

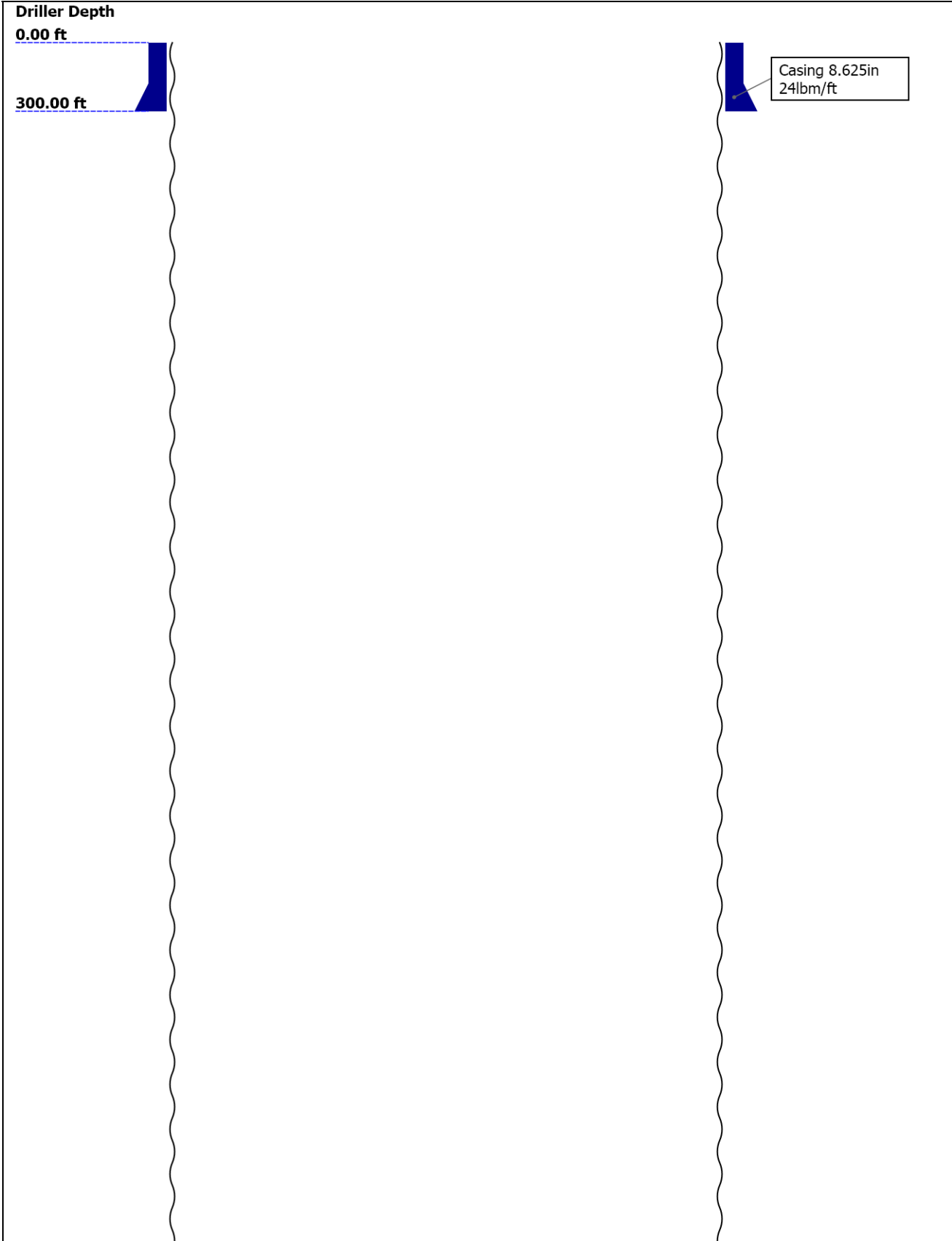
Company:		Nighthawk Production LLC		Schlumberger	
Well:		Big Sky 4-11			
Field:		Wildcat			
County:		Lincoln		State: Colorado	
Platform Express					
Caliper					
Cement Volume					
Location:		NWNW		Elev. K.B. 5208.00 ft	
SHL: 615' FNL X 622' FWL				G.L. 5193.00 ft	
D.F. 5207.00 ft					
Permanent Datum:		Ground Level		Elev.: 5193.00 f	
Log Measured From:		Kelly Bushing		15.00 ft above Perm.Datum	
Drilling Measured From:		Kelly Bushing			
API Serial No. 05-073-06523-0000		Section: 11		Township: 6S	
				Range: 54W	
Logging Date		12-May-2013			
Run Number		1			
Depth Driller		8350.00 ft			
Schlumberger Depth		8342.00 ft			
Bottom Log Interval		8334.00 ft			
Top Log Interval		308.00 ft			
Casing Driller Size @ Depth		8.625 in @ 300.00 ft			
Casing Schlumberger		309 ft			
Bit Size		7.875 in			
Type Fluid In Hole		Fresh Water			
Density		9.2 lbm/gal		90 s	
Fluid Loss		PH 8 cm3		7.3	
Source of Sample		Active Tank			
RM @ Meas Temp		0.53 ohm.m @ 60 degF			
RMF @ Meas Temp		0.4 ohm.m @ 60 degF			
RMC @ Meas Temp		0.81 ohm.m @ 60 degF			
Source RMF		RMC Calculated		Calculated	
RM @ BHT		RMC @ BHT		Calculated	
RM @ BHT		0.18 @ 190		0.14 @ 190	
Max Recorded Temperatures		190 degF			
Circulation Stopped		Time		21:00:00	
Logger on Bottom		Time		15:00:00	
Unit Number		Location:		Fort Morgan	
Recorded By		Danijl Kholin			
Witnessed By		Anders Elgerd			

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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Well Sketch




8350.00 ft

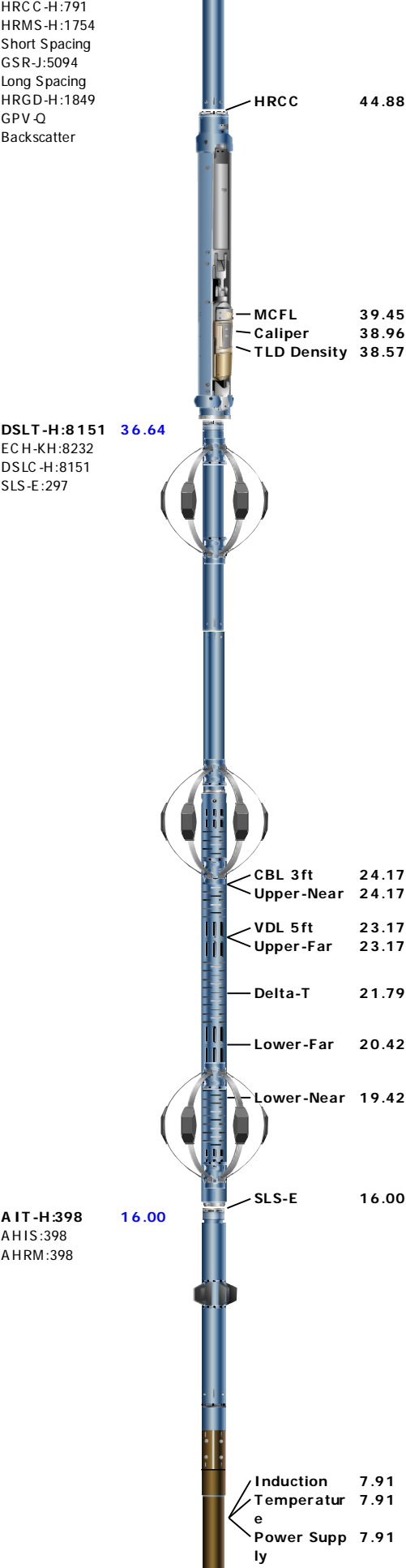
Open Hole 7.875in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	8350					
Bottom Logger (ft)	8342					
Casing						
Size (in)	8.625					
Weight (lbm/ft)	24					
Inner Diameter (in)	8.099					
Grade	N80					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	300					
Bottom Logger (ft)	309					

Remarks and Equipment Summary

1: Toolstring	1: Remarks
<div><div><div>Equip nameLengthMP nameOffset</div><div>LEH-QT:249364.21</div><div>LEH-QT:2493</div><div>DTC-H:1053061.29</div><div>ECH-KC</div><div>DTC-H:10530</div><div>HGNS-H:86358.29</div><div>HGNH:2883</div><div>NSR-F:5069</div><div>NPV-IN</div><div>HGNS-H:863</div><div>HMCA-H</div><div>HACCZ-H:452</div><div>HDRS-H:175448.88</div><div>ECH-MEB:1922</div></div><div></div></div>	Toolstring run as per toolsketch.
	HGNS run without bowspring as per client request due to hole conditions
	Matrix: Limestone, 2.71 g/cc
	Crew: Troy Ocanas, Jay Musgrave





SP 0.08
Mud Resistivity 0.00
Head Tension
TOOL_ZERO

Lengths are in ft

Maximum Outer Diameter = 5.000 in

Line: Sensor Location, Value: Gating Offset

All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters	1		
Conveyance Type	Wireline		
Log Sequence	This is first run in the hole.		
Stretch Correction (ft)	6.12		
Rig Type	Land		
Depth Remark Parameters	1		
Depth Remark 1	All Schlumberger Depth Control		
Depth Remark 2	IDW used as primary depth control.		
Depth Remark 3	Z-chart used as secondary depth		
Depth Measuring Device	1		
Type	IDW-B		
Serial Number	1918		
Calibration Date	22-Apr-2013		
Calibration Cable Type	7-46 AXS		
Wheel Correction 1	-8		
Wheel Correction 2	-9		
Tension Device	1		
Type	CMTD-B/A		
Serial Number	1274		
Calibration Date	30-apr-2013		
Calibrator Serial Number	78135A		
Calibration Points	10		
Calibration RMS	36		
Calibration Peak Error	77		
Logging Cable	1		
Type	7-46A-XS		
Serial Number	U711126		
Logging Cable Length (ft)	24000.00		

1

5" Caliper

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	1943.21	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	3271.37	ft3

Software Version

Acquisition System	Version
MaxWell	3.1.9755.0
Application Patch	GP 20121103 3.1.9755.1422

Computation	Description		Version
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels		3.1.9755.0
DepthCorrection	DepthCorrection		3.1.9755.0
Tool Elements	Description	Software Version	Firmware Version
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	3.1.9755.0	2.0
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	3.1.9755.0	2.0

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
1	Main[3]:Up	Up	208.80 ft	8359.06 ft	12-May-2013 3:21:28 PM	12-May-2013 5:46:55 PM	0.00 ft	

All depths are referenced to toolstring zero

Log

1: Main[3]:Up

Description: Format: Log (Noble East Caliper) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-May-2013 18:02:44

Channel	Source	Sampling
BS	Borehole	6in
CALI	HDRS-H:HRCC-H:HRCC-H	1in
GR_CAL	HGNS-H:HGNS-H:HGNS-H	6in
ICV	Borehole	6in
IHV	Borehole	6in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

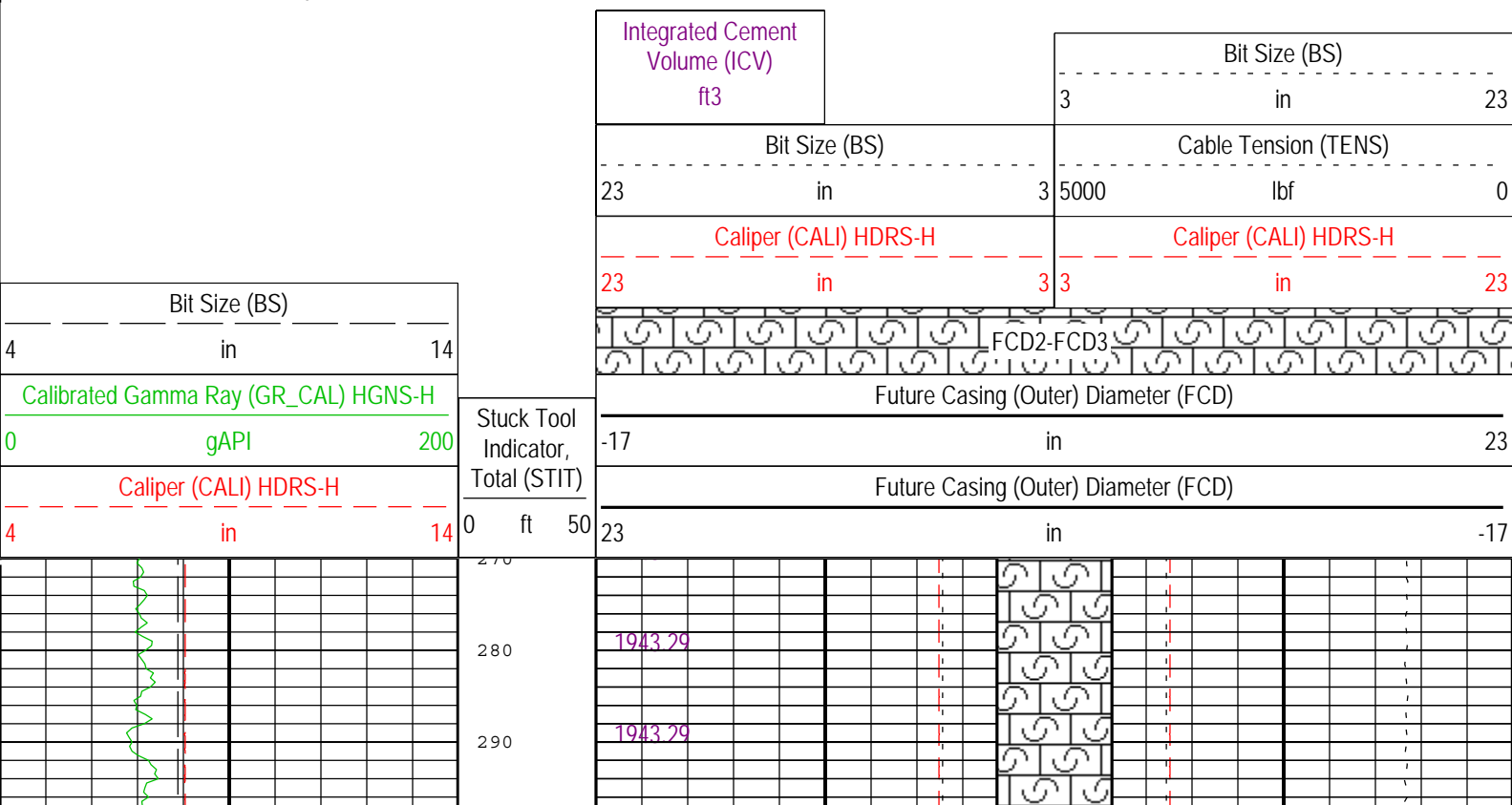
— IHV - Integrated Hole Volume every 100.00 (ft3)

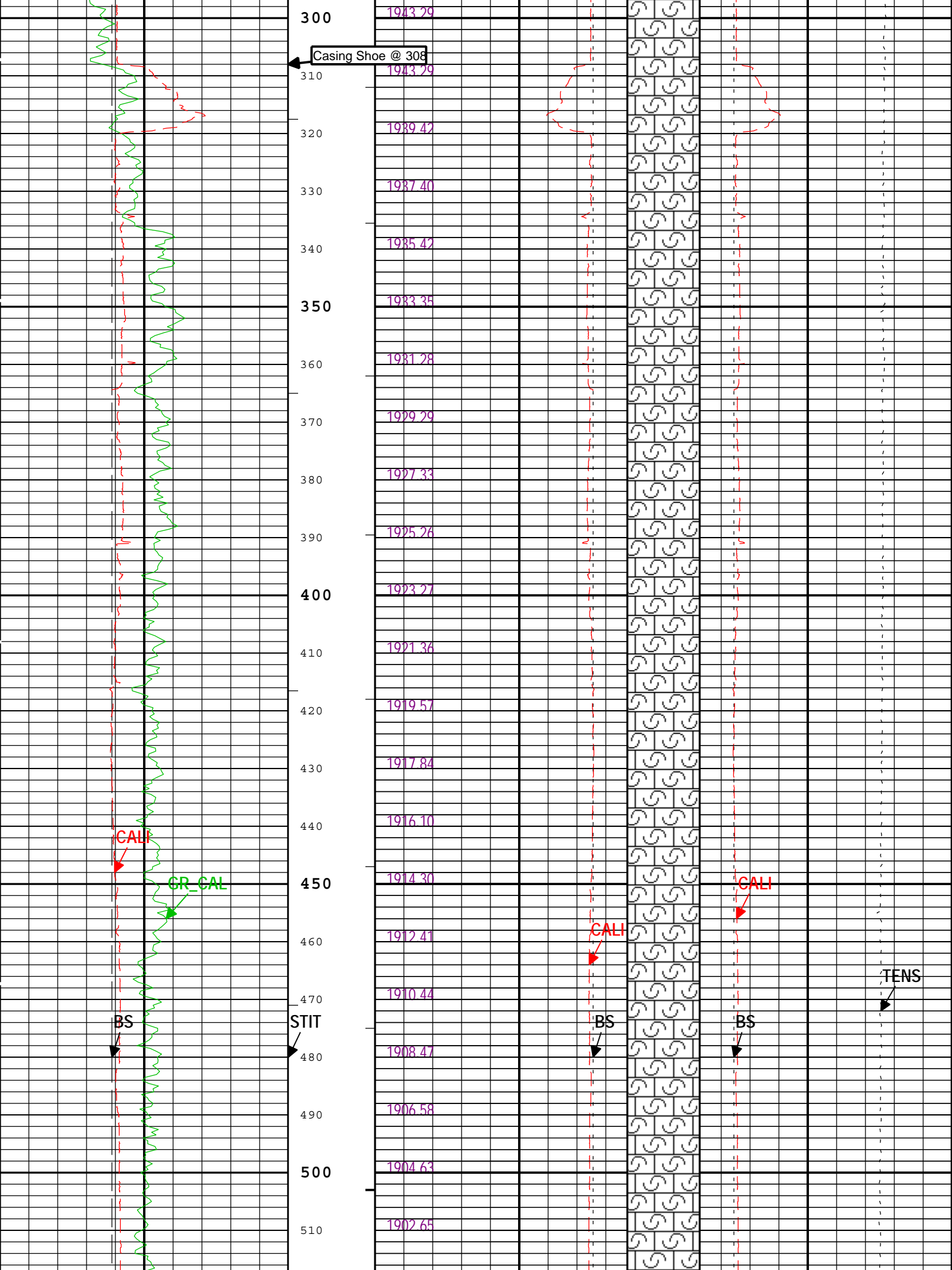
— ICV - Integrated Cement Volume every 100.00 (ft3)

