11.2 GEOPHYSICAL SURVEY, GROUND PENETRATING RADAR ENDURANCE AND SCOTIA MINE SITES:

Geophysical Services for the Environmental, Engineering and Ordnance Industries

Alpha GeoScience

PROJECT: **GEOPHYSICAL SURVEY**
Ground Penetrating Radar

AREA: **Gladstone, N-E Tasmania, Australia**
Endurance and Scotia mine sites

CLIENT: **Van Dieman Mines Ltd.**

PROJECT NO: **AG-130**

CLIENT P/O: **Email of 11/07/06**

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REPORT

Geophysical Survey
Gladstone N-E Tasmania, Australia

for

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Date: 23 October 2006

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Managing Director

Date: 23 October 2006

DISTRIBUTION

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Alpha Geoscience Reference: AG-130

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1. INTRODUCTION

Alpha Geoscience Pty. Limited (Alpha), based in Sydney, NSW, was contracted by Van Dieman Mines Limited to undertake a Ground Penetrating Radar (GPR) feasibility study at two of the company's mining leases near Gladstone, N-E Tasmania, Australia.

The objective of the study was to determine if the GPR technology would be useful in delineating internal structures and basement structures within the Deep Leads in the area.

2. AUTHORITY

Mr. Graeme McIntyre of Van Dieman Mines provided the authority to proceed with this project by way of email on July 11, 2006.

3. SURVEY RATIONALE

Most geophysical methods depend on averaging of electric or electromagnetic fields over large subsurface volumes. Furthermore, traditionally these methods also depend on advanced and complex processing to be carried out in order to produce images on which the geological interpretation can be based. Generally, this makes the process of acquiring and processing geophysical datasets a highly specialised task which requires experienced and specially trained geophysicists in order to succeed.

The Ground Penetrating Radar (GPR) technology is acknowledged for producing accurate subsurface structural images at very high production rates. The method does not depend on averaging over large subsurface volumes and can accurately image internal geological bedding structures. At relatively shallow depths, this makes it a very attractive technology compared to other geophysical methods. Another advantage is that the result from a line survey can be viewed instantly on the instrument screen and does not necessarily require further complex processing.

The GPR technology is attractive to Van Dieman Mines as an alternative to large scale seismic surveys. If the technology is proven to be useful in the local environment and geology, it will significantly reduce the cost of the overall geophysical mapping program across the Van Dieman Mines mining tenements. Not only are the production rates very rapid, the data can also be acquired by the local Van Dieman Mines personnel with very limited training.

4. EQUIPMENT

4.1 MALA Geoscience GPR

MALA Geoscience is established as one of the world market leaders when it comes to the manufacturing of GPR instrumentation.

For the Van Dieman Mines feasibility study, a suite of MALA instruments were made available:

a) MALA RAMAC CUII Control Unit

b) MALA RAMAC XV11 GPR Acquisitioning System

c) MALA 25MHz Rough Terrain Unshielded Antenna

d) MALA 100MHz Rough Terrain Unshielded Antenna

In Appendix 1 the datasheets for the above instruments are available.

For positioning along the individual survey lines, a cotton odometer was used.

4.2 GPS Positioning

A GARMIN GPS72 Global Positioning System Receiver was used for positioning of the individual survey lines. The GPS provides accurate positioning in the field and was used mainly for marking of the start, end and major line bends along the individual lines.

With an accuracy of better than +/- 15 metres, the 12 channel hand held unit provides a reasonable level of accuracy.

A datasheet for the GARMIN GPS72 is available in Appendix 1.

5. SURVEY AND DATA PROCESSING

5.1 Survey Areas

Two survey areas were selected for the evaluation of the GPR method; Endurance and Scotia.

Maps showing the two survey areas and the location of the GPR traverses are available in Appendix 2.

The Scotia survey site was heavily vegetated with a mix of large solid trees and relatively dense undergrowth. Some areas had very dense tea tree vegetation which was almost impossible to penetrate. Recent bushfires had cleared some areas which improved access.

Appendix 3 contains a range of pictures which show the general survey conditions at the Scotia site.

The Endurance site was generally open with low bushes and tall grass. The Eastern parts were boggy with up to 50 centimetres of water in some areas.

There were no major topographic features within the two survey areas.

A full 'Schedule of Events' is available in Appendix 4.

5.2 Survey Parameters

Data was collected along predefined lines at the Endurance and Scotia sites as documented in the maps in Appendix 2. For all lines both antenna frequencies were used. The table below outlines the general measurement parameters for the survey.

Antenna Frequency	Trace sampling frequency	Spatial Sampling Interval	Spatial Sampling Speed	Sampling Depth
25 MHz	> 250MHz	< 25cm	4 – 20 km/h	~ 60m
100 MHz	> 1GHz	< 25cm	4 – 20 km/h	~ 30m

Table 5.1 General GPR measurement parameters

The 20 km/h was obtained only when surveying along the dirt roads where the setup was vehicle mounted. For all other data the collection speed was normal walking pace.

5.3 Field Procedures

The following outlines the field procedures deployed during the survey.

a) The individual instrument components were assembled and tested.

b) The odometer was loaded with a full roll of cotton and calibrated.

c) The cotton was secured around local vegetation at the line start and every 50 metres to eliminate dragging and stretching.

d) A GPS waypoint was recorded at the centre of the antenna start and end point and at any major deviations from a straight line.

e) The data was filtered and evaluated on-the-fly for quality and consistency.

f) The raw data was saved to the GPR acquisitioning Monitor for detailed processing and documentation.

g) Data was processed using MALA Ground Vision GPR Processing Software.

5.4 Data Processing

The following steps were taken in the processing of the data:

h) Data was downloaded from the data logger and merged with the GPS positions.

i) Data was checked for integrity.

j) Data was checked for data spikes and drop-outs.

k) The following filters were applied

- DC Filter
- Time-Varying Gain
- Background removal / Average Value Subtraction
- Contrast Filter

l) The resulting image was printed in hard copy and electronic copy.

5.5 Data Documentation

Appendix 4 contains a list of all GPS waypoints collected during the survey (WGS84). In Appendix 5 a table containing the individual GPR profile file names and their waypoint start and stop coordinates.

6. COMMENTS ON RESULT

Two profiles are attached in Appendix 6 and 7 as an example of the data quality and depth penetration achieved. Both profiles are collected at the Endurance site under very good conditions using the 25MHz and 100MHz antennas, respectively.

For correlation with a high number of boreholes in the area, the following can be determined:

The GPR signal is subject to significant attenuation and does not penetrate deeply enough to reach the expected basement level. Thus, a comparison with the available borehole information in regards to basement level is not possible.

The depth penetration for both antenna frequencies is clearly limited by highly conductive sediments and/or ground water. Considerable clay horizons are registered in several of the Endurance boreholes.

Pyrite is mentioned in several borehole logs. Significant fluctuations in the groundwater level are expected to have occurred due to past mining operations. This would almost certainly have oxidised Pyrite and caused parts of the groundwater to become relatively acidic and conductive.

The resolution of the 100MHz antenna is observed to be better than the 25MHz, which is expected. Furthermore, the 100MHz data is less affected by tree scattering due to the lower power of the antenna.

7. CONCLUSIONS

Due to the relatively high conductivity of the sediments/ground water, it is concluded that the Ground Penetrating Radar Technology would not be effective in mapping the deep lead deposits at the Scotia and Endurance mine sites.

It is recommended that alternative geophysical methods such as Seismics or Total Field Mag be deployed for the purpose of mapping the deposits.

8. LIMITATIONS OF REPORT

This report has been prepared for the use of **Van Dieman Mines** in accordance with general accepted Consulting practice. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has not been prepared for the use by parties other than the client, the owner and their respective consulting advisors. It may not contain sufficient information for purposes of other parties or for other uses.

This report was prepared on completion of the field work and is based on conditions encountered and reviewed at the time of preparation. Alpha Geoscience disclaims responsibility for any changes that might have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Whilst to the best of our knowledge, information contained in this report is accurate at the date of issue, conditions on the site (including the depositing and removal of contamination) can change in a limited time. This should be borne in mind if the report is used after a protracted delay.

9. APPENDIX 1 – INSTRUMENT DATA SHEETS

MALA RAMAC CUII Control Unit

MALA RAMAC XV11 GPR Acquisitioning System

MALA 50MHz Rough Terrain Unshielded Antenna

GARMIN GPS72, Global Positioning System Receiver

-Attached

RAMAC/GPR™ CONTROL UNIT CU II & MULTI-CHANNEL UNITS

Control Unit CU II

The Control Unit CU II is the main part of the RAMAC/GPR™ system. The CU II is compatible will all current RAMAC/GPR™ antennas.
The CU II is also compatible with the Multi-Channel Unit MC-4 and MC-16.

The Control Unit CU II operates with the Windows™ based Ground Vision™ acquisition software.
The CU II supports parallel ECP communication, ensuring high transfer rate of data.

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TECHNICAL SPECIFICATIONS

In brief CU II

The RAMAC/GPR™ Control Unit II (CU II) connects to any of the standard RAMAC/GPR™ antennas.
ECP communication enables high and safe data transfer rates.
For quick and easy operation, calibration and setup default parameters are stored in the internal memory.
The CU II has an expansion slot for possible upgrade to a Multi-Channel radar unit.

In brief MC-4 & MC-16

The RAMAC/GPR™ Multi-Channel Unit (MC-4 and MC-16) is an optional add-on module to the CU II. The Multi-Channel comes in two versions, MC-4 with up to 4 recording channels or the MC-16 with up to 16 recording channels. The MC-16 connects 4 receivers and 4 transmitters.
The Multi-Channel Unit has the capability to operate any of the optional receiver inputs to any transmitter (controlled through software). The repetition rate of the Control Unit is shared among the defined channels, i.e. the effective repetition rate equals 100kHz (standard) over the number of channels defined.


MC-4


MC-16

Pulse repetition frequency	10-200kHz (standard 100kHz)
Data bits	16
Nr of samples/trace	128 - 8192
Nr of stacks	1 - 32768
Sampling frequency	0.4 - 50GHz
Signal stability	<100ps
Communication interface	IEEE 1284 (ECP)
Communication speed	>700kByte/s
Data transfer rate	40 - 400kB/s at 4Mbit/s
Acquisition modes	distance/time/manual
Power consumption	8V RAMAC/GPR std battery
Antennas and compability	All RAMAC Antennas
Operating temperature	-20°C to +50°C
Environmental	IP67

	CU2	**MC-4**	**MC-16**
Max no. of recording channels	1	4	16
Max no. of physical channels	1	2(2Tx,2Rx)	4(4Tx,4Rx)
Dimensions	230x200x120 mm (9x7,8x4,7 In)	220x85x25 mm 8,7x3,3x1 In)	220x85x25 mm (8,7x3,3x1 In)
Weight	2,5 kg (5,5 lb)	0,7 kg (1,5 lb)	0,7 kg (1,5 lb)

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MALÅ GEOSCIENCE

RAMAC MONITOR

THE ALTERNATIVE TO A LAPTOP FOR BETTER VISIBILITY AND USE IN ROUGH WEATHER CONDITIONS

RAMAC Monitor

The RAMAC XV series monitor is designed with a new user interface, easy to learn and simple to operate even under extremely tough conditions.

The unit does any kind of data acquisition with the X3M, X3M Corder or the Control Unit CUII. The monitor is compatible with the whole suite of RAMAC/GPR shielded, unshielded and borehole antennas. Designed on a Linux platform the unit starts up quickly and has very low power consumption.

Equipped with a simple control button ”turn and push” and a full size transreflective TFT colour screen the RAMAC Monitor visualizes your data even in strong sunlight and operates under extremely rough weather conditions.

The RAMAC Monitor offers a number of advantages over a standard laptop.

- This user interface is a compact, rugged and weather proof monitor.
- It also meets IP67 environmental protection.
- Will operate within -20° to +50° Celsius.
- Has a full size transreflective TFT colour screen with 640 x 480 pixels for best outdoor performance.
- No keyboard needed as it is a one-button operation (turn and push).
- System can be operated with gloves.
- Display can also be operated with its backlight.

TECHNICAL SPECIFICATIONS

RAMAC Monitor powered from the external 12V Li-Ion battery package which also powers the X3M.

Designed to facilitate user interface

- Fully compatible with the RAMAC/X3M, Corder and the control unit CUII.
- Compatible with all RAMAC/GPR shielded, unshielded and borehole antennas.
- Auto-detection of shielded antennas 100, 250, 500 and 800MHz.
- Includes internal flash memory storage media (256 Mb).
- Allows fast dump of measured data through USB device (for example external Flash cards) which gives unlimited storage capability.
- Firmware is upgradable via internet.
- Firmware is also designed on Linux platform to improve performance and reduce interruption.
- Speeds up start-up (approximately 30 seconds) for first measurement.
- Automatic on-line filters and simple filter settings are available for easy operation and data interpretation in the field.
- Built-in function for direct velocity calibration for a known target depth.
- Powered with external 12 VDC (9-14V) for flexible power solutions.
- X3M GPR battery status provided by the display.
- Built-in Surface marker function.
- Built-in Target marker function (this is a marker on sample level)
- Built in GPS support to acquire GPS data from serial NMEA format.
- Quick selection of three different operation depths (shallow, medium and deep) easily adjustable by the operator.

Easy user interface with predefined settings for setup and control of the GPR. The menu system in the software is controlled by the "turn and push" knob.

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RTC | ANTENNAS

RAMAC/GPR™ ROUGH TERRAIN CONCEPT (RTC)

RAMAC RTC antenna

Malå Geoscience is proud to present the Rough Terrain Concept (RTC). The concept comprises a one-piece 50 MHz Rough Terrain Antenna (RTA), a XV series monitor, the RAMAC/CUII control unit, backpack, rechargeable batteries and a triggering mechanism. The system can be manually triggered or with a survey wheel, hip chain, and even by time. All RAMAC/GPR systems are configured for real-time GPS coordinate acquisition simultaneously with the GPR surveys.

The RTC is designed to operate with one person in the most extreme environments. This is made possible due to the articulated/flexible design of the RTA. The electronics are secure inside a metal case, and the flexible antenna elements enable the system to curve and bend along a single-track profile for optimal ground-coupling even in the roughest terrains.

The RTC together with the new XV monitor series makes GPR easier to use and inherently more efficient in the field. The RTA is a 50 MHz unshielded GPR antenna commonly used for deep/geological investigations. Other applications include: glaciology, archaeological/anthropological investigations, mapping of groundwater and depth to bedrock mapping.

TECHNICAL SPECIFICATIONS

The RTC offers a number of advantages over standard unshielded low-frequency systems

- Cost-effective.
- More time efficient with fewer hang-ups.
- Minimal site preparation since the RTA articulated/ flexible design curves and bends around and over obstacles such as fallen trees, rocks and ditches.
- One-person design for easy handling.
- Capable of mounting to a vehicle.
- Ruggedized for extreme environments and terrains.
- Optimum ground coupling due to the articulated/flexible design results in deeper profiling.
- Low power consumption results in extended operation time.
- Easy to operate XV Monitor interface.

Technical Specifications

RAMAC Rough Terrain Antenna RTA50

Total weight incl. batteries	7 kg (15.5 lbs)
Total length	9.25 m (30 ft)
Distance Tx-Rx	4 m (13 ft)
Center frequency	50 MHz
Power source	12V Li-Ion rechargeable batteries
Operating time	6 hours
Environmental	Shock and water proof

For the RAMAC Monitor and the RAMAC CUII Control Unit - See separate product sheet:

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MALÅ GEOSCIENCE

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Sneak Peek

Rugged, waterproof, unsinkable, WAAS GPS receiver

This sturdy handheld is right at home on land or sea. It's tough on the outside, waterproof, and yes, it even floats. The basic navigation features of the GPS 72 will help you stay on track to your destination and find your way back when the day is done. The GPS 72 is WAAS capable for accuracy to within 3 meters. And you can view your position on a sharp, four-level grayscale screen for excellent separation and contrast.

Sneak Peek

specifications

WAAS enabled

Navigation features

Waypoints/icons:	500 with name and graphic symbol, 10 nearest (automatic), 10 proximity
Routes:	50 reversible routes with up to 50 points each, plus MOB and TracBack® modes
Tracks:	Automatic track log; 10 saved tracks let you retrace your path in both directions
Trip computer:	Average speed, resettable max. speed, trip timer and trip distance
Alarms:	Anchor drag, approach and arrival, off-course, proximity waypoint, shallow water and deep water
Tables:	Built-in celestial tables for best times to fish and hunt; sun and moon rise, set, and location
Map datums:	More than 100 plus user datum
Position format:	Lat/Lon, UTM/UPS, Maidenhead, MGRS, Loran TDs and other grids, including user grid

GPS performance

Receiver:	WAAS-enabled, 12 parallel channel GPS receiver continuously tracks and uses up to 12 satellites to compute and update your position
Acquisition times:	
Warm:	Approximately 15 seconds
Cold:	Approximately 45 seconds
AutoLocate™:	Approximately 5 minutes
Update rate:	1/second, continuous
GPS accuracy:	
Position:	< 15 meters, 95% typical*
Velocity:	0.05 meter/sec steady state
DGPS (USCG) accuracy:	
Position:	3-5 meters, 95% typical
Velocity:	0.05 meter/sec steady state
DGPS (WAAS) accuracy:	
Position:	< 3 meters, 95% typical
Velocity:	0.05 meter/sec steady state
Dynamics:	6 g's
Interfaces:	RS232 with NMEA 0183, RTCM 104 DGPS data format and proprietary GARMIN
Antenna:	Built-in quadrifilar
Differential:	DGPS, USCG and WAAS capable

Moving map features

Basemap:	Marine database. Preloaded with worldwide cities, navaids, and U.S.A. tide data
Uploadable maps:	Accepts up to 1 megabyte of data from the optional MapSource™ Points of Interest CD**

Power

Source:	External power, 8-35V; two "AA" batteries (not included)
Battery life:	Up to 16 hours

Physical

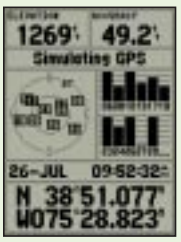
Size:	2.7"W x 6.2"H x 1.2"D (6.9 x 15.7 x 3.05 cm)
Weight:	7.7 oz. (225 g)
Display:	1.6"W x 2.2"H (4.1 x 5.6 cm) 120 x 160 pixels, high-contrast FSTN with bright backlighting
Case:	Fully gasketed, high-impact plastic alloy, waterproof to IEC 529 IPX7 standards
Temp. range:	5°F to 158°F (-15°C to 70°C)
User data storage:	Indefinite, no memory battery required

Accessories

Standard:	Owner's manual Quick reference guide Wrist strap
Optional:	Automotive mount Marine mount Carrying case 12-volt adapter cable Power/data cable MapSource™ Points of Interest CD Instructional video PC interface cable

The navigation page displays the direction, bearing and distance to your destination.

With downloaded points of interest, you can look up destinations and view detailed information.



The satellite status page shows which satellites are being received, along with your position.

GARMIN®

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Specifications are preliminary and subject to change without notice.

* Subject to accuracy degradation to 100m 2DRMS under the U.S. Department of Defense imposed Selective Availability Program.

** These units are also able to transfer waypoints, routes and tracks between the PC and GPS using MapSource™.

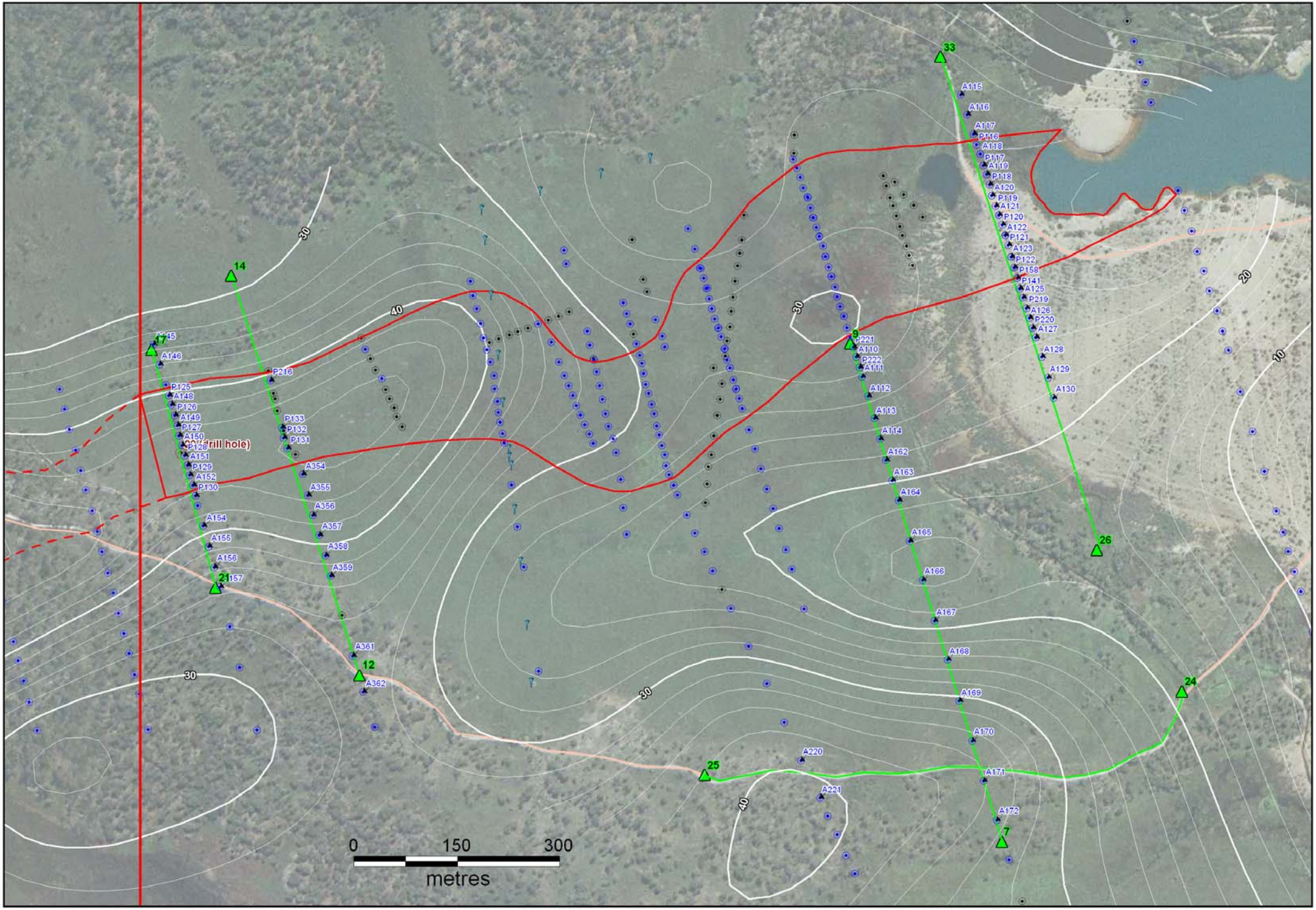
10. APPENDIX 2 – LOCATION OF GPR TEST PROFILES

Endurance Map

Scotia Map

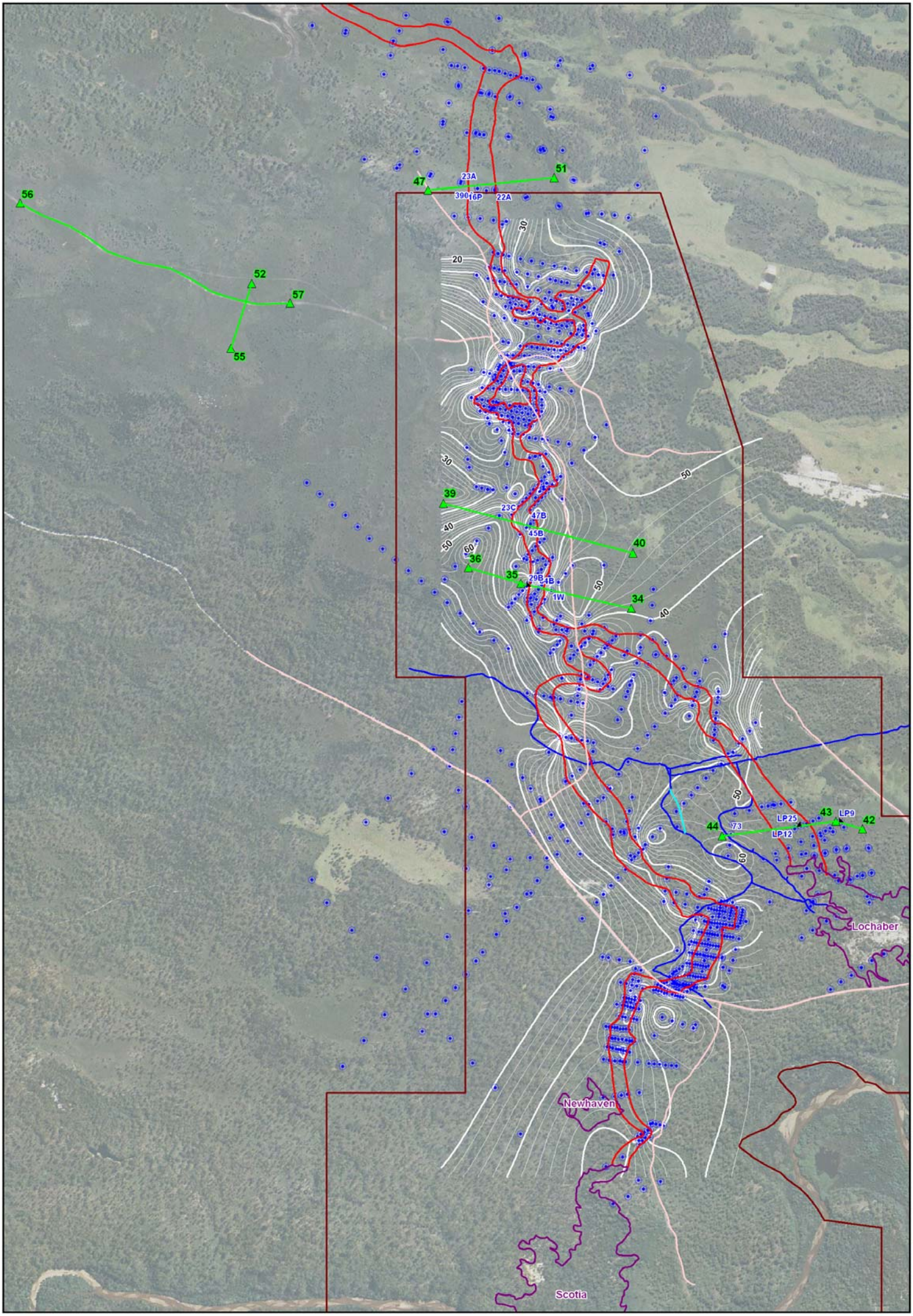
-Attached

(Map material provided by Van Dieman Mines)



Endurance - Depth to Basement Contour Map with test GPR test survey lines

VDMmap0608-018



Scotia - Depth to Basement Contour Map with GPR test survey lines

VDMmap0608-020

11. APPENDIX 3 – PHOTOS FROM THE SCOTIA SURVEY SITE

12. APPENDIX 4 – WAYPOINTS COLLECTED

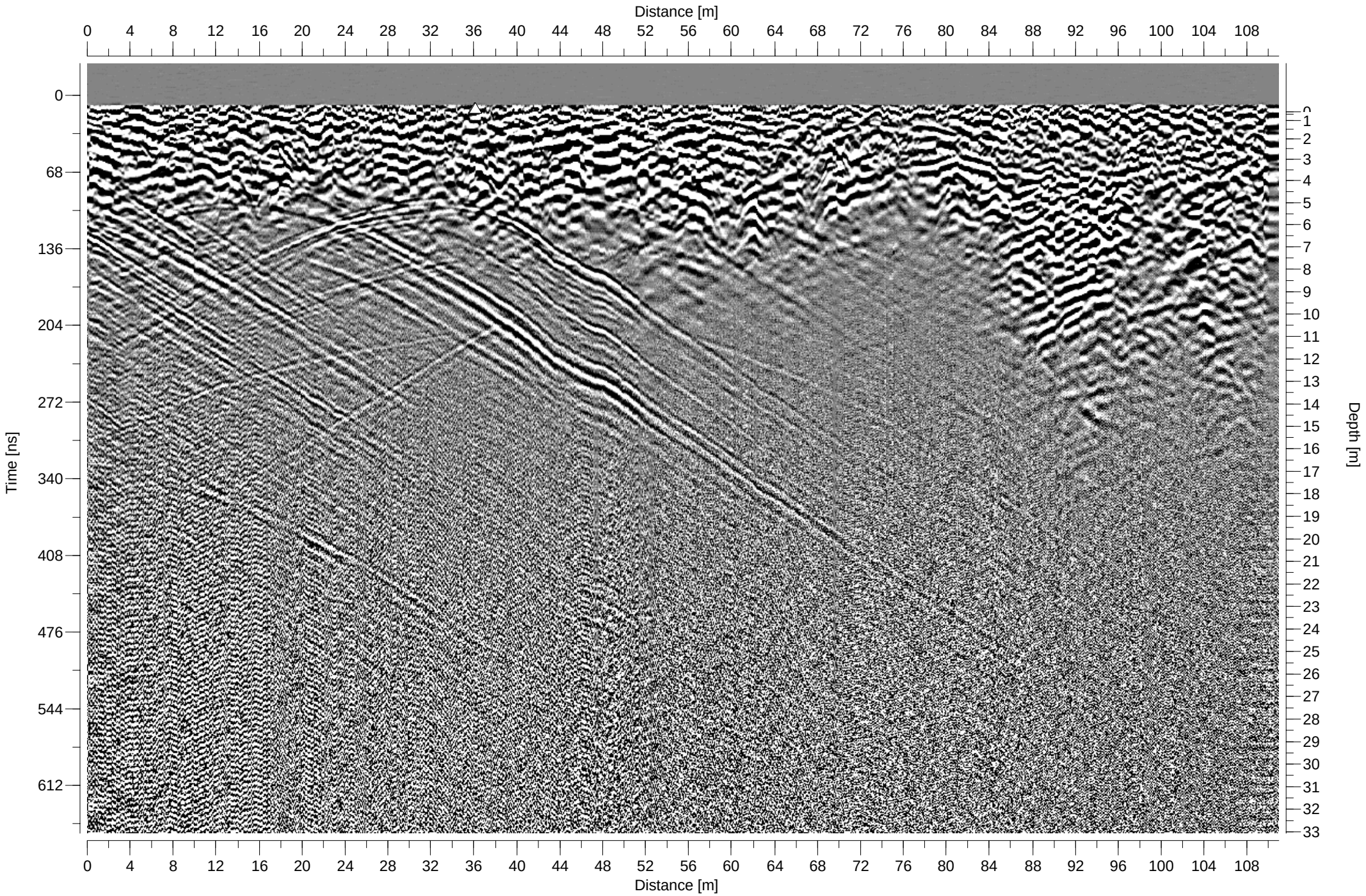
WP_ID	Lat	Long	Date	Time
1	-40.9579	148.0054	08/22/2006	18:46:00
2	-40.9529	148.0169	08/22/2006	18:53:00
3	-40.9403	148.0219	08/22/2006	18:57:00
4	-40.9392	148.0042	08/22/2006	19:00:00
5	-40.9462	148.002	08/22/2006	19:05:00
6	-41.0147	147.9613	08/23/2006	11:11:00
7	-41.0201	147.9319	08/23/2006	11:59:00
8	-41.0137	147.9291	08/23/2006	12:36:00
9	-41.0138	147.9291	08/23/2006	12:36:00
10	-41.0193	147.932	08/23/2006	13:23:00
11	-41.0192	147.9312	08/23/2006	14:22:00
12	-41.0181	147.9209	08/23/2006	14:41:00
13	-41.0181	147.9209	08/23/2006	14:41:00
14	-41.0129	147.9186	08/23/2006	15:02:00
15	-41.0129	147.9186	08/23/2006	15:02:00
16	-41.0129	147.9186	08/23/2006	15:02:00
17	-41.0139	147.9175	08/23/2006	15:13:00
18	-41.0139	147.9175	08/23/2006	15:14:00
19	-41.0139	147.9175	08/23/2006	15:14:00
20	-41.0152	147.9178	08/23/2006	15:21:00
21	-41.017	147.9184	08/23/2006	15:27:00
22	-41.017	147.9184	08/23/2006	15:27:00
23	-41.0132	147.9187	08/23/2006	16:02:00
24	-41.0182	147.9351	08/23/2006	18:25:00
25	-41.0194	147.9269	08/23/2006	18:39:00
26	-41.0164	147.9338	08/23/2006	19:28:00
27	-41.0164	147.9338	08/23/2006	19:28:00
28	-41.0164	147.9338	08/23/2006	19:28:00
29	-41.0163	147.9338	08/23/2006	19:29:00
30	-41.0116	147.9317	08/23/2006	19:46:00
31	-41.0116	147.9316	08/23/2006	19:46:00
32	-41.0116	147.9316	08/23/2006	19:46:00
33	-41.0099	147.9308	08/23/2006	23:54:00
34	-40.9264	148.0002	08/24/2006	12:02:00
35	-40.9256	147.9954	08/24/2006	12:22:00
36	-40.9251	147.9932	08/24/2006	12:26:00
37	-40.9251	147.9932	08/24/2006	12:26:00
38	-40.9251	147.9932	08/24/2006	12:27:00
39	-40.923	147.9921	08/24/2006	12:42:00
40	-40.9246	148.0002	08/24/2006	13:05:00
41	-40.9246	148.0002	08/24/2006	13:05:00
42	-40.9335	148.0102	08/24/2006	15:30:00
43	-40.9332	148.009	08/24/2006	15:41:00
44	-40.9338	148.0042	08/24/2006	15:53:00
45	-40.9337	148.004	08/24/2006	15:54:00
46	-40.9337	148.0041	08/24/2006	15:54:00
47	-40.9129	147.9913	08/24/2006	18:03:00
48	-40.9128	147.9913	08/24/2006	18:03:00
49	-40.9128	147.9913	08/24/2006	18:03:00
50	-40.9128	147.9913	08/24/2006	18:04:00
51	-40.9124	147.9967	08/24/2006	18:14:00
52	-40.916	147.9838	08/25/2006	12:01:00
53	-40.9158	147.9835	08/25/2006	12:04:00
54	-40.9165	147.9832	08/25/2006	12:07:00
55	-40.9181	147.9829	08/25/2006	12:13:00
56	-40.9134	147.9738	08/25/2006	13:43:00
57	-40.9166	147.9854	08/25/2006	14:00:00
58	-40.9605	148.0088	08/25/2006	15:06:00
59	-40.9111	147.9872	08/25/2006	15:06:00

