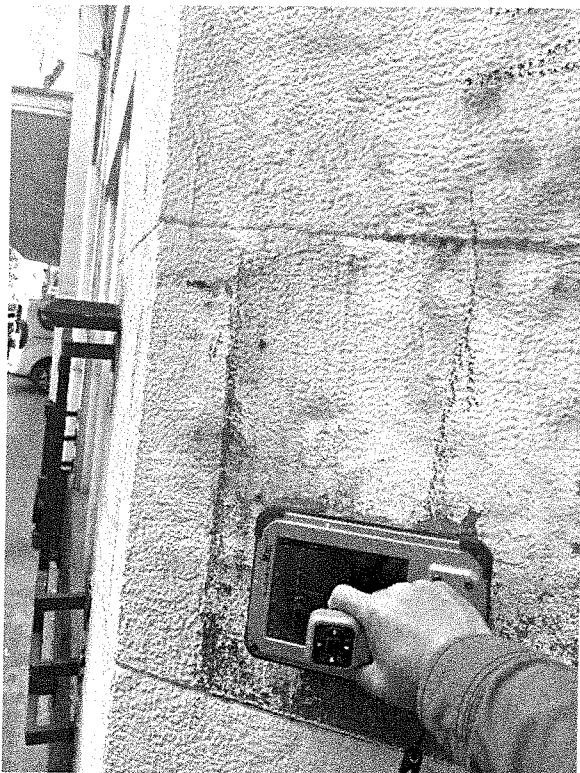
39) PAHOM GR 1-P LAT JOS 30 CM -3-4 BARE 16-18 MM +ETR 6- 8 MM /25 CM



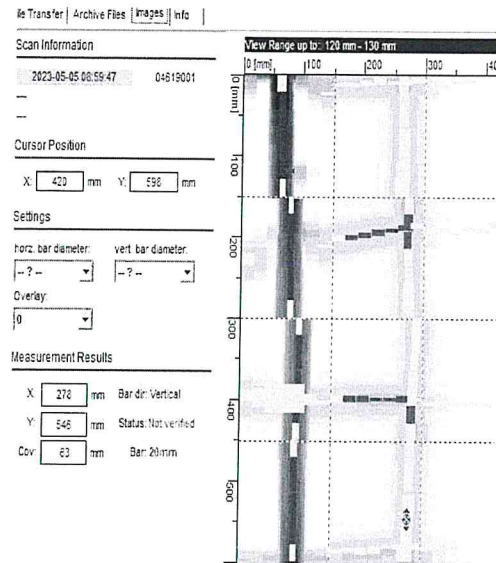
40) PAHOM GR 1-P LAT JOS 30 CM -3-4 BARE 16-18 MM +ETR 6- 8 MM /25 CM



41) PAHOM ST 3- P LAT 2 40 CM LAT 1 -3 BARE 25-28 MM +ETR 8 MM /30 CM



42) PAHOM ST 4- P 2X LAT 40 CM -2+ BARE 20-25 MM +ETR /25 CM



43) PAHOM ST 5- P LAT 2 40 CM LAT 1 -3 BARE 20-22 MM +ETR 8 MM /30 CM



44) SCLEROMETRIE ST 5 P /S - ANEXA 1





36) BETONOSCOPIE ST 5 P/S - ANEXA 1





INSPECTORATUL DE STAT ÎN CONSTRUCȚII

AUTORIZAȚIE

LABORATOR DE GRADUL II

Nr. 3589
Data: 18.03.2020

Se autorizează Laboratorul: "LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN
CONSTRUCȚII - NDT LABORATORY - GRAD II - S.C. PAVLU DESIGN CONSTRUCT
S.R.L."

aparținând "S.C. PAVLU DESIGN CONSTRUCT S.R.L."

înmatriculată sub Nr J40/20046/2007 C.I.F. RO 22633658

având sediul social în MUNICIPIUL BUCUREȘTI, SECTOR 6, Str. Inginer Pascal Cristian,
Nr. 35, Camera 1,

pentru efectuarea de încercări și verificări de laborator, în profilurile și pentru încercările din
anexă.

Standard de referință SR EN ISO/CEI 17025:2005/AC:2007.

INSPECTOR GENERAL

ТМАЕ. ТОН