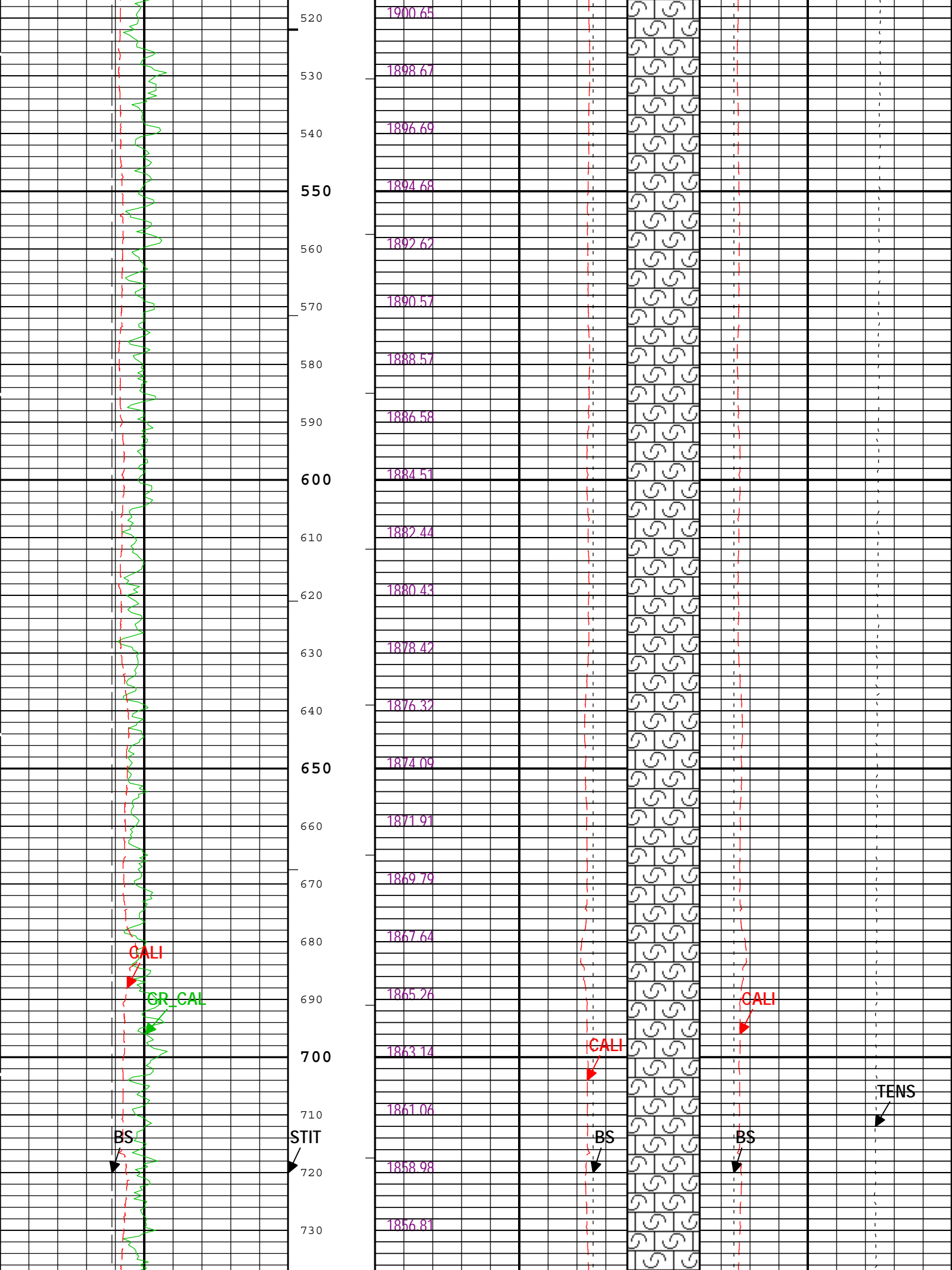
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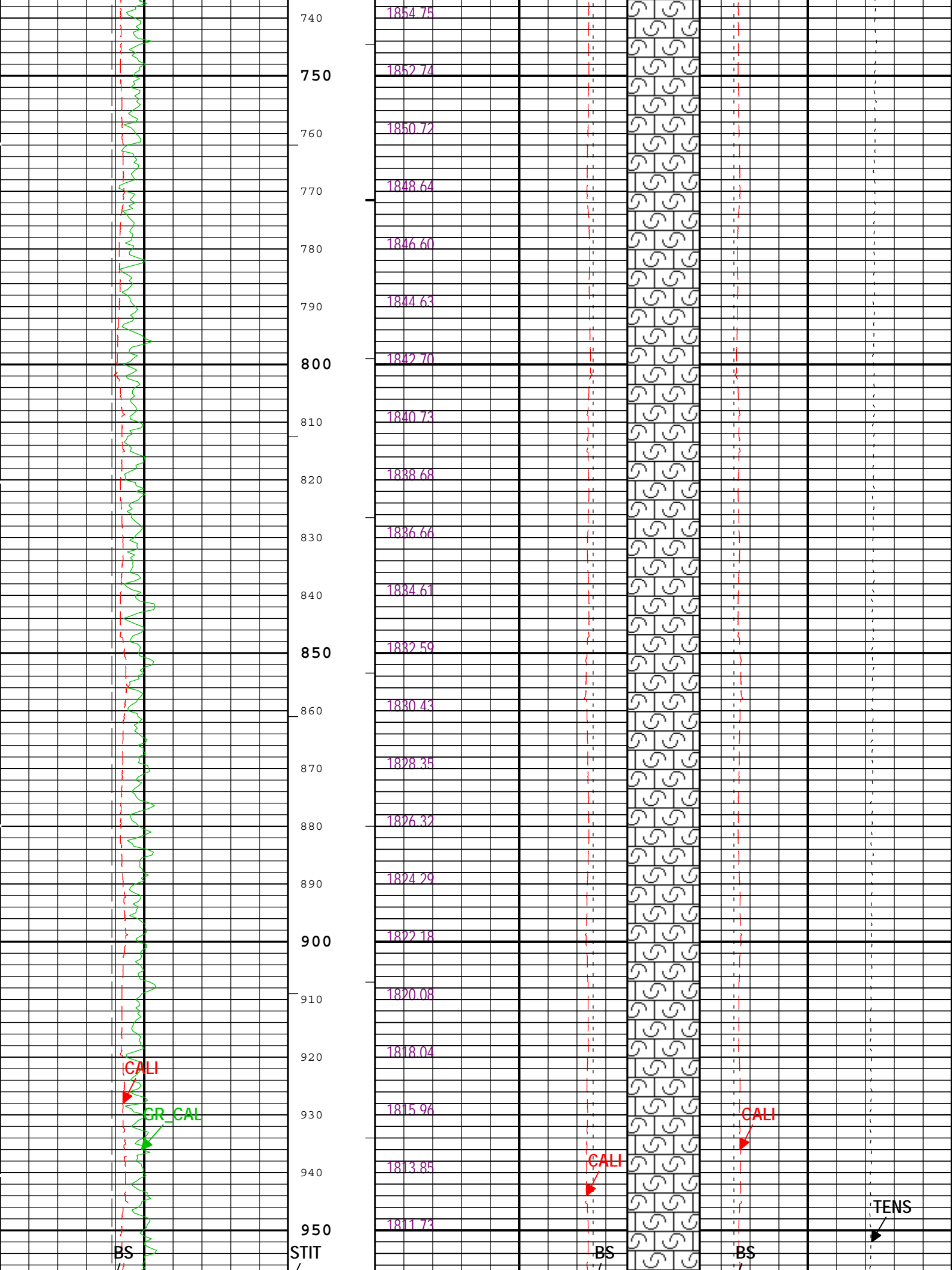
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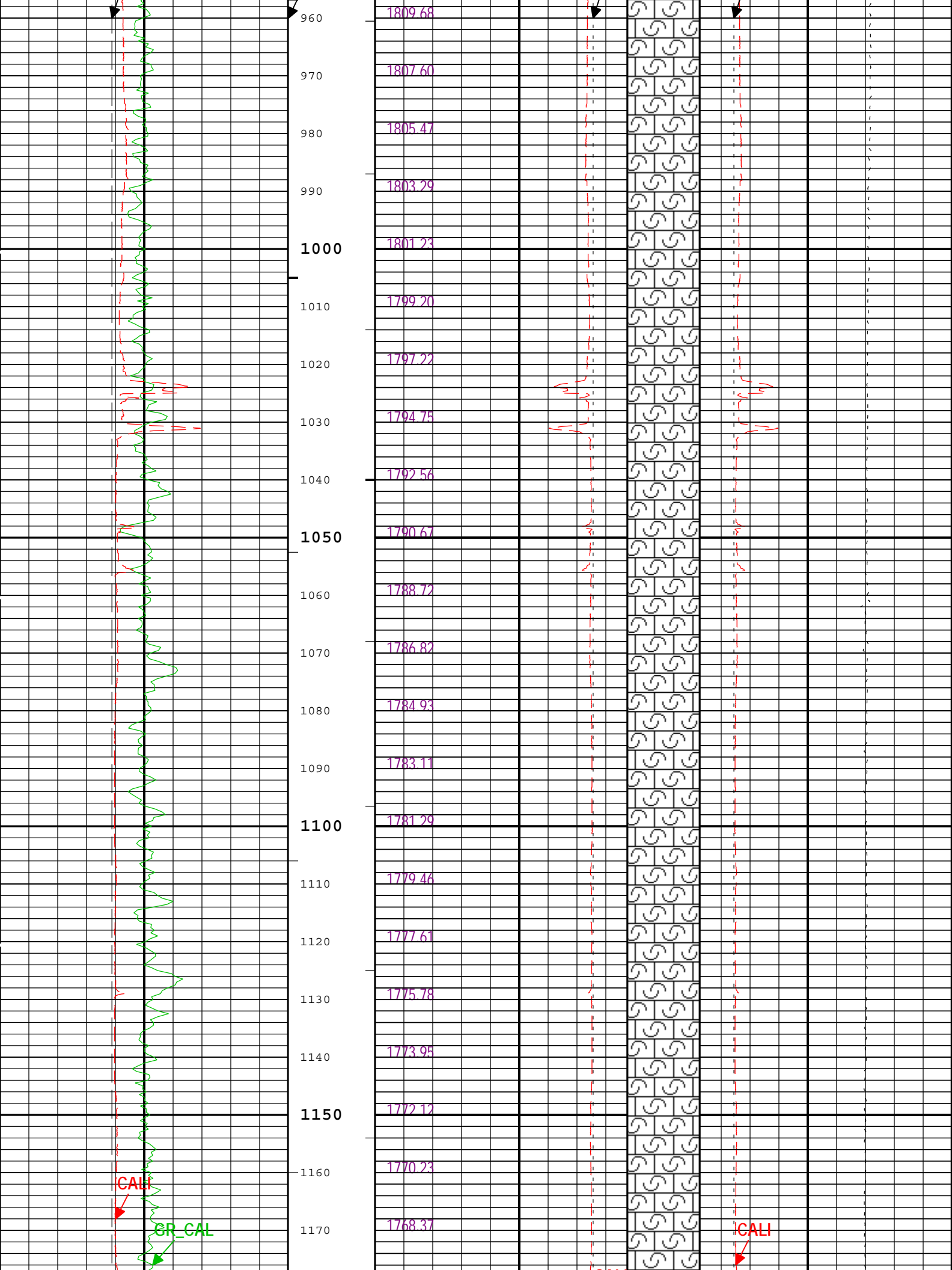
TIME_1900 - Time Marked every 60.00 (s)