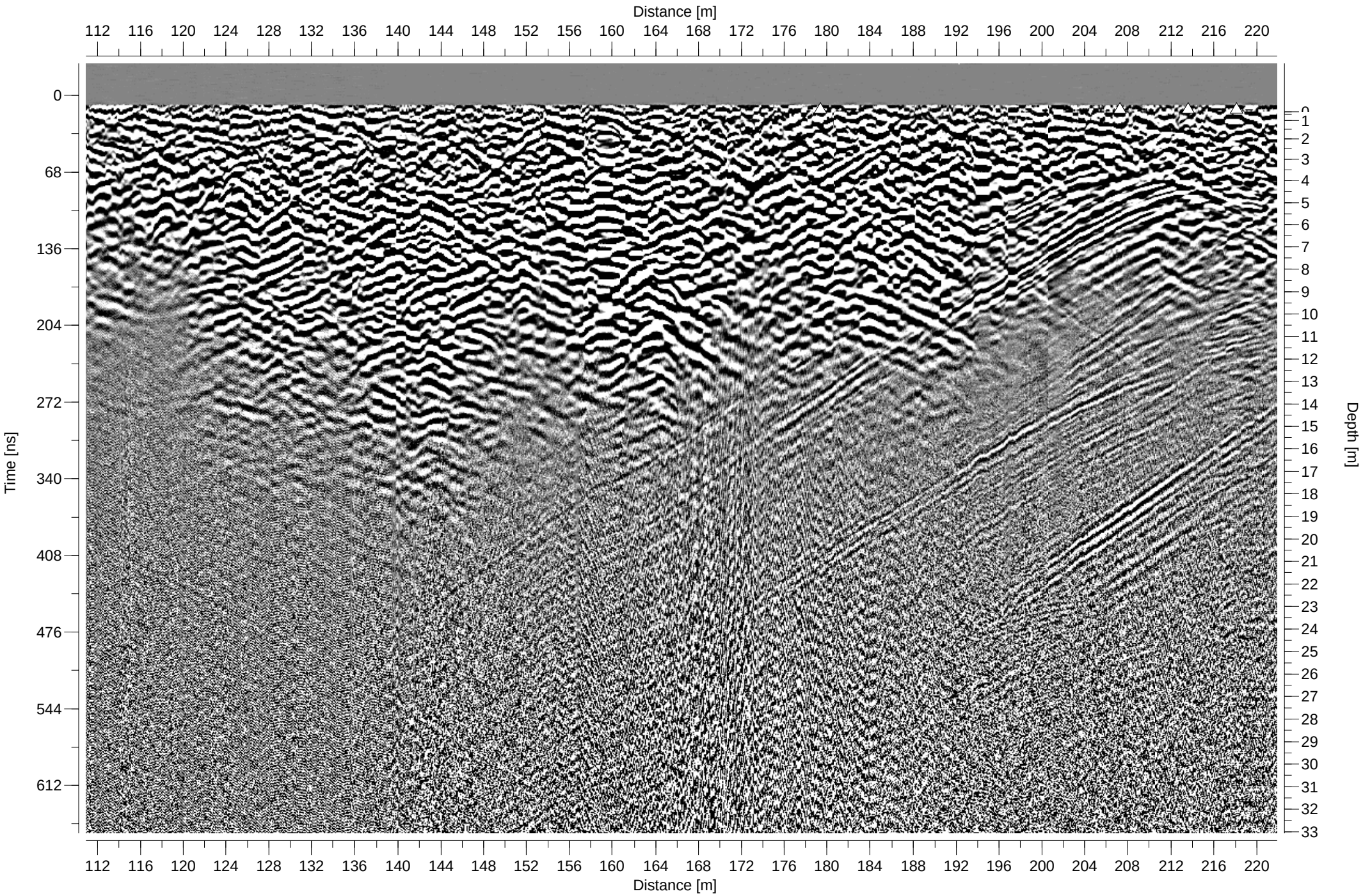
13. APPENDIX 5 – GPR PROFILE NAMES AND LOCATION

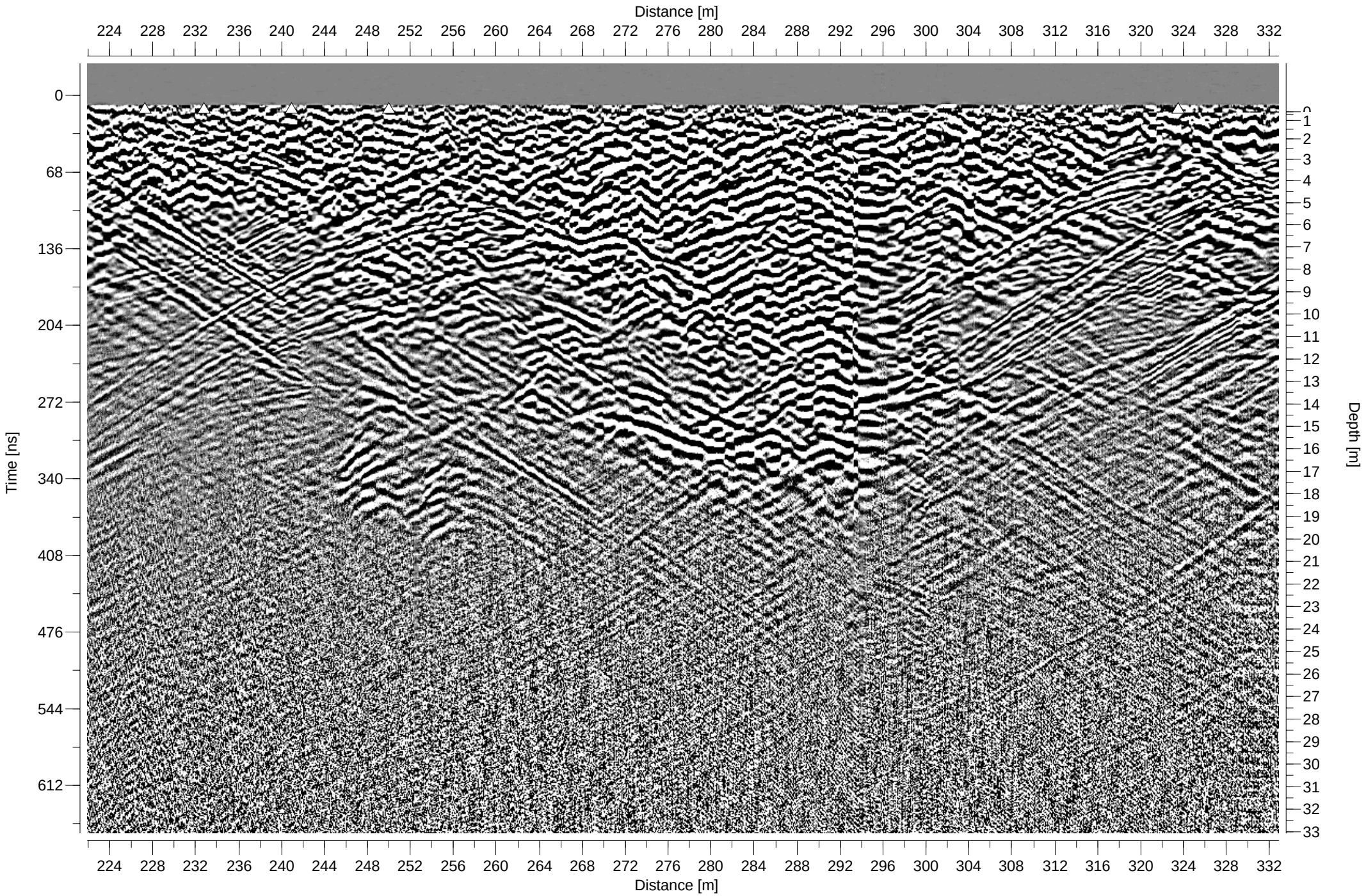
Antenna	GPR_File	WP_START	WP_END
25MHz	DAT_0003.rd3	007	009
100MHz	DAT_0005.rd3	007	009
100MHz	DAT_0006.rd3	012	014
100MHz	DAT_0007.rd3	017	021
25MHz	DAT_0008.rd3	012	023
25MHz	DAT_0009.rd3	017	021
25MHz	DAT_0014.rd3	024	025
100MHz	DAT_0016.rd3	024	025
25MHz	DAT_0017.rd3	026	033
25MHz	DAT_0020.rd3	034	036
25MHz	DAT_0021.rd3	039	040
100MHz	DAT_0022.rd3	034	036
100MHz	DAT_0023.rd3	039	040
100MHz	DAT_0026.rd3	042	044
25MHz	DAT_0027.rd3	042	044
100MHz	DAT_0029.rd3	047	051
25MHz	DAT_0031.rd3	047	051
25MHz	DAT_0035.rd3	052	055
100MHz	DAT_0040.rd3	052	055
25MHz	DAT_0055.rd3	056	057
100MHz	DAT_0058.rd3	056	057

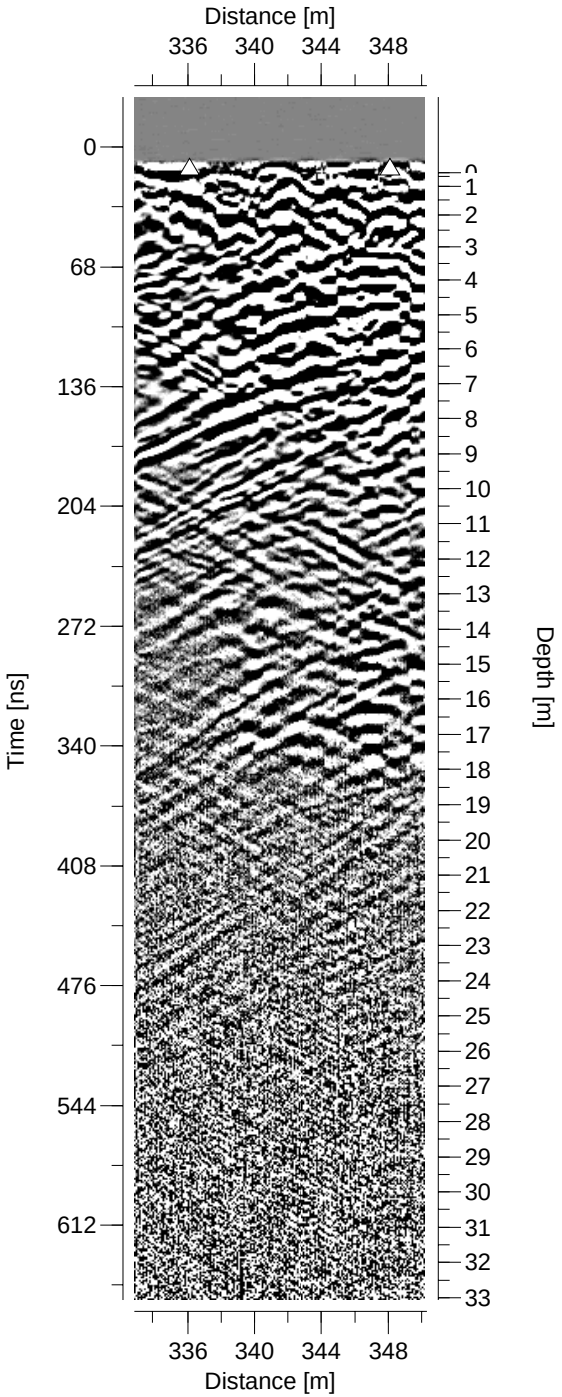
14. APPENDIX 6 – DAT_007 – 100MHZ, ENDURANCE

-Attached


Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108
Time [ns]
0 68 136 204 272 340 408 476 544 612
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108

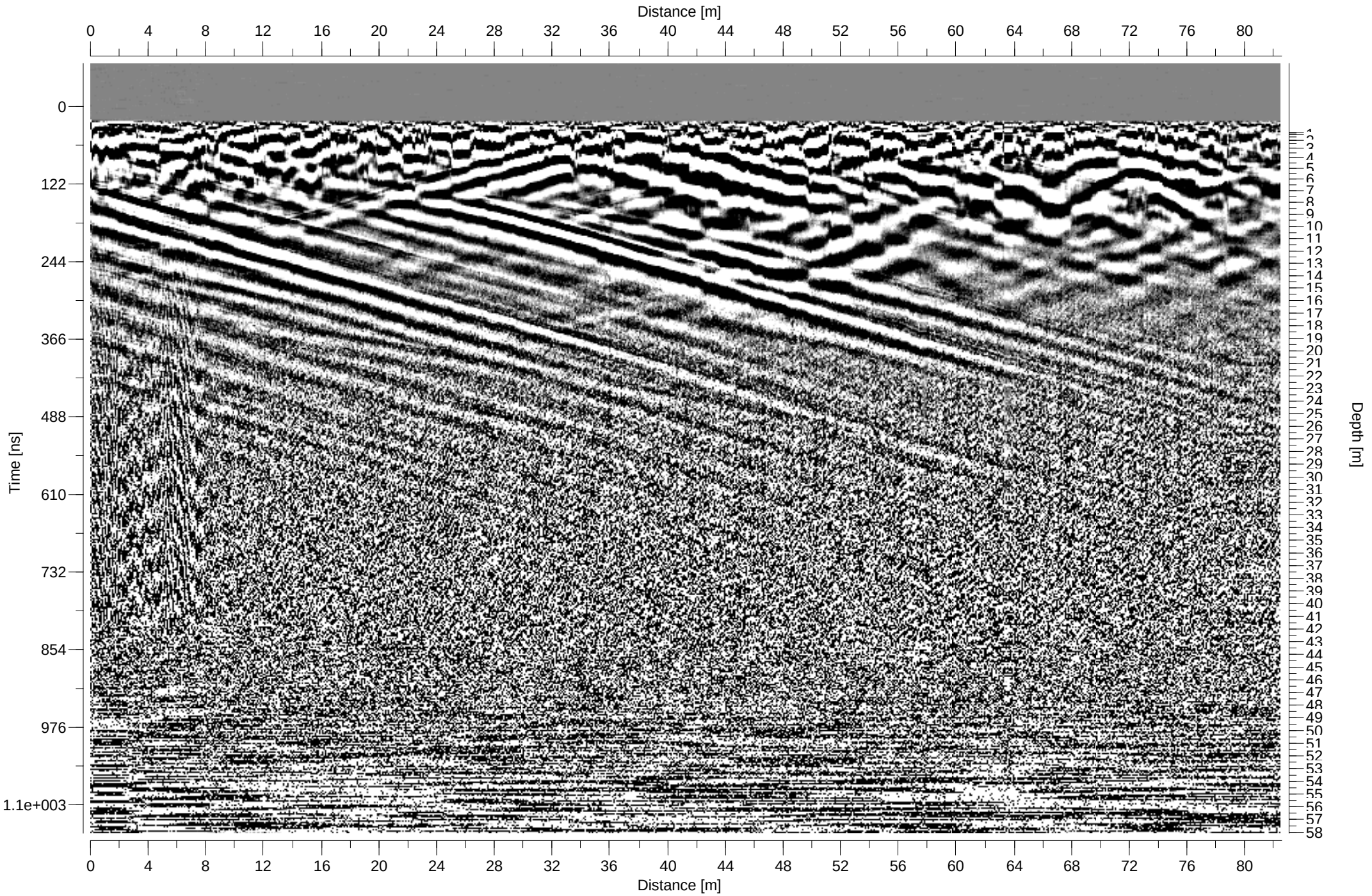

Distance [m]
112 116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220
Time [ns]
0 68 136 204 272 340 408 476 544 612
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
112 116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220


Distance [m]
224 228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332
Time [ns]
0 68 136 204 272 340 408 476 544 612
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
224 228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332


Distance [m]
336
340
344
348
0
68
136
204
272
340
408
476
544
612
Time [ns]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
Depth [m]
336
340
344
348
Distance [m]

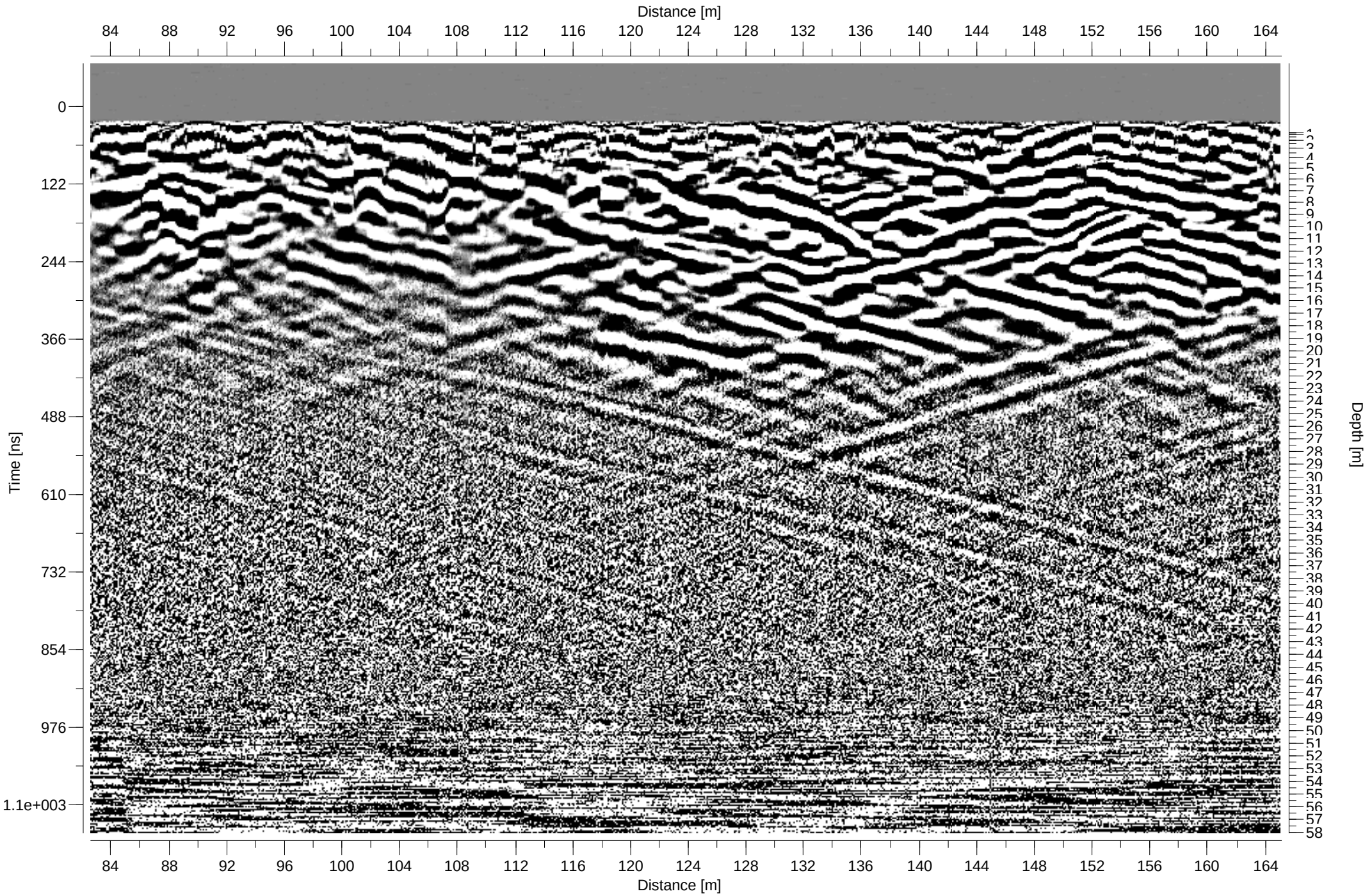
15. APPENDIX 7 – DAT_009 – 25MHZ, ENDURANCE

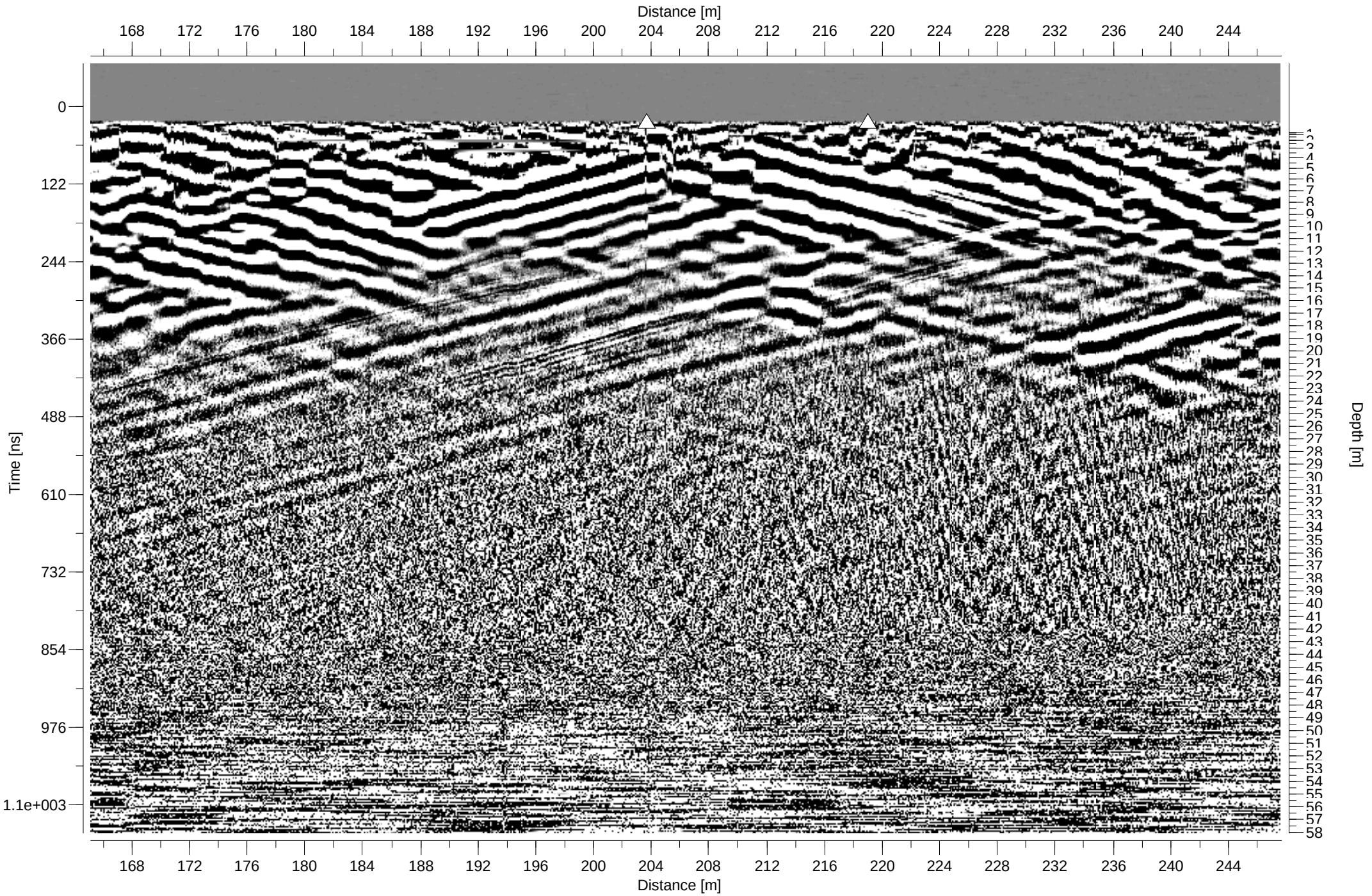
-Attached

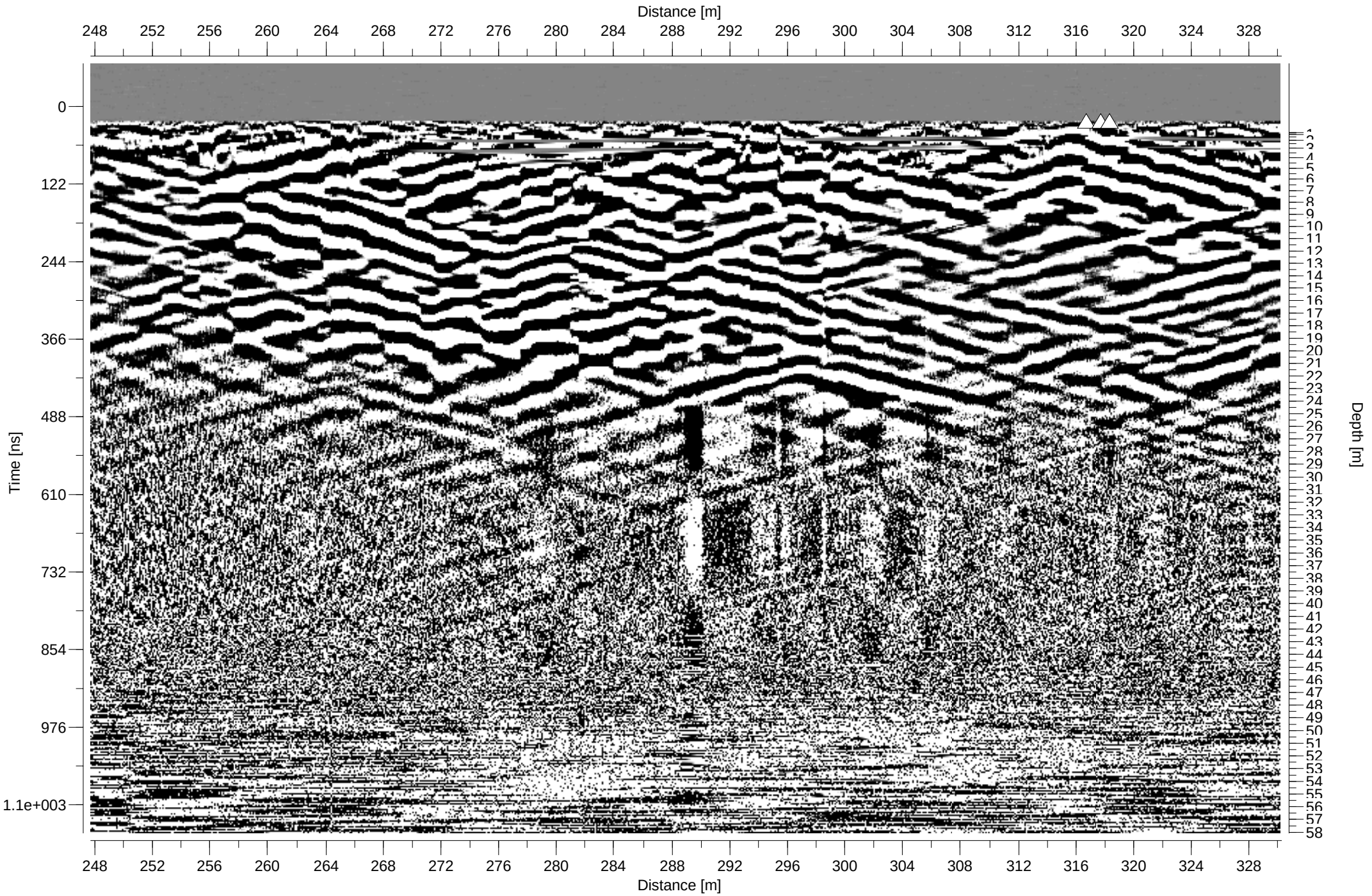


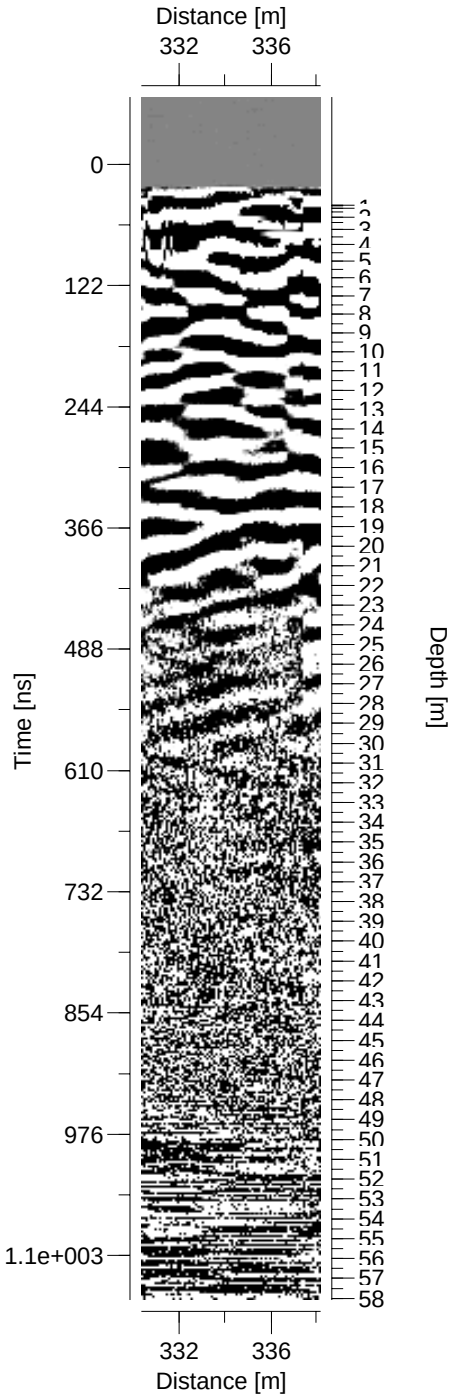
RAMAC GroundVision

C:\ DATA\PROJECTS\AG-130 Van Dieman Mines\DATA\230806\DAT_0009.rd3


Distance [m]
84 88 92 96 100 104 108 112 116 120 124 128 132 136 140 144 148 152 156 160 164
Time [ns]
0 122 244 366 488 610 732 854 976 1.1e+003
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58
Distance [m]
84 88 92 96 100 104 108 112 116 120 124 128 132 136 140 144 148 152 156 160 164


Distance [m]
168 172 176 180 184 188 192 196 200 204 208 212 216 220 224 228 232 236 240 244
Time [ns]
0 122 244 366 488 610 732 854 976 1.1e+003
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58
Distance [m]
168 172 176 180 184 188 192 196 200 204 208 212 216 220 224 228 232 236 240 244


Distance [m]
248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328
Time [ns]
0 122 244 366 488 610 732 854 976 1.1e+003
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58
Distance [m]
248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328


Distance [m]
332
336
0
122
244
366
488
610
732
854
976
1.1e+003
Time [ns]
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
332
336
Distance [m]

16. APPENDIX 9 – ALPHA GEOSCIENCE - CURRICULUM VITAE

Alpha Geoscience was established in 1997 to offer high sensitivity geophysical tools and expertise as an alternative to intrusive investigations in the following areas:

- **Environmental Services** — Including the mapping of buried structures, site assessments and the detection of chemical pollutants.
- **Ordnance Services** — The location of buried unexploded ordnance (UXO), site assessments and sample surveys to determine extent of pollution. Alpha Geoscience is a member of the Defence UXO Panel.
- **Engineering Services** — Assisting civil mining and construction engineers with sub surface investigations, especially where intrusive investigation is difficult and costly to undertake.
- **Forensic Geophysics** — The location of buried gravesites and other buried objects for the police and other crime agencies.
- **Mining and Exploration** — Assist mining and exploration companies with near surface investigations.
- **Training** — Provides training courses in high-resolution magnetics, electro-magnetics, seismic refraction and ground-penetrating radar for clients who wish to undertake surveys themselves.
- **Project Management** — Is an intricate part of all projects and Alpha Geoscience has expertise and experience in setting up, running and reporting on both major and minor projects worldwide.
- **Research and Development** — Alpha Geoscience has been involved in running a number of research and development projects including the development of a multi-sensor geophysical instrumentation package for the horizon control of a coal-mining machine.

The types of techniques offered by Alpha Geoscience include high sensitivity magnetics, ground penetrating radar, time or frequency domain electro-magnetics, resistivity mapping and seismic refraction and reflection techniques. These services combined with the digital processing of the data to produce colour images of the site and the interpretation of the data gives high-resolution detail of the sub surface on the site. This data can be imported into Geographical Information Systems (GIS) for future reference and auditable documentation.

Alpha Geoscience also offers the services of processing and interpretation of data in Sydney with the data being downloaded from the field via the Internet.

Alpha Geoscience is based in Sydney Australia and is capable of mobilising to any part of the world with very short notice. We have experience in operations throughout Australia, North America, Europe and South East Asia.

Alpha Geoscience is offering its services and consultation so that the client obtains the best technology for the particular target being investigated. Whether it is an ordnance item or environmental pollution plumes, it has the technical expertise to provide the right solution.