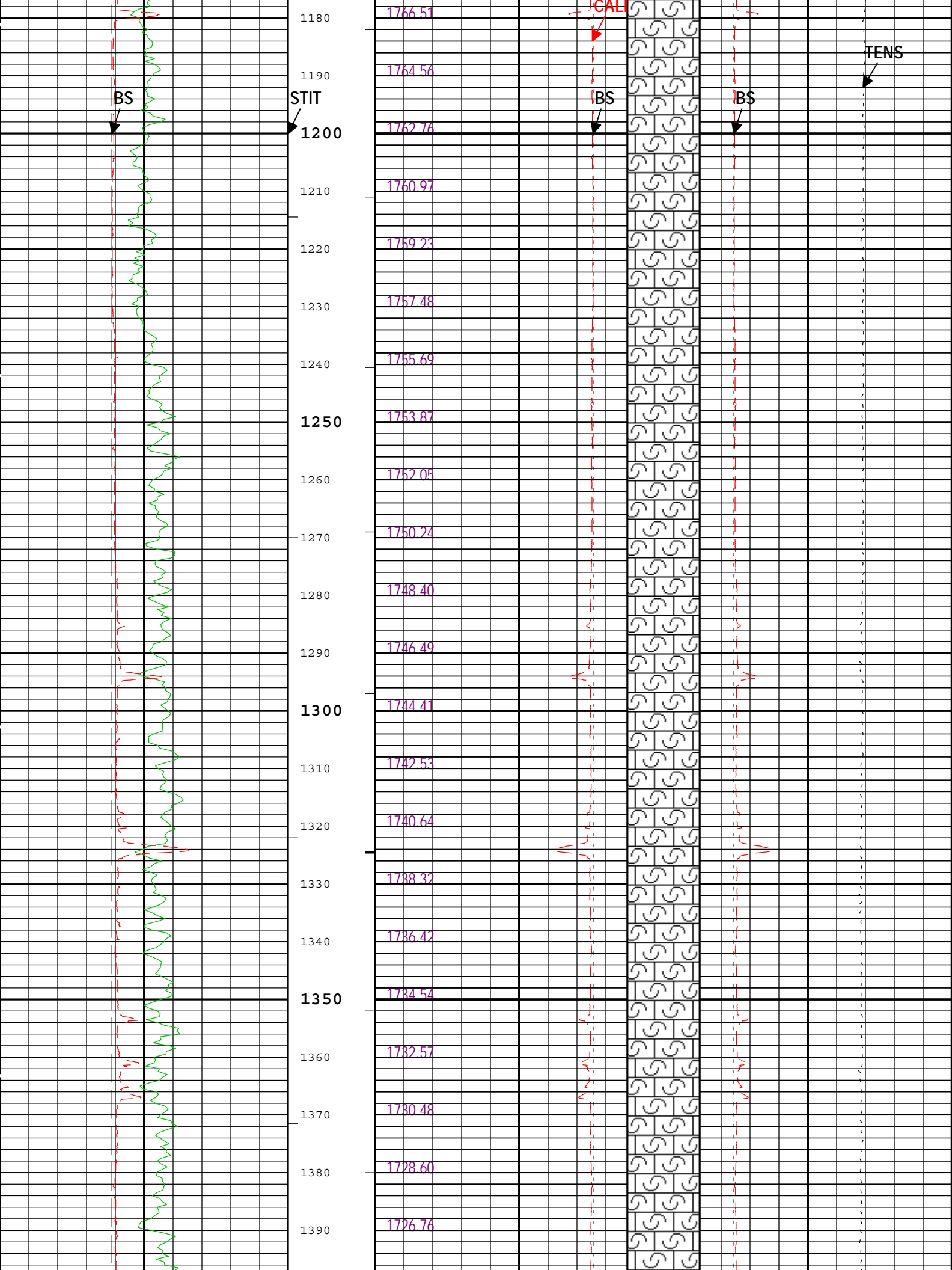


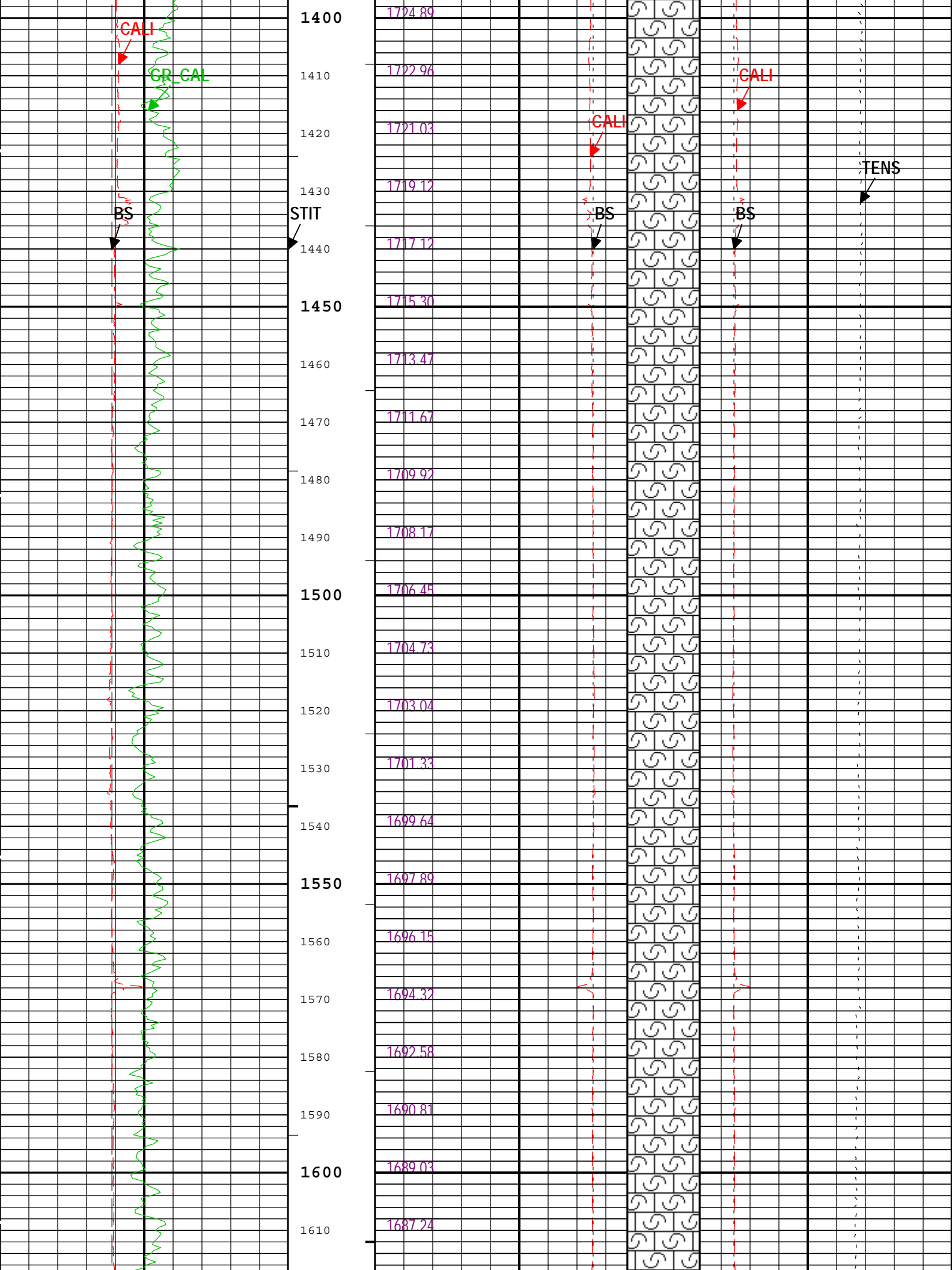


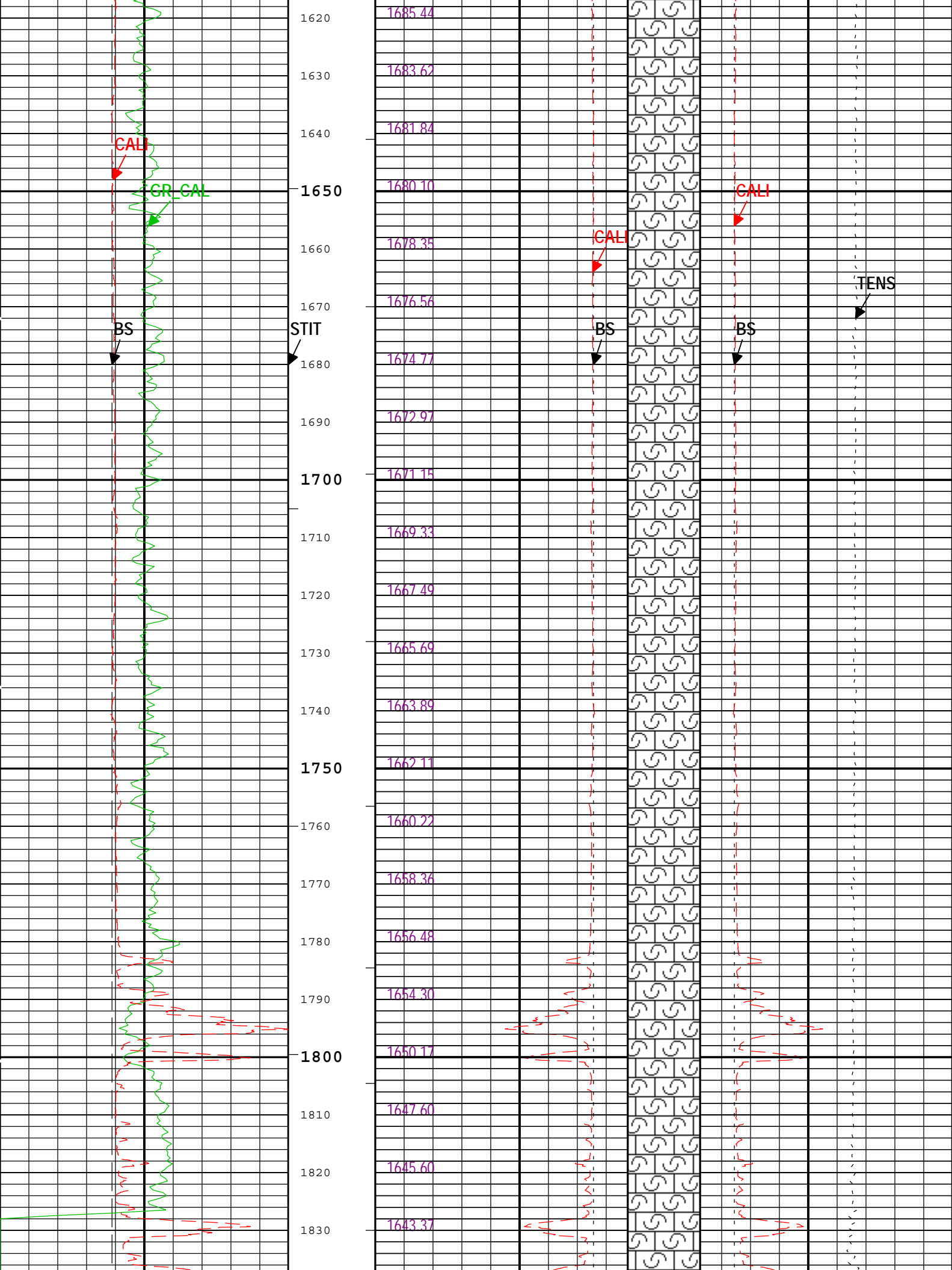


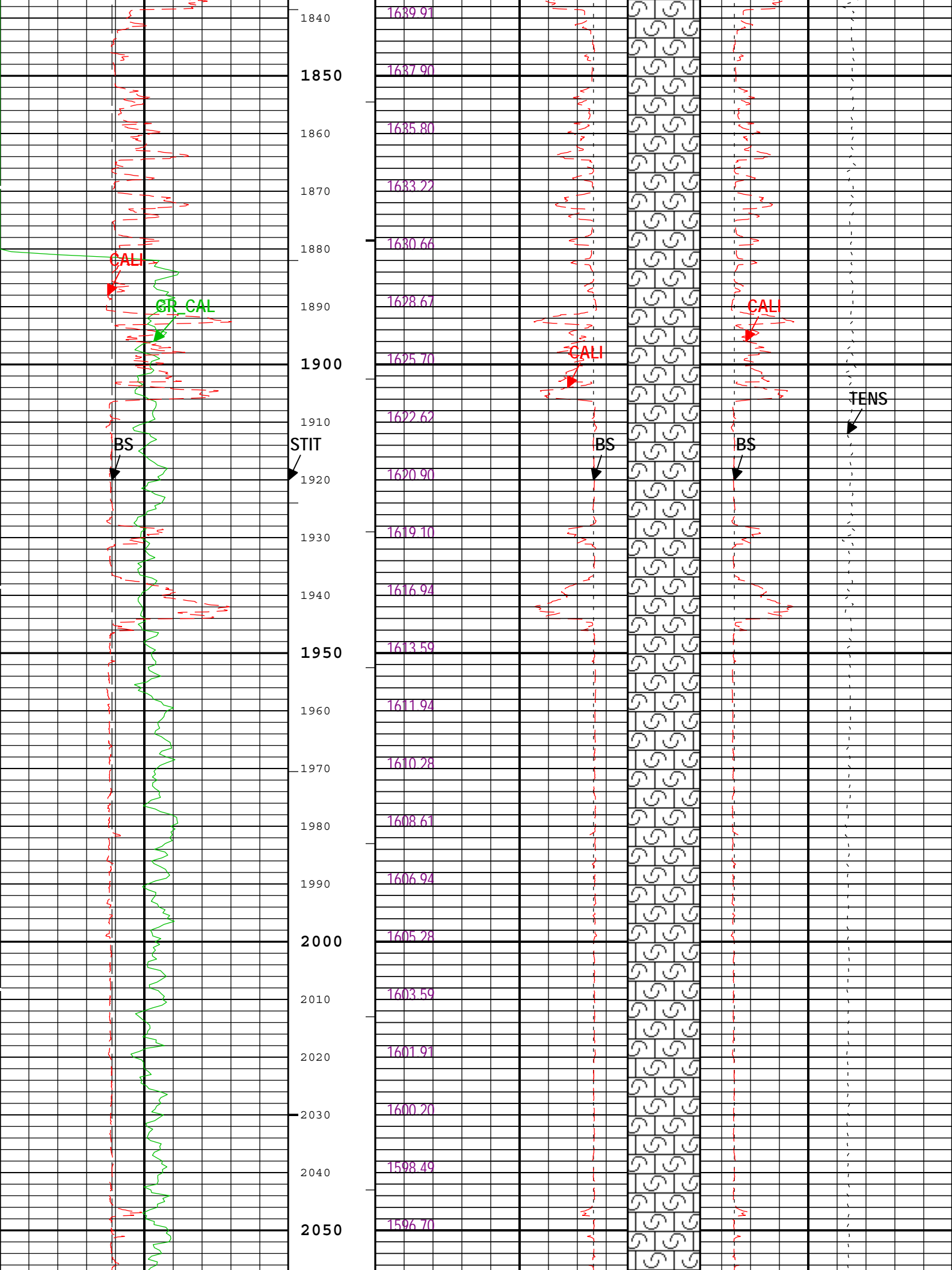


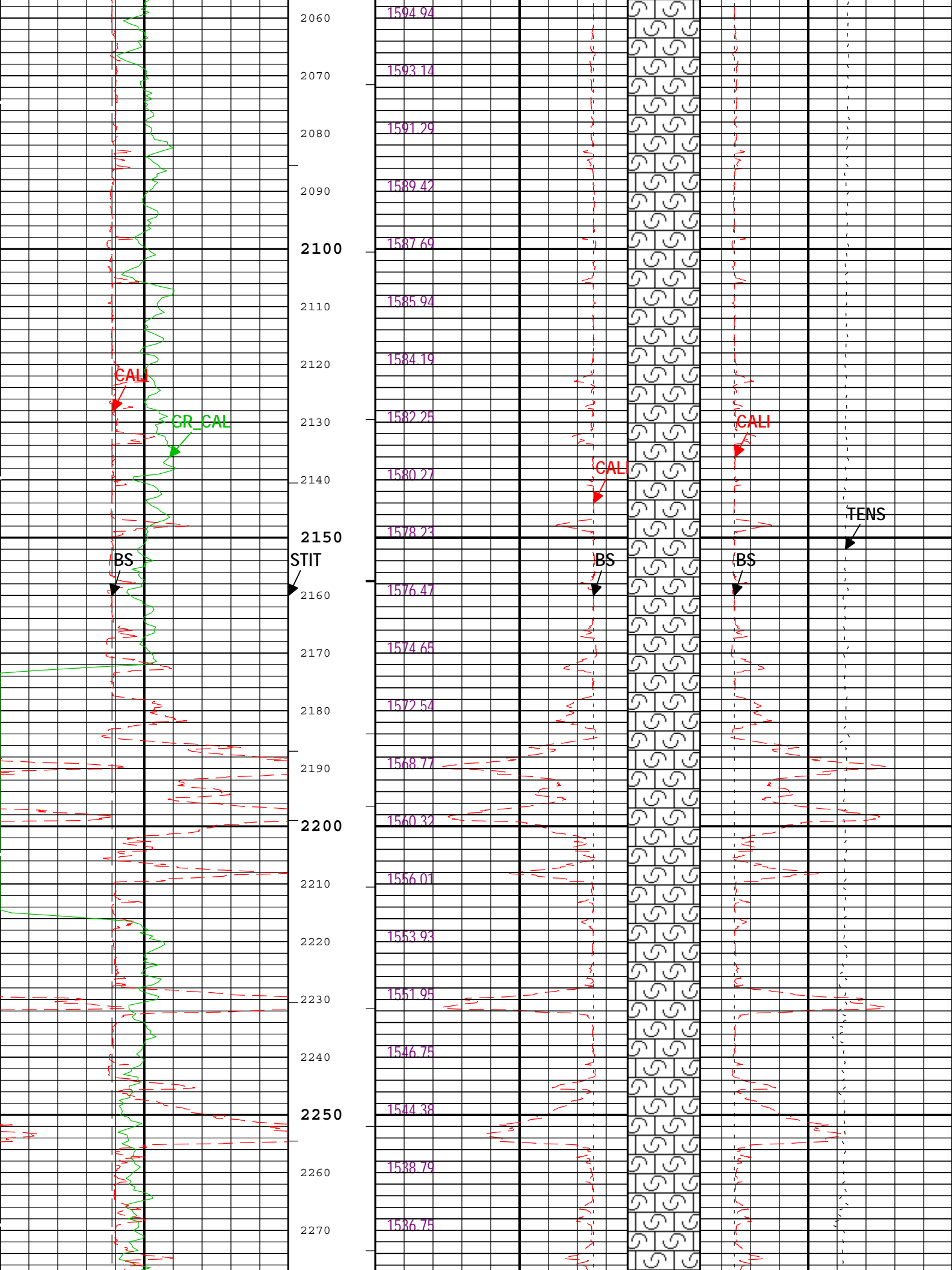


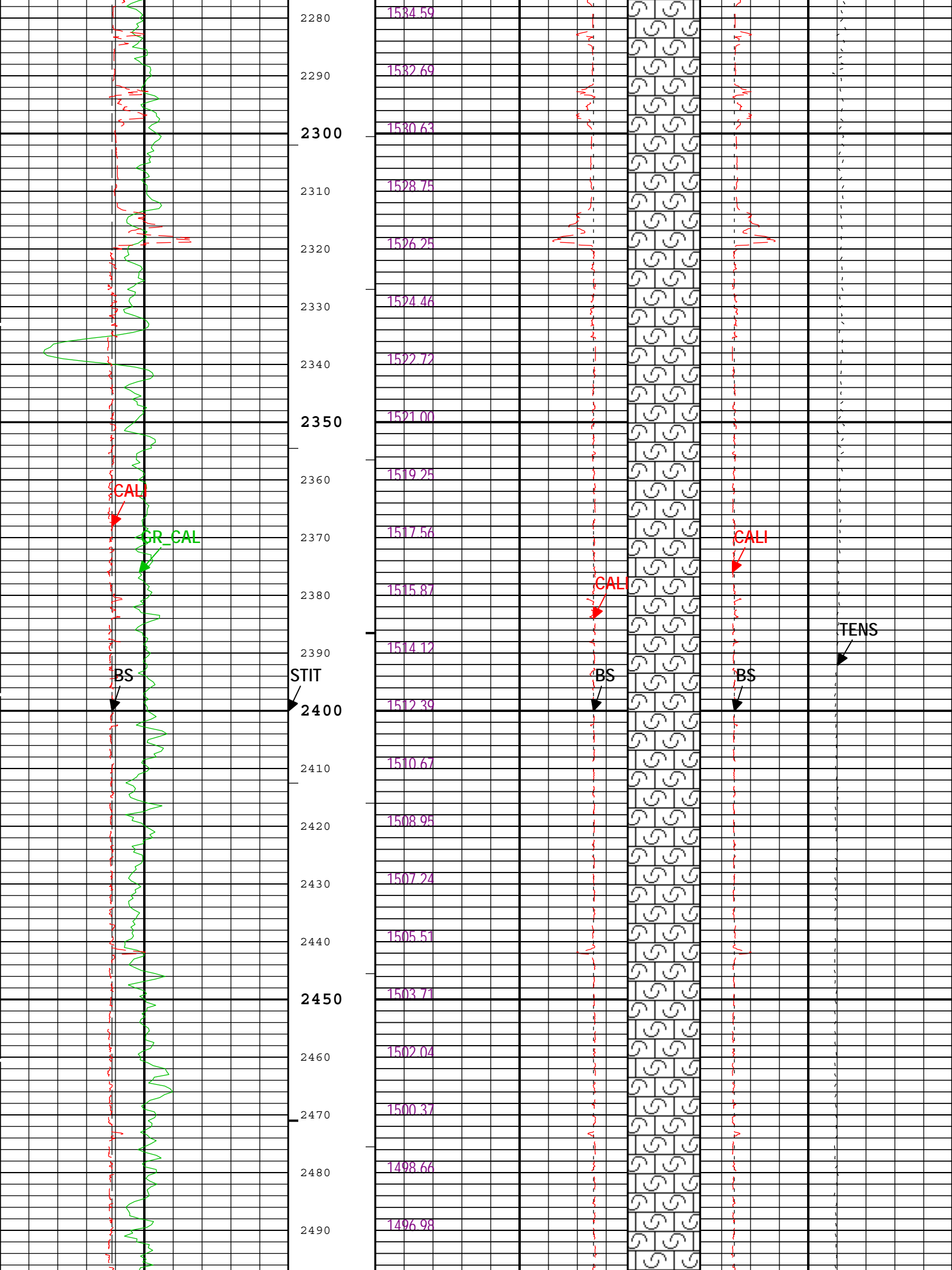


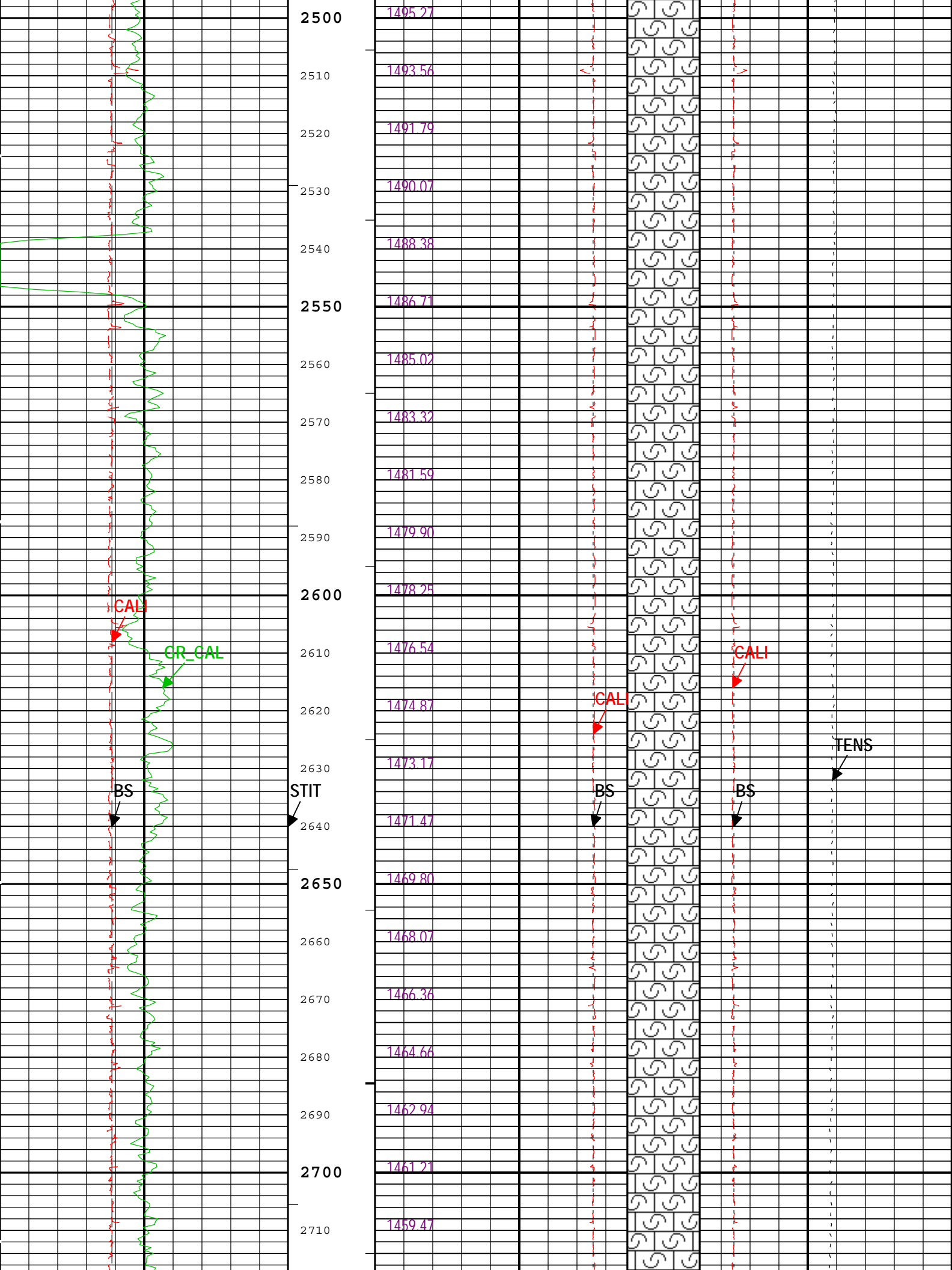


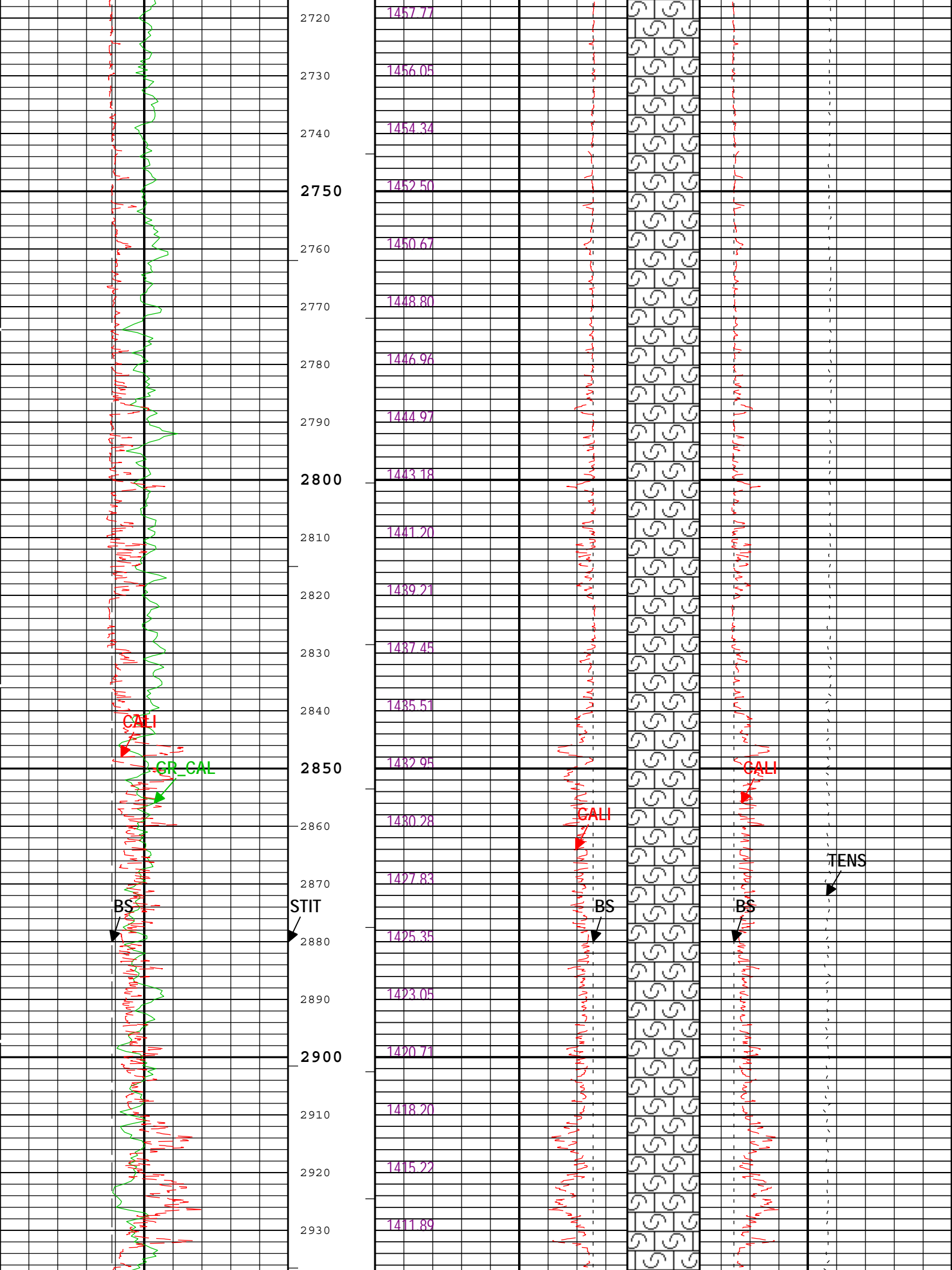


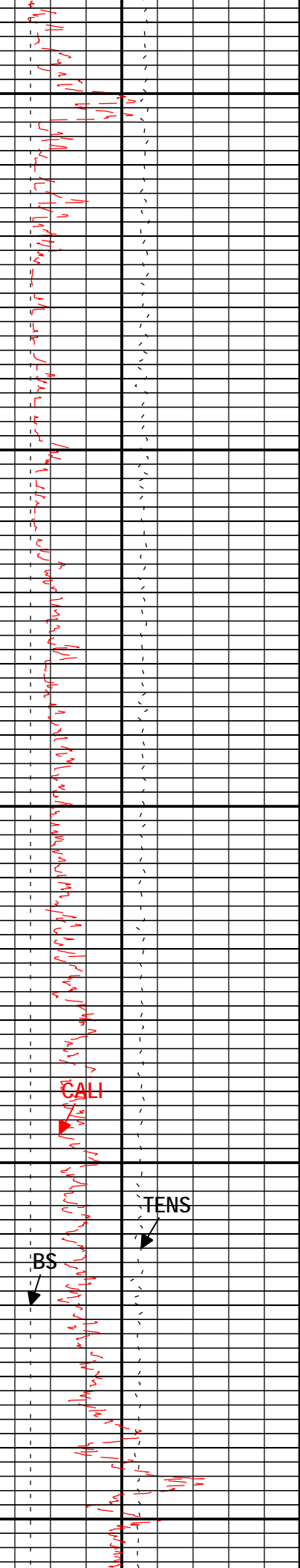
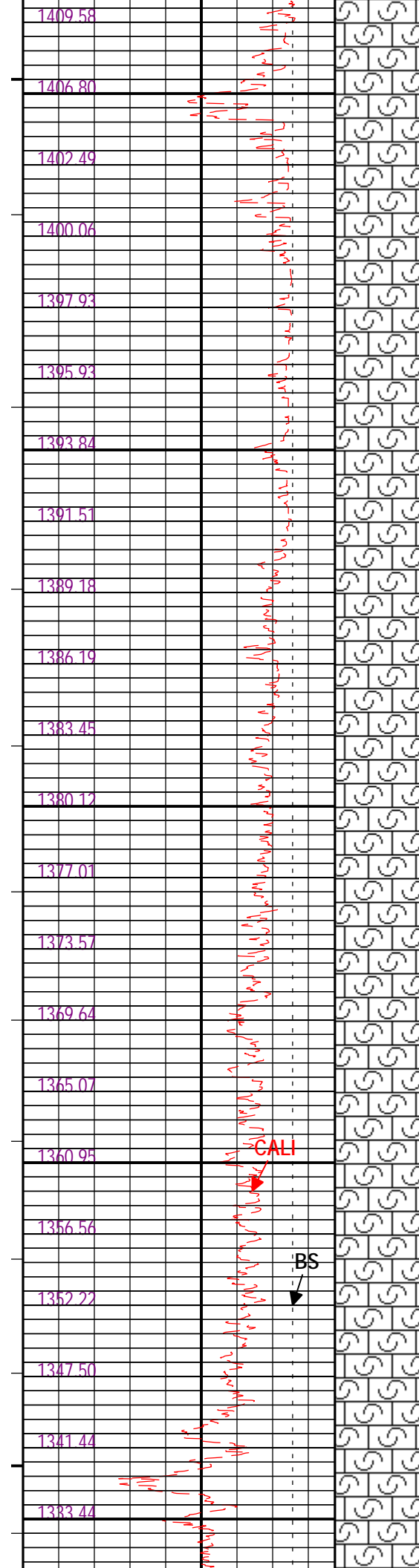
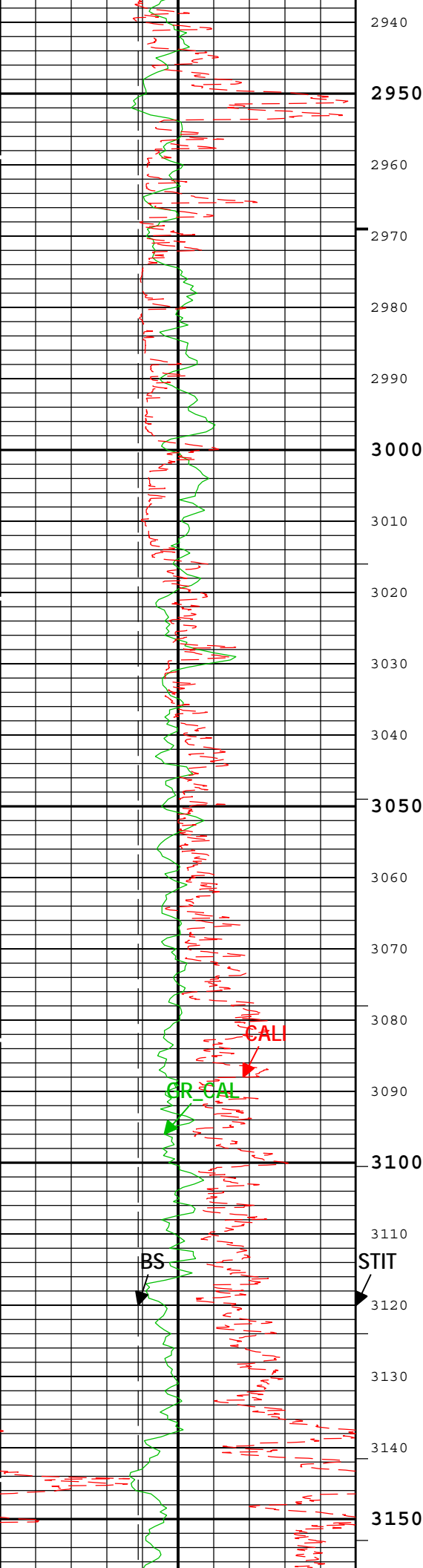


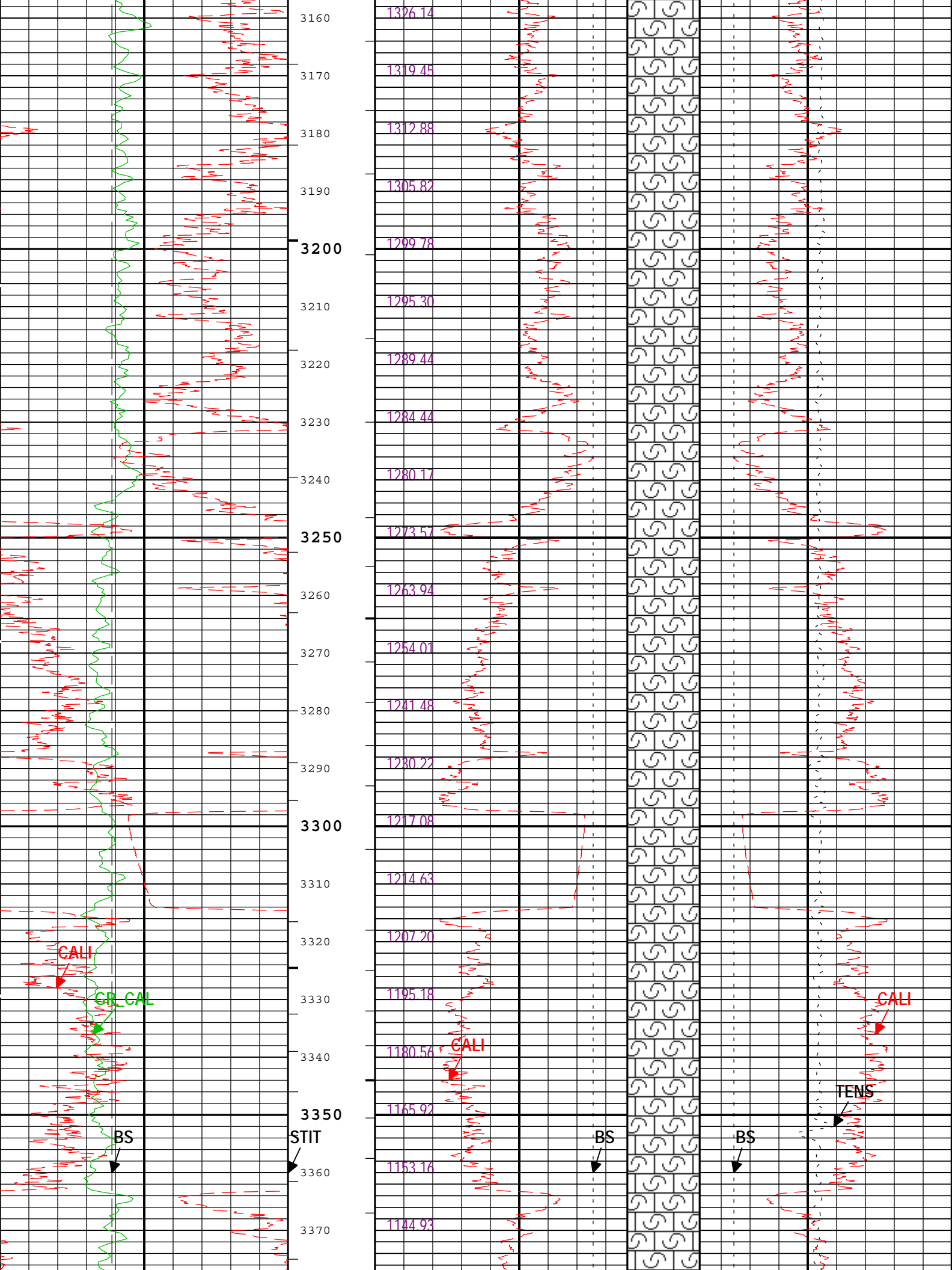


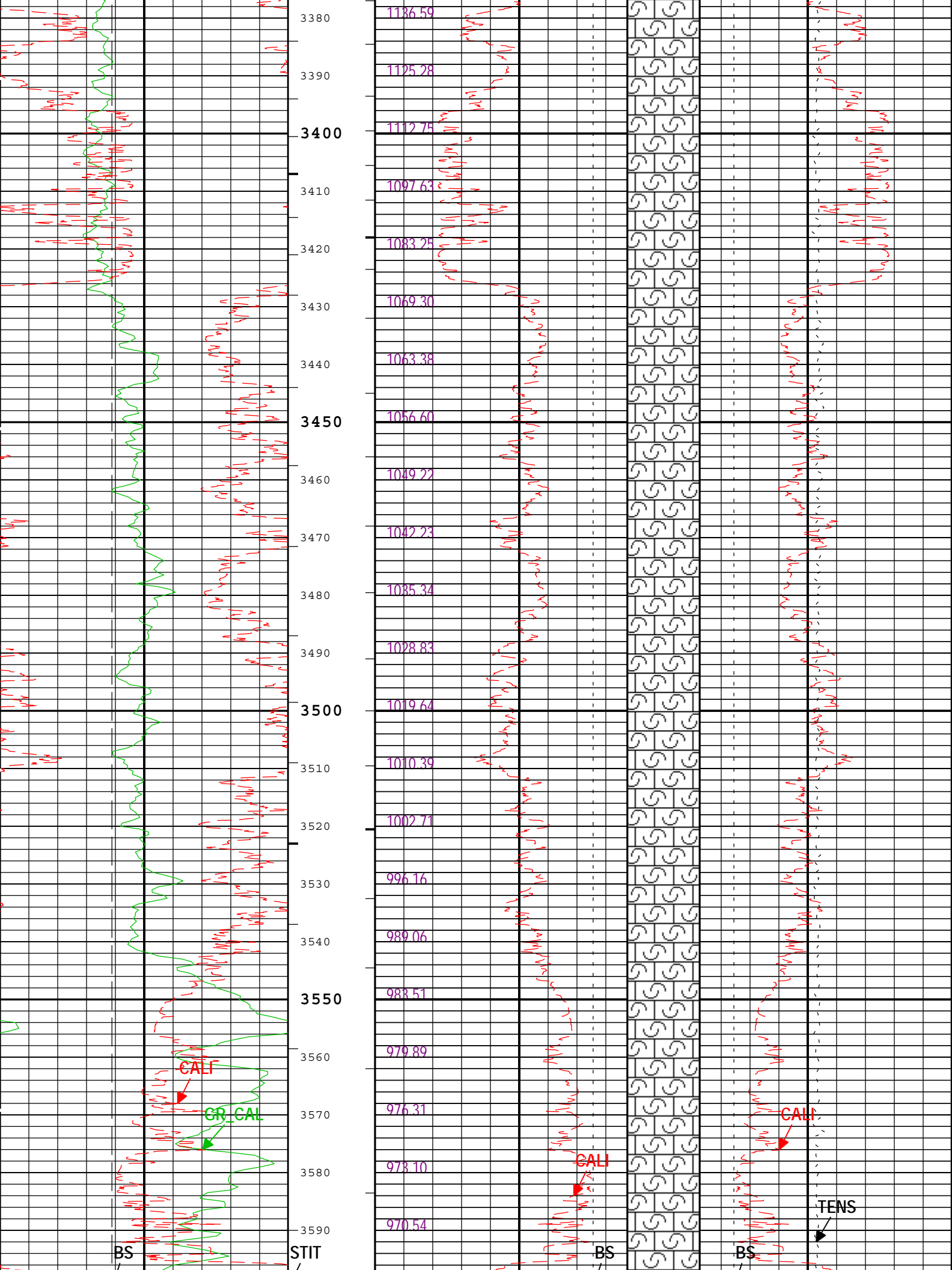


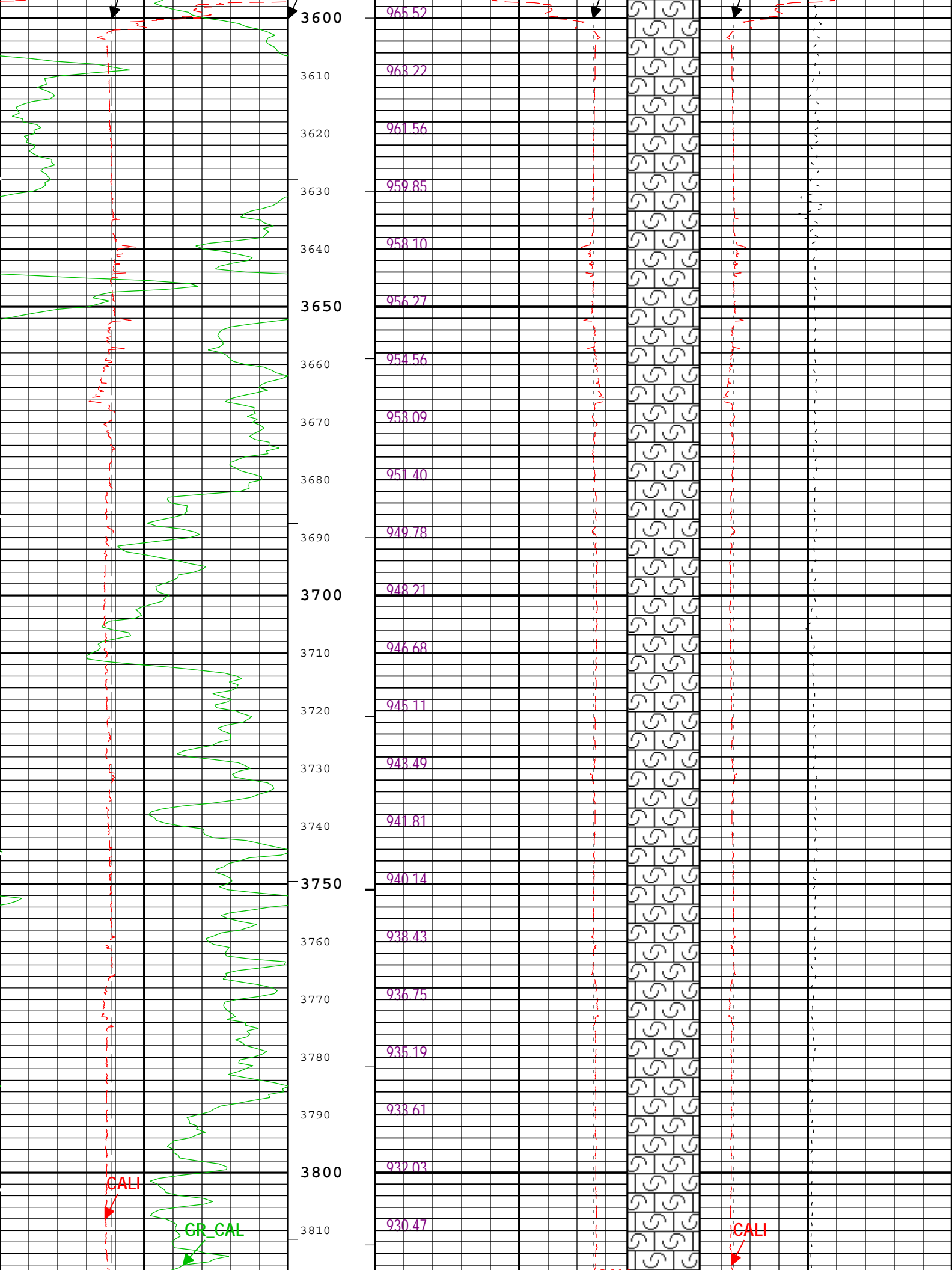


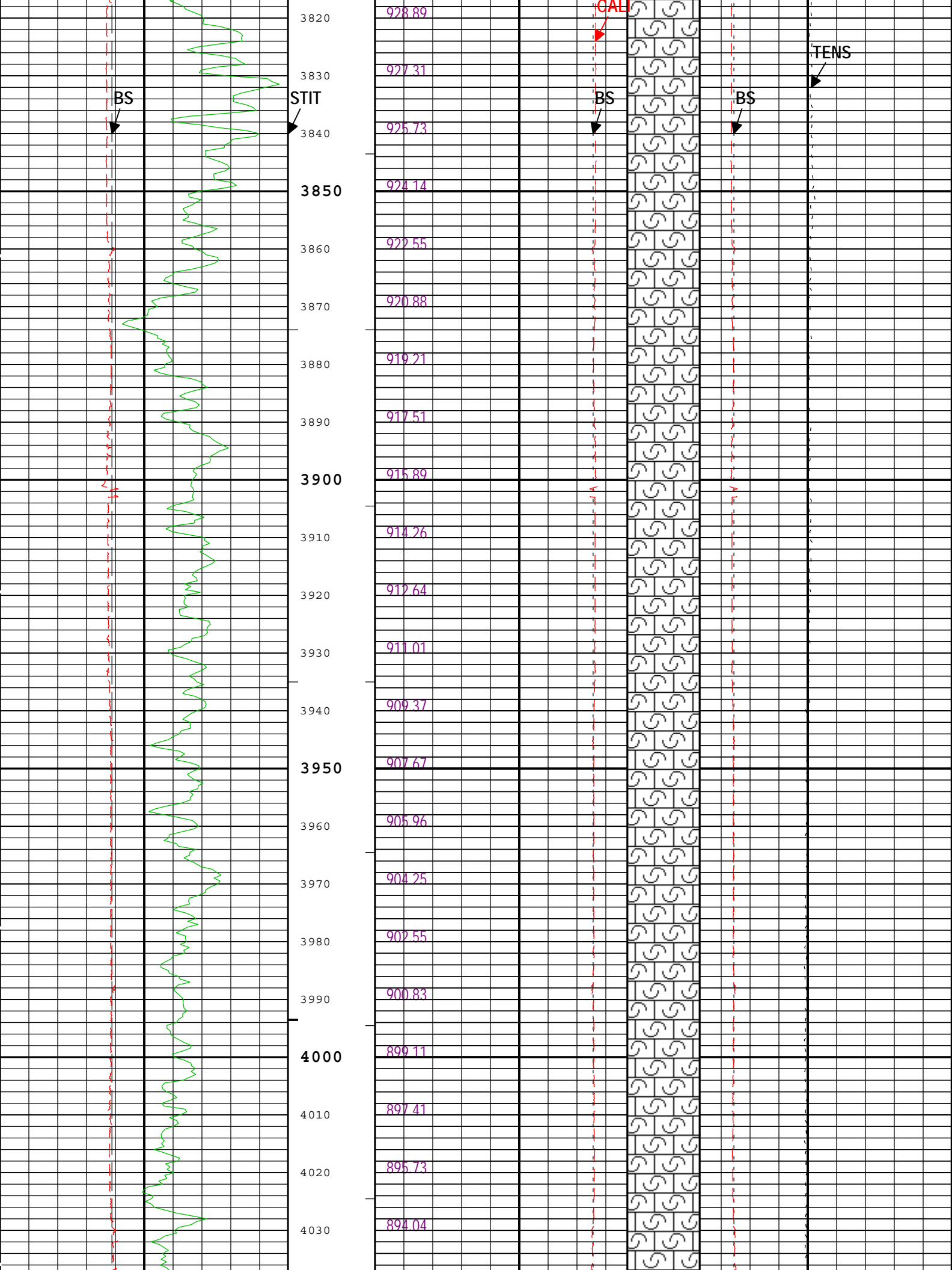


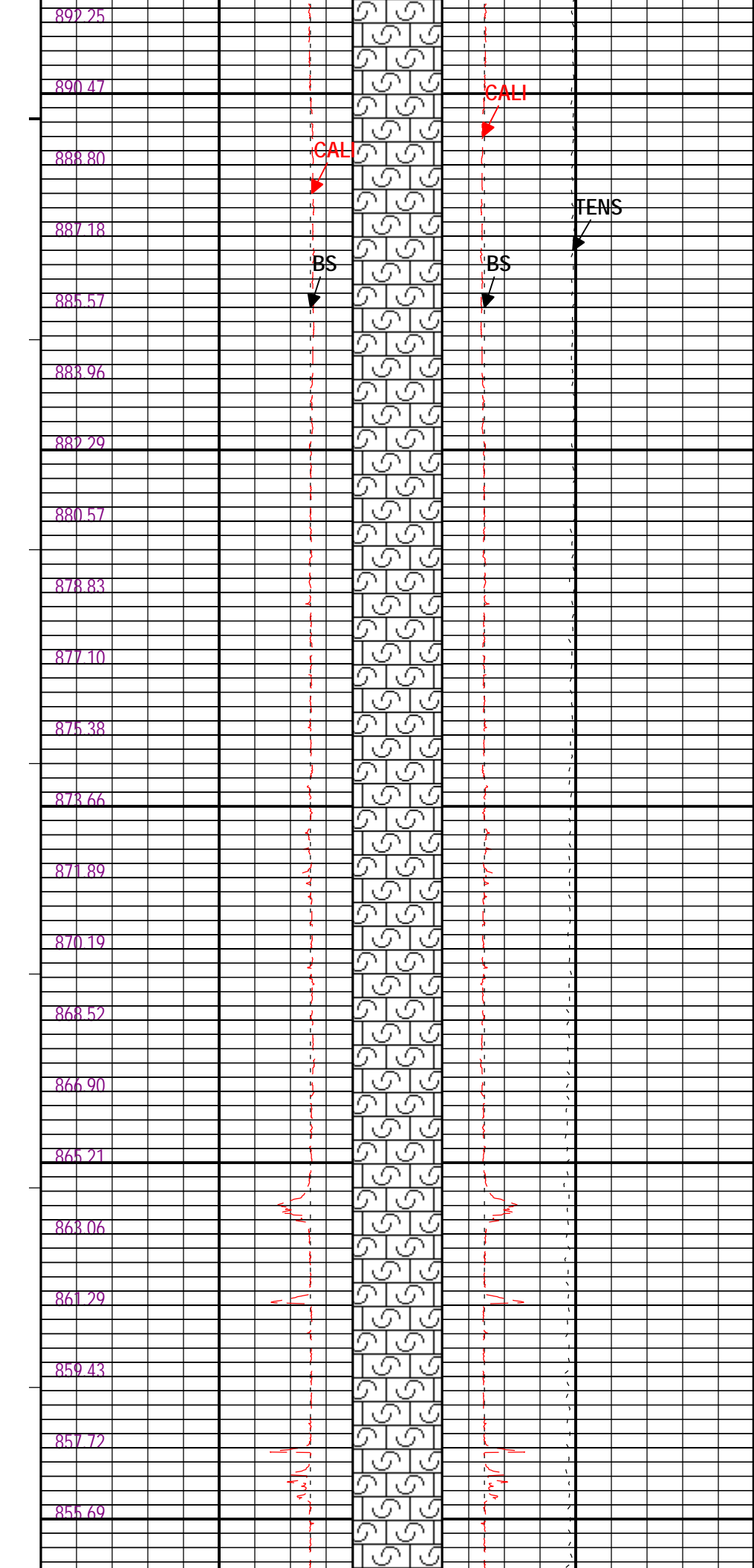
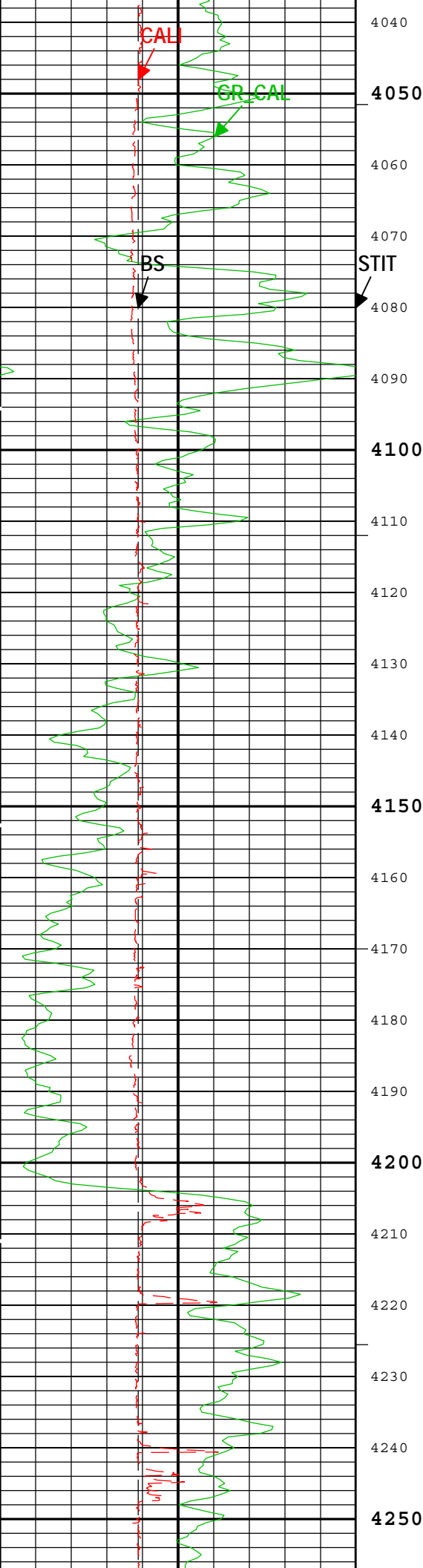