11.3 GPR PROFILES SCOTIA:

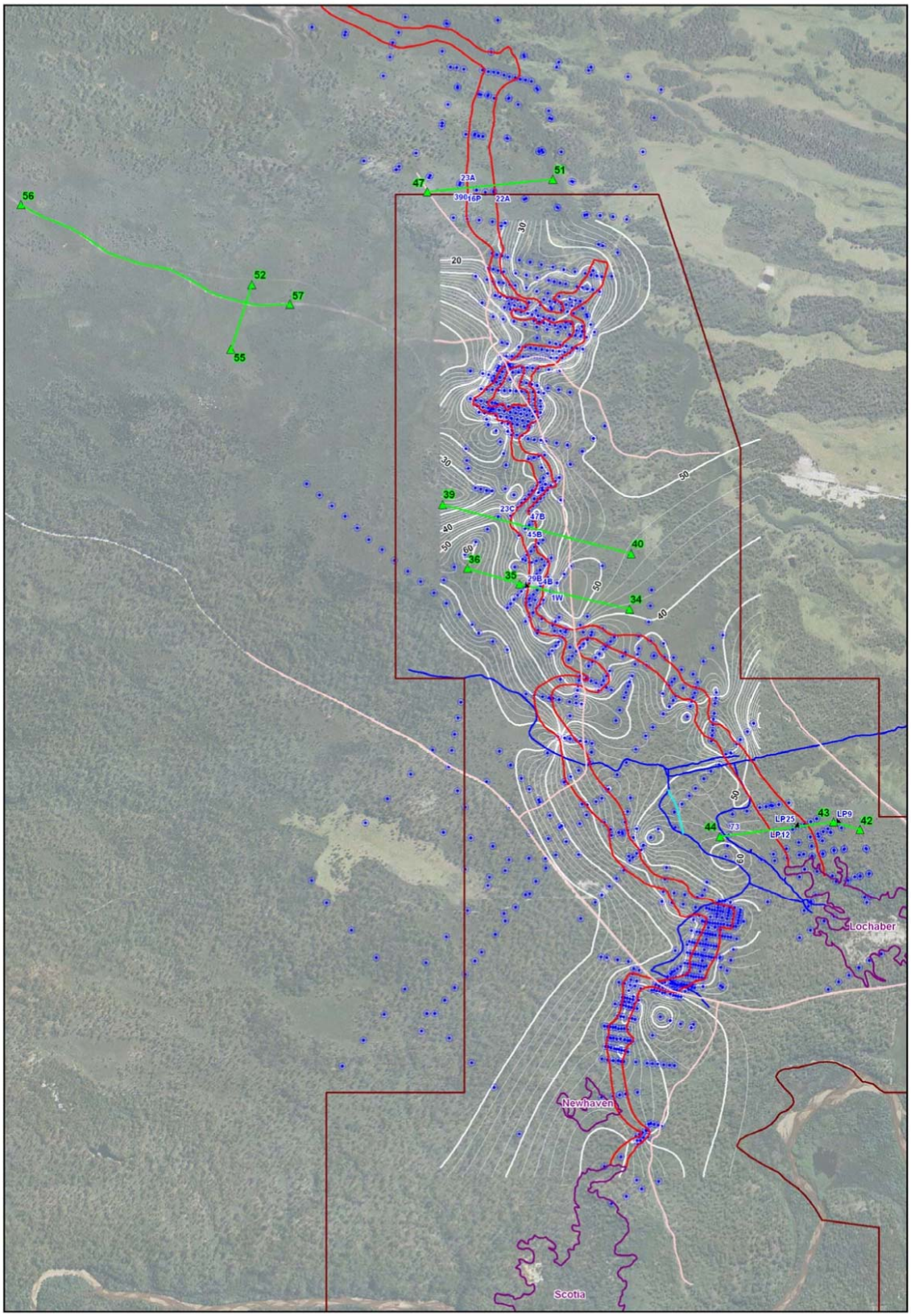
Note that the profiles start and finish points are GPS waypoints as set out on the accompanying Plan. Profiles included in this appendix include:

A. ANTENNA 25 MHz:

PROFILES 1	WAYPOINTS 034 TO 036	11 SHEETS
PROFILES 2	WAYPOINTS 039 TO 040	13 SHEETS
PROFILES 3	WAYPOINTS 042 TO 044	9 SHEETS
PROFILES 4	WAYPOINTS 047 TO 051	8 SHEETS

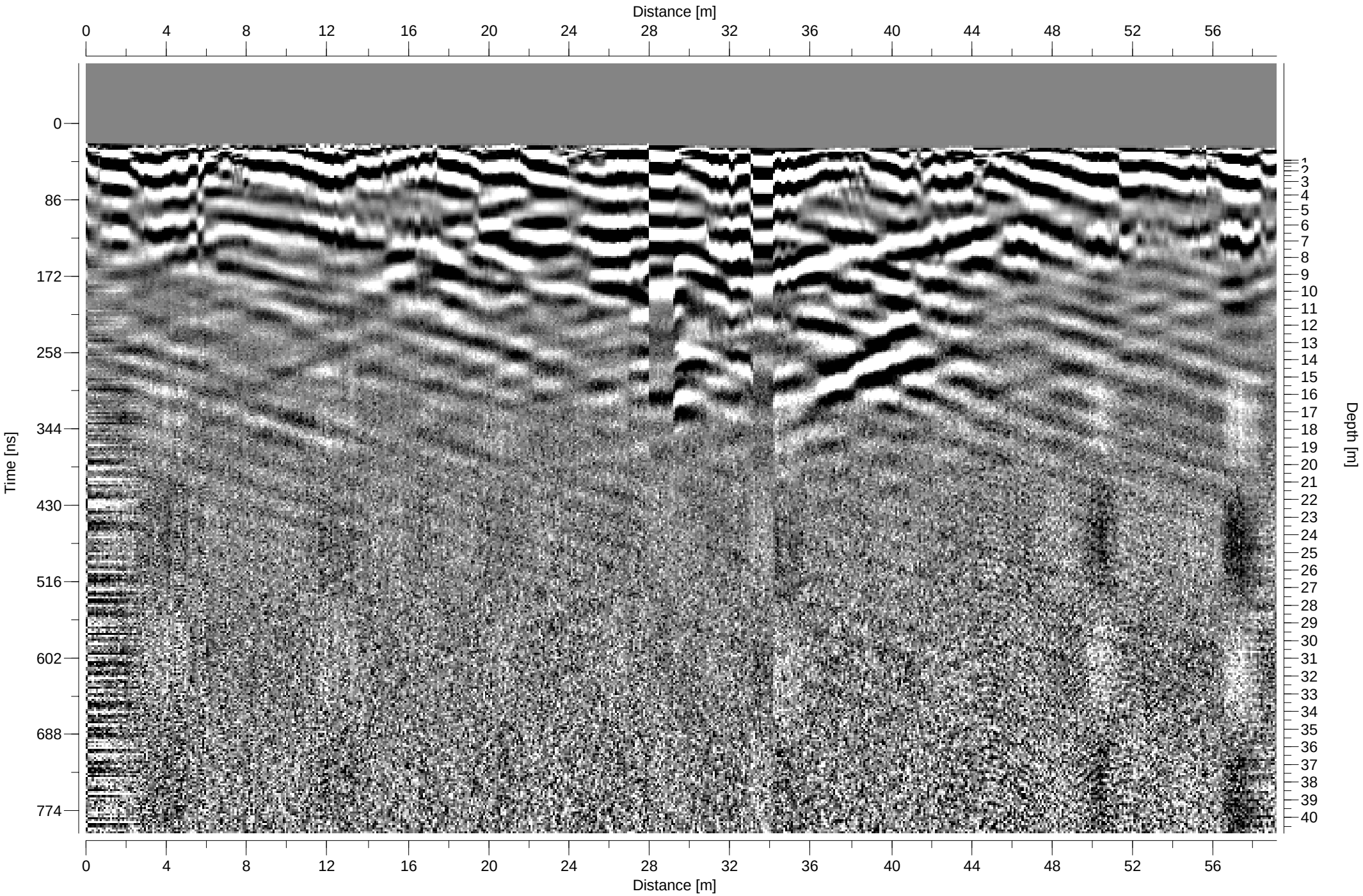
B. ANTENNA 100 MHz:

PROFILES 5	WAYPOINTS 034 TO 036	6 SHEETS
PROFILES 6	WAYPOINTS 039 TO 040	7 SHEETS
PROFILES 7	WAYPOINTS 042 TO 044	5 SHEETS
PROFILES 8	WAYPOINTS 047 TO 051	4 SHEETS



Scotia - Depth to Basement Contour Map with GPR test survey lines

PROFILES 1 WAYPOINTS 034 TO 036 11 SHEETS


Distance [m]
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
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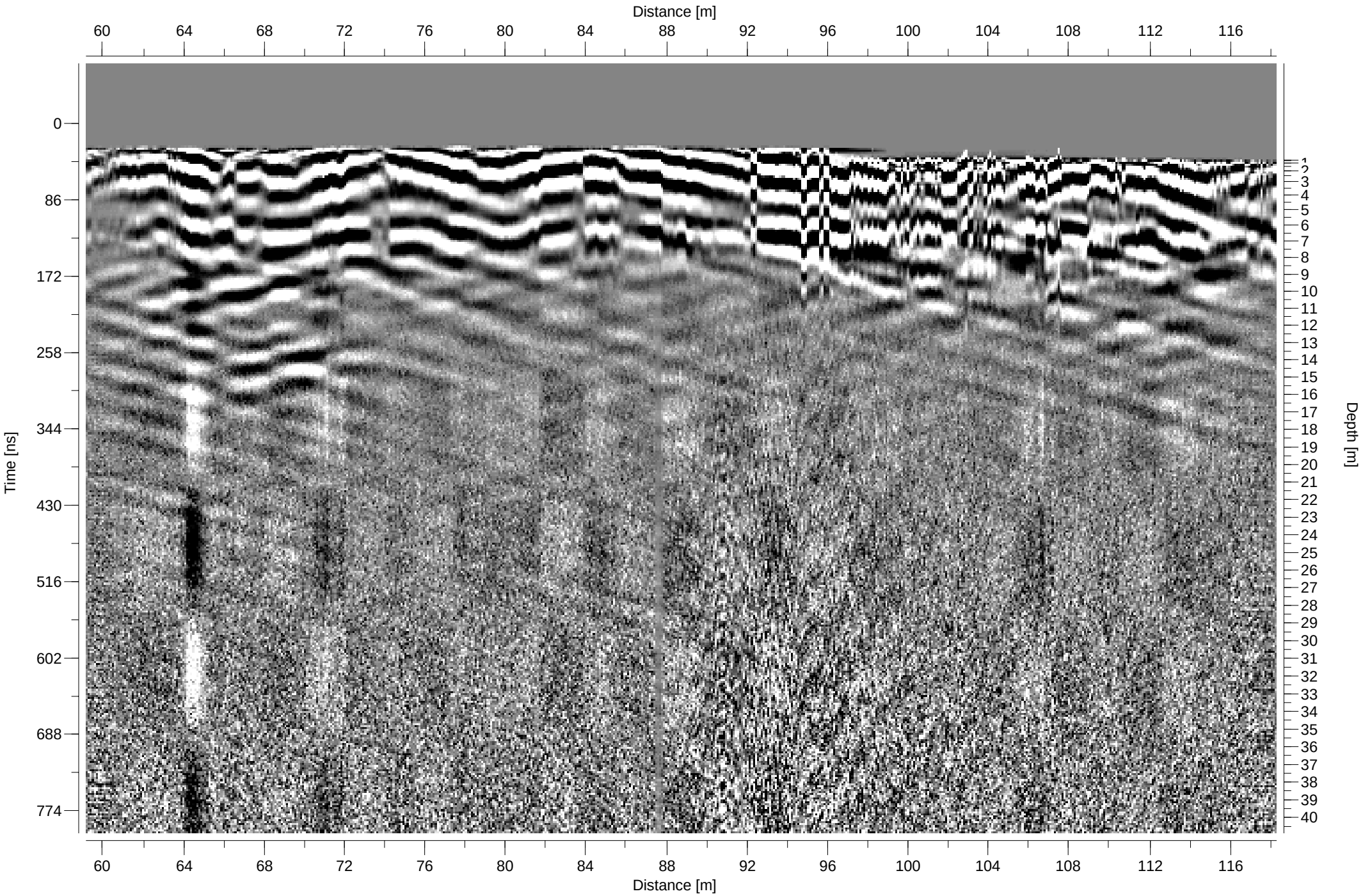
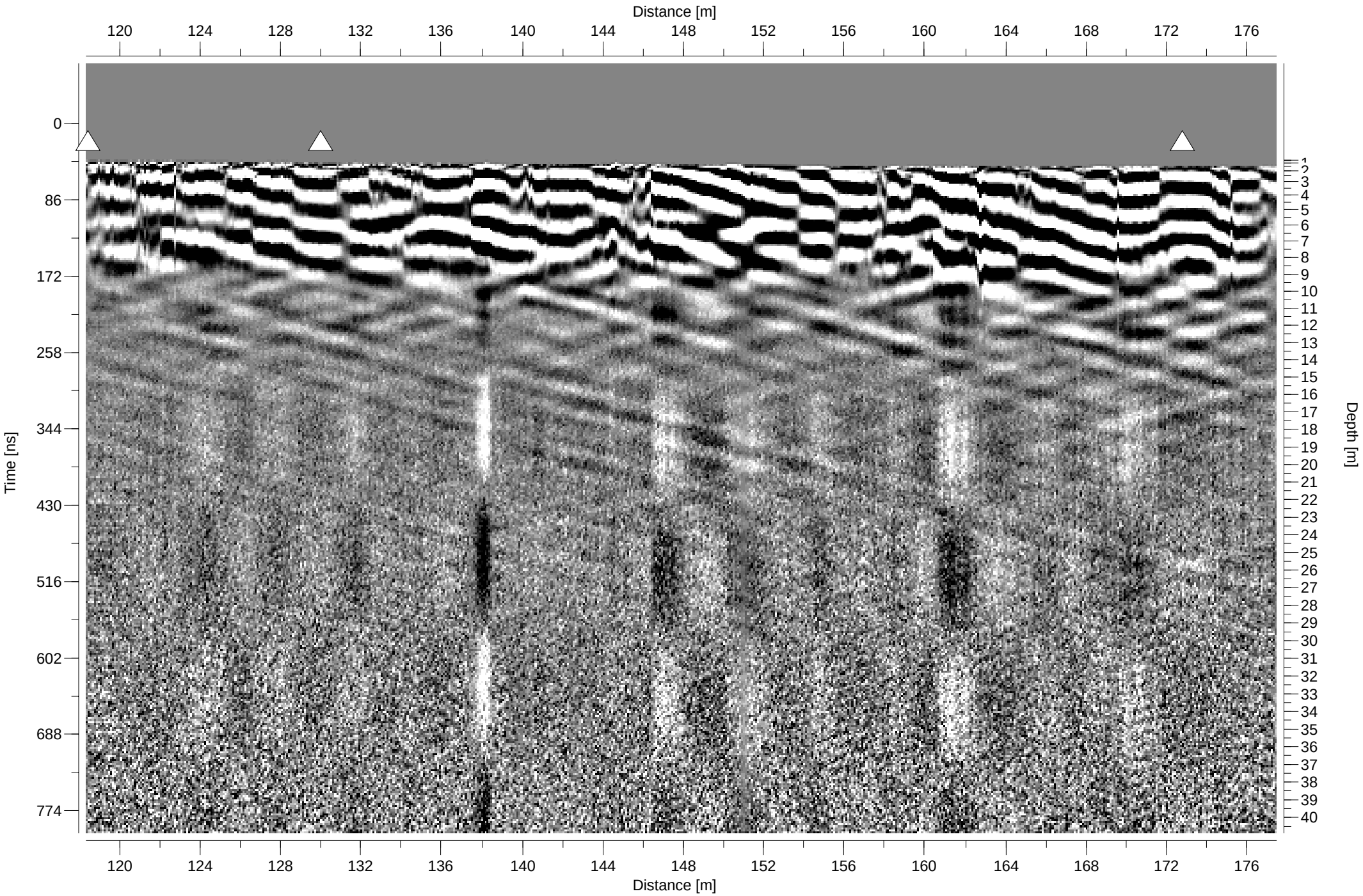
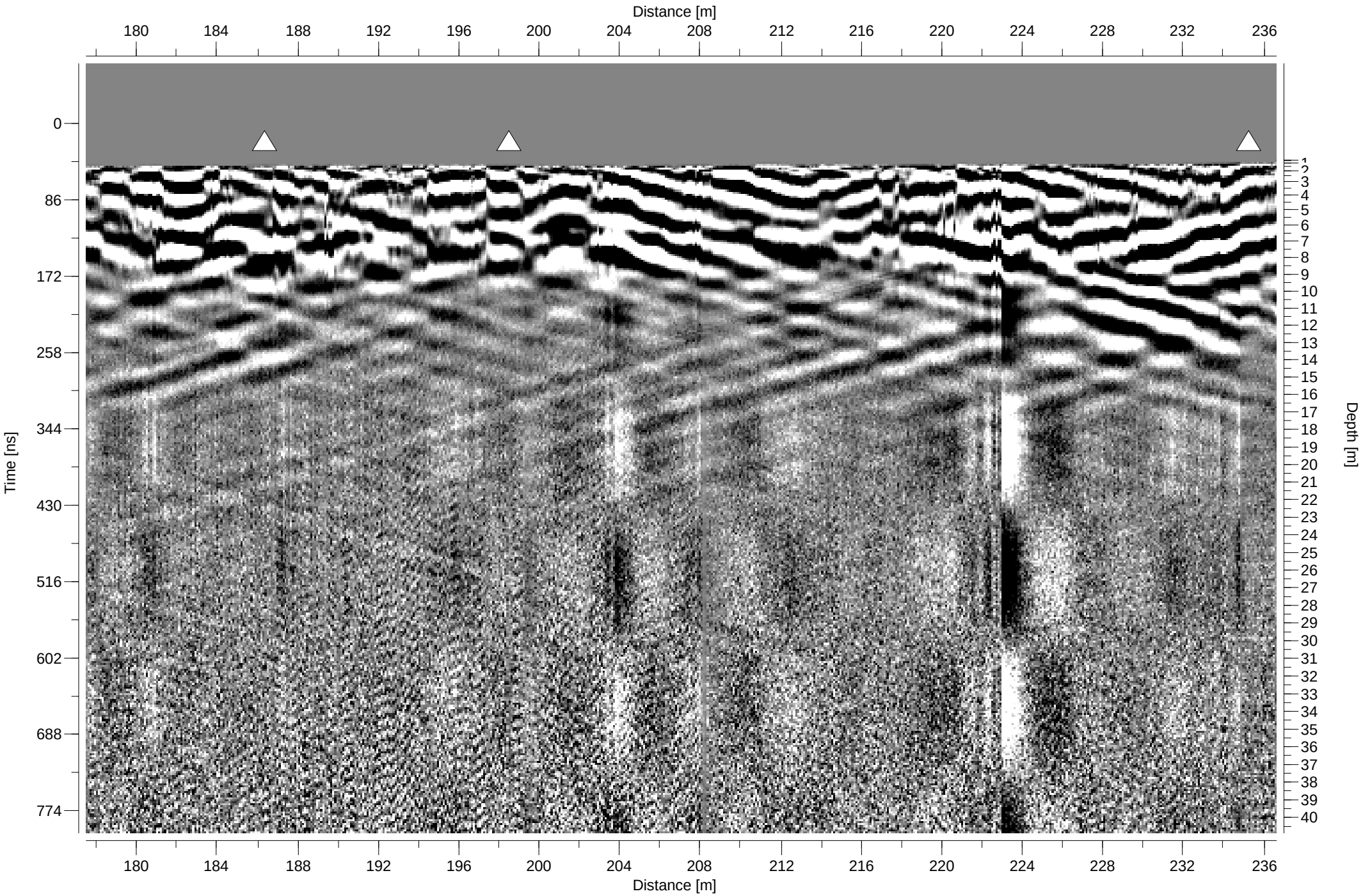
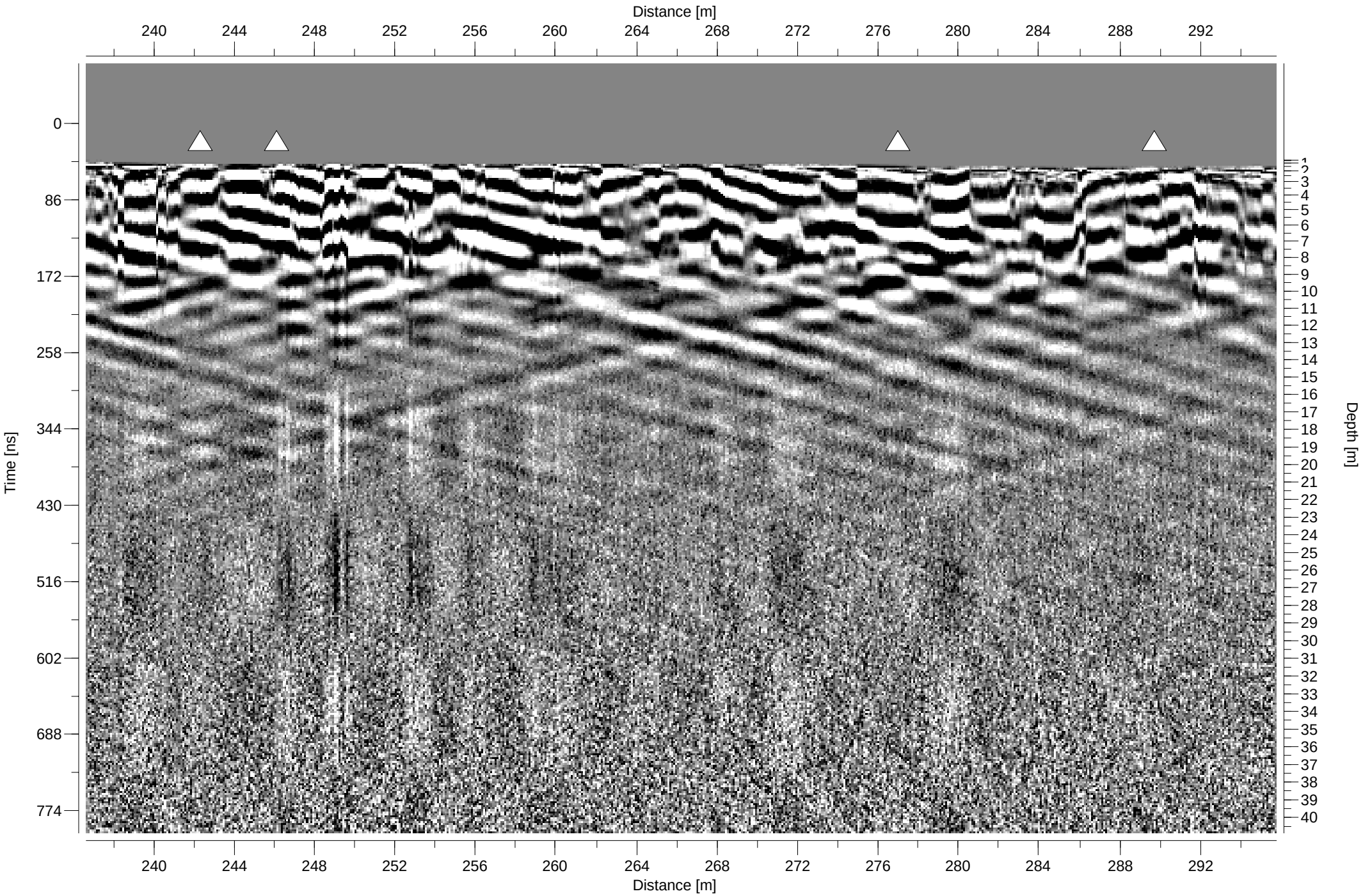
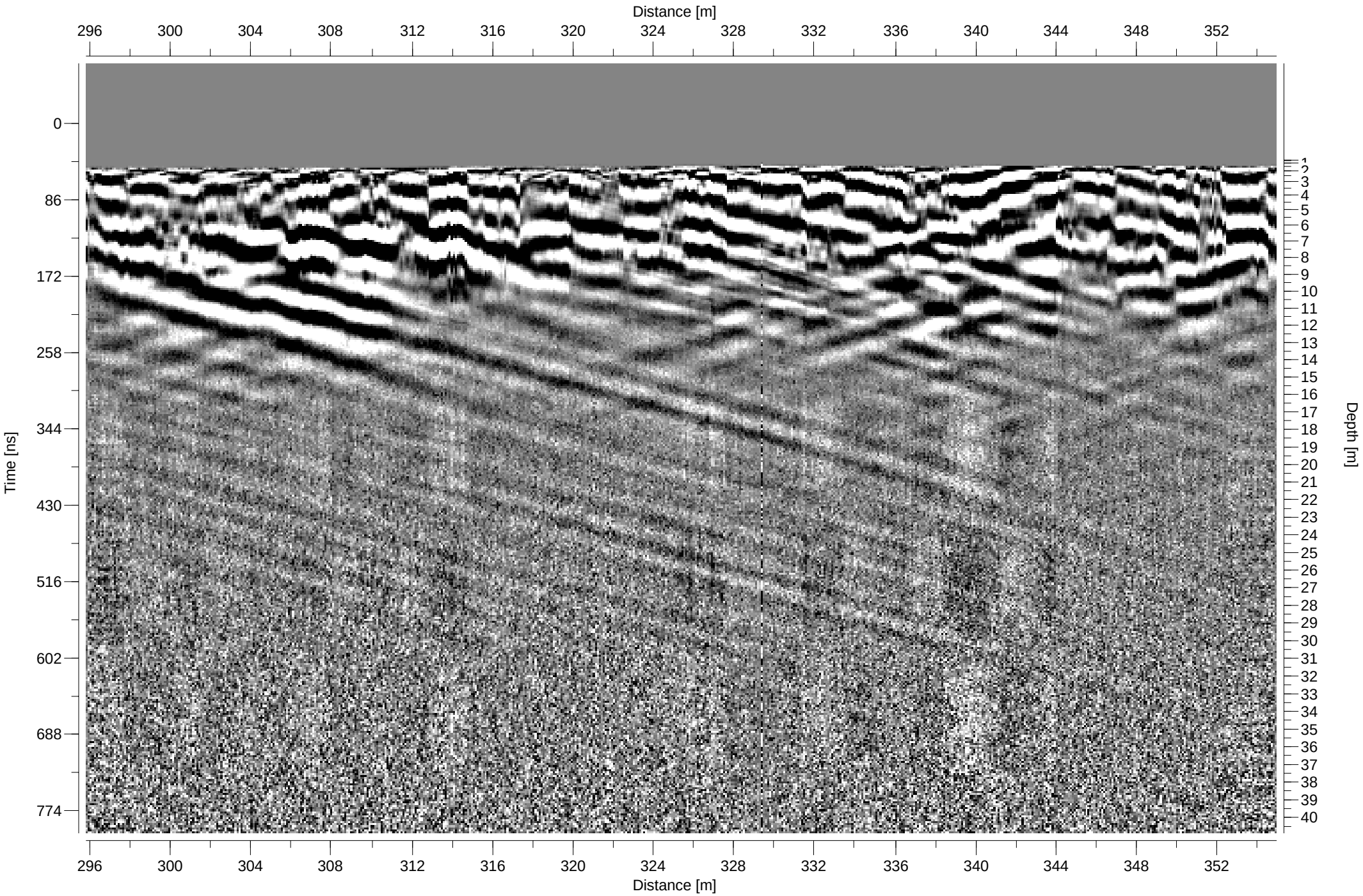
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40

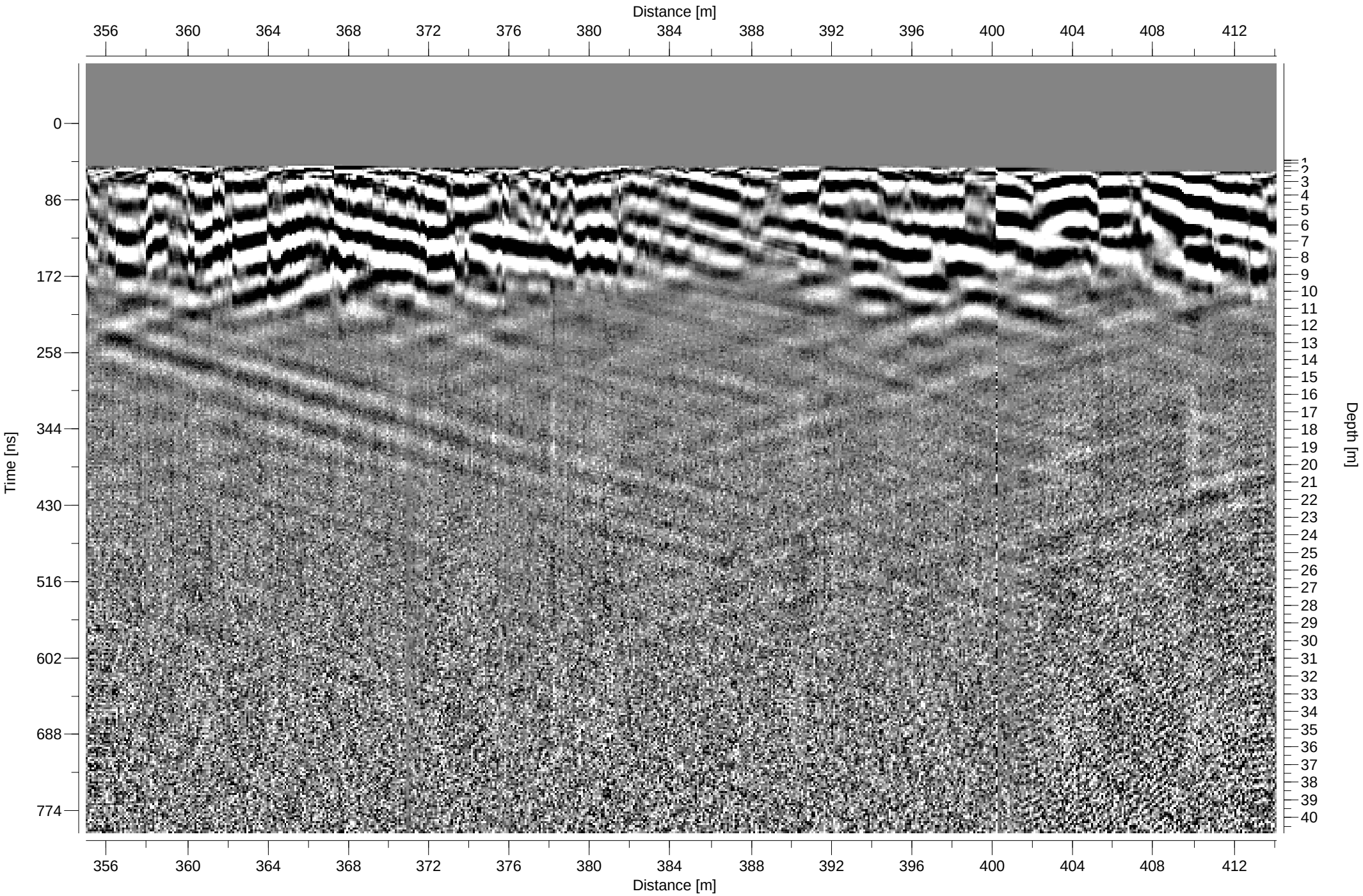

Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116

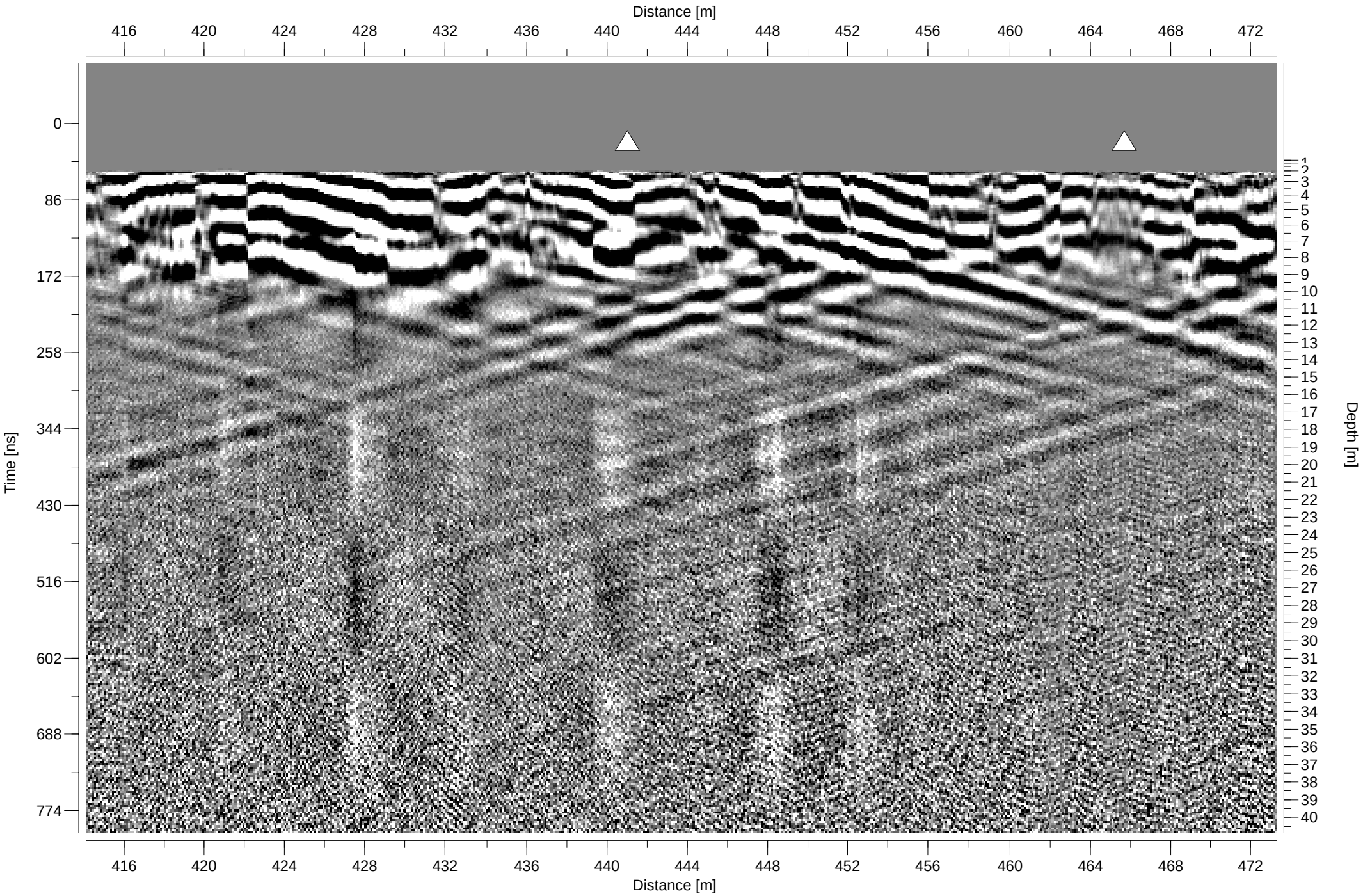

Distance [m]
120 124 128 132 136 140 144 148 152 156 160 164 168 172 176
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
120 124 128 132 136 140 144 148 152 156 160 164 168 172 176

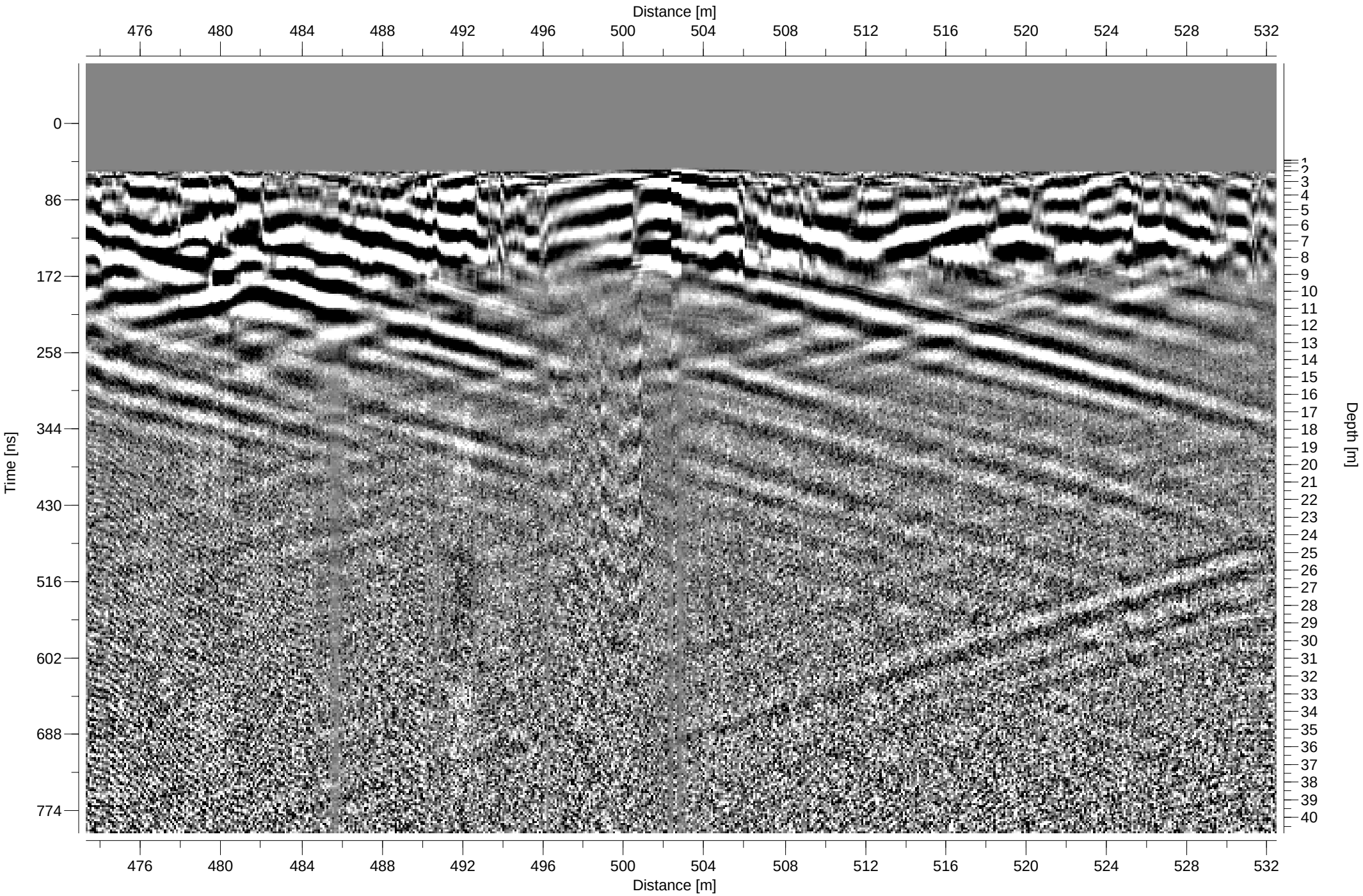

Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236

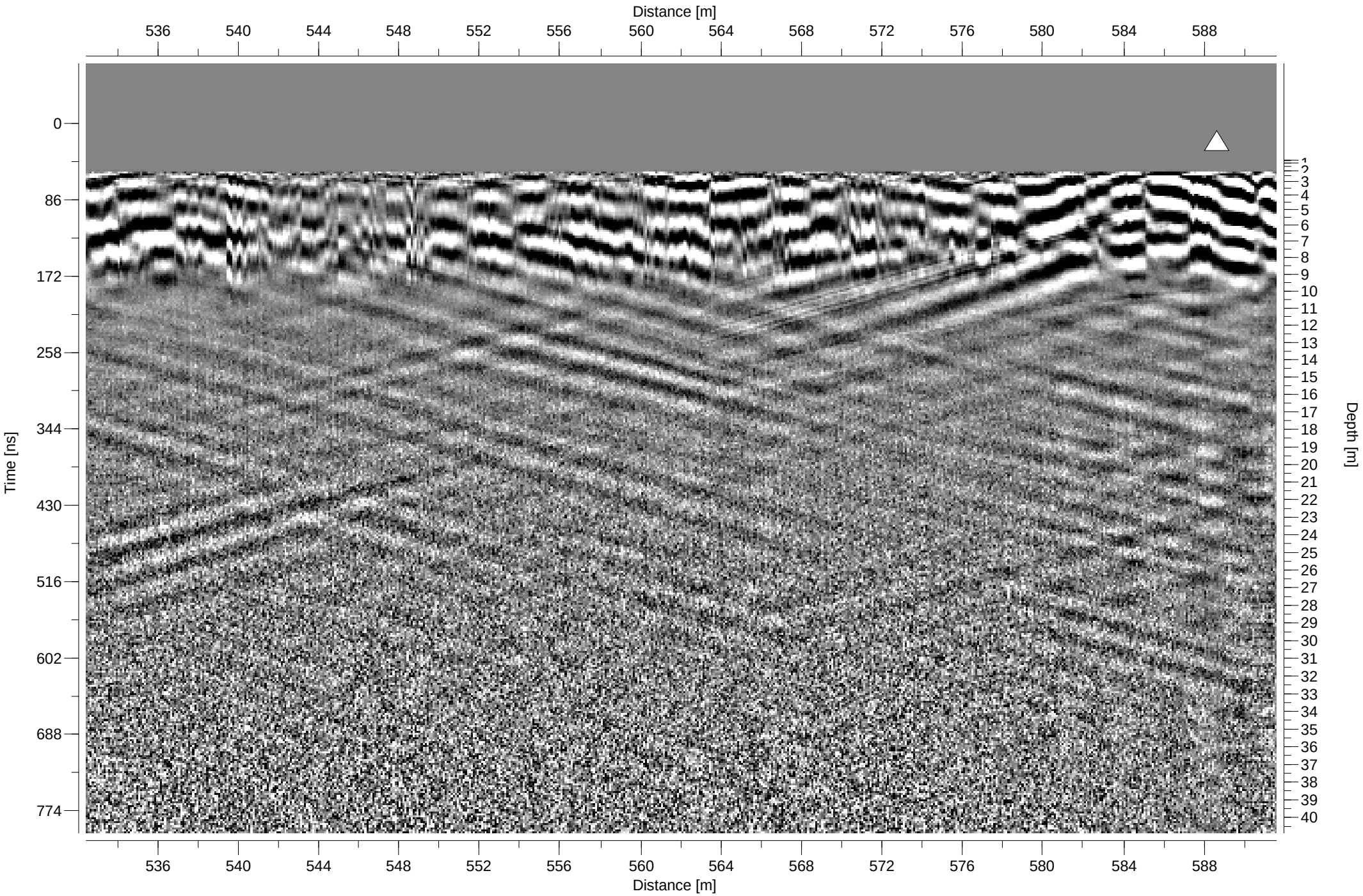

Distance [m]
240
244
248
252
256
260
264
268
272
276
280
284
288
292
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40