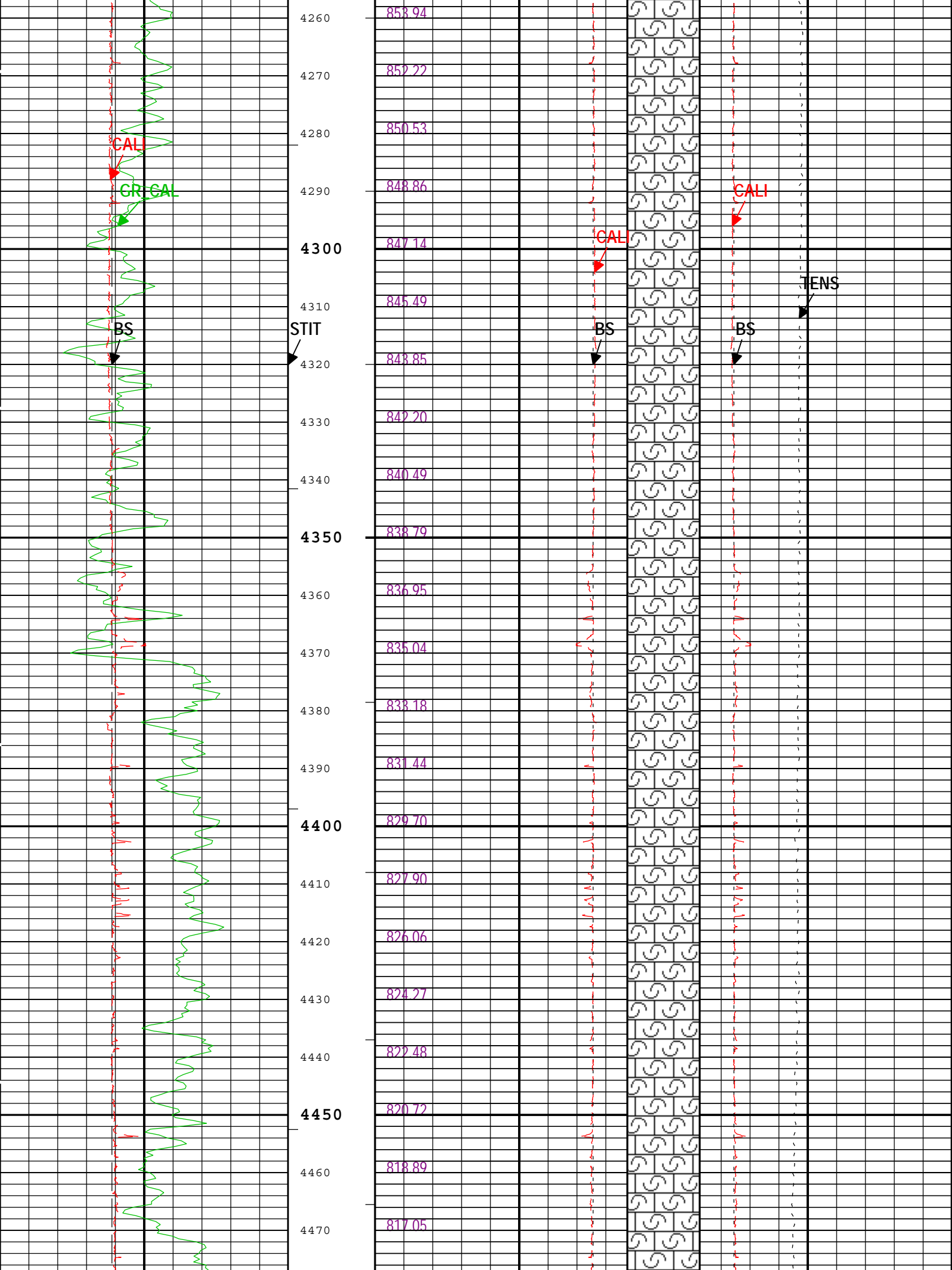


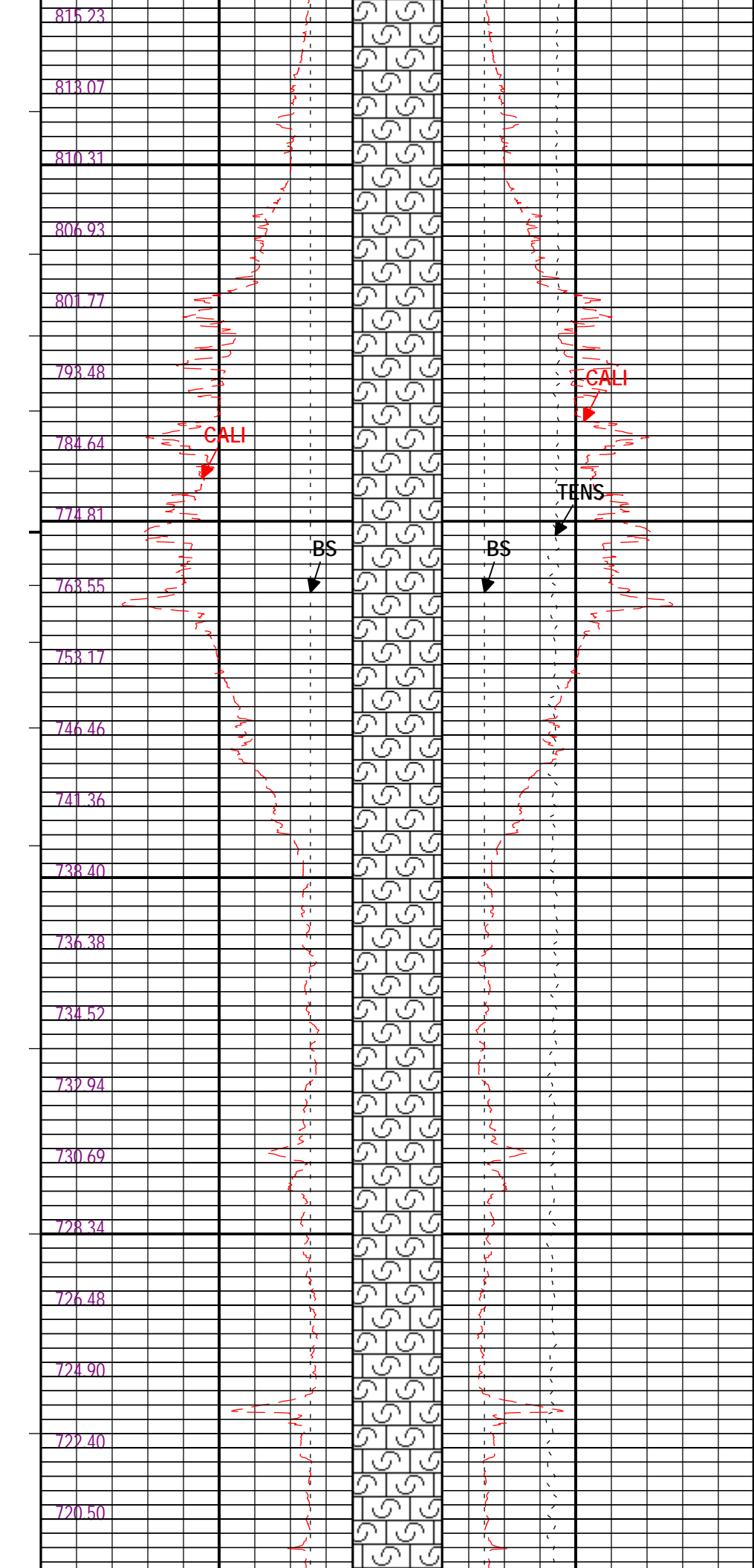
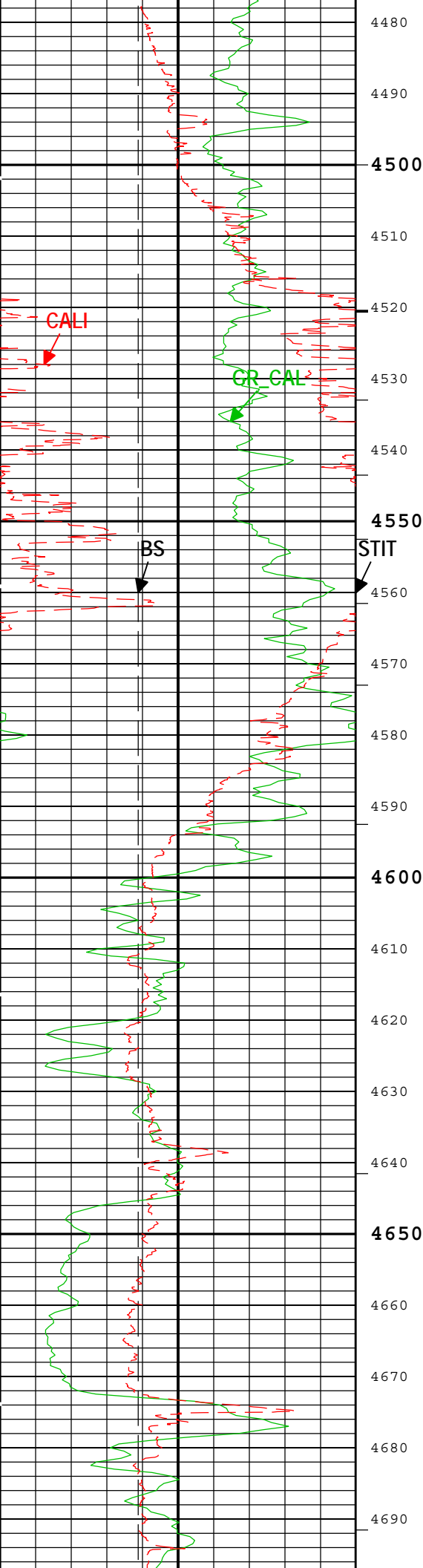


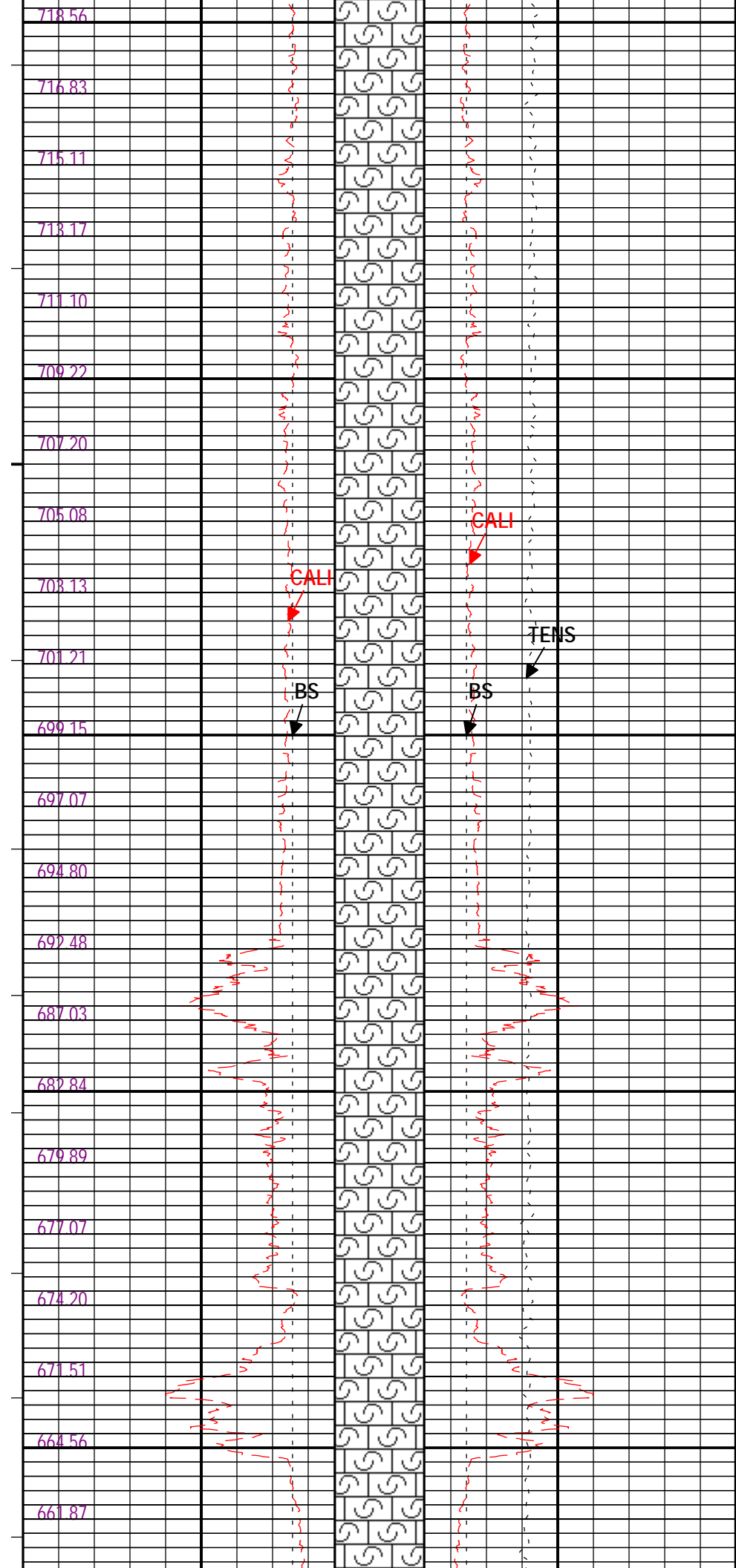
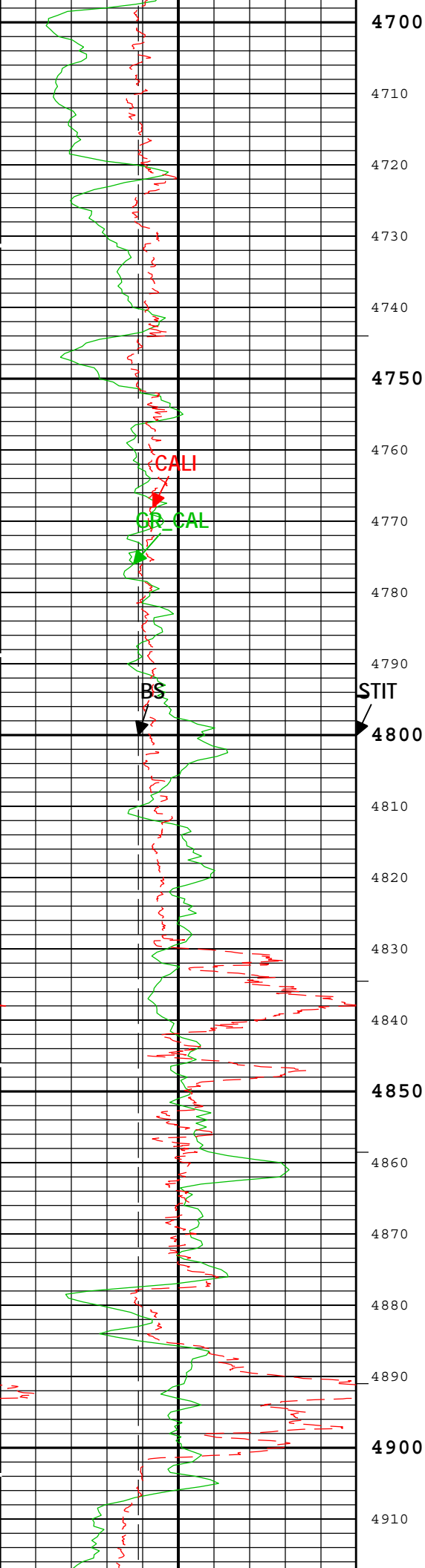


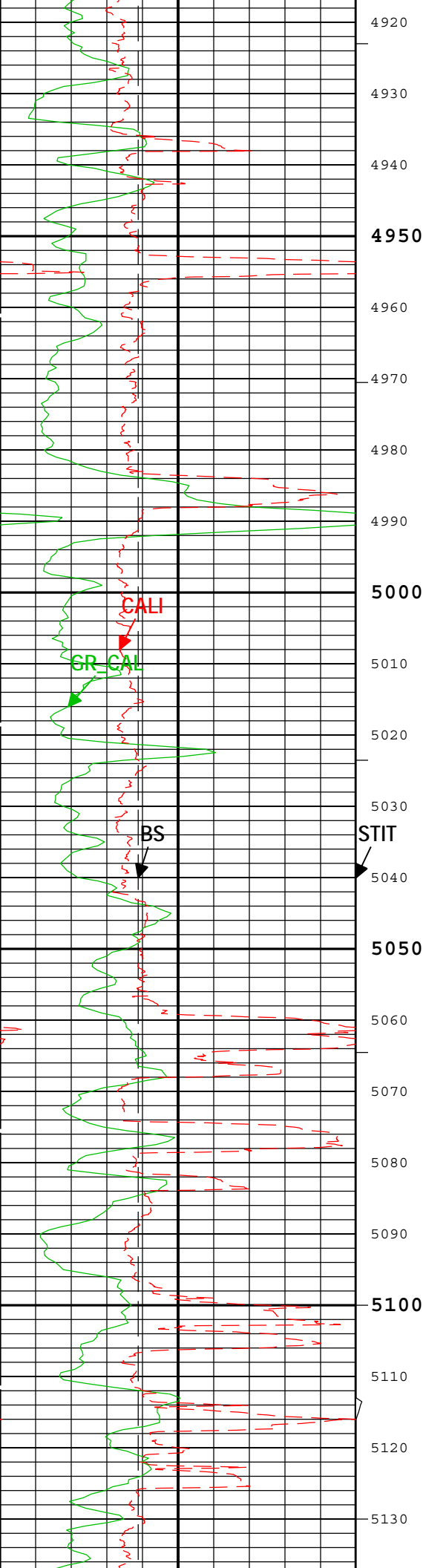






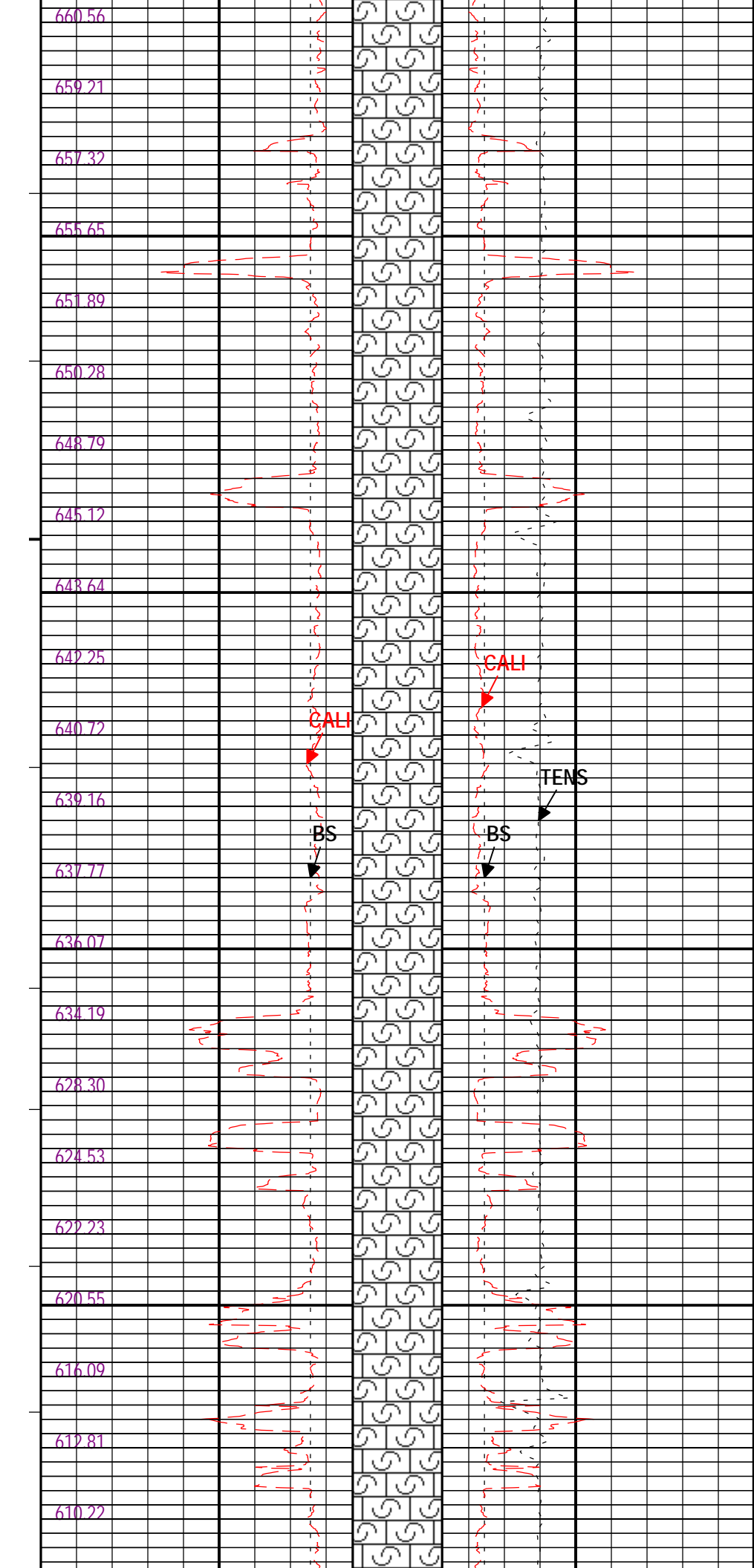


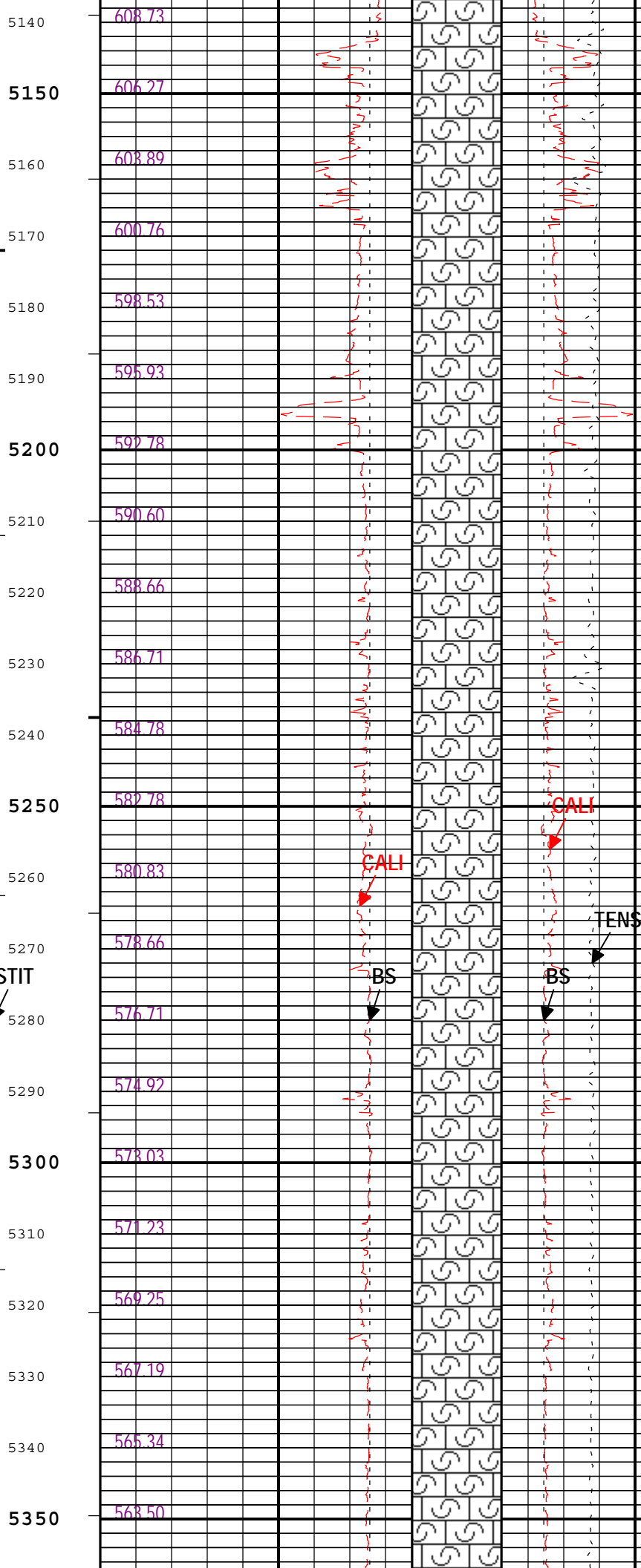
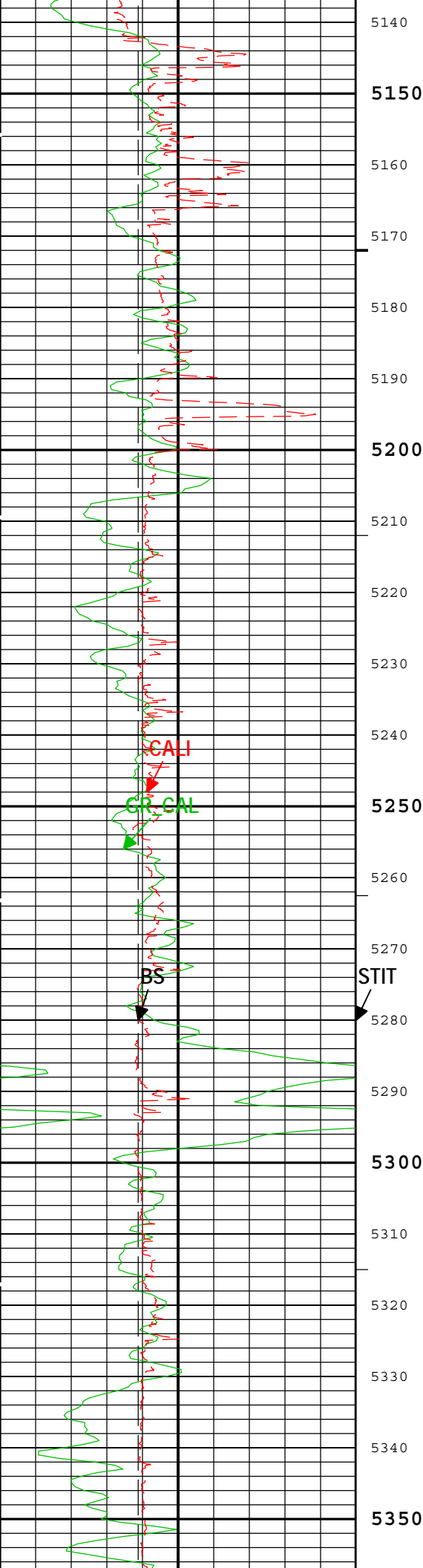


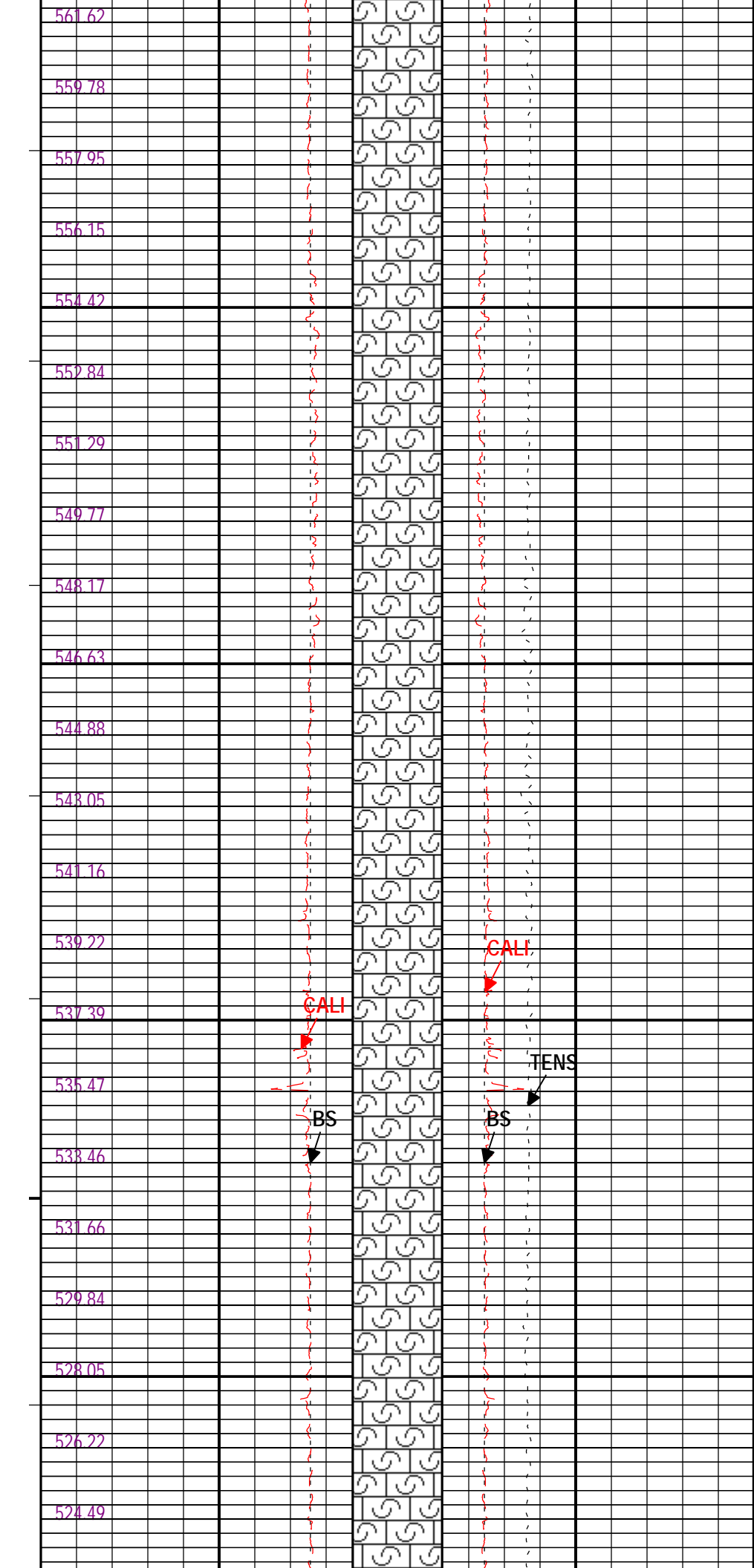
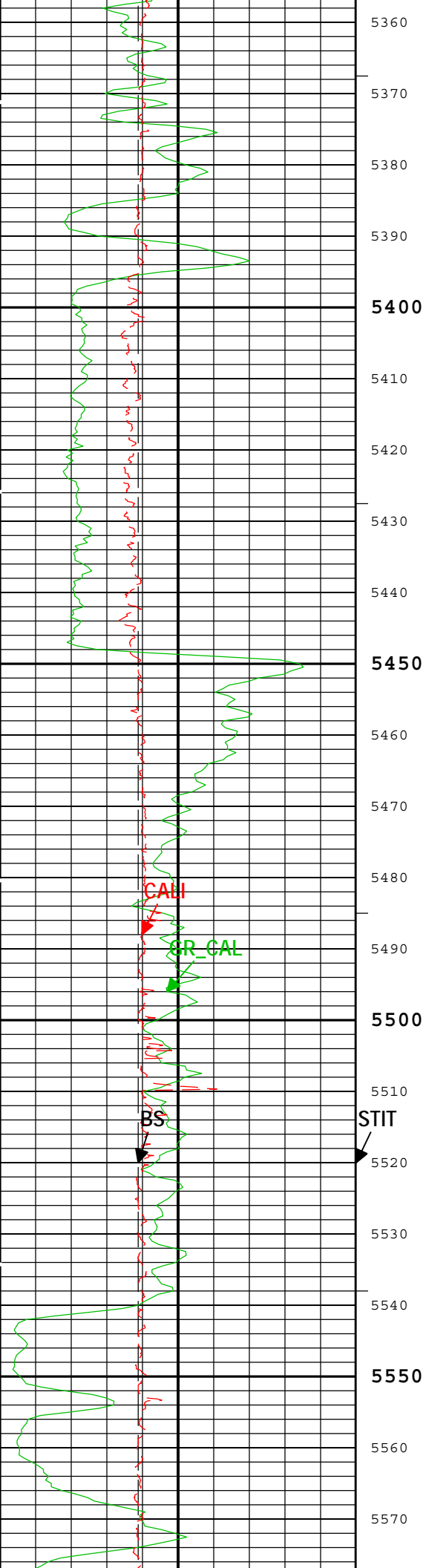


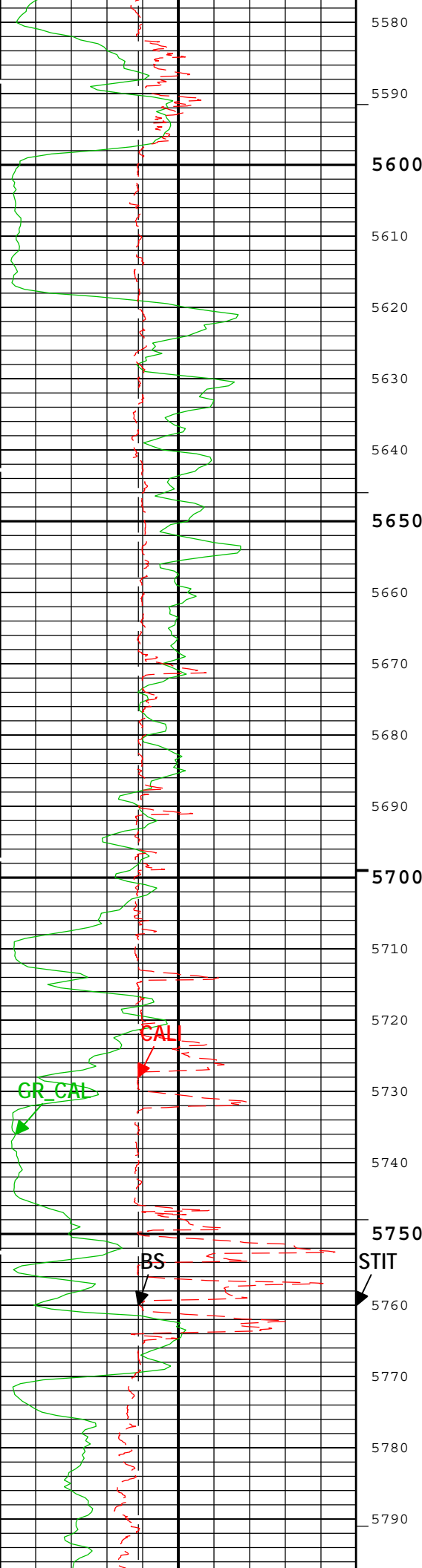
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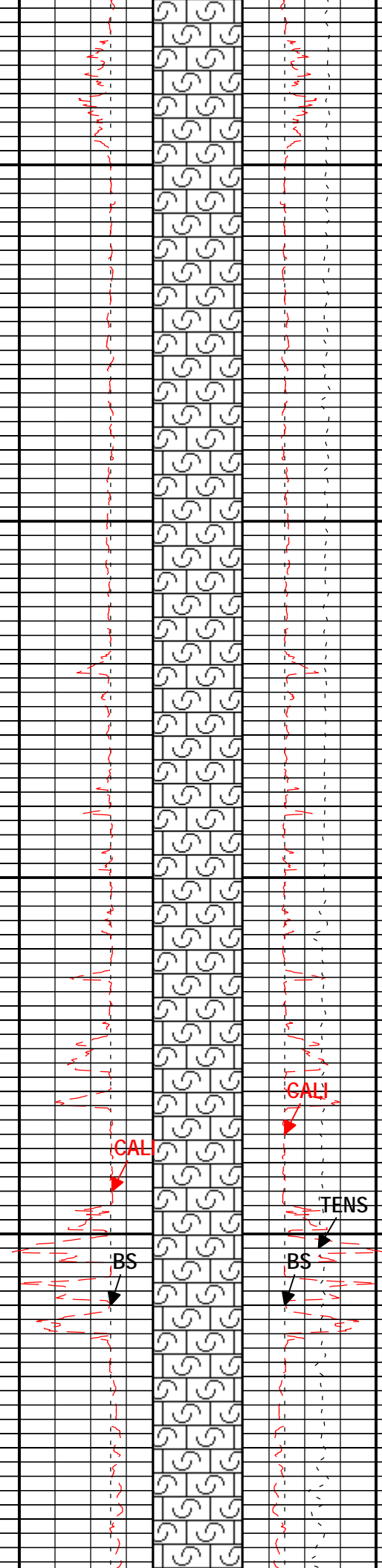
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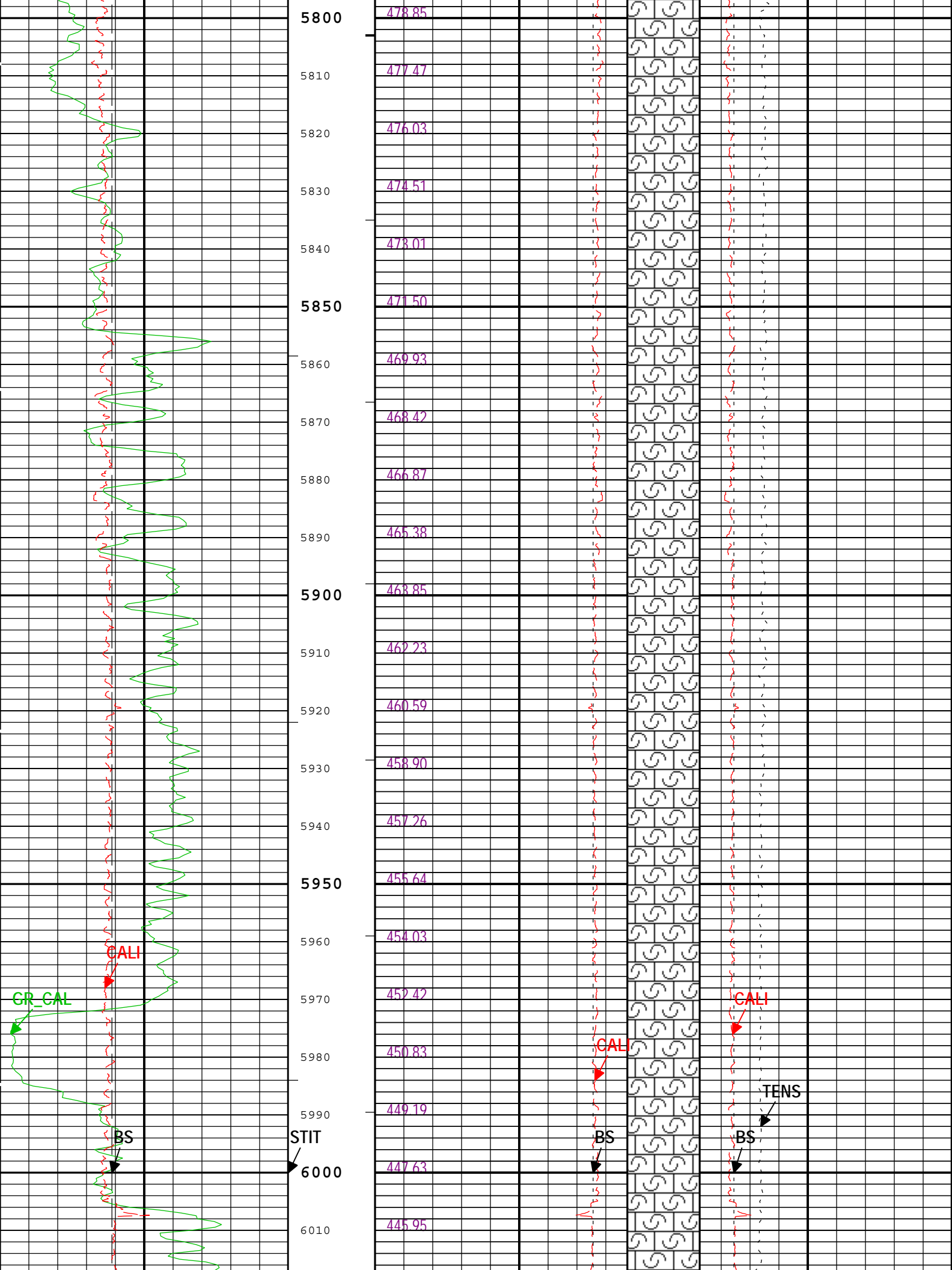
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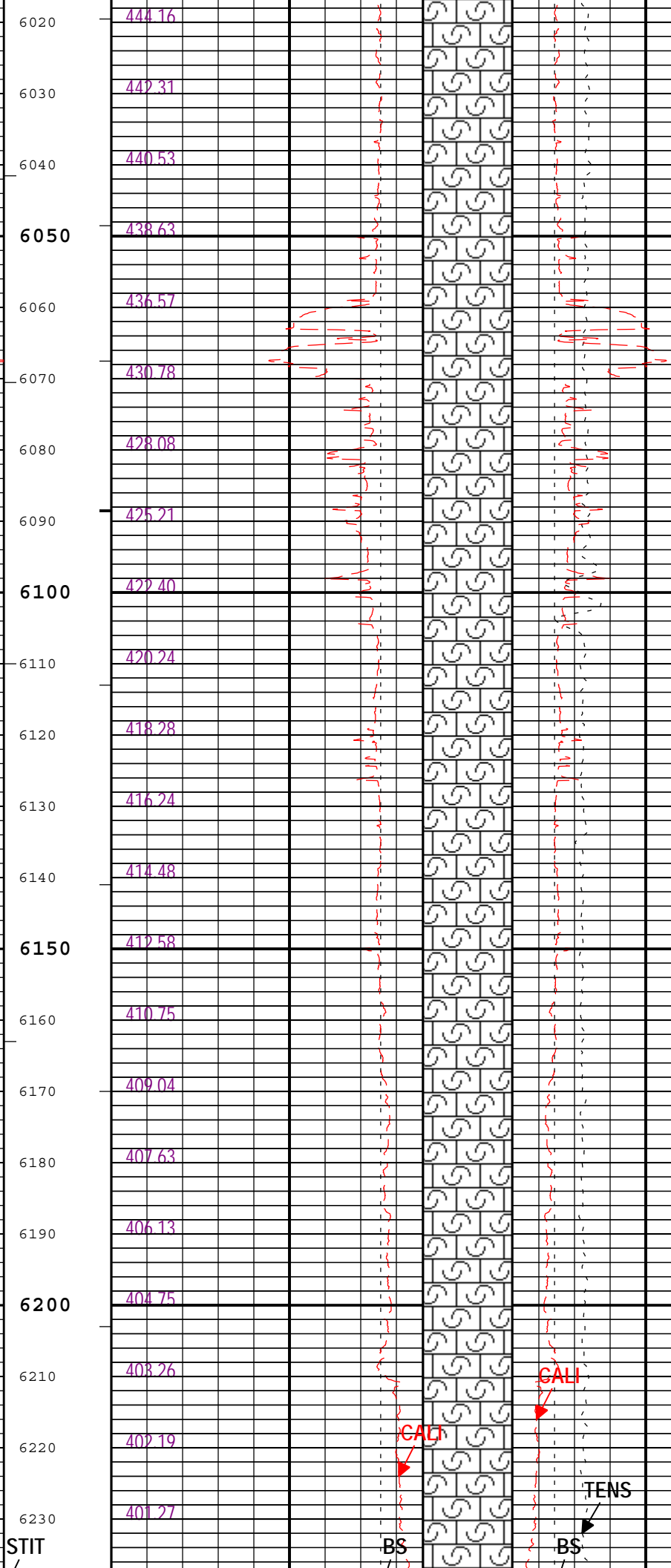
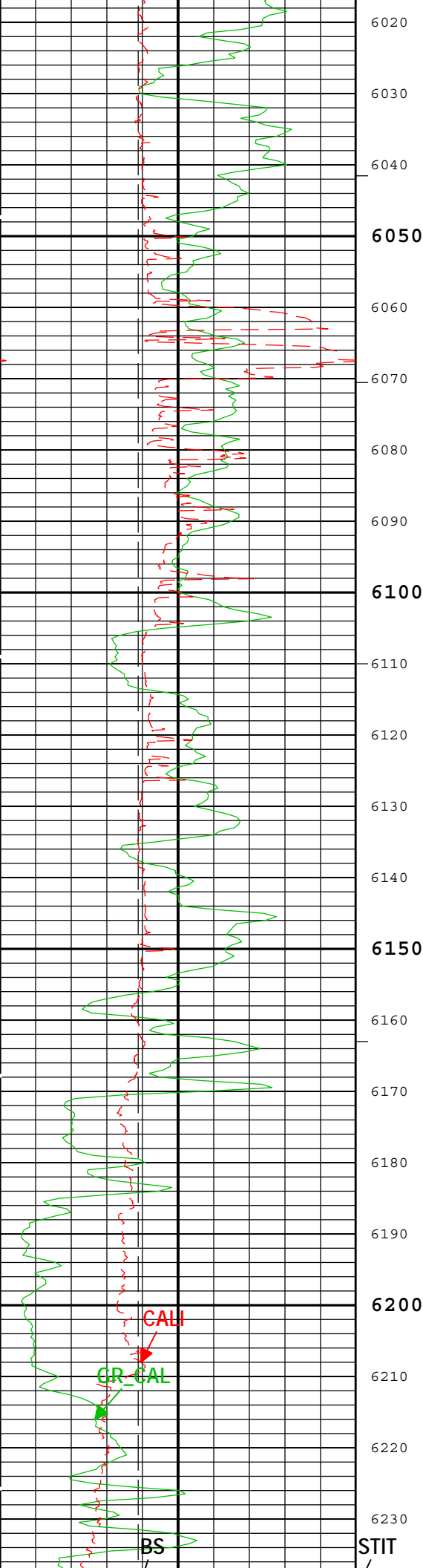
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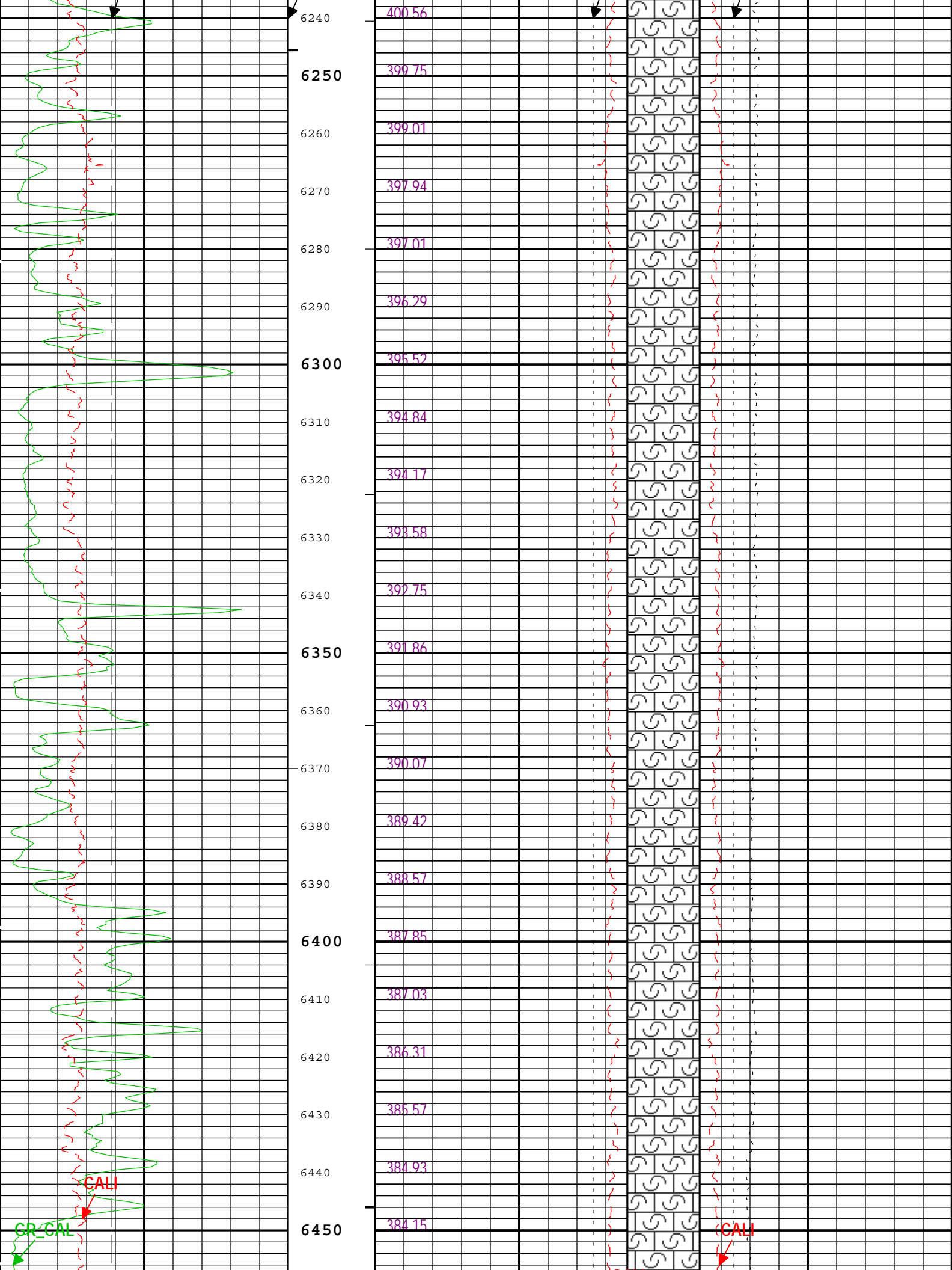
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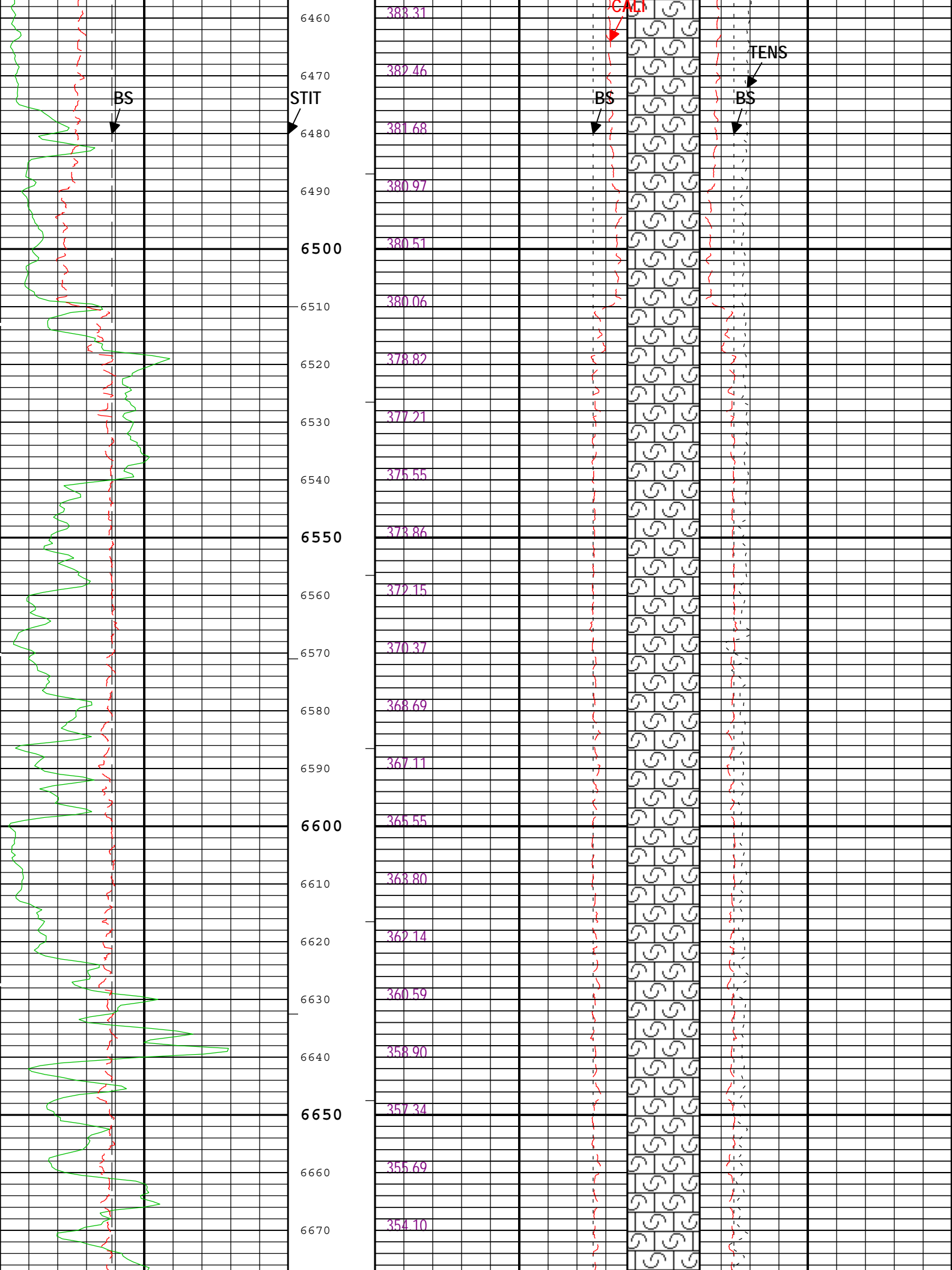
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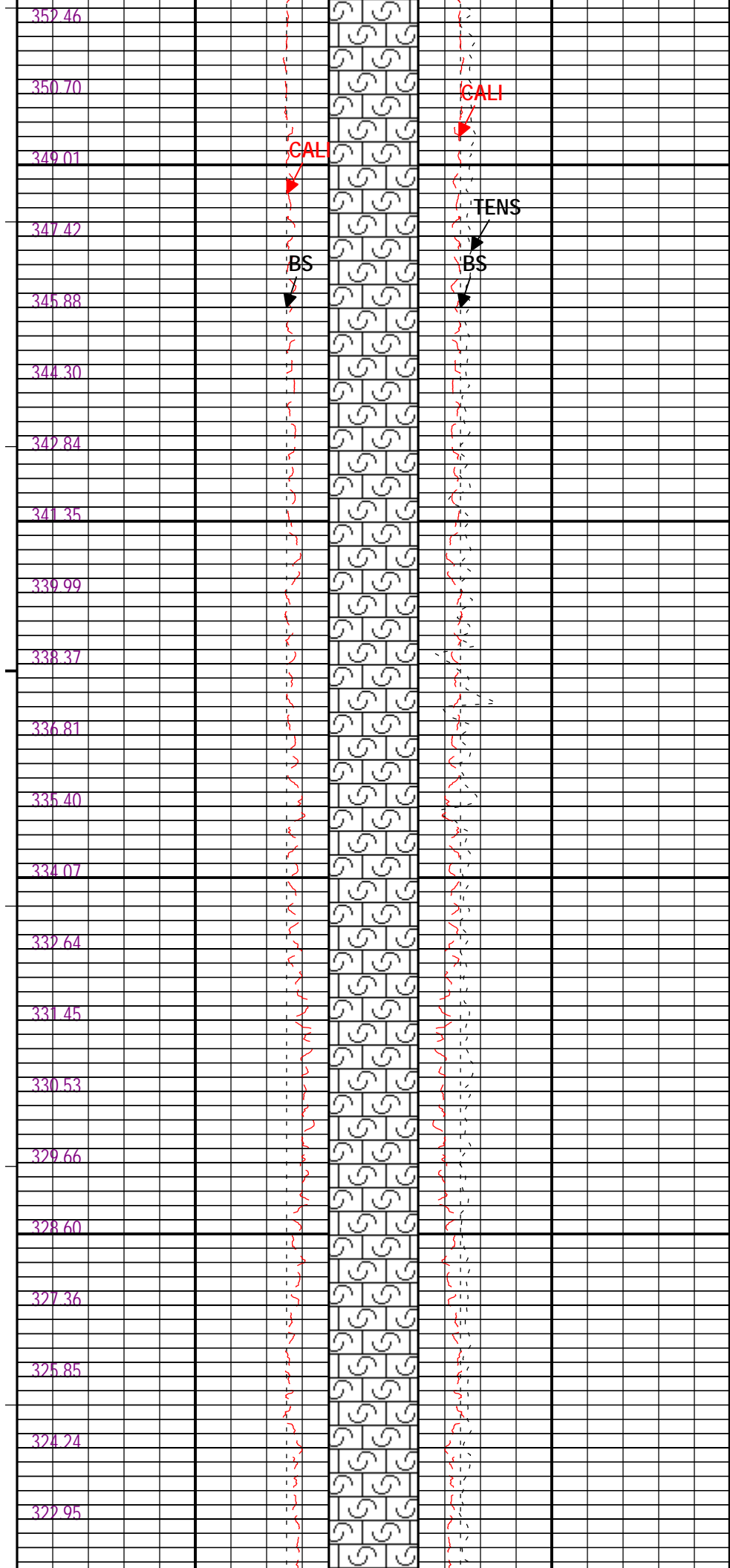
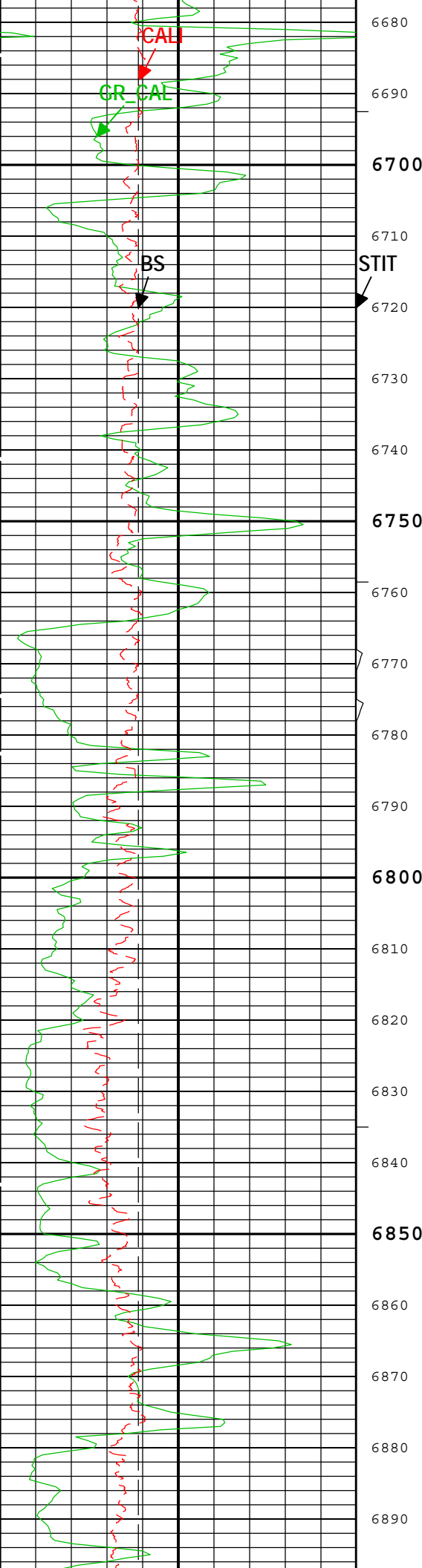