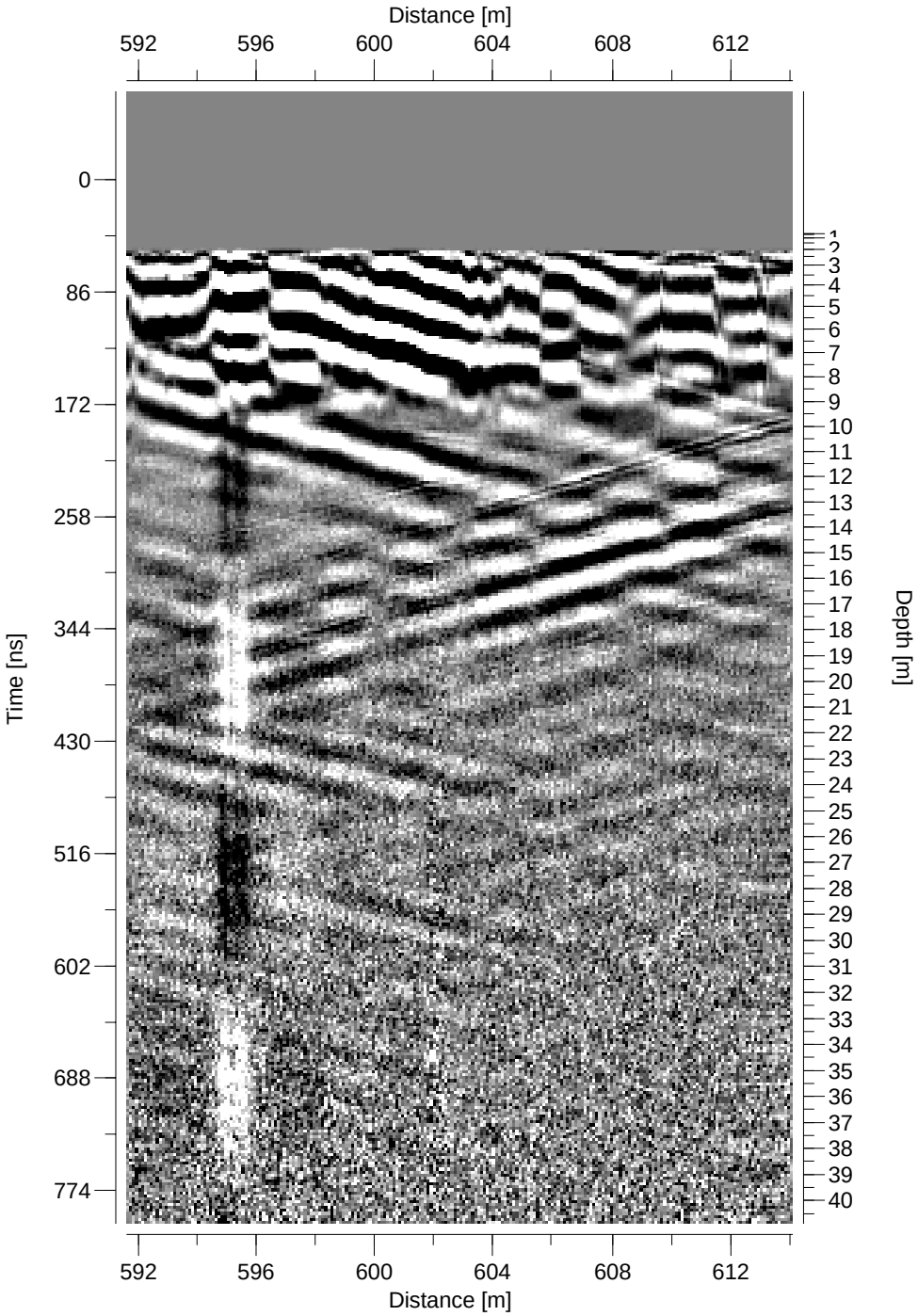

Distance [m]
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352
Distance [m]


Distance [m]
356 360 364 368 372 376 380 384 388 392 396 400 404 408 412
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
356 360 364 368 372 376 380 384 388 392 396 400 404 408 412

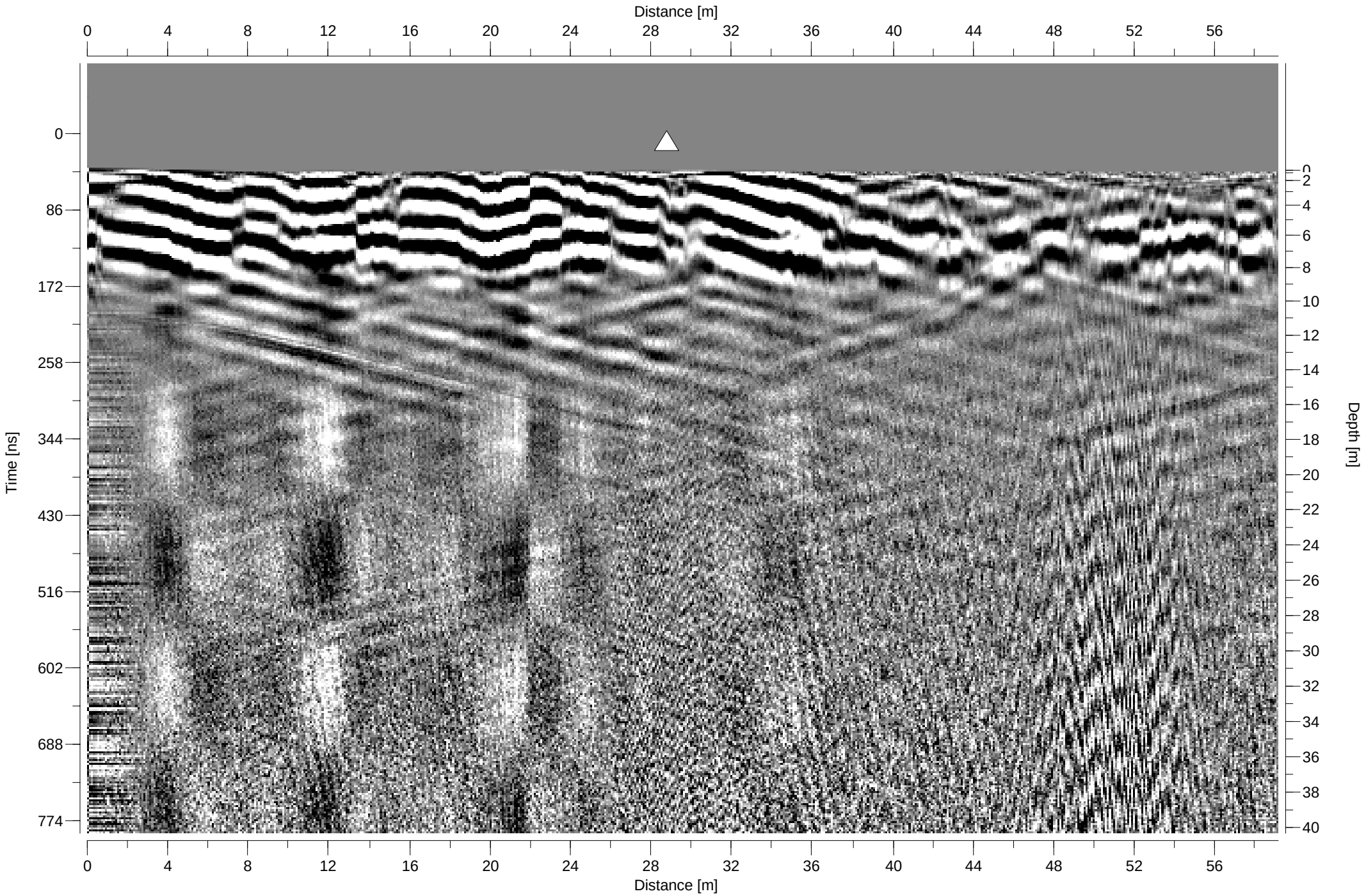

Distance [m]
416 420 424 428 432 436 440 444 448 452 456 460 464 468 472
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
416 420 424 428 432 436 440 444 448 452 456 460 464 468 472

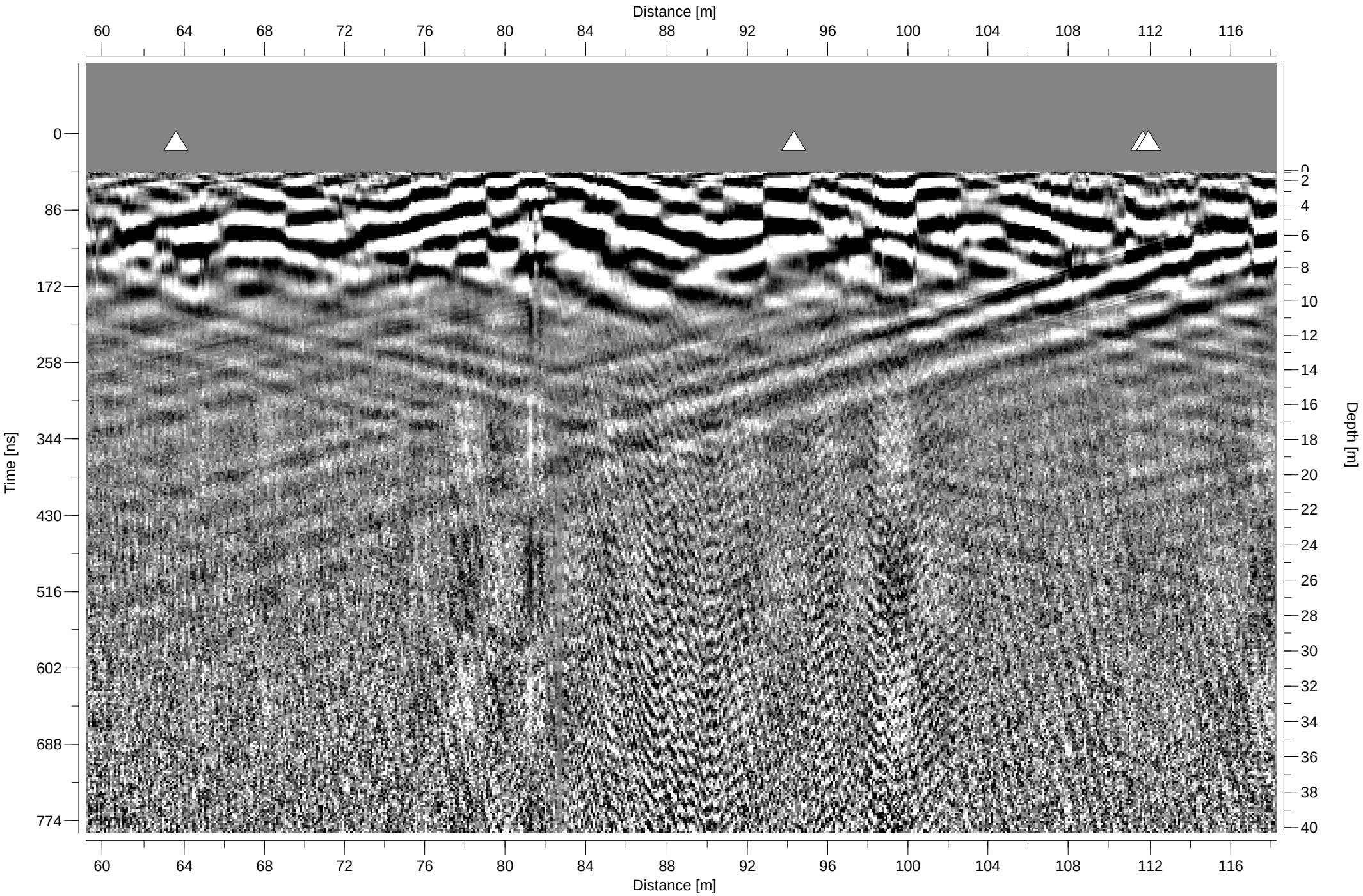

Distance [m]
476 480 484 488 492 496 500 504 508 512 516 520 524 528 532
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
476 480 484 488 492 496 500 504 508 512 516 520 524 528 532

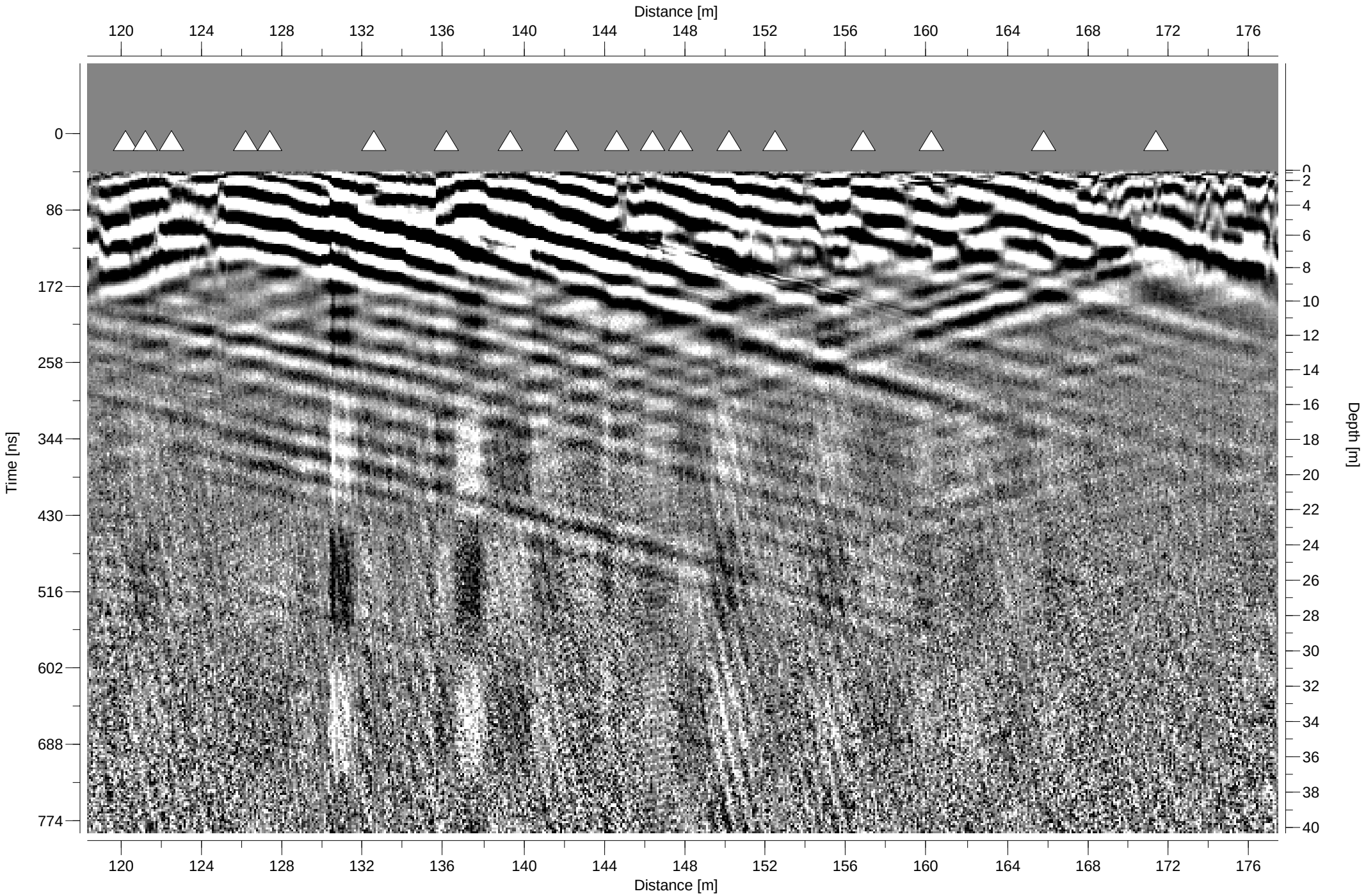

Distance [m]
536 540 544 548 552 556 560 564 568 572 576 580 584 588
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
536 540 544 548 552 556 560 564 568 572 576 580 584 588

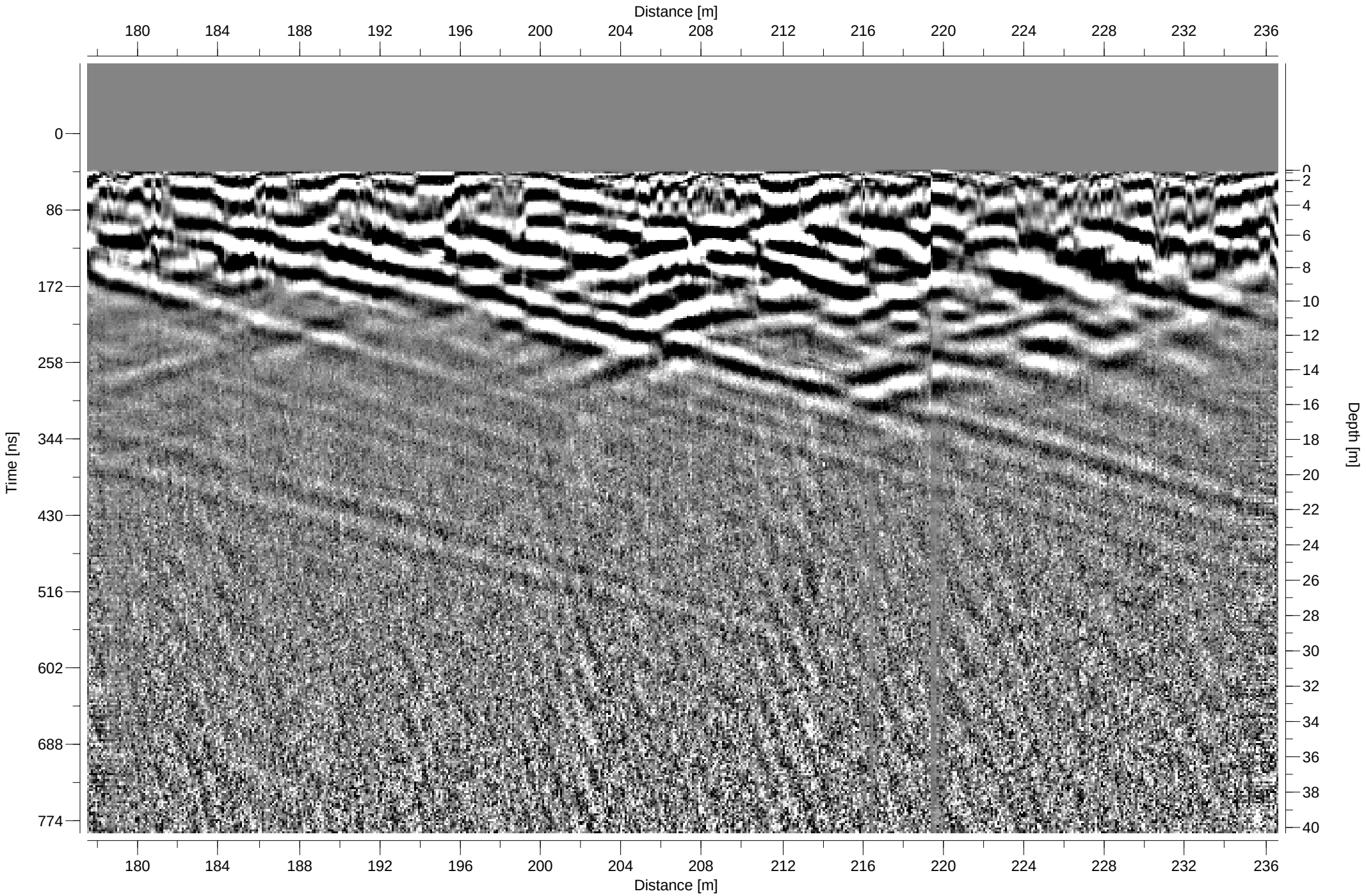

Distance [m]
592
596
600
604
608
612
0
86
172
258
344
430
516
602
688
774
Time [ns]
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
592
596
600
604
608
612
Distance [m]

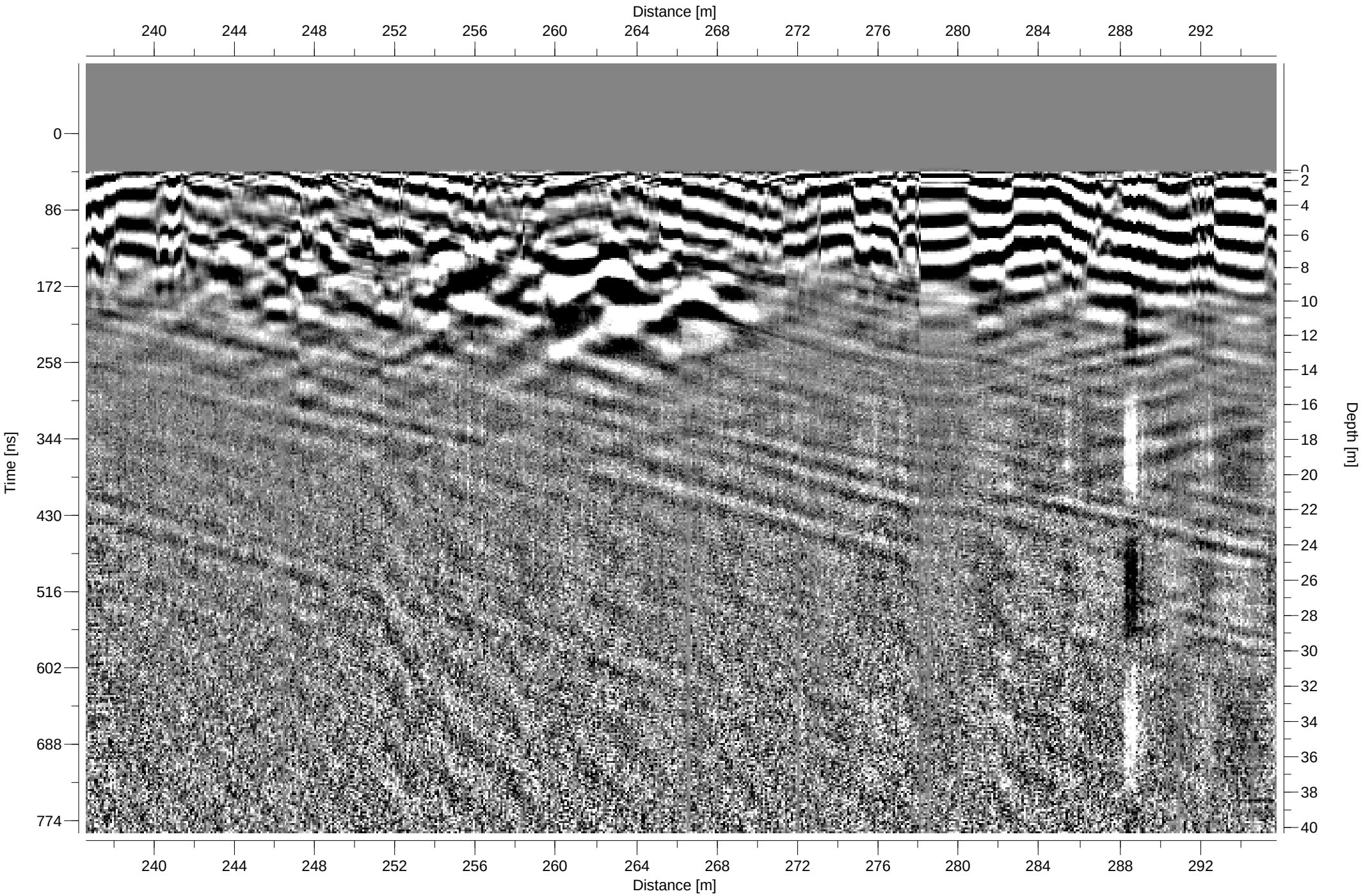
PROFILES 2 WAYPOINTS 039 TO 040 13 SHEETS

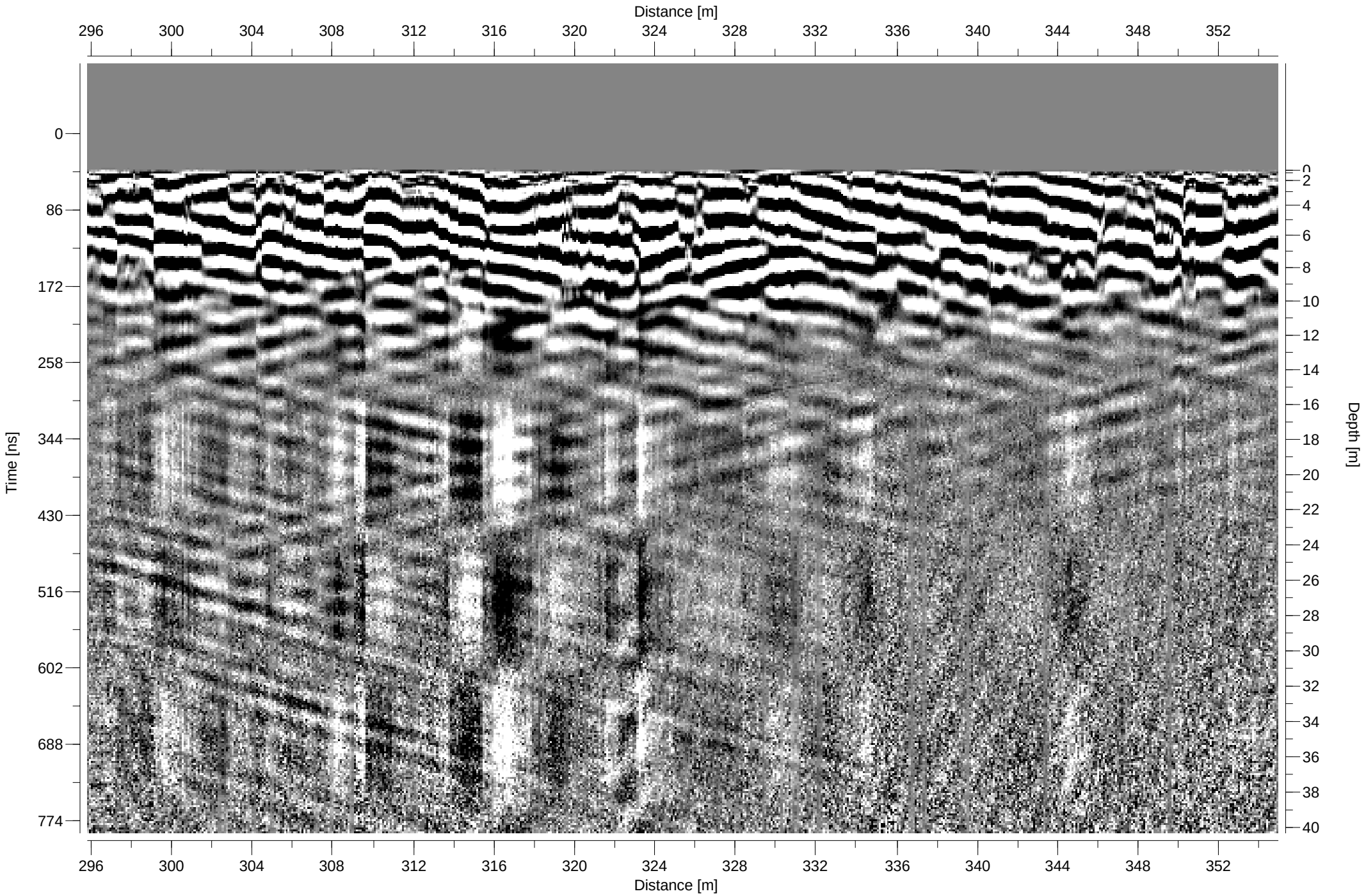

Distance [m]
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40

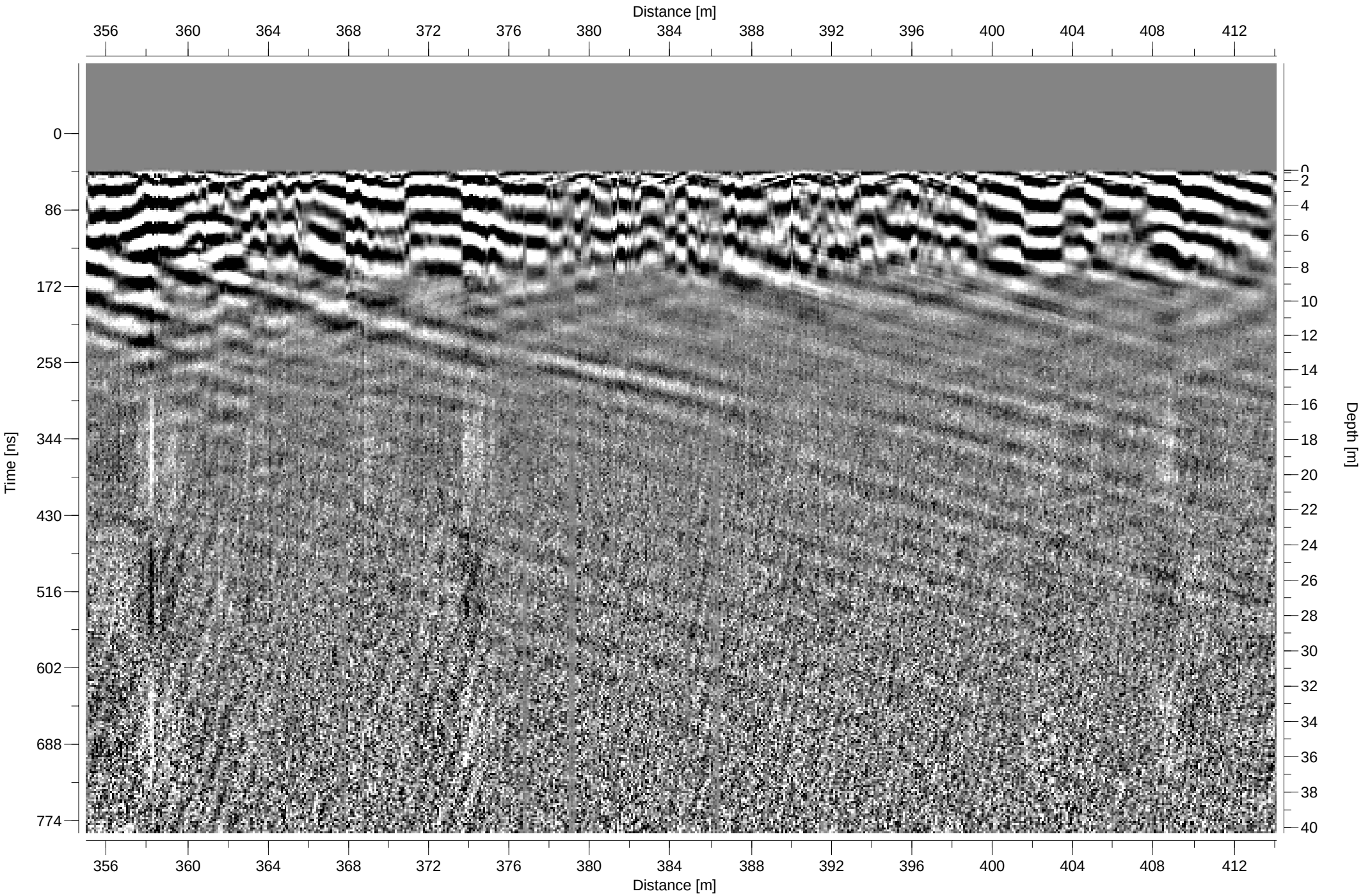

Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116

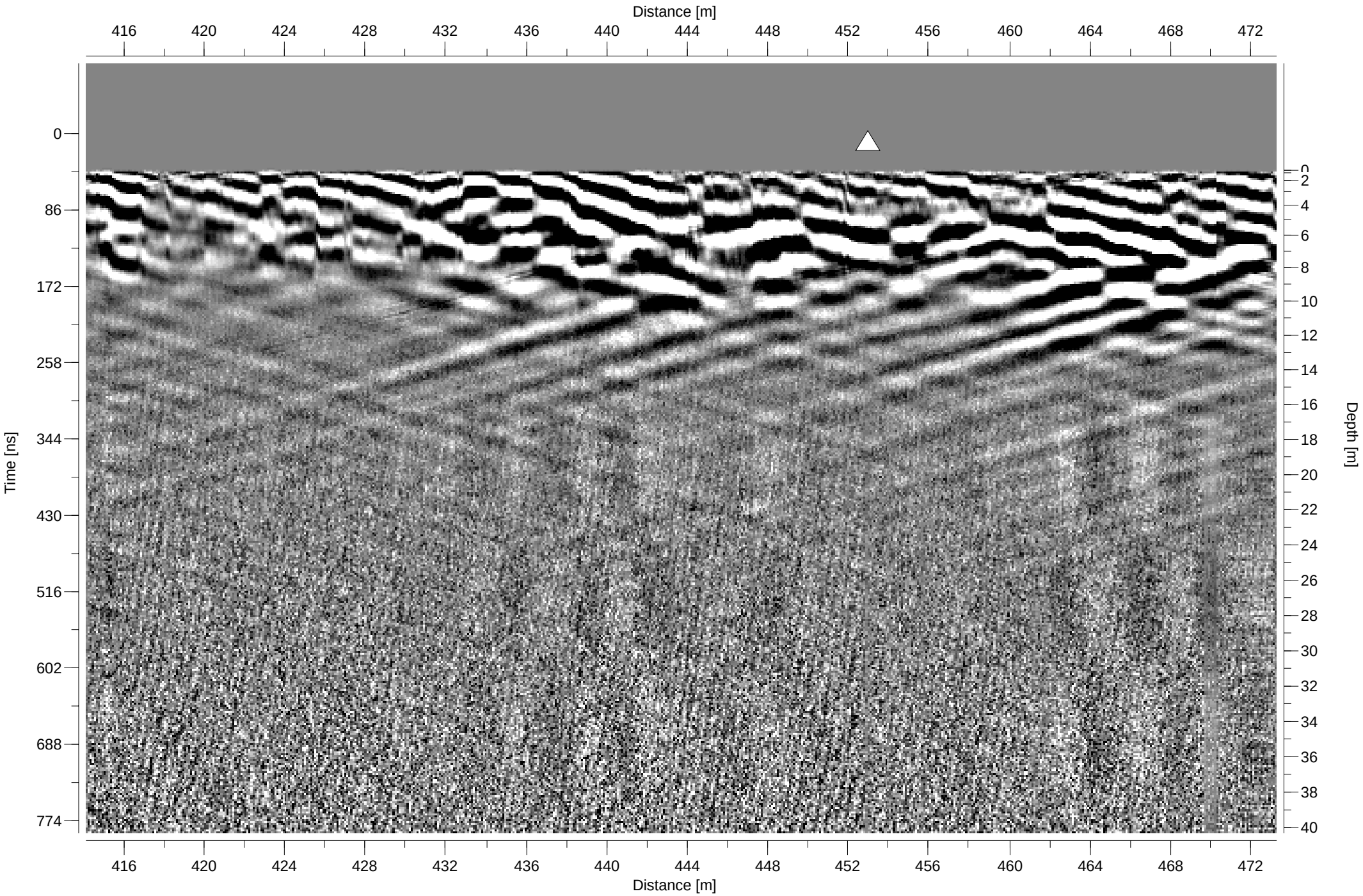

Distance [m]
120
124
128
132
136
140
144
148
152
156
160
164
168
172
176
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40