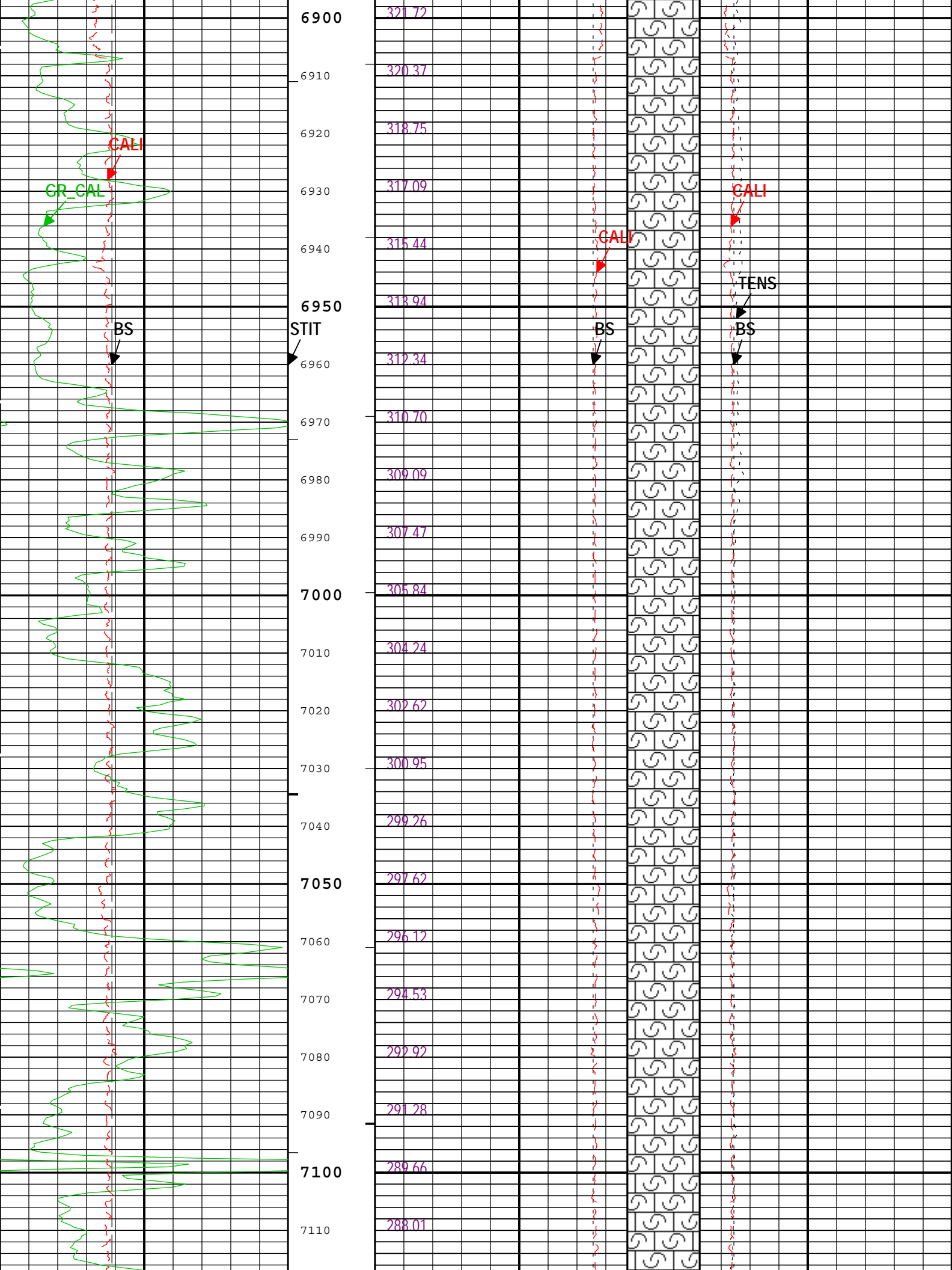


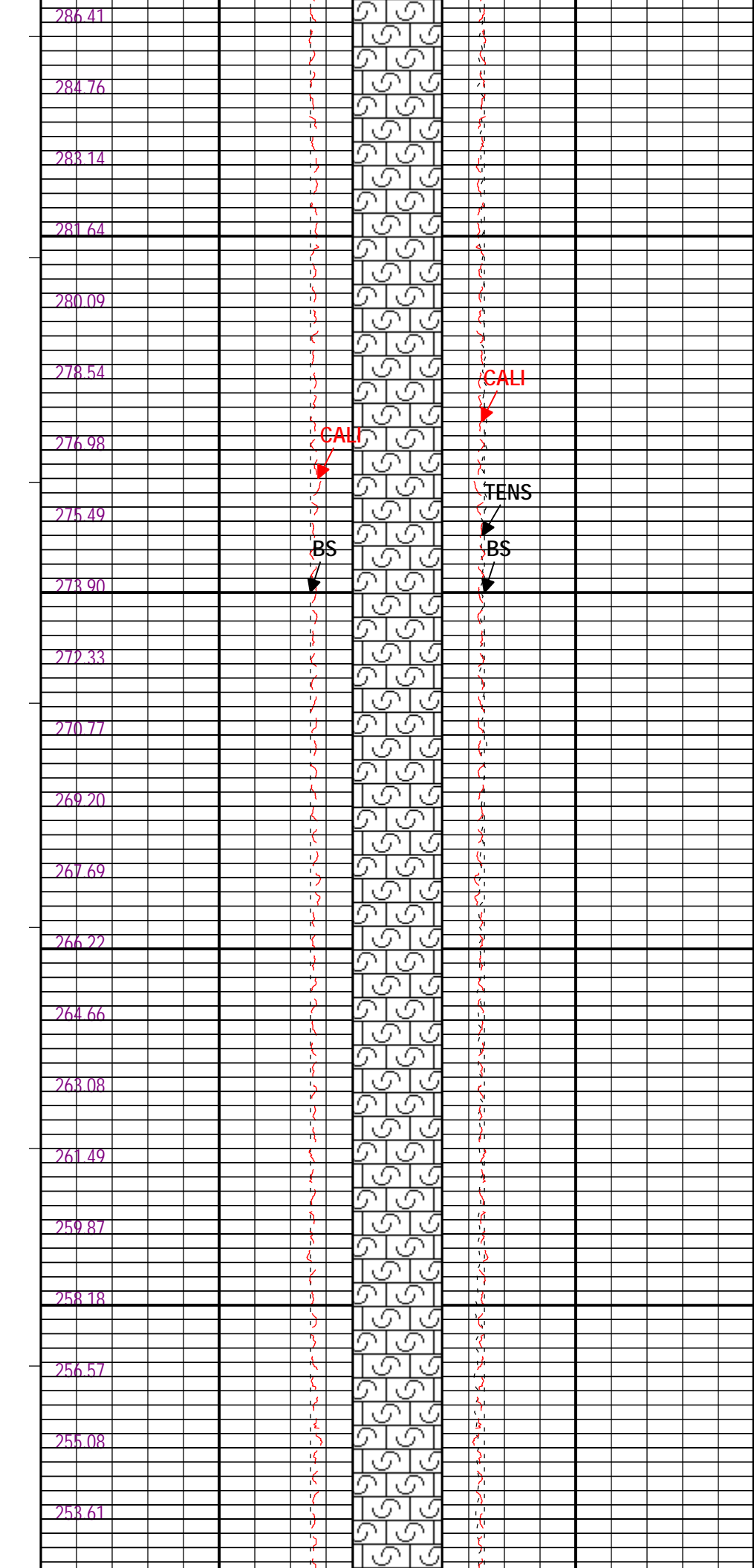
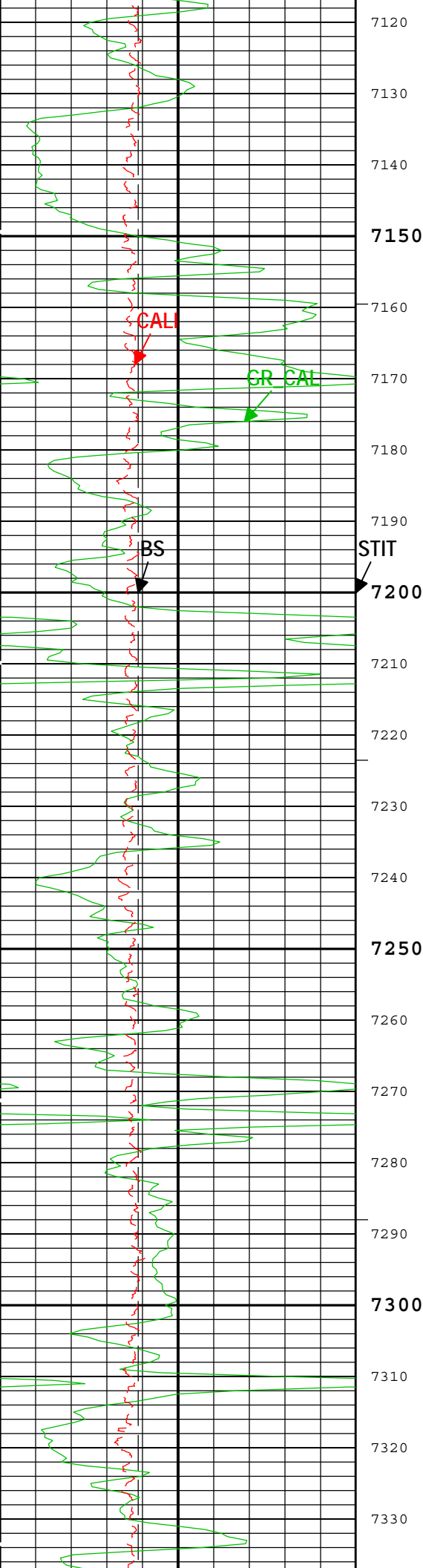