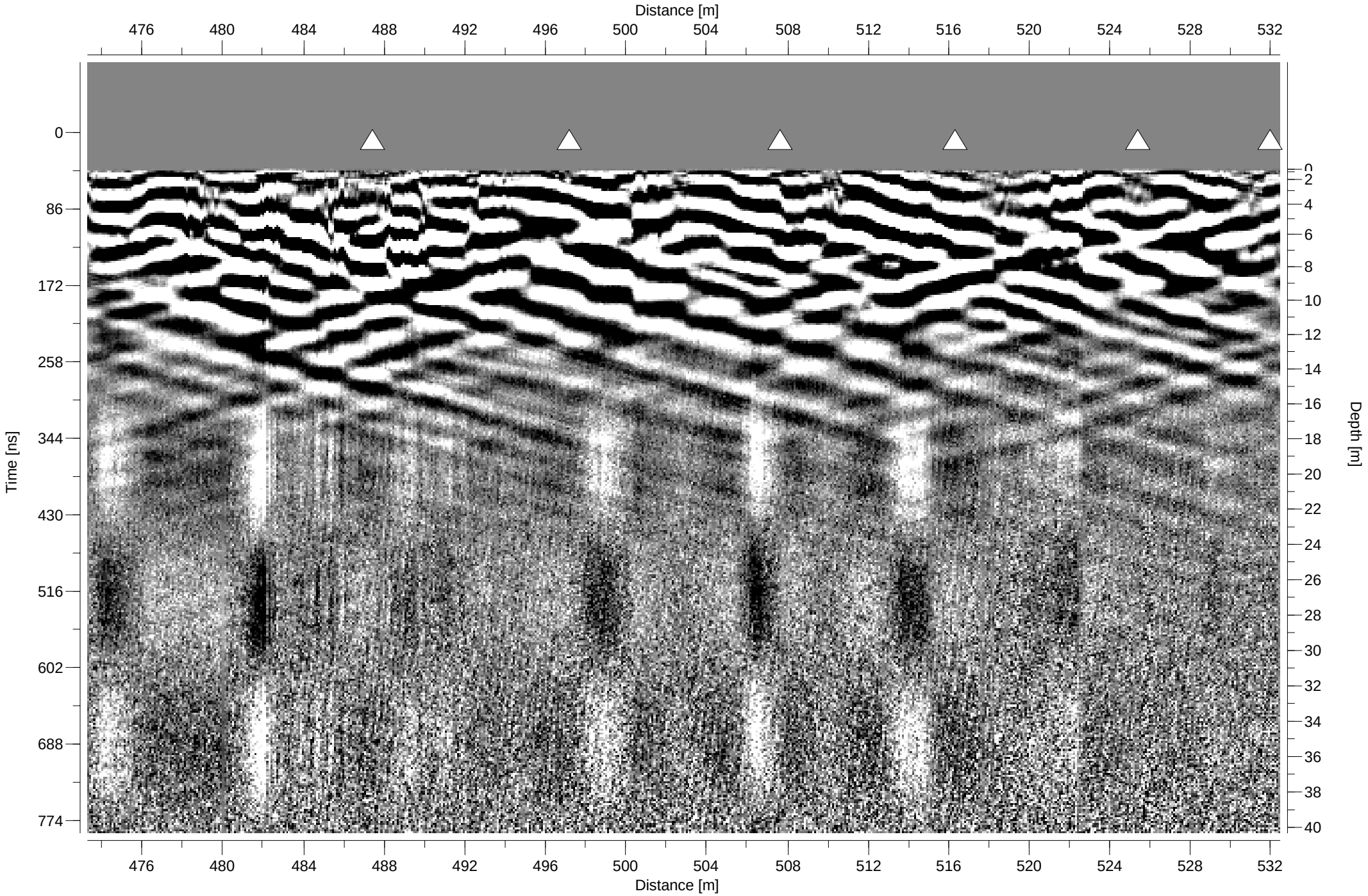

Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236

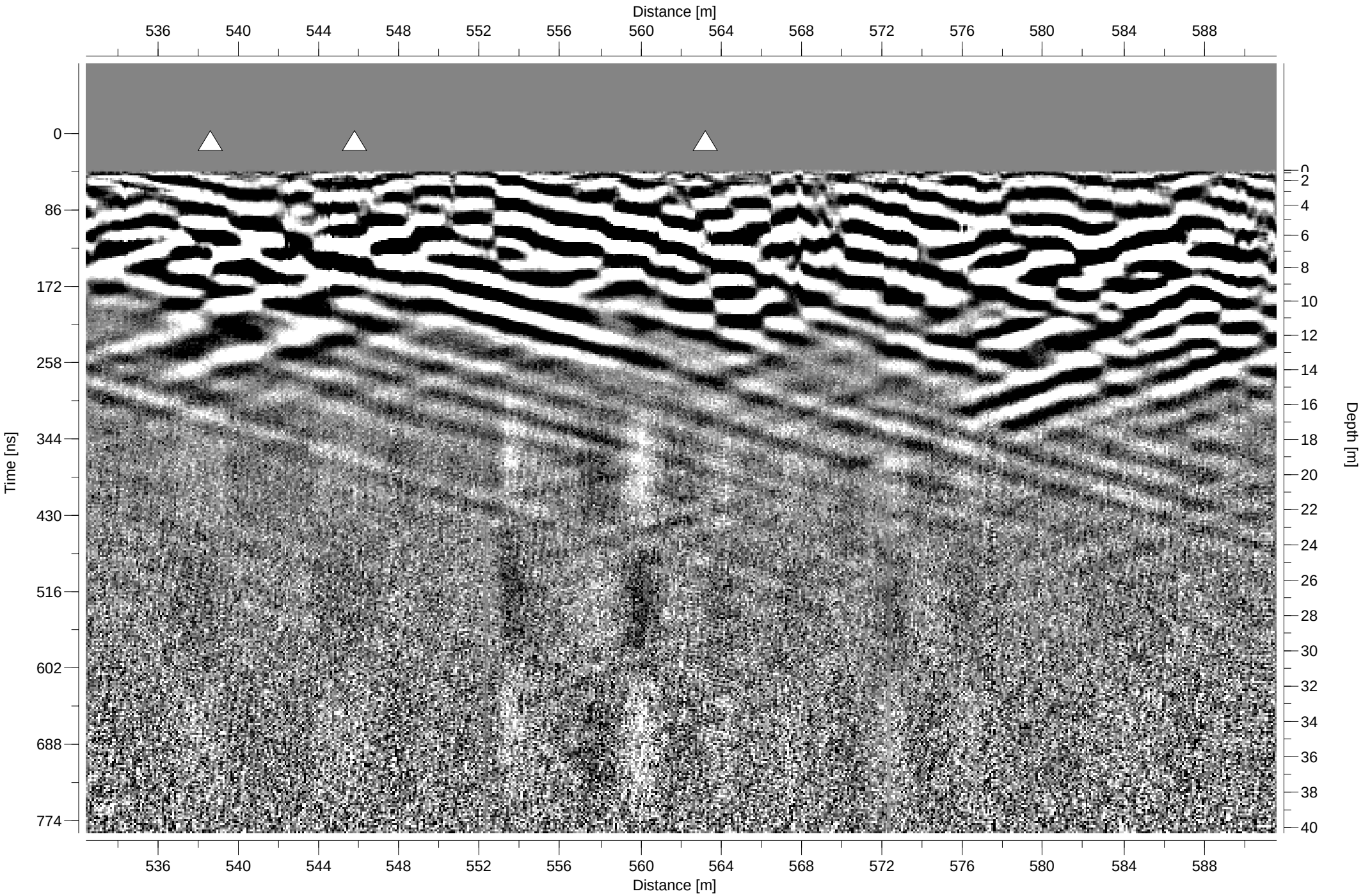

Distance [m]
240
244
248
252
256
260
264
268
272
276
280
284
288
292
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40

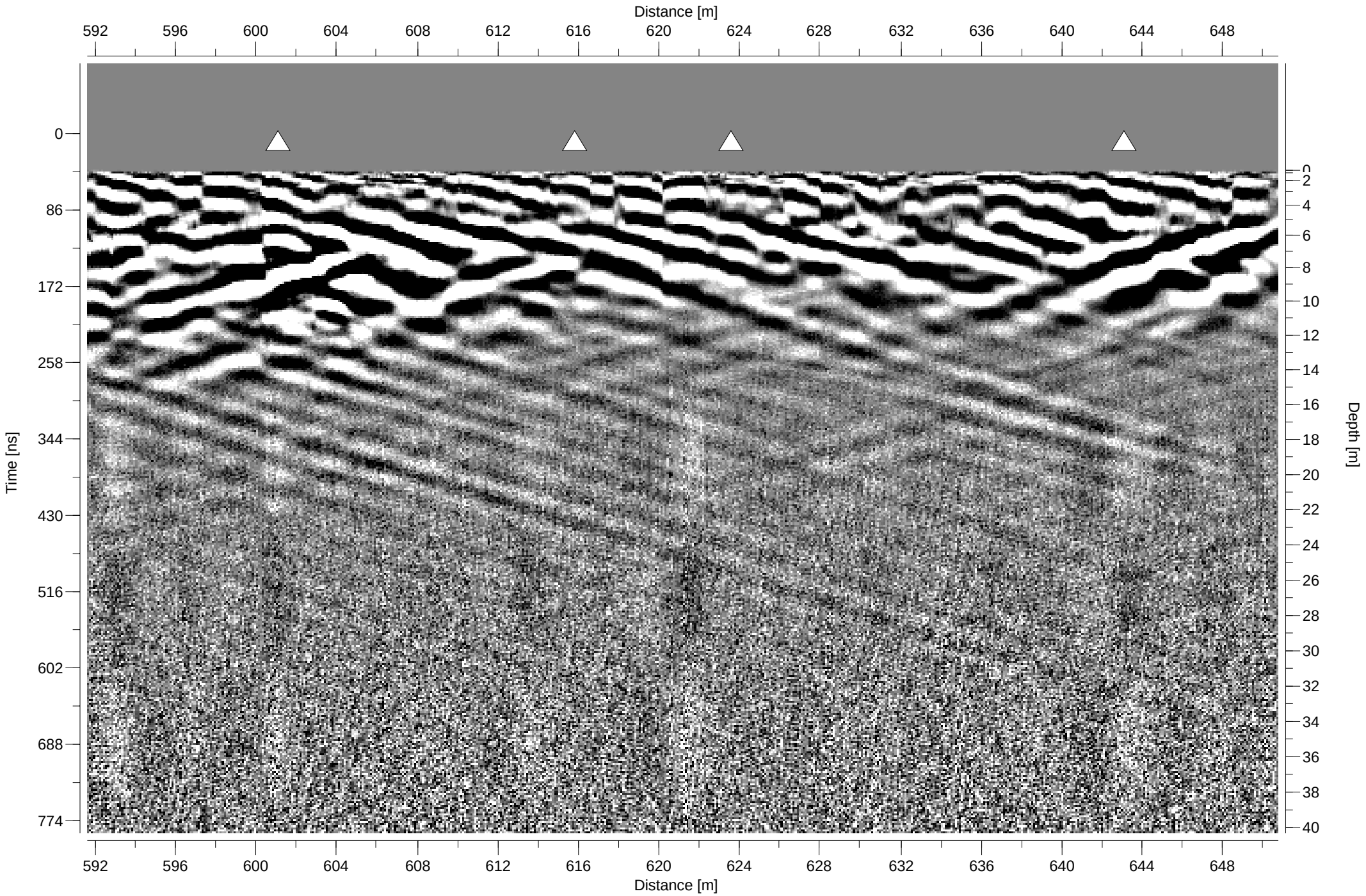

Distance [m]
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Distance [m]
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352

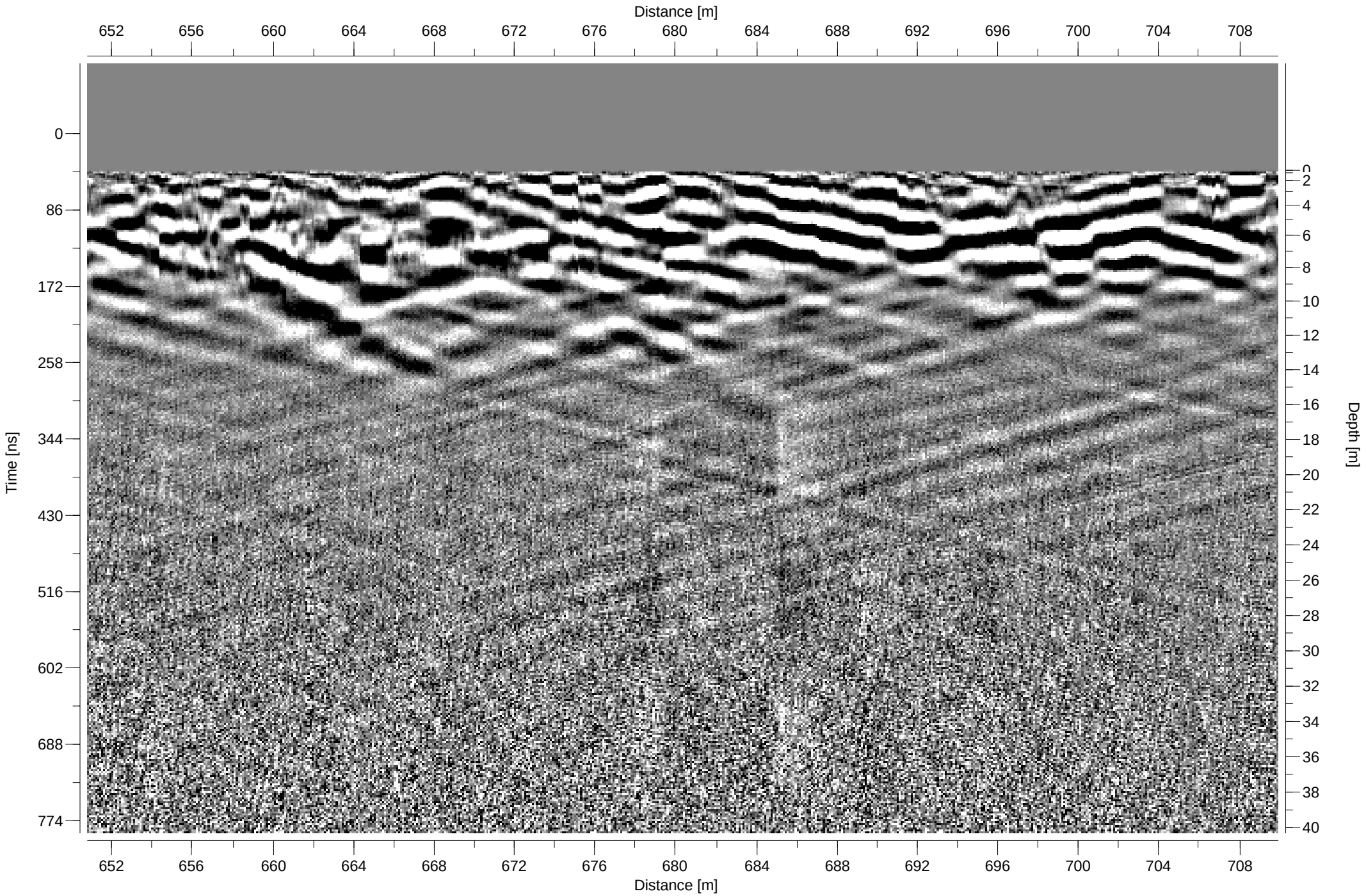

Distance [m]
356
360
364
368
372
376
380
384
388
392
396
400
404
408
412
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40

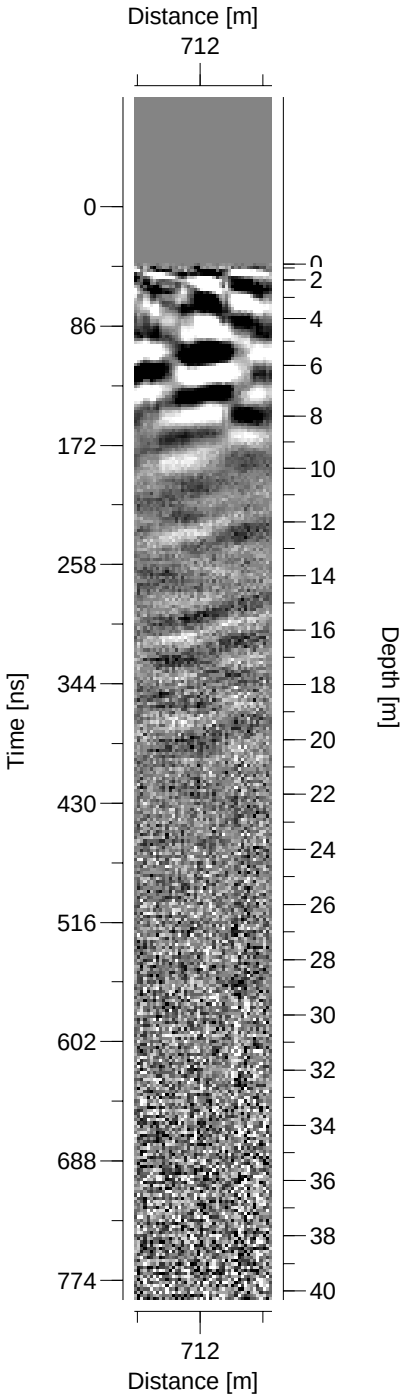

Distance [m]
416
420
424
428
432
436
440
444
448
452
456
460
464
468
472
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40


Distance [m]
476
480
484
488
492
496
500
504
508
512
516
520
524
528
532
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40

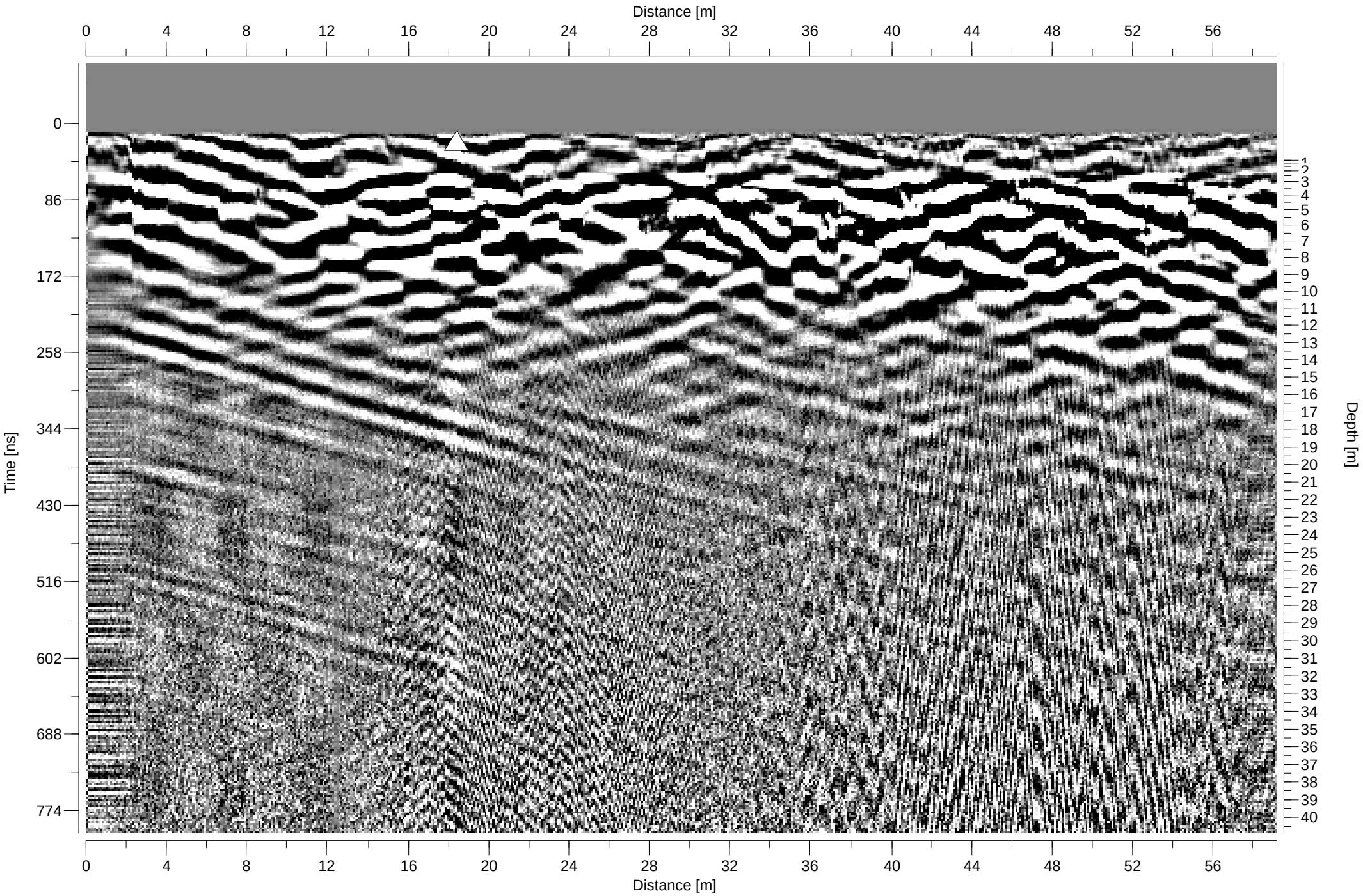

Distance [m]
536 540 544 548 552 556 560 564 568 572 576 580 584 588
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Distance [m]
536 540 544 548 552 556 560 564 568 572 576 580 584 588

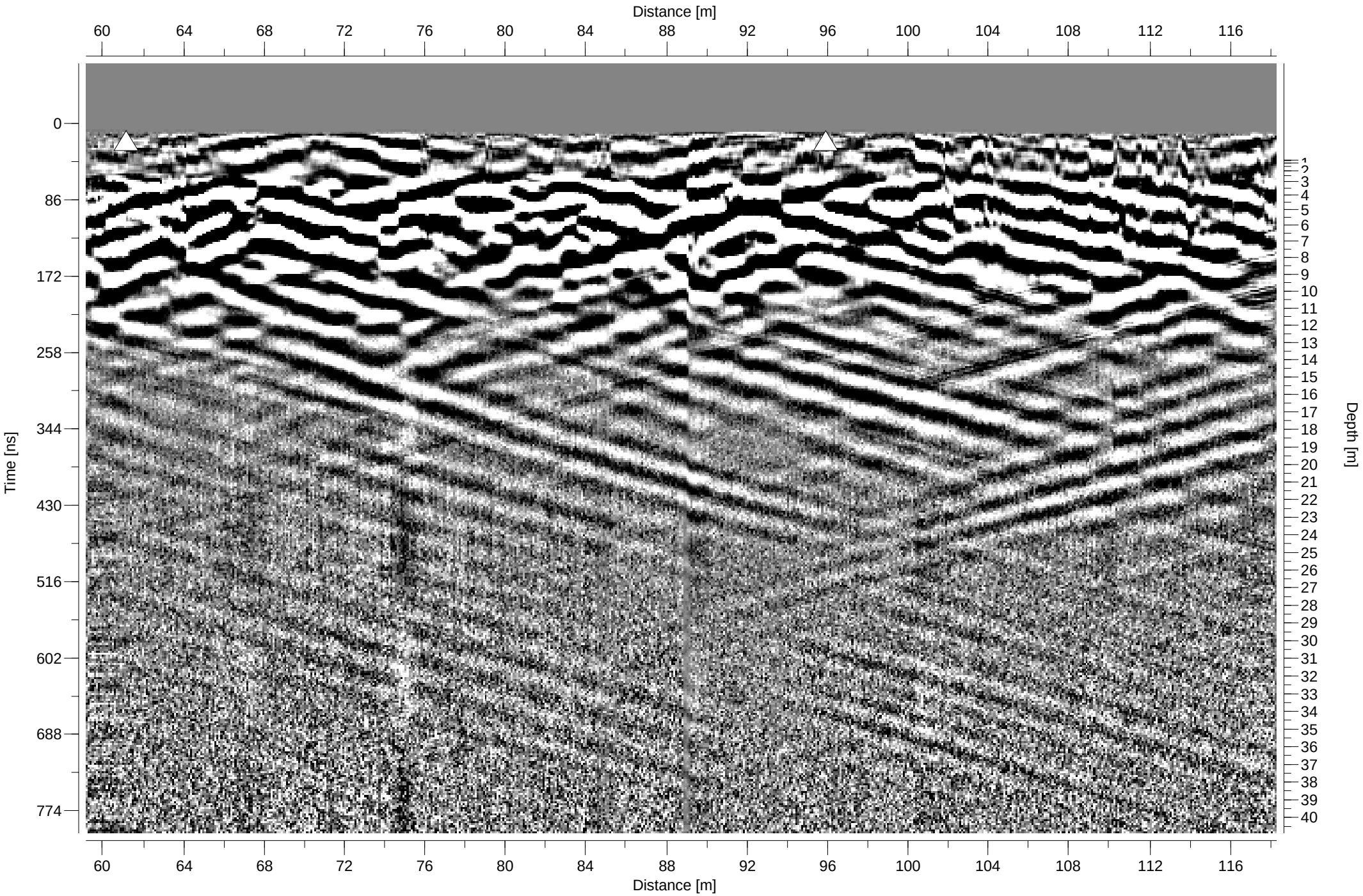

Distance [m]
592
596
600
604
608
612
616
620
624
628
632
636
640
644
648
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40

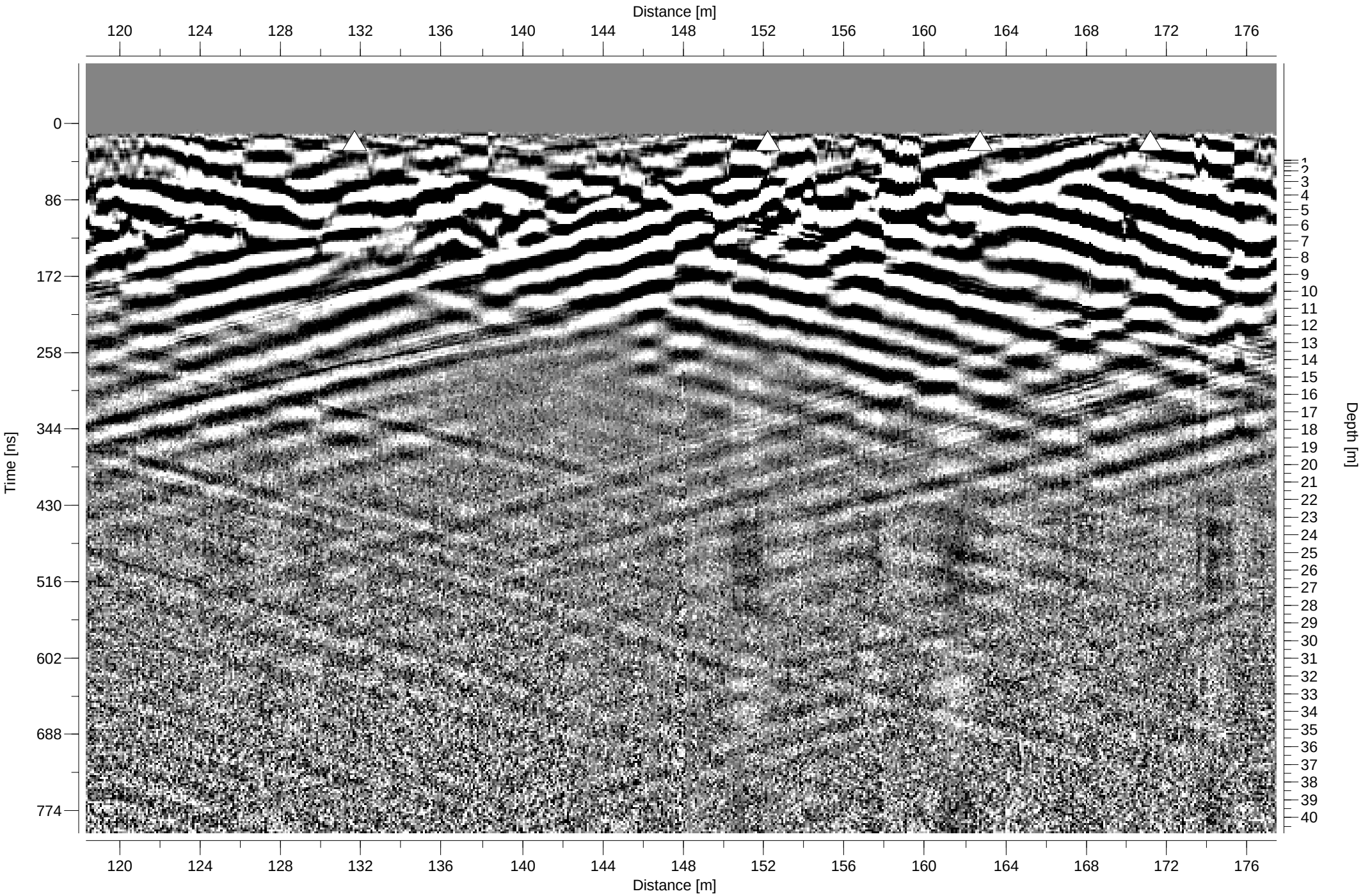

Distance [m]
652
656
660
664
668
672
676
680
684
688
692
696
700
704
708
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40

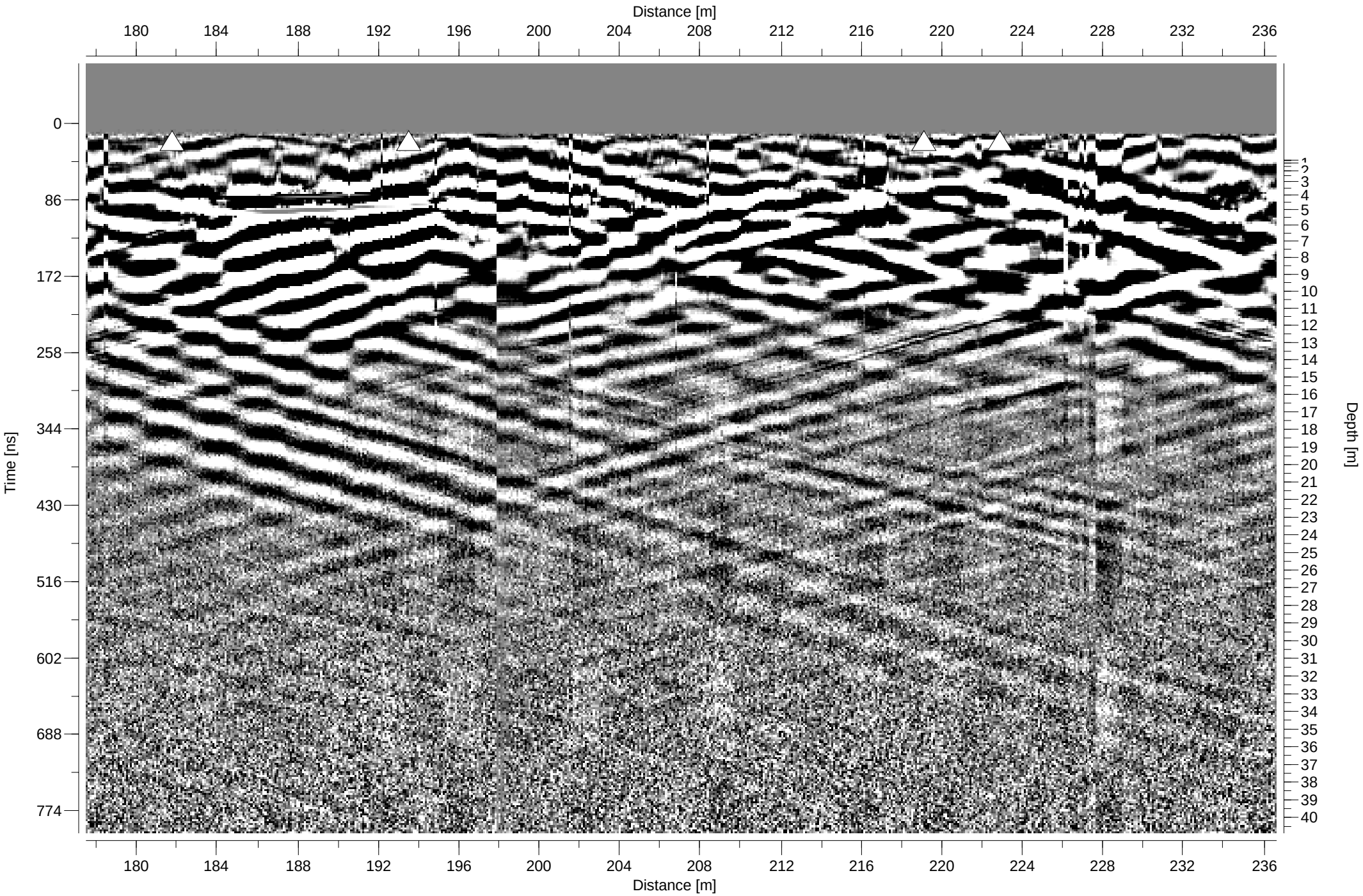

Distance [m]
712
0
86
172
258
344
430
516
602
688
774
Time [ns]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
Depth [m]
712
Distance [m]

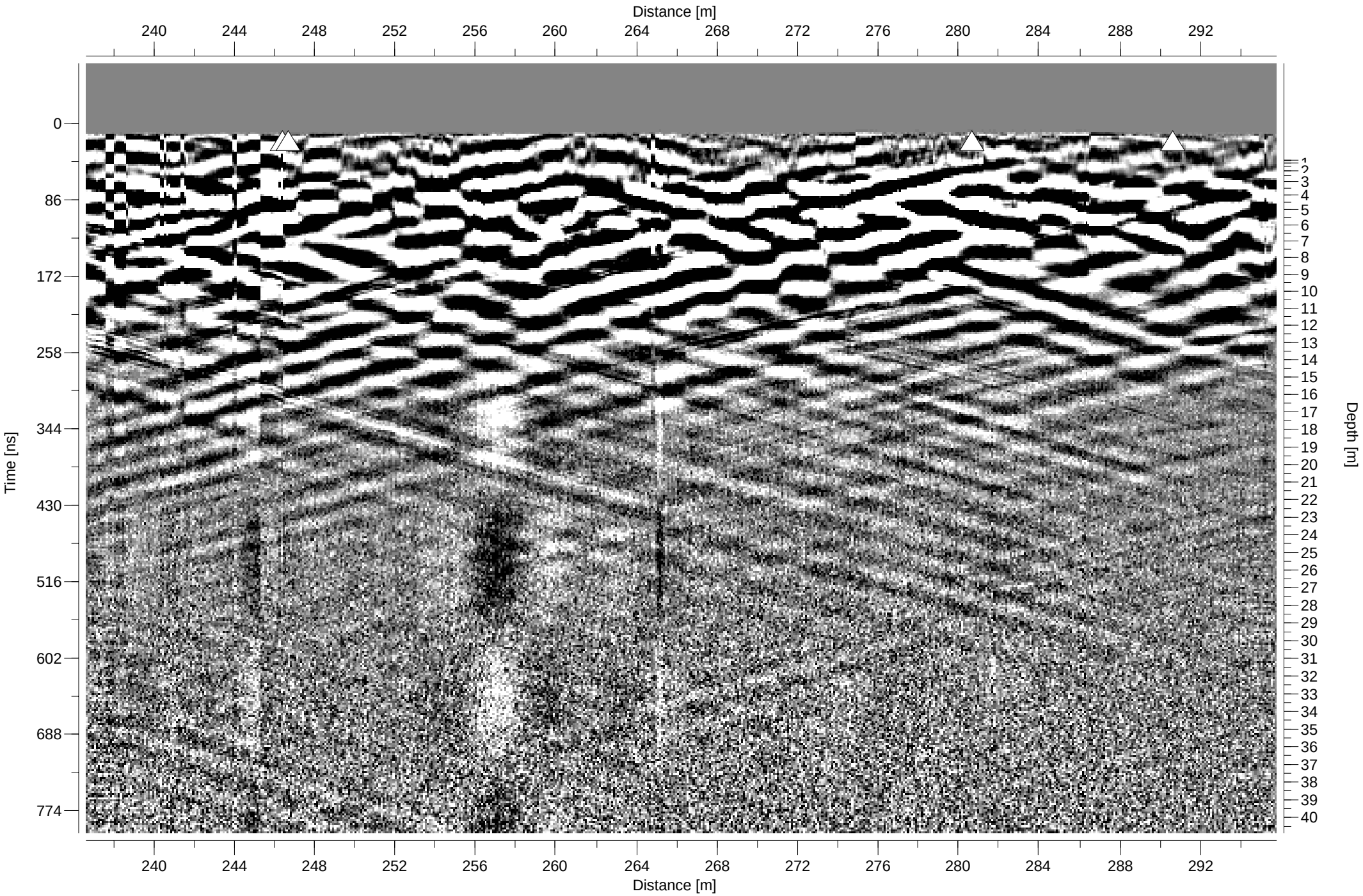
PROFILES 3 WAYPOINTS 042 TO 044 9 SHEETS


Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56


Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116


Distance [m]
120 124 128 132 136 140 144 148 152 156 160 164 168 172 176
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
120 124 128 132 136 140 144 148 152 156 160 164 168 172 176


Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236


Distance [m]
240
244
248
252
256
260
264
268
272
276
280
284
288
292
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
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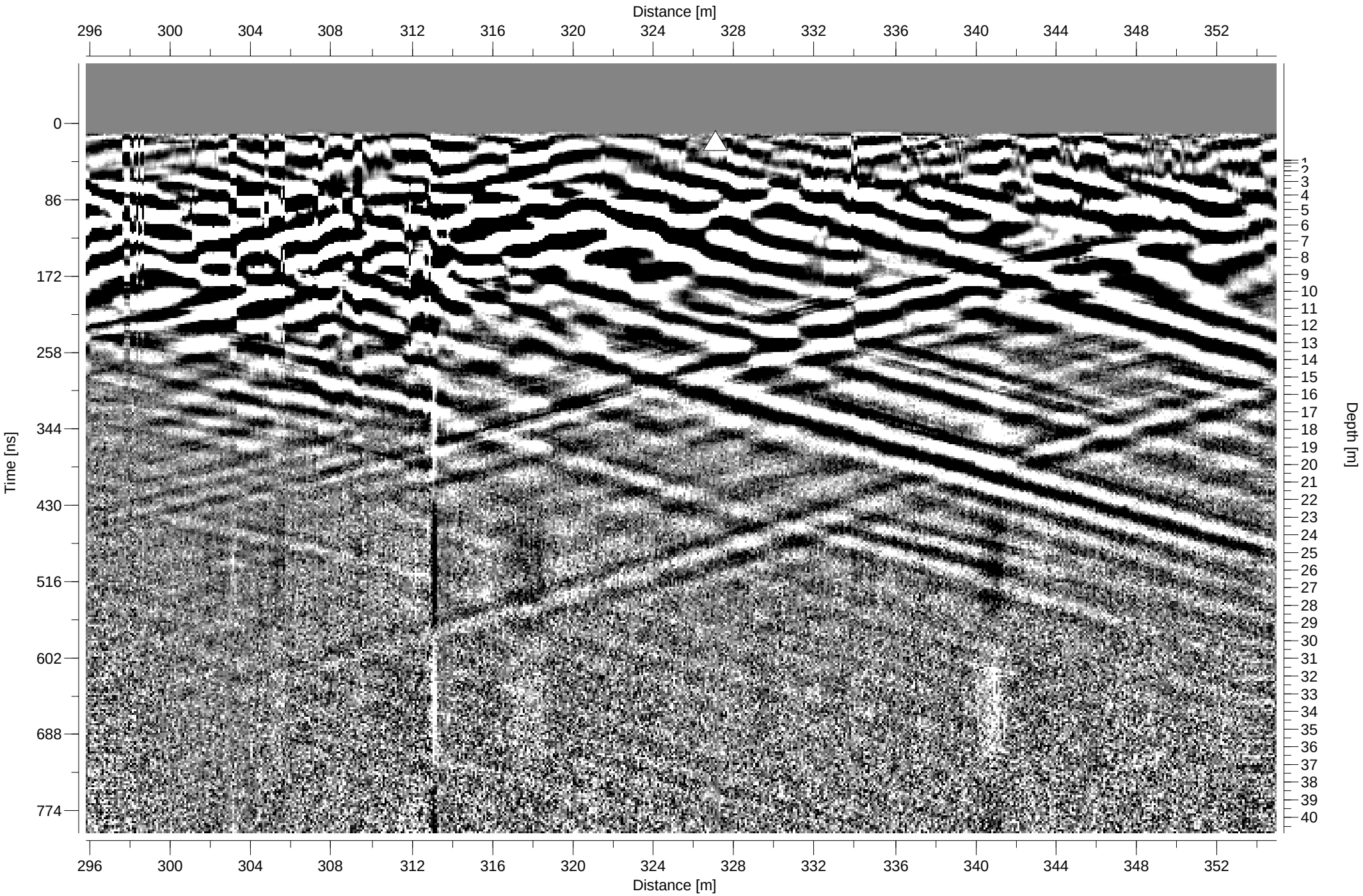
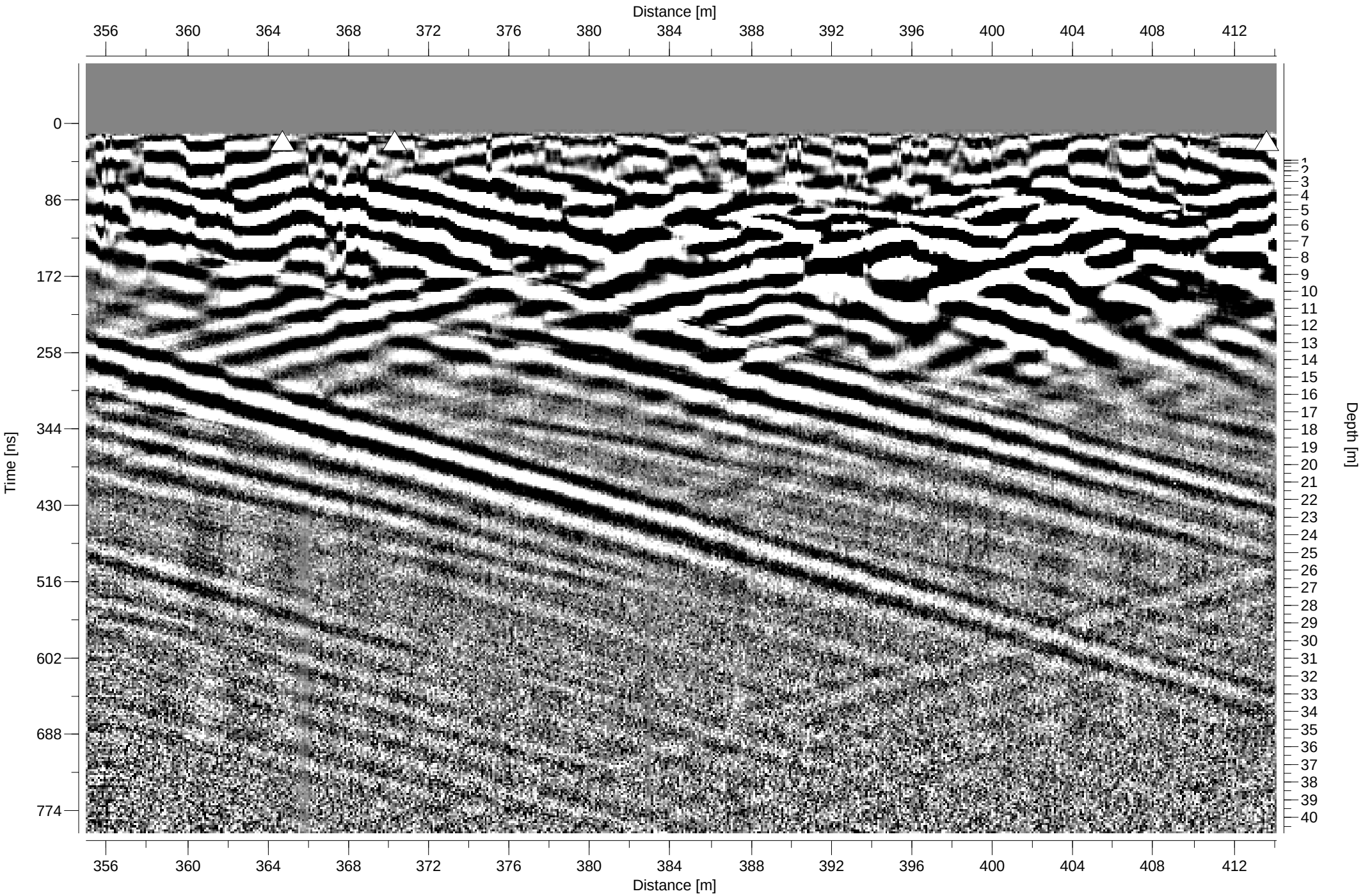
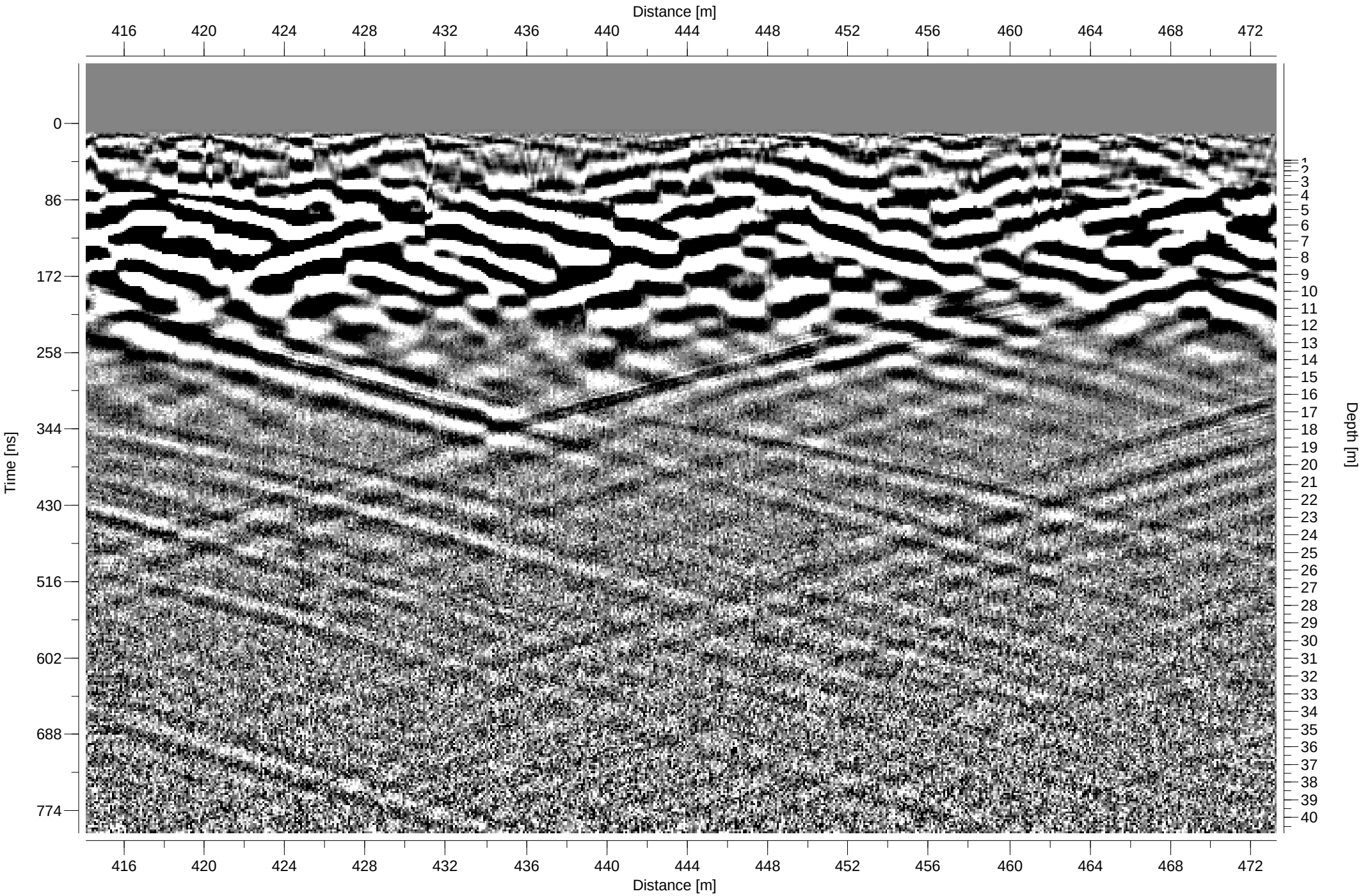
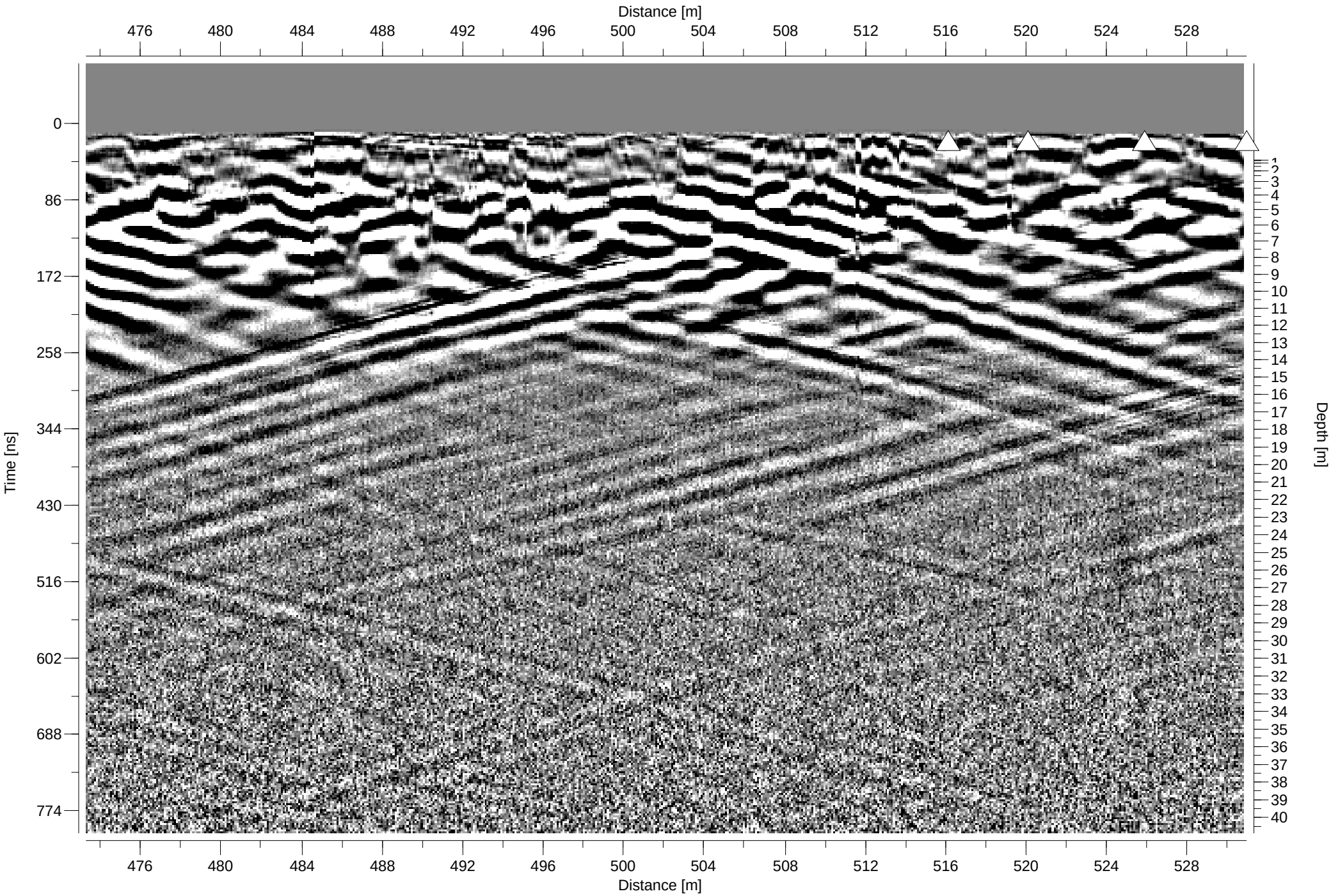
33
34
35
36
37
38
39
40


Distance [m]
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352
Distance [m]


Distance [m]
356 360 364 368 372 376 380 384 388 392 396 400 404 408 412
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
356 360 364 368 372 376 380 384 388 392 396 400 404 408 412


Distance [m]
416 420 424 428 432 436 440 444 448 452 456 460 464 468 472
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
416 420 424 428 432 436 440 444 448 452 456 460 464 468 472


Distance [m]
476
480
484
488
492
496
500
504
508
512
516
520
524
528
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
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35
36
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39
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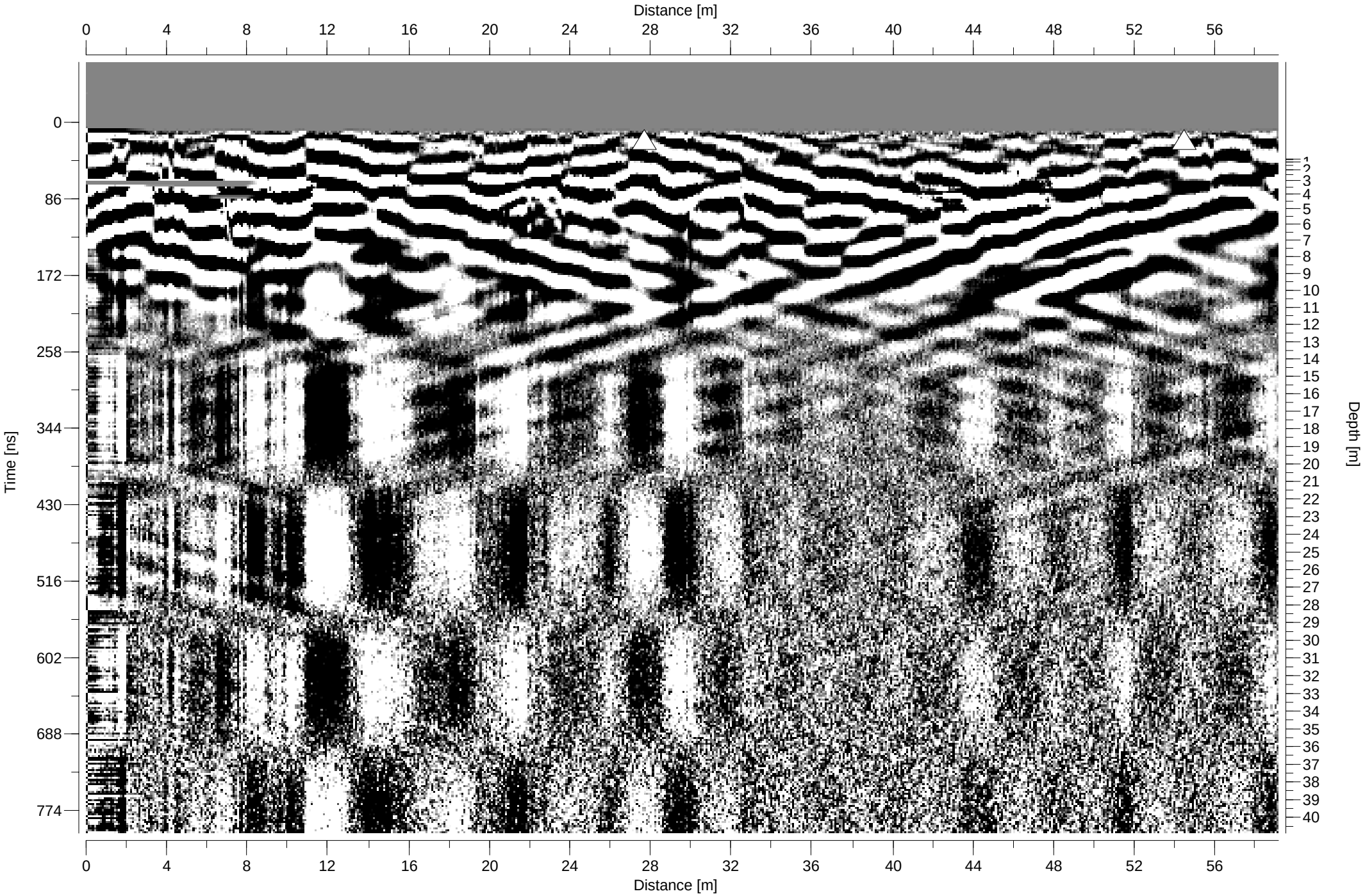
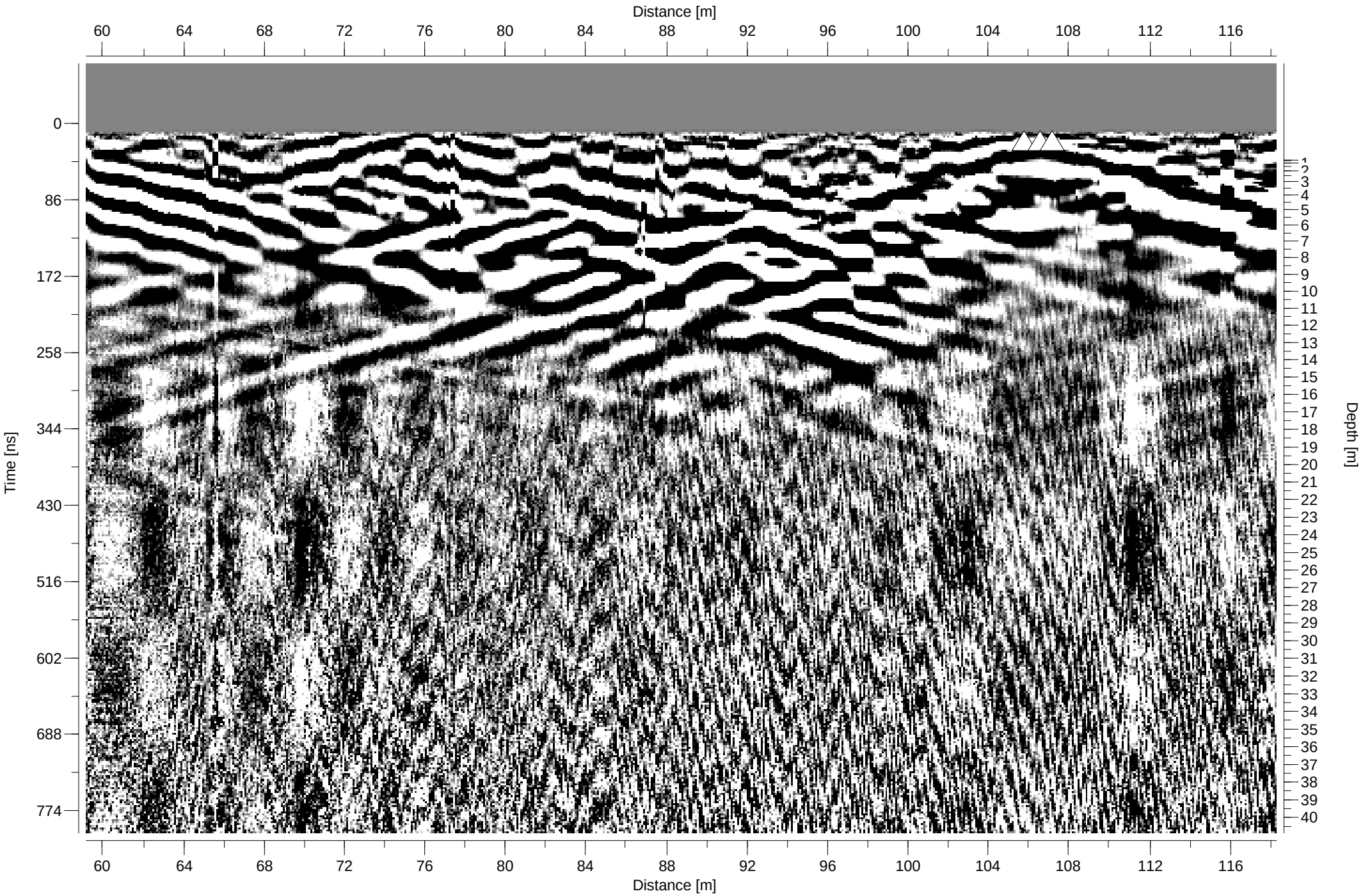
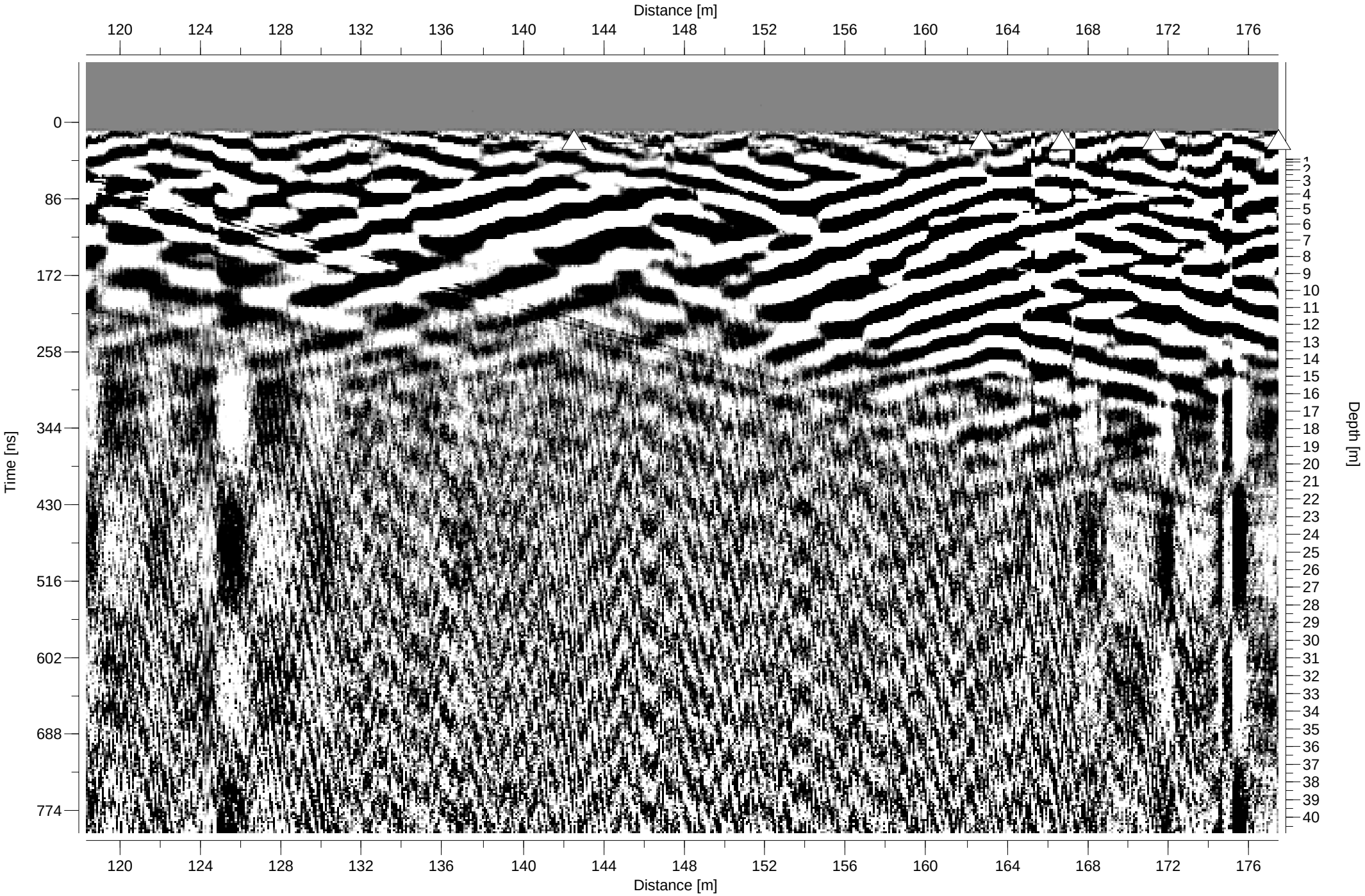
PROFILES 4 WAYPOINTS 047 TO 051 8 SHEETS

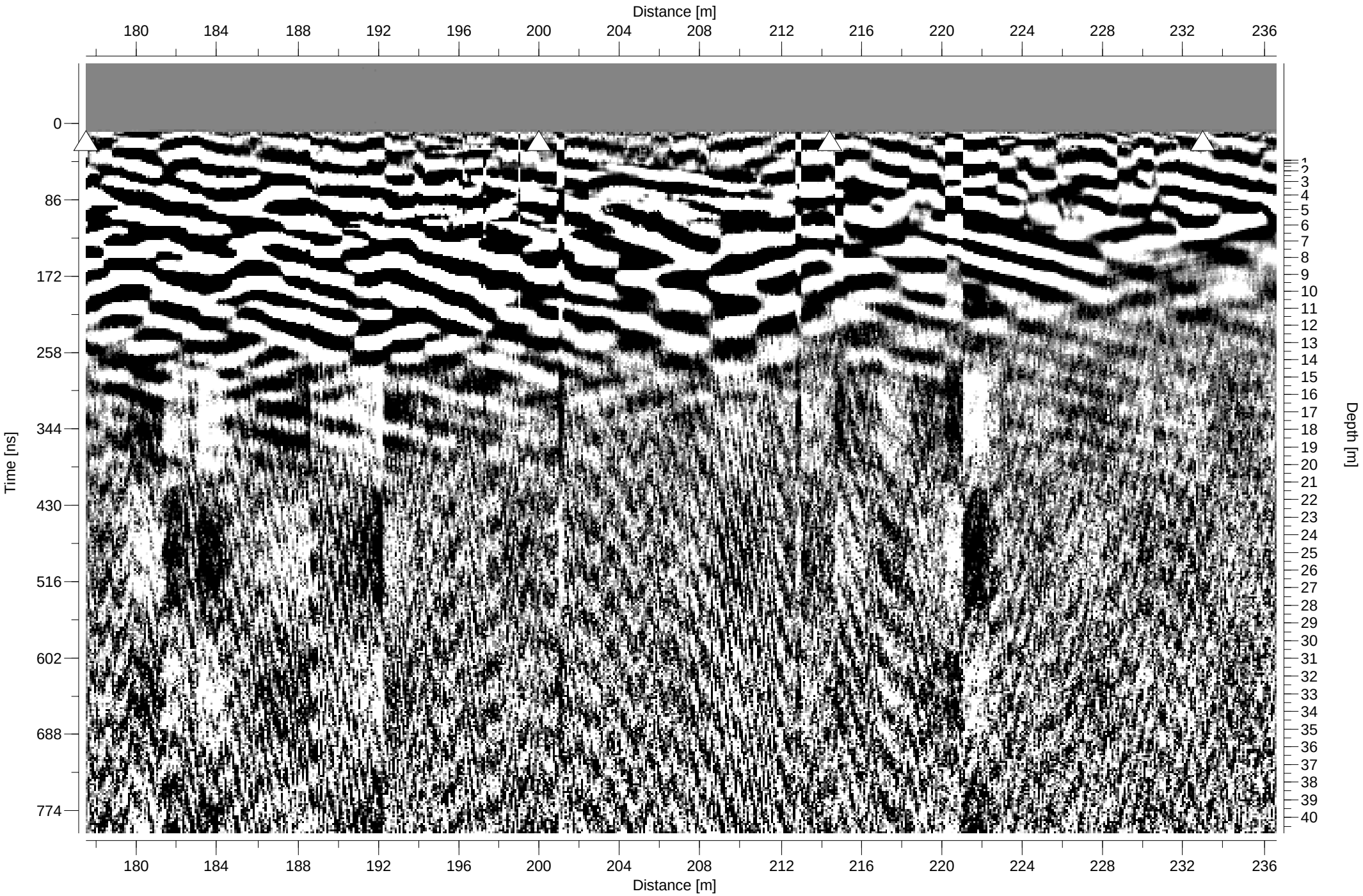


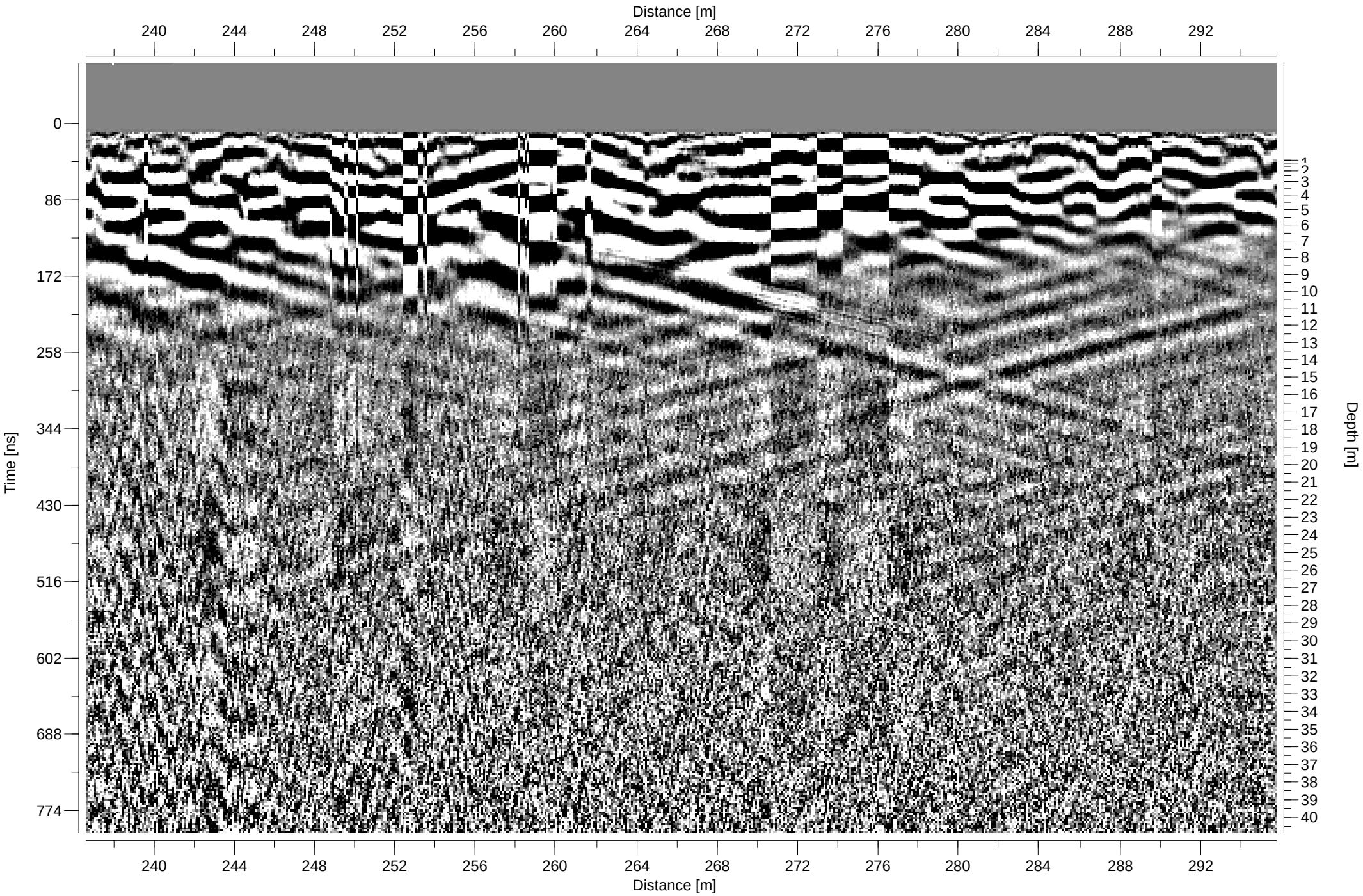
RAMAC GroundVision

C:\ DATA\PROJECTS\AG-130 Van Dieman Mines\DATA\240806\DAT_0031.rd3


Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
60 64 68 72 76 80 84 88 92 96 100 104 108 112 116