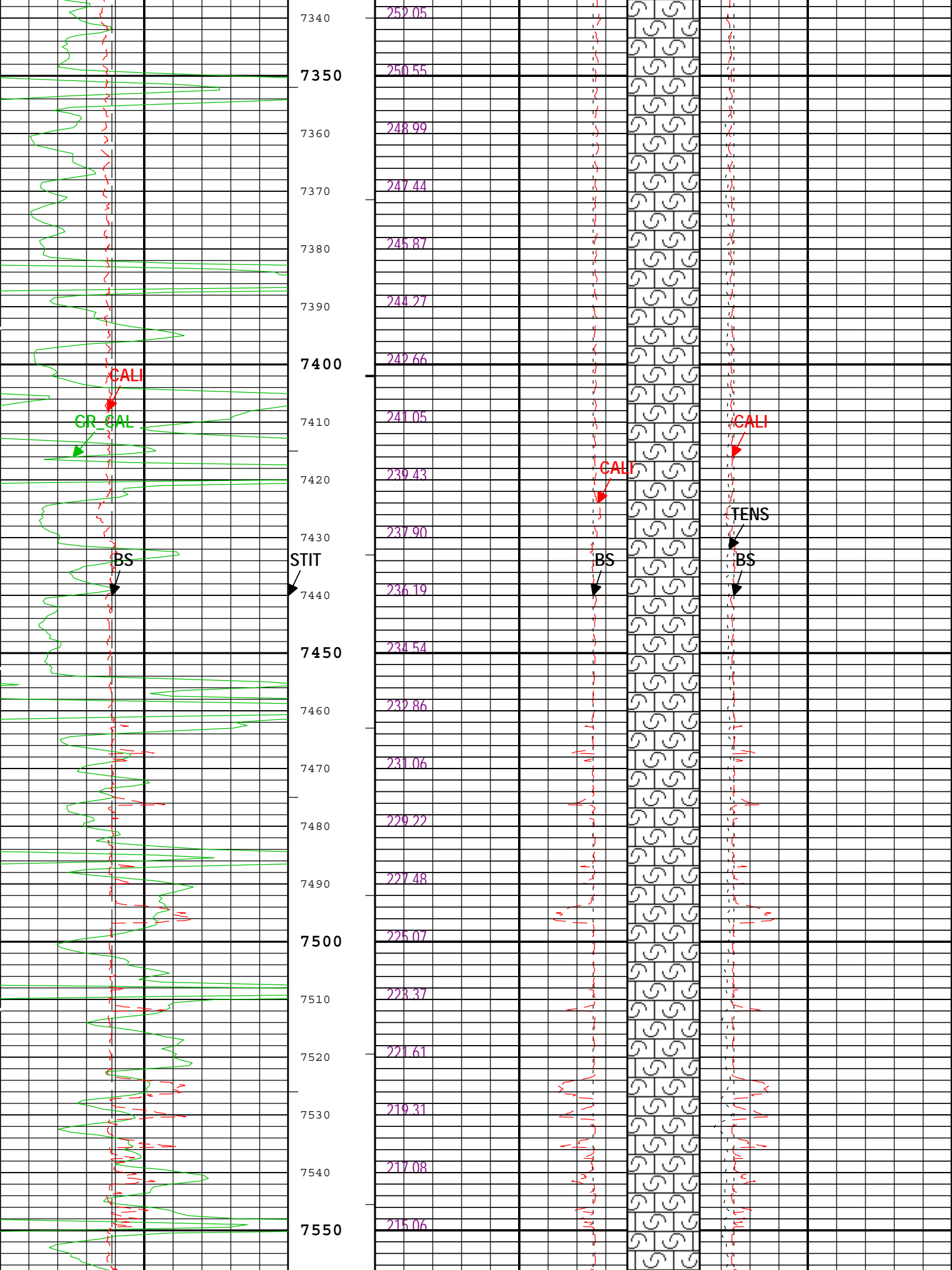


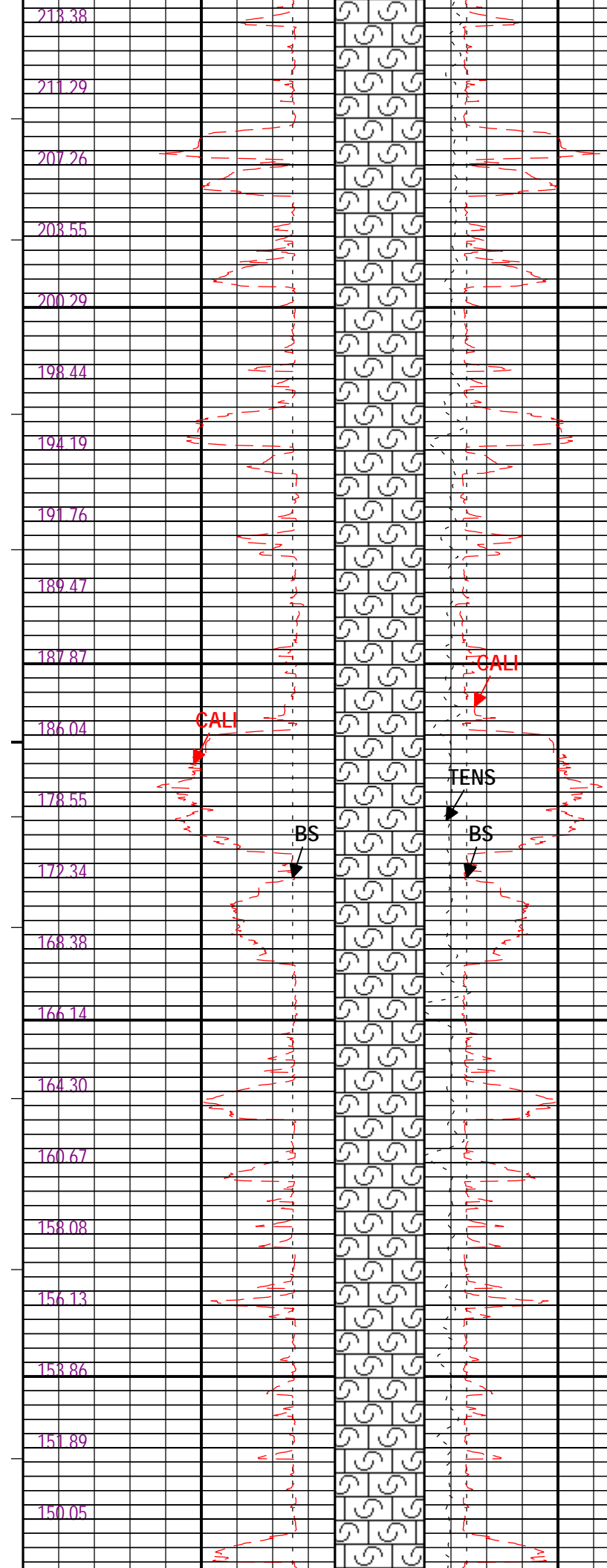
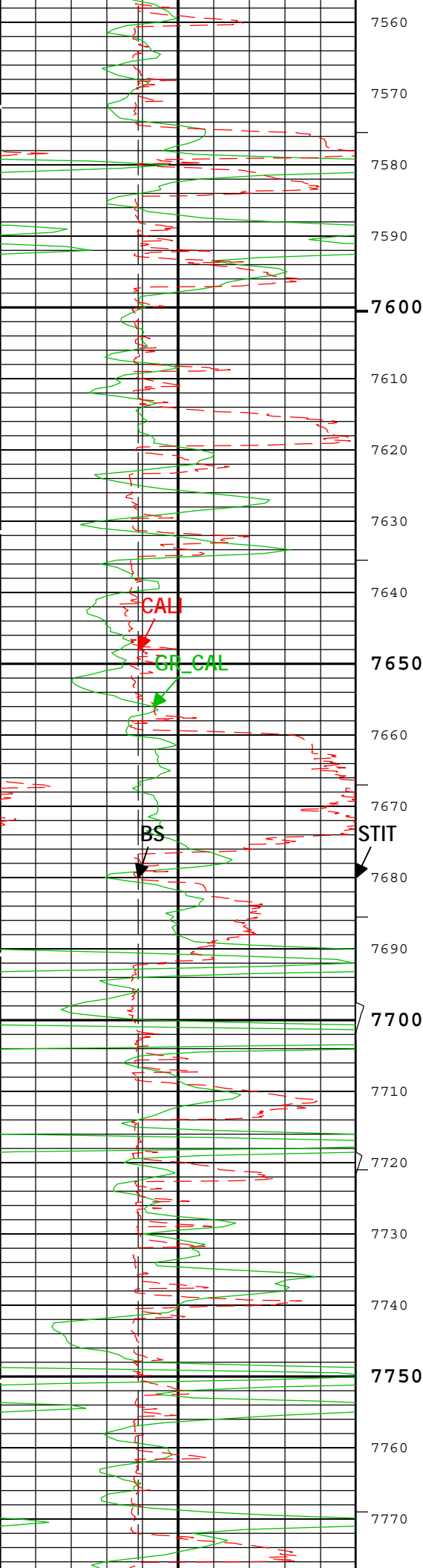


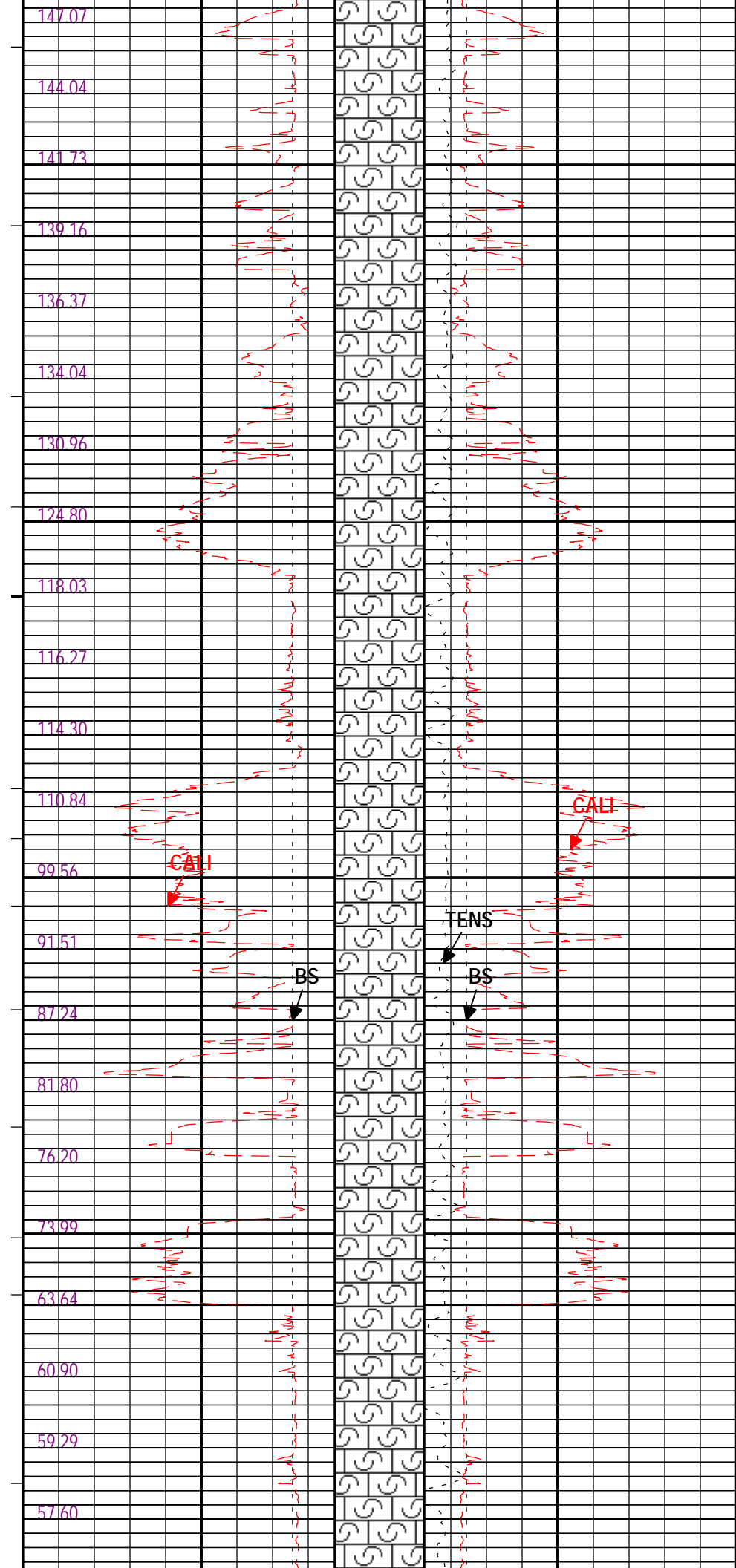
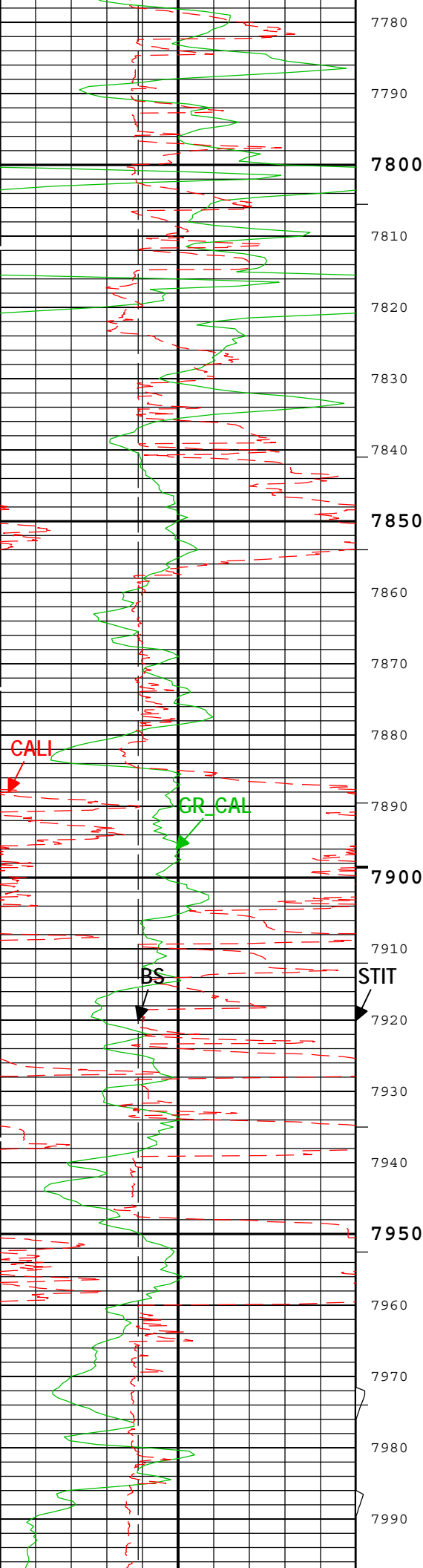


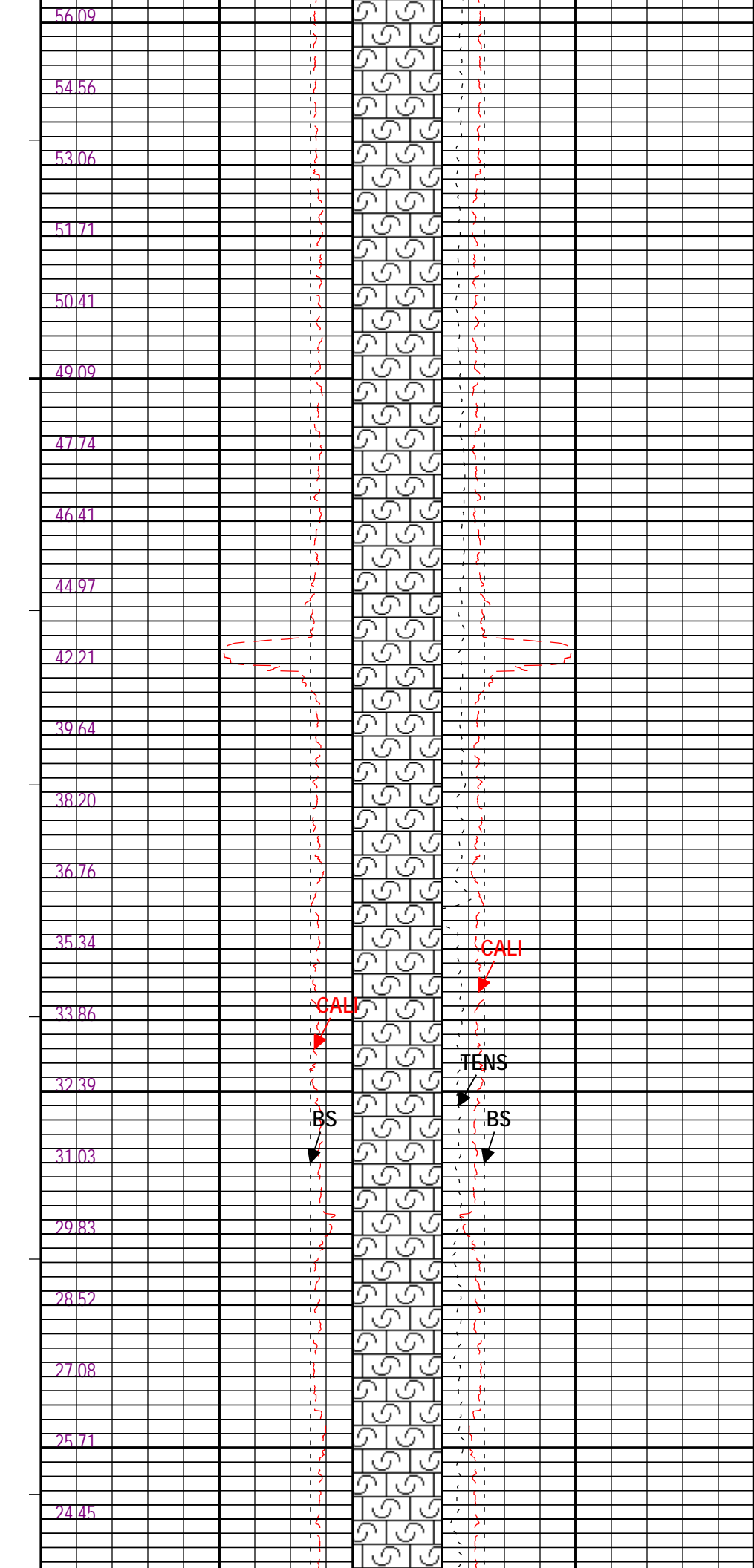
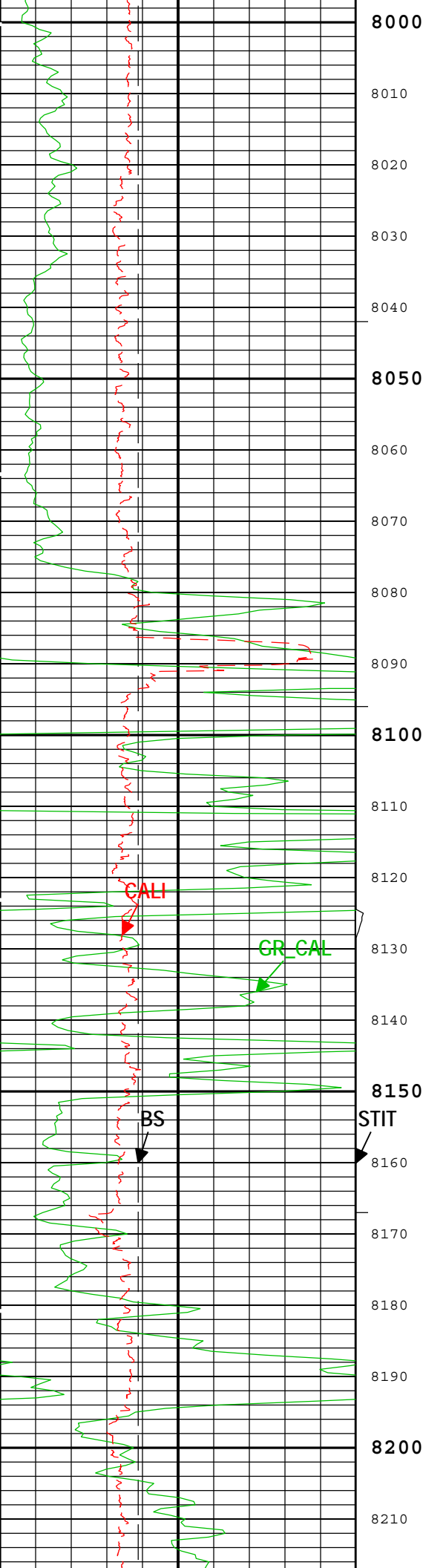


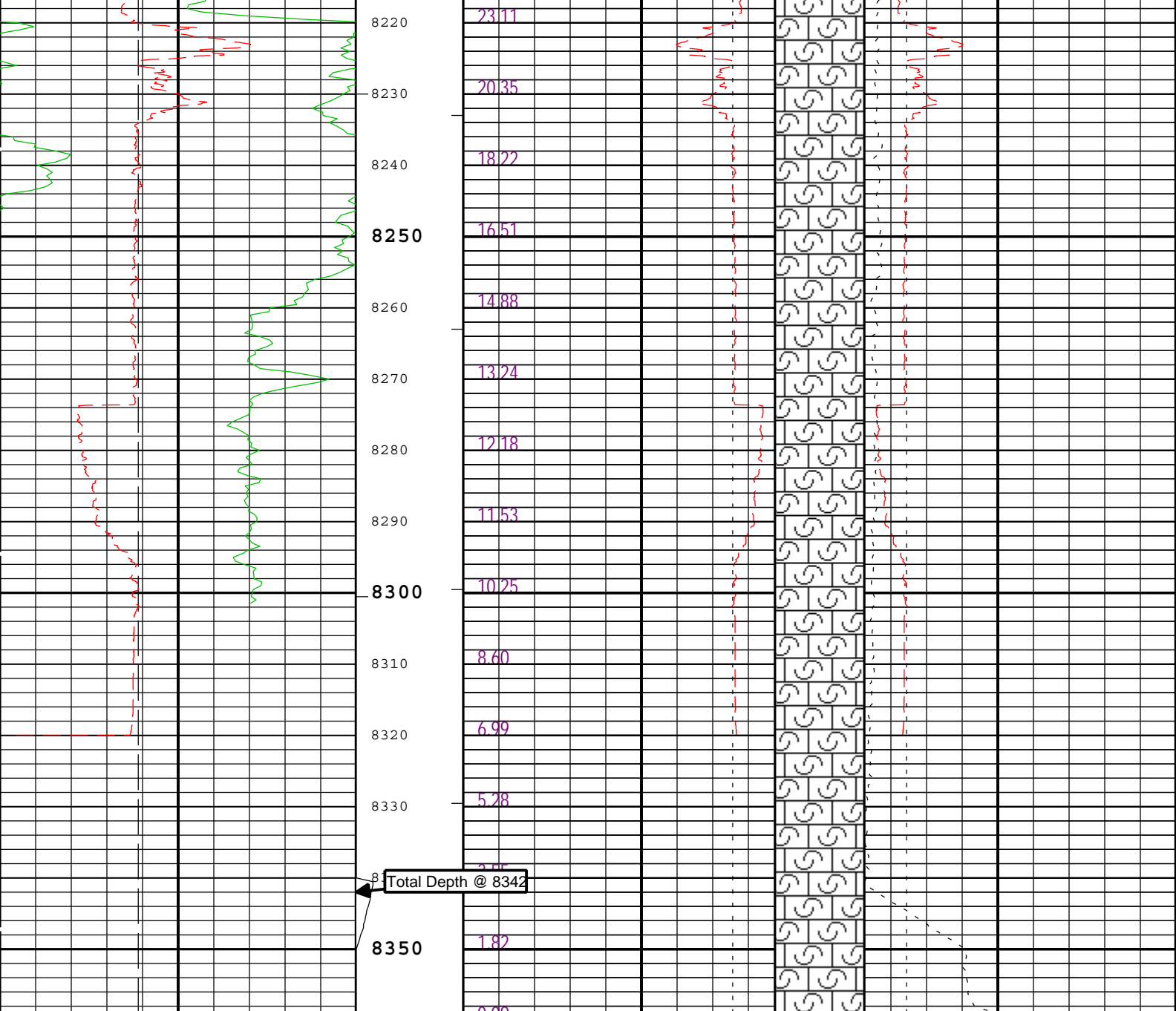












Bit Size (BS)		Stuck Tool Indicator, Total (STIT)		FCD2-FCD3	
4 in 14		0 ft 50		Future Casing (Outer) Diameter (FCD)	
Calibrated Gamma Ray (GR_CAL) HGNS-H				-17 in 23	
0 gAPI 200				Future Casing (Outer) Diameter (FCD)	
Caliper (CALI) HDRS-H				23 in -17	
4 in 14				Bit Size (BS)	
				23 in 3	3 in 23
				Caliper (CALI) HDRS-H	Cable Tension (TENS)
				23 in 3	5000 lbf 0
Integrated Cement Volume (ICV) ft3				Caliper (CALI) HDRS-H	
				3 in 23	

TIME_1900 - Time Marked every 60.00 (s)

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

ICV - Integrated Cement Volume every 100.00 (ft3)

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	7.875	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	309	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
TD	Total Measured Depth	Borehole	8342	ft

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Company:

Nighthawk Production LLC

Schlumberger

Well:

Big Sky 4-11

Field:

Wildcat

County:

Lincoln

State:

Colorado

Platform Express

Caliper

Cement Volume