Distance [m]
120 124 128 132 136 140 144 148 152 156 160 164 168 172 176
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
120 124 128 132 136 140 144 148 152 156 160 164 168 172 176


Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
180 184 188 192 196 200 204 208 212 216 220 224 228 232 236


Distance [m]
240
244
248
252
256
260
264
268
272
276
280
284
288
292
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
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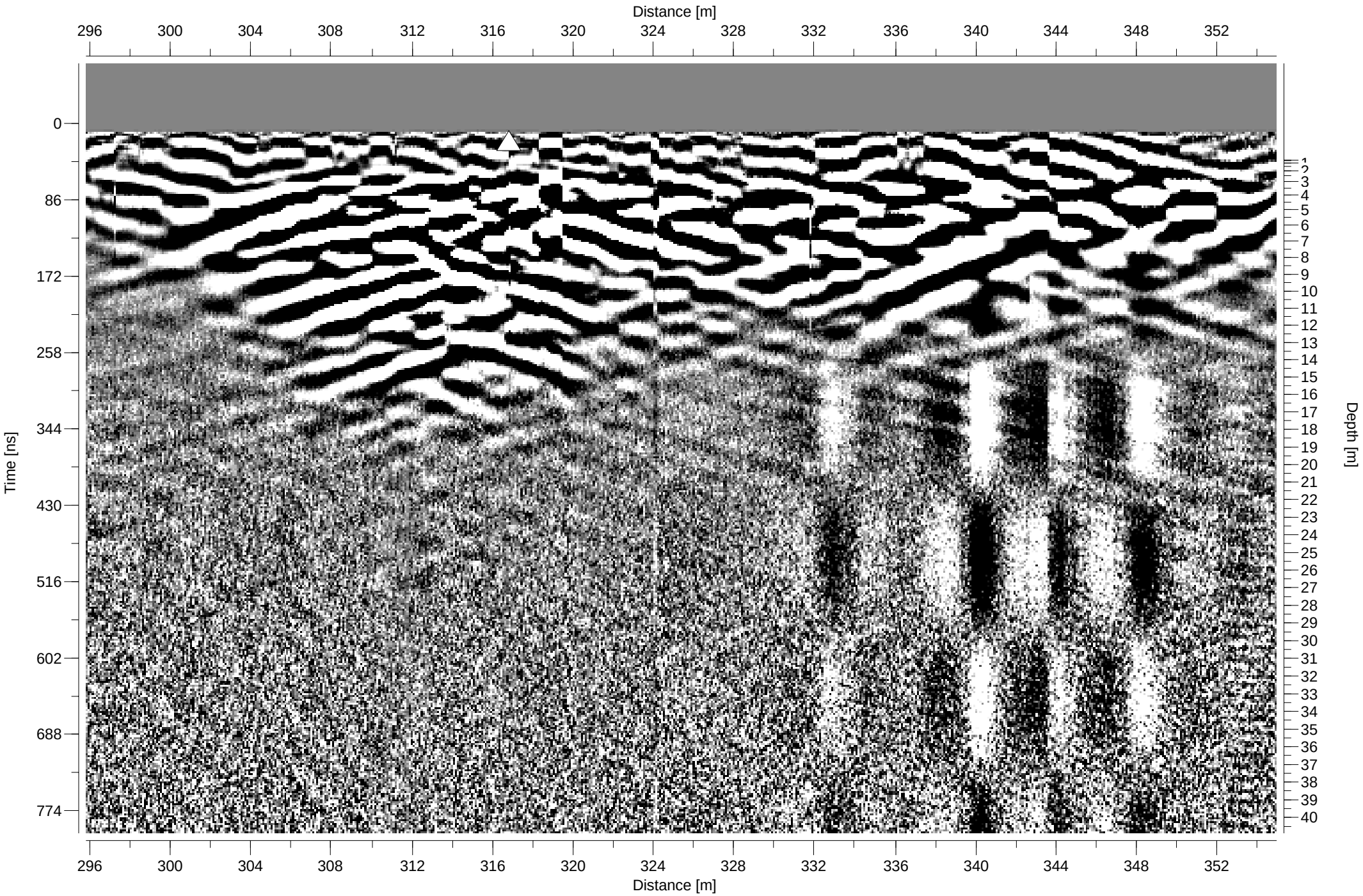
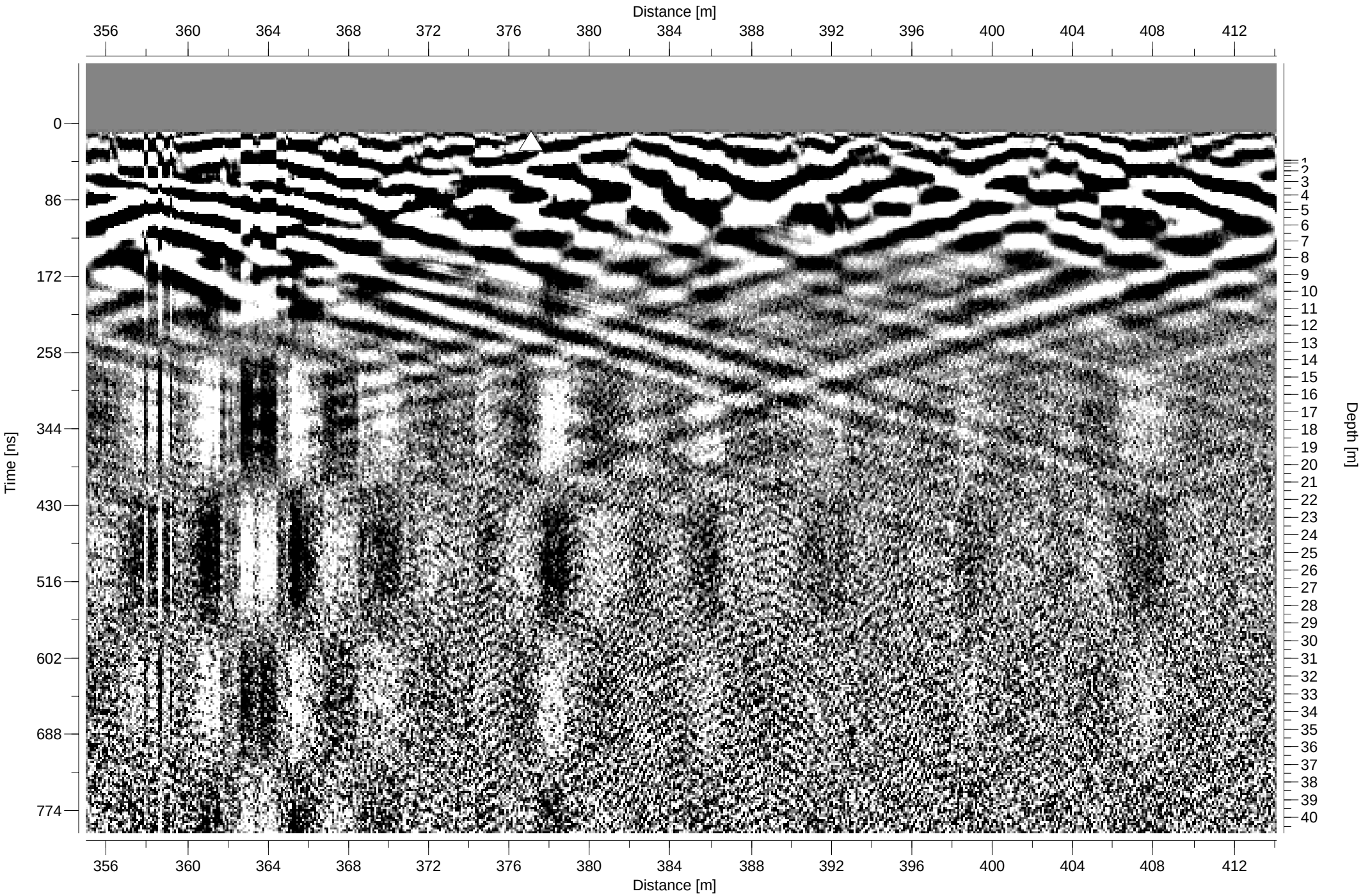
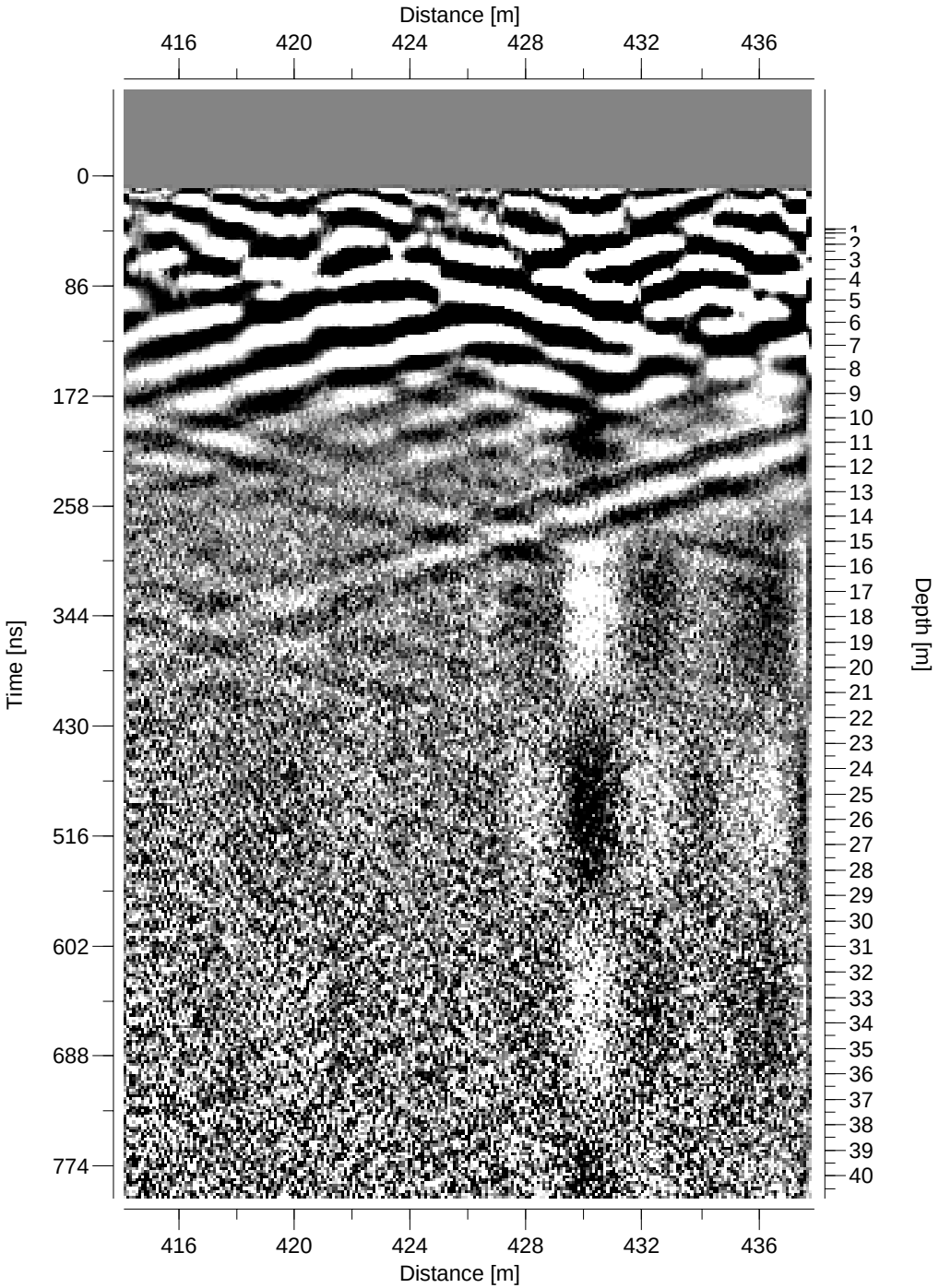

Distance [m]
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
296 300 304 308 312 316 320 324 328 332 336 340 344 348 352
Distance [m]


Distance [m]
356 360 364 368 372 376 380 384 388 392 396 400 404 408 412
Time [ns]
0 86 172 258 344 430 516 602 688 774
Depth [m]
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Distance [m]
356 360 364 368 372 376 380 384 388 392 396 400 404 408 412


Distance [m]
416
420
424
428
432
436
Time [ns]
0
86
172
258
344
430
516
602
688
774
Depth [m]
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
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27
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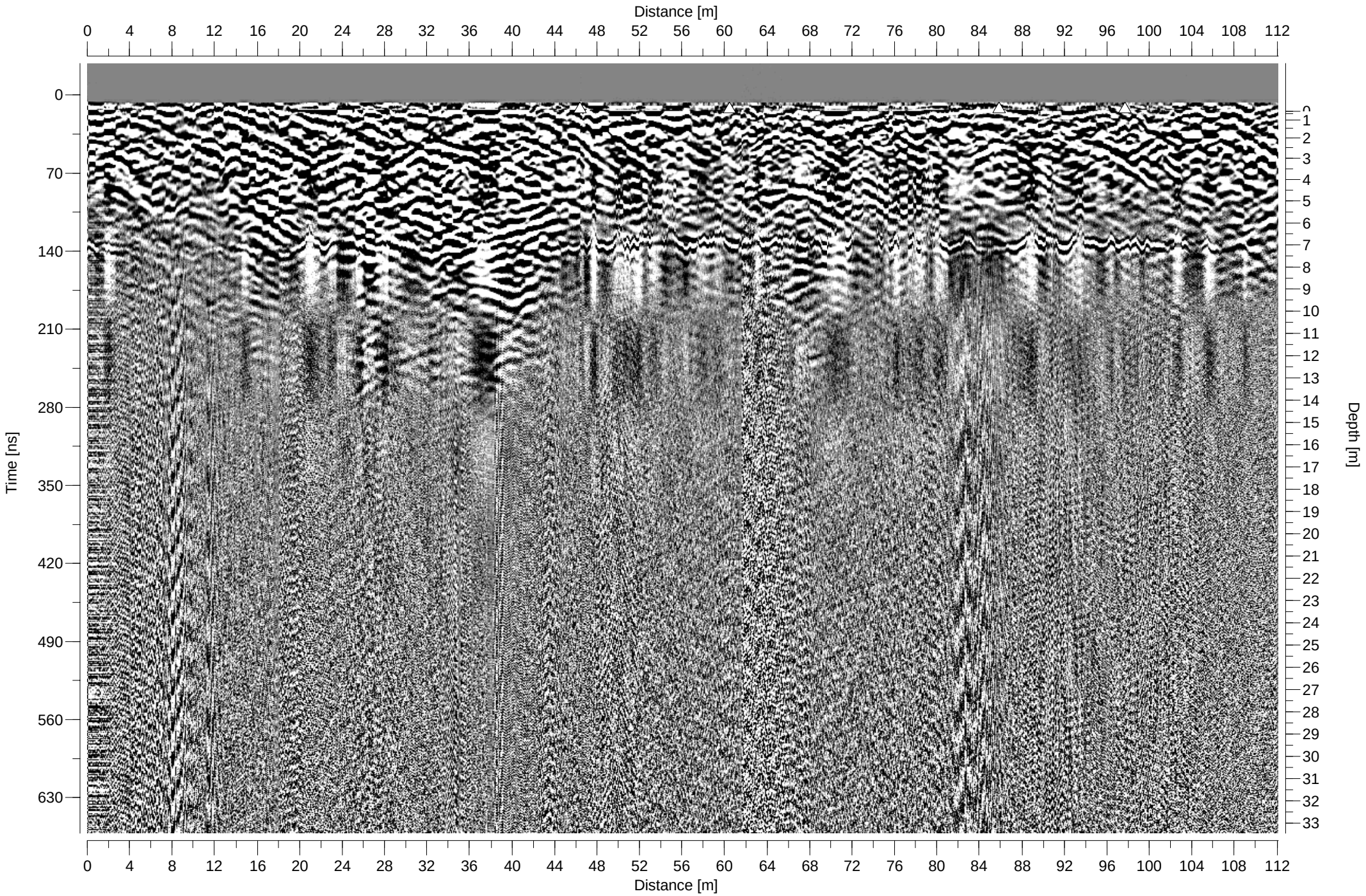
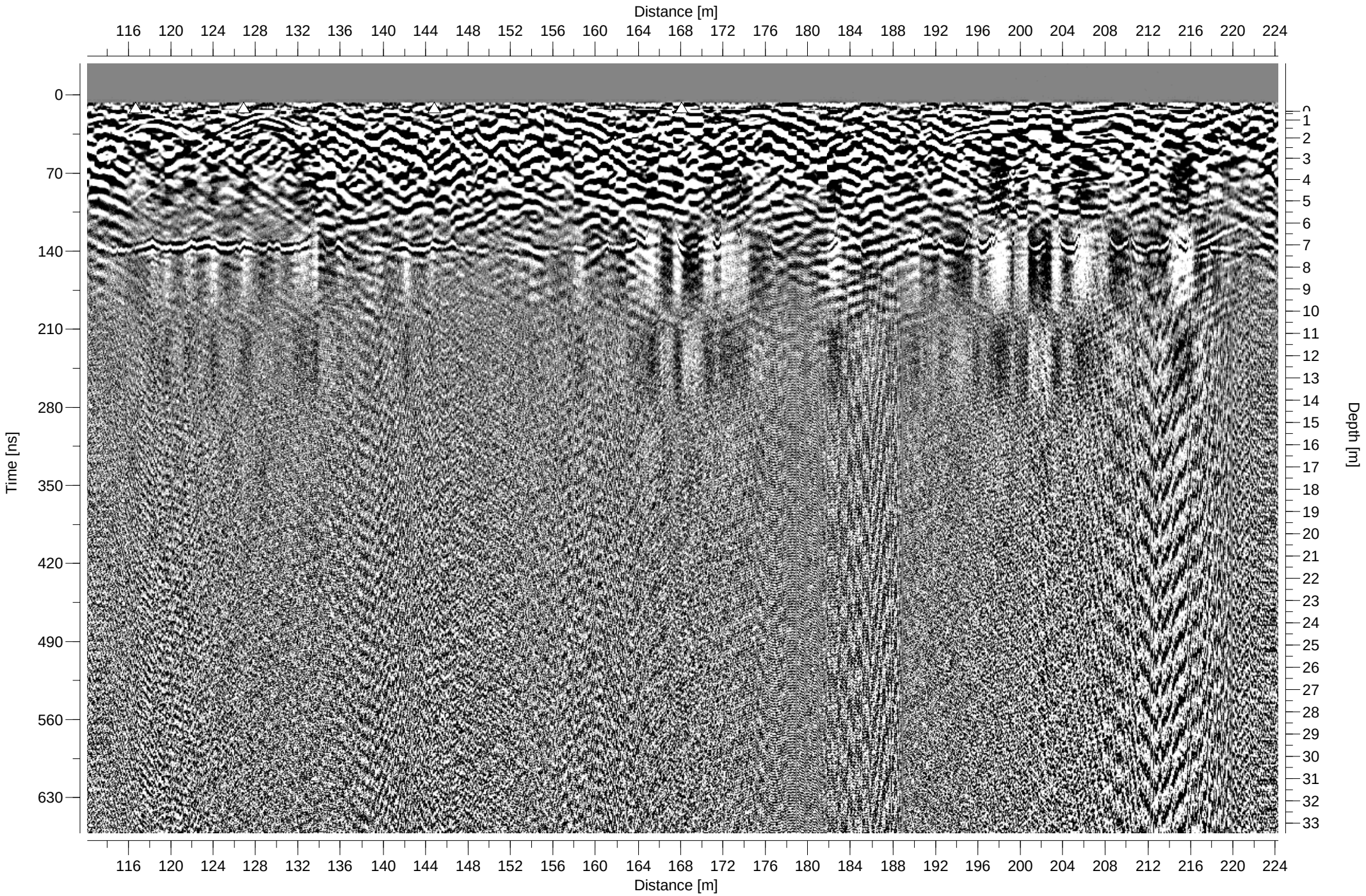
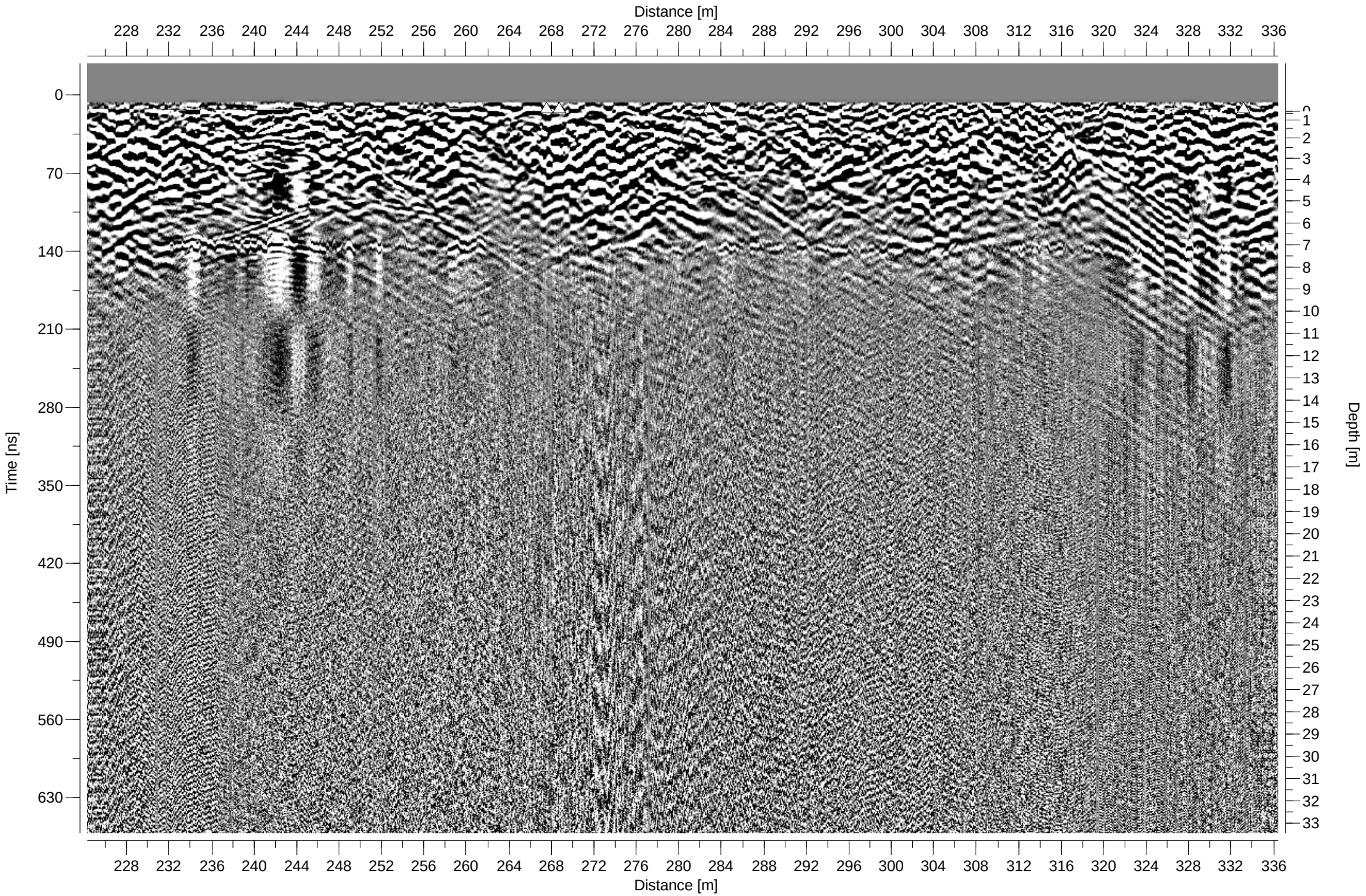
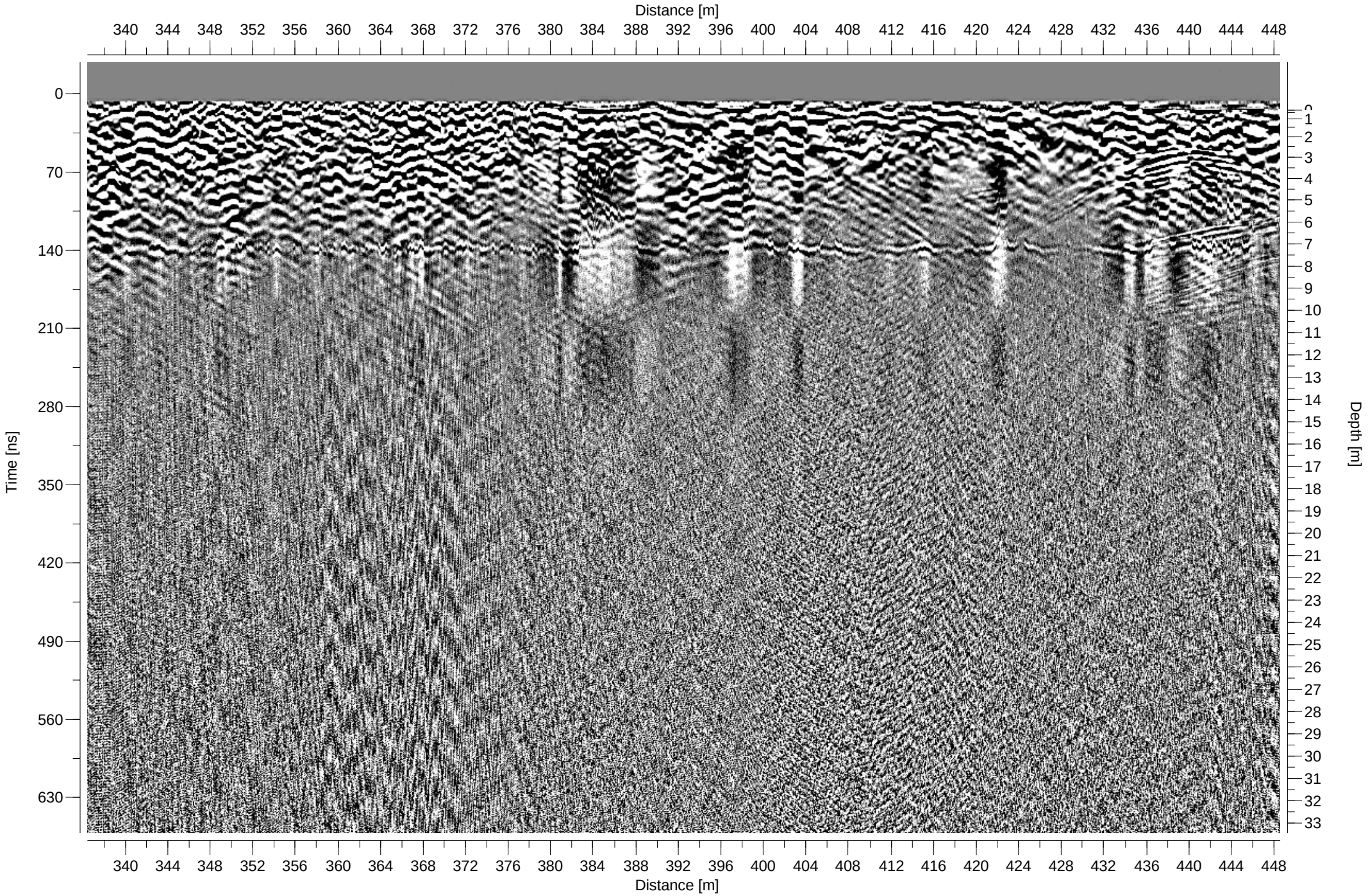
29
30
31
32
33
34
35
36
37
38
39
40
Distance [m]

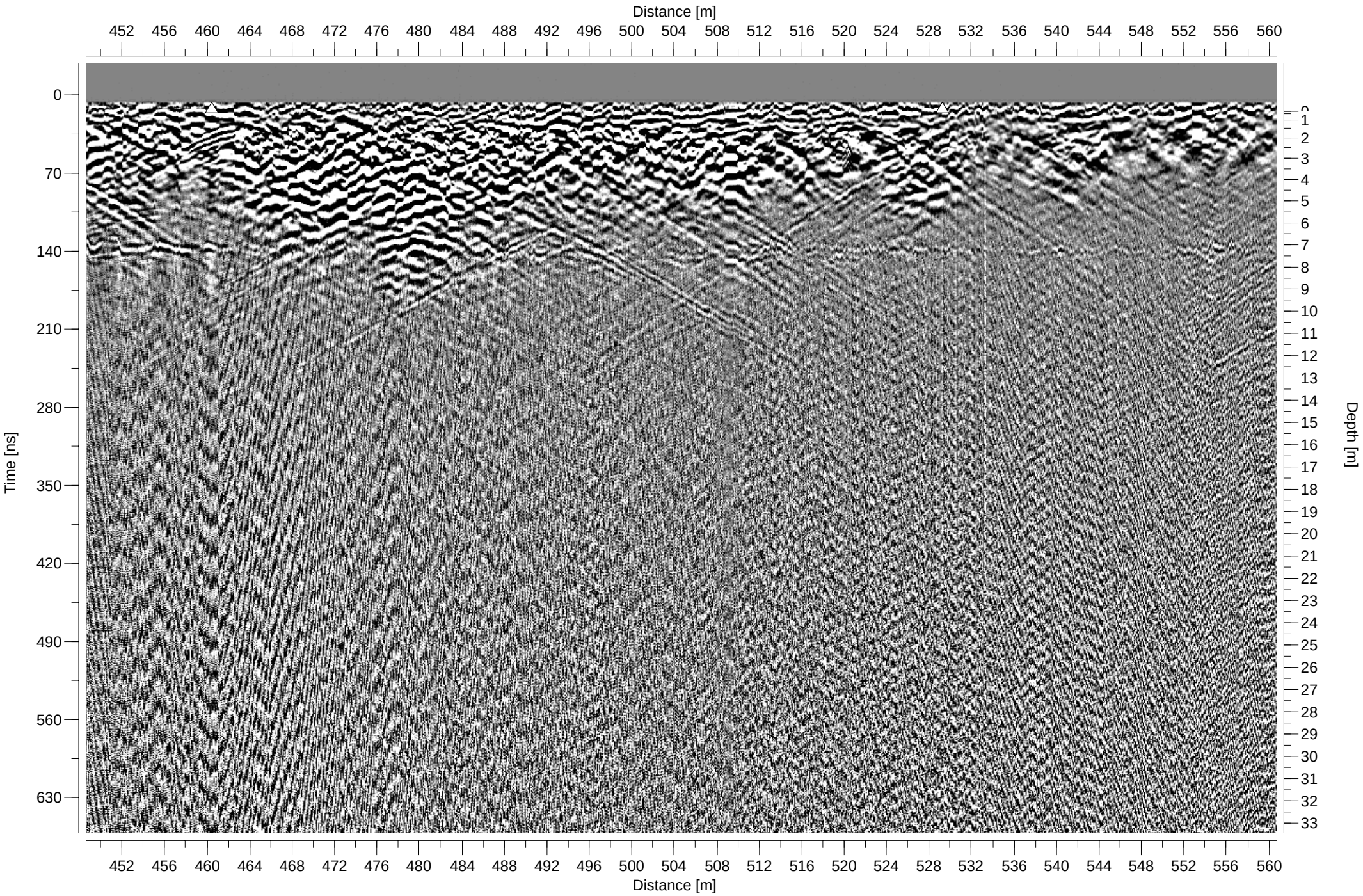
PROFILES 5 WAYPOINTS 034 TO 036 6 SHEETS

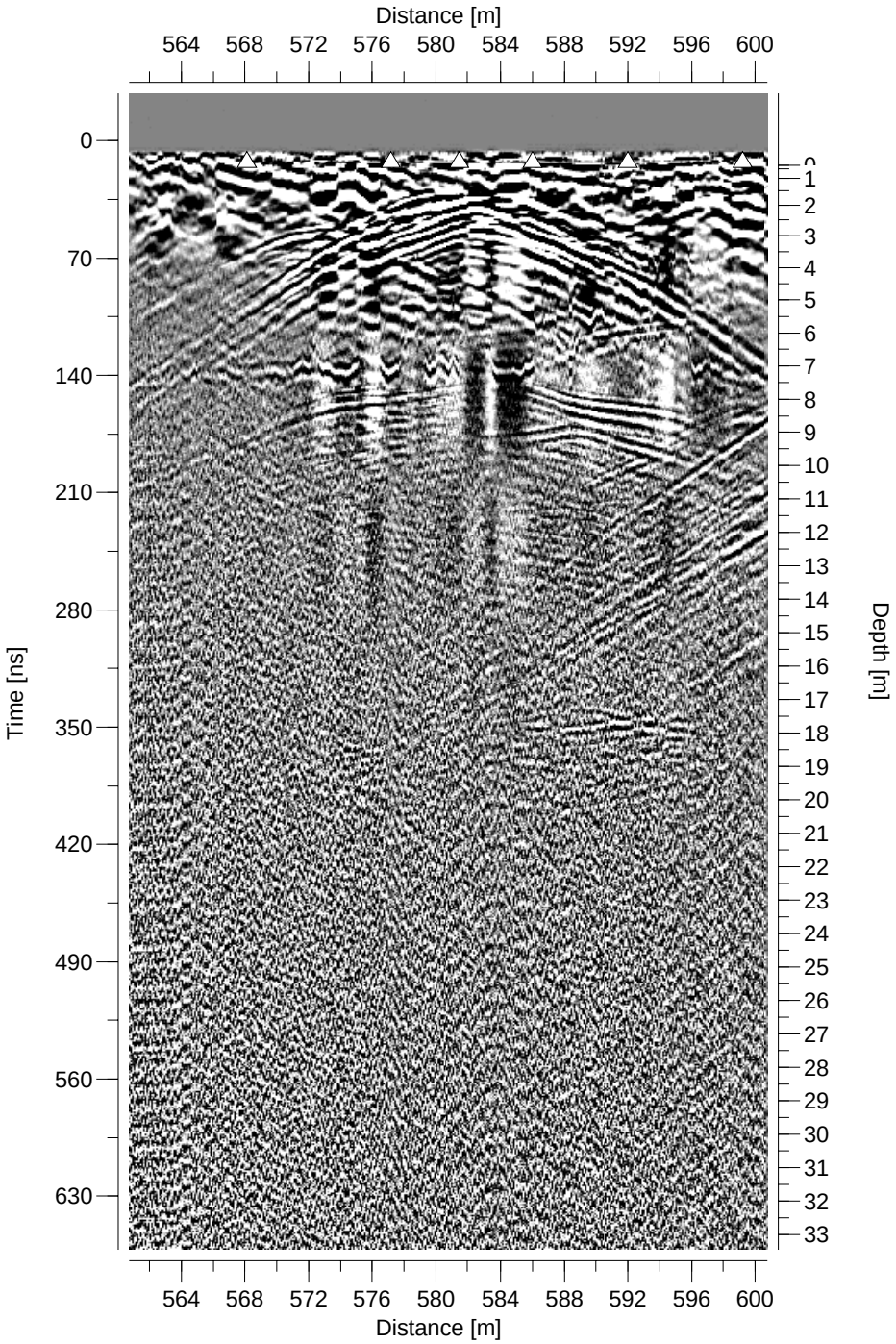

Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112


Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224

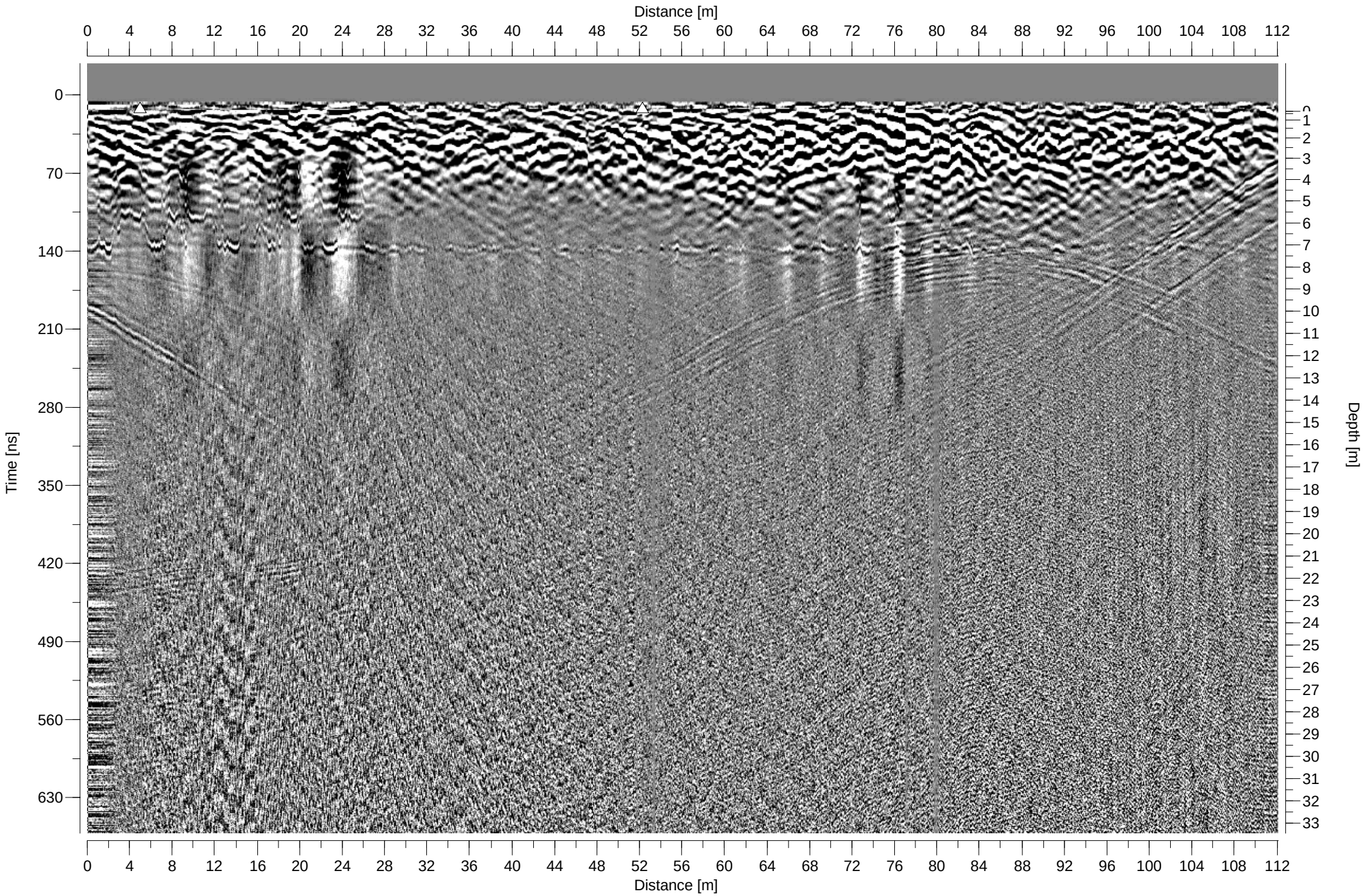

Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336

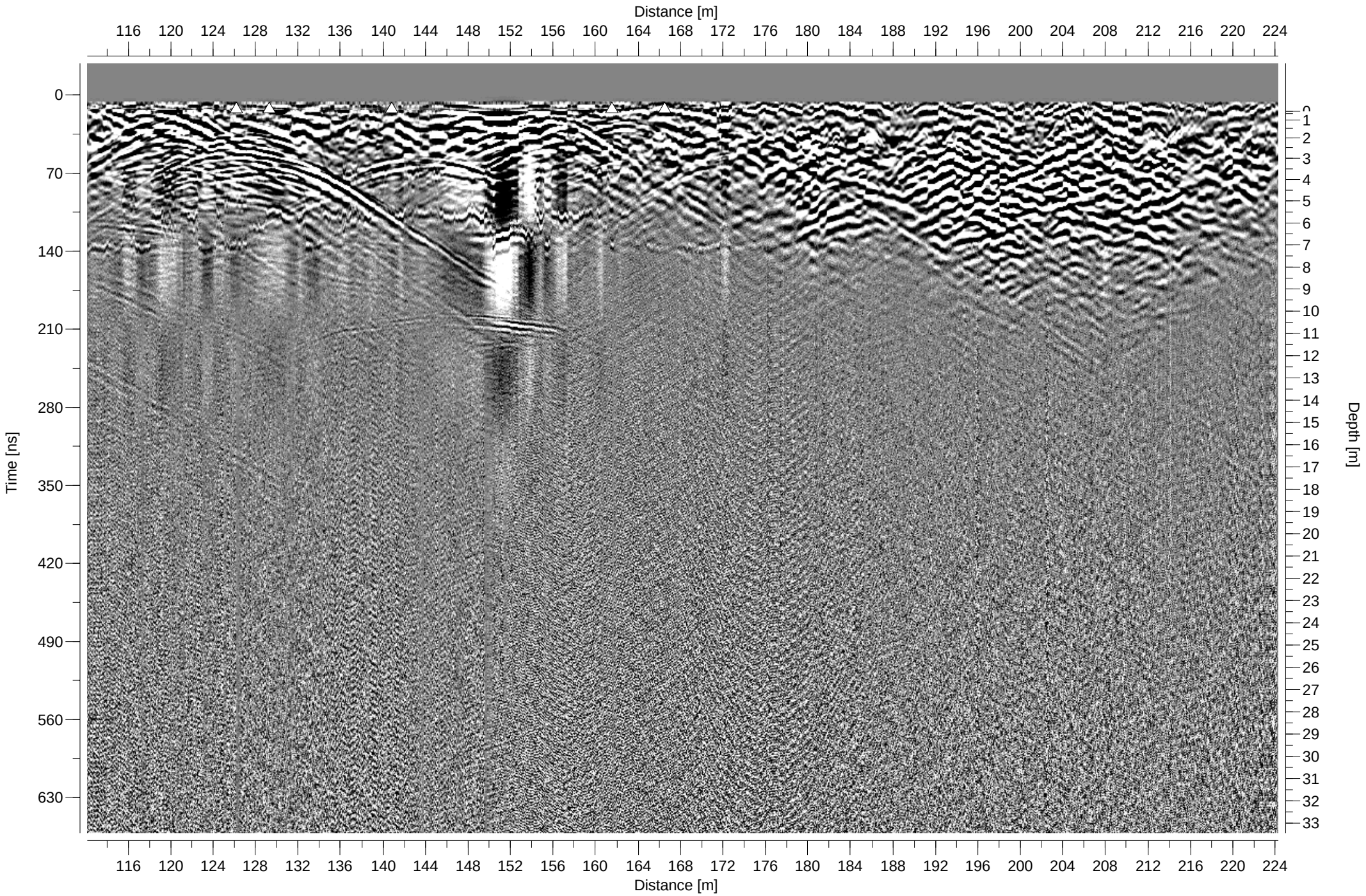

Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440 444 448
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440 444 448

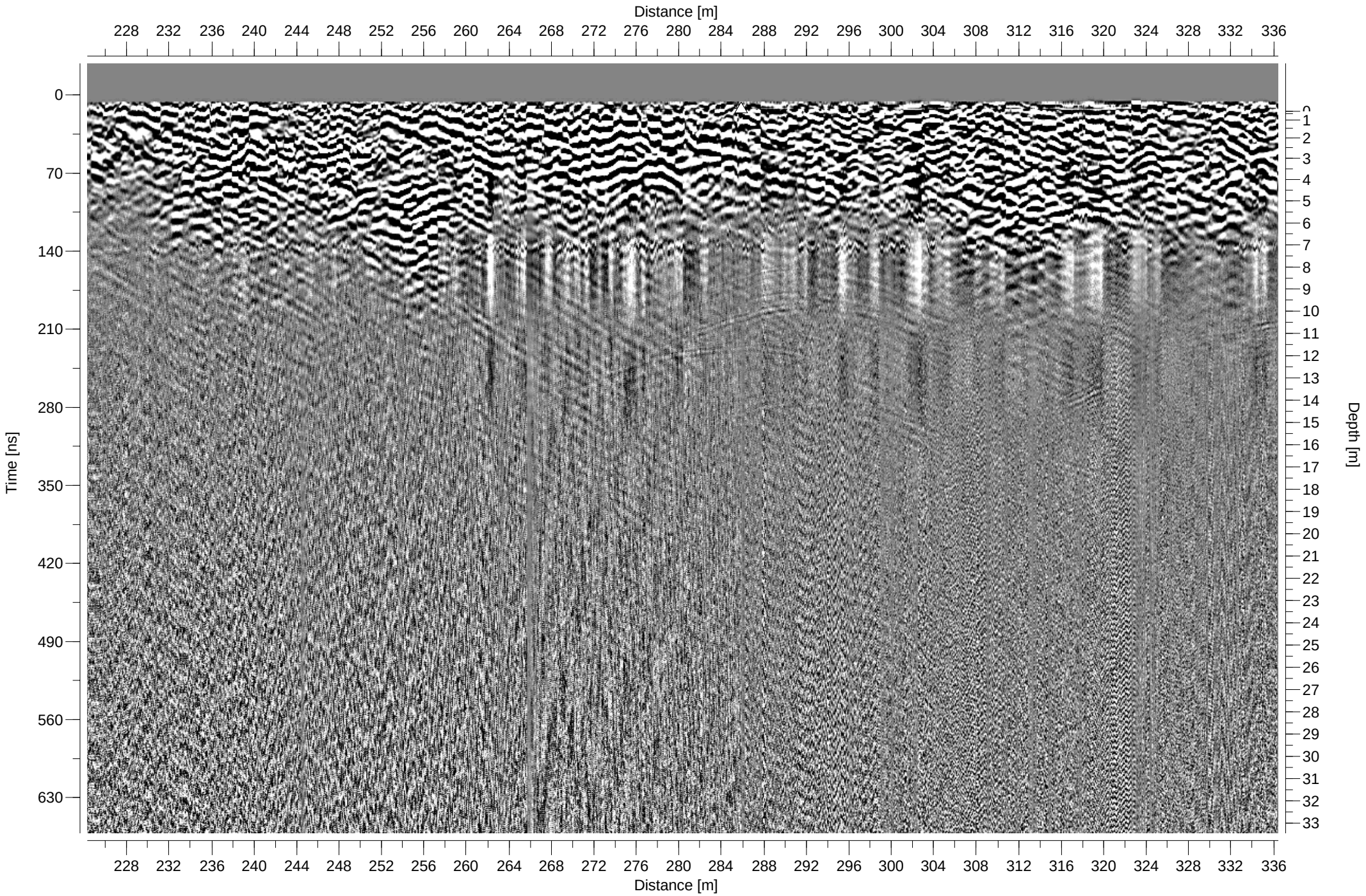

Distance [m]
452 456 460 464 468 472 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540 544 548 552 556 560
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
452 456 460 464 468 472 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540 544 548 552 556 560

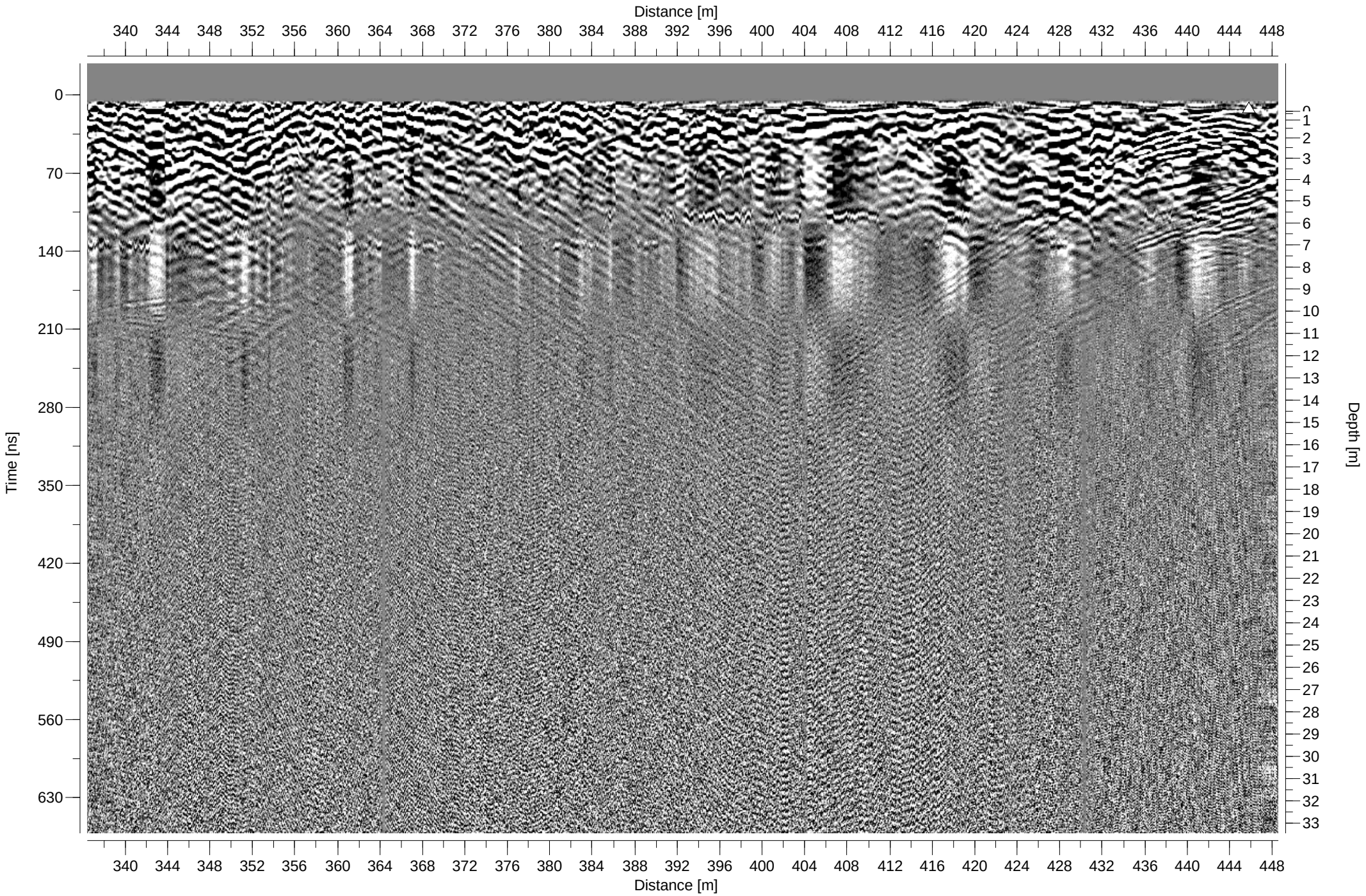

Distance [m]
564 568 572 576 580 584 588 592 596 600
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
564 568 572 576 580 584 588 592 596 600
Distance [m]

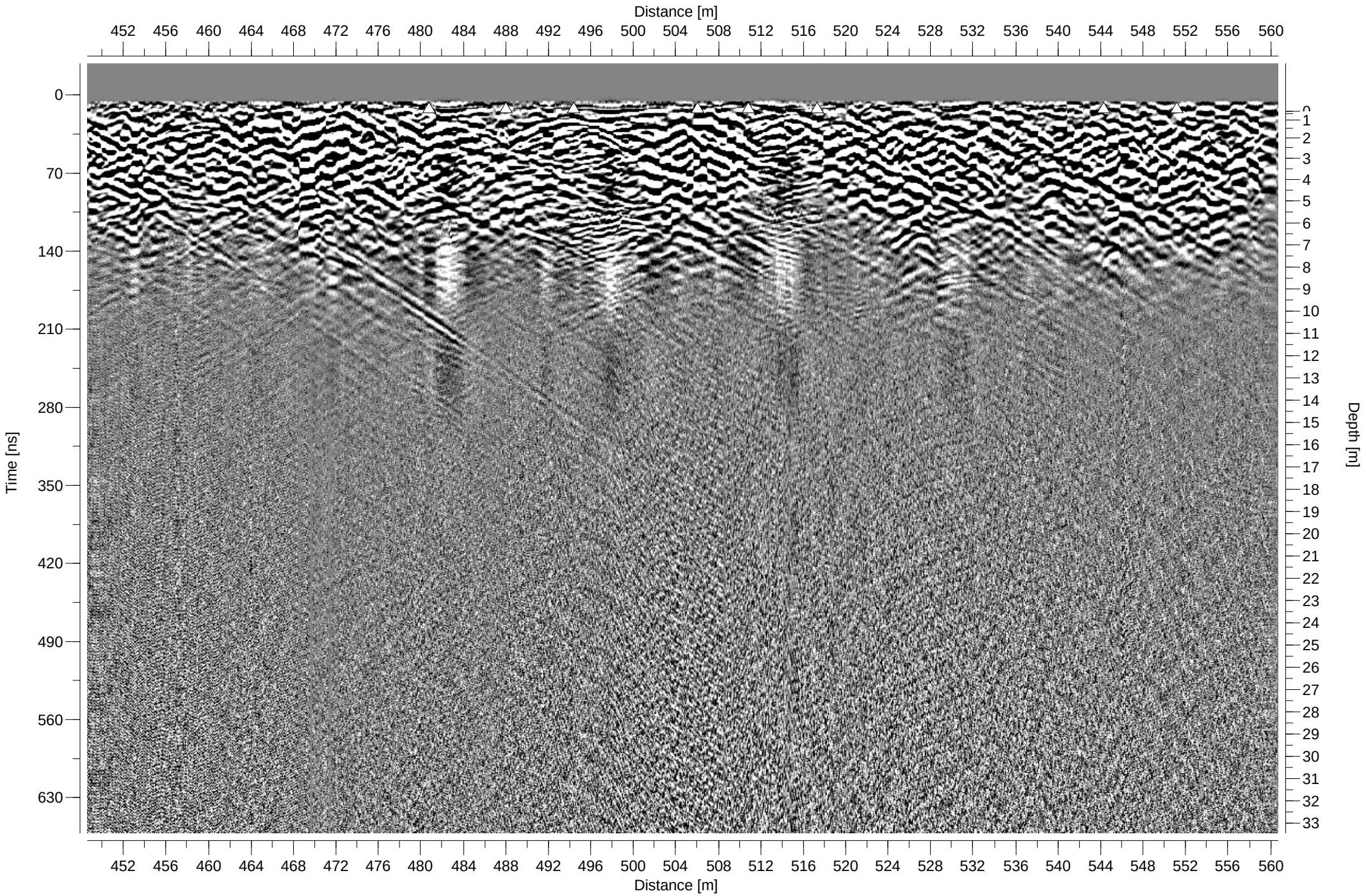
PROFILES 6 WAYPOINTS 039 TO 040 7 SHEETS

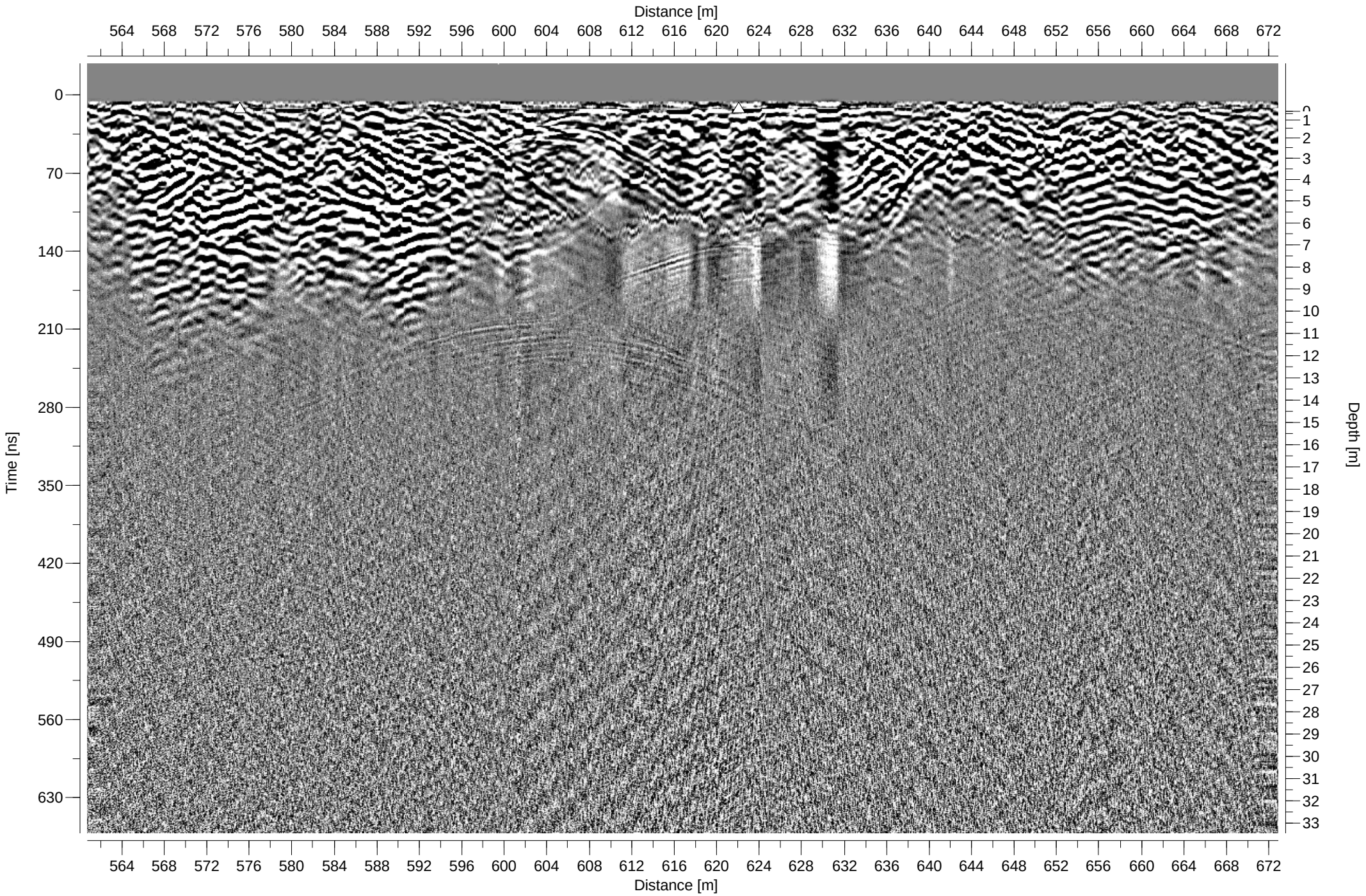

Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112

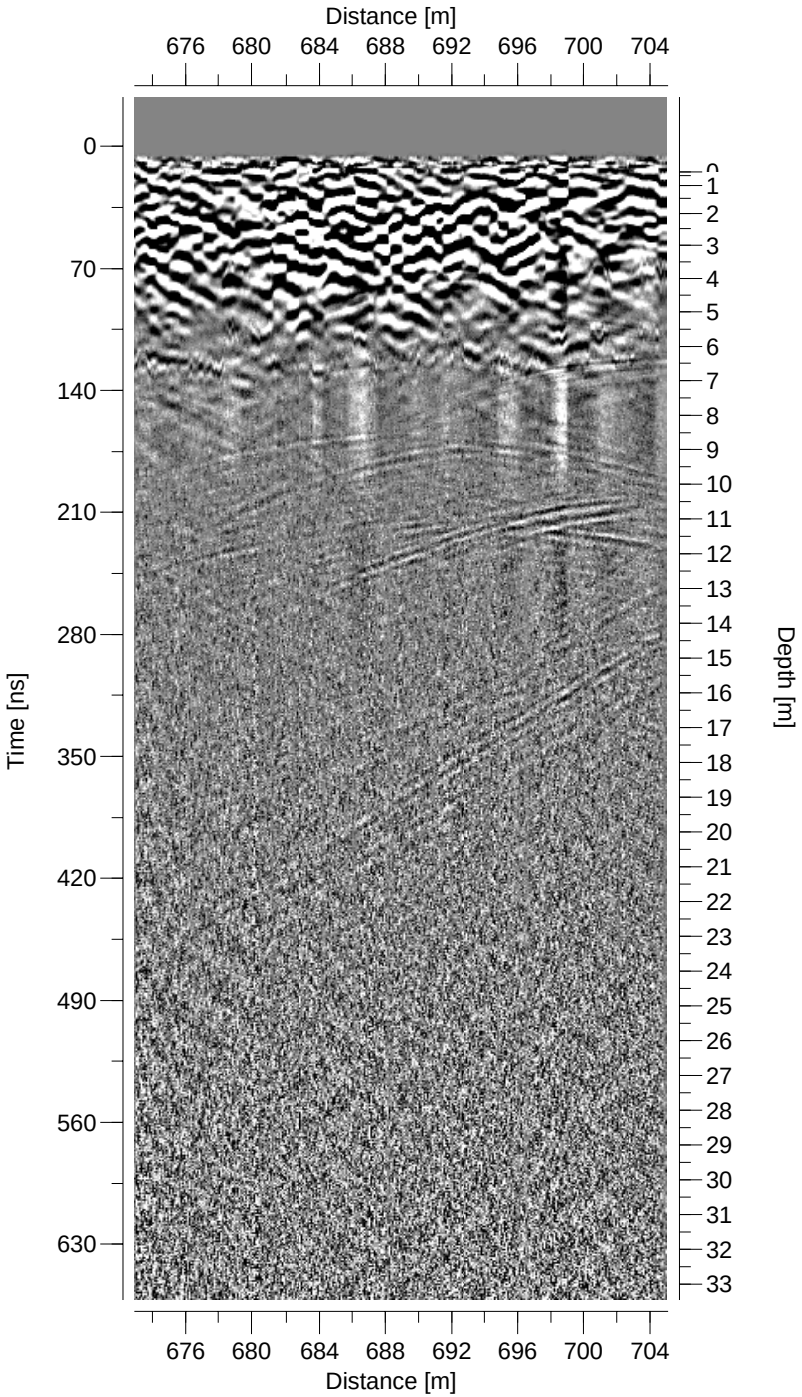

Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224


Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336

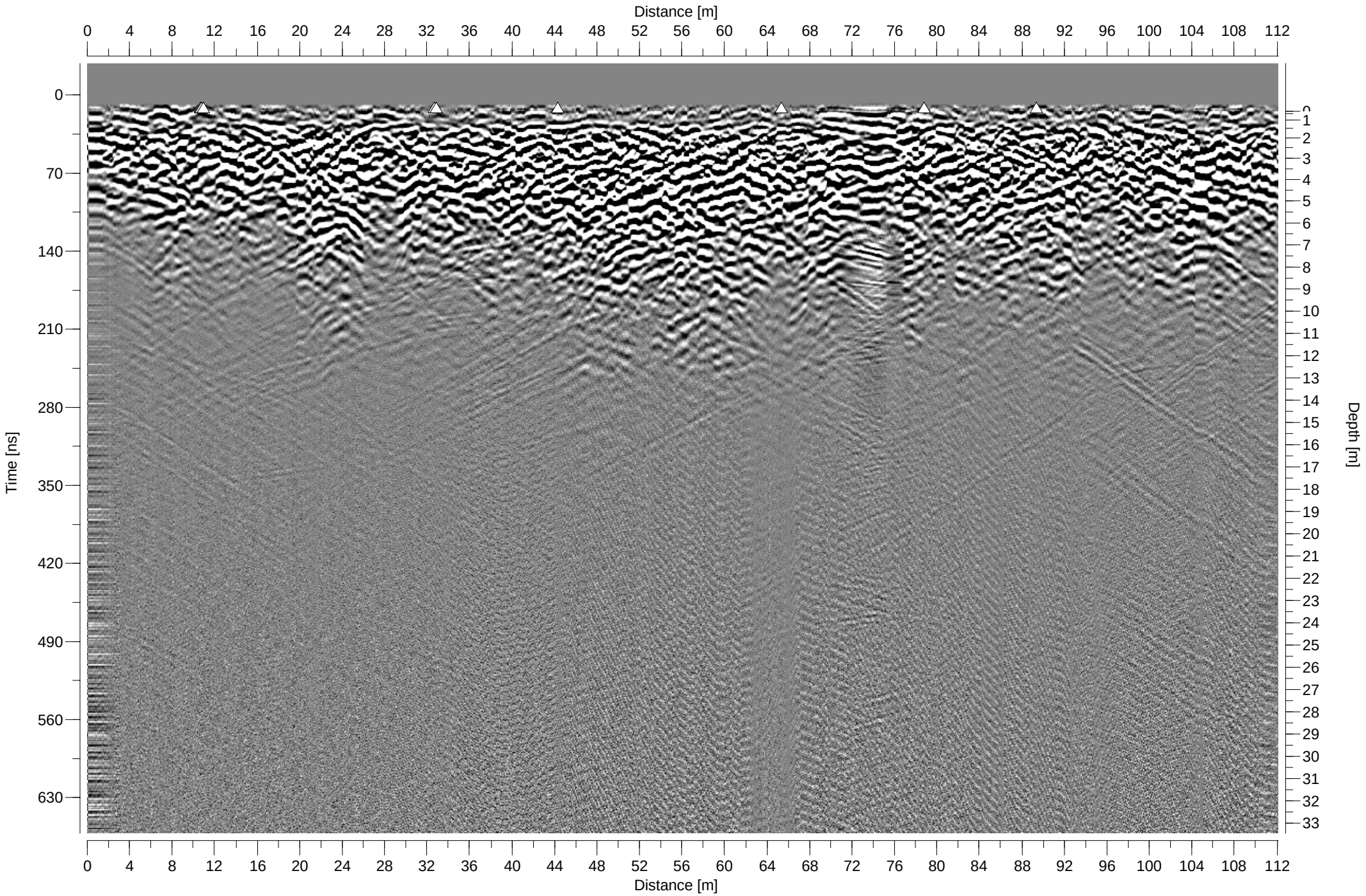

Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440 444 448
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440 444 448

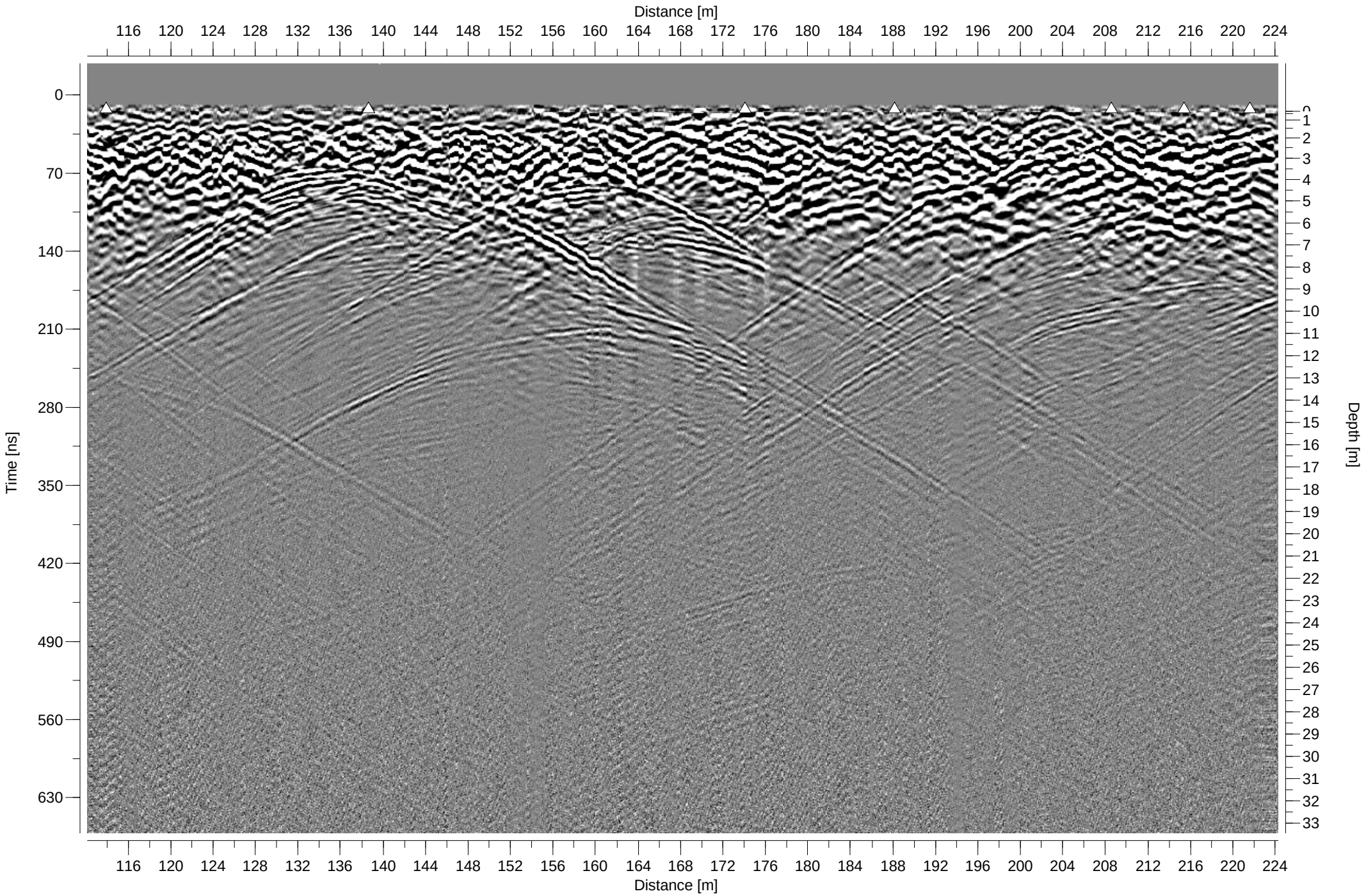

Distance [m]
452 456 460 464 468 472 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540 544 548 552 556 560
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
452 456 460 464 468 472 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540 544 548 552 556 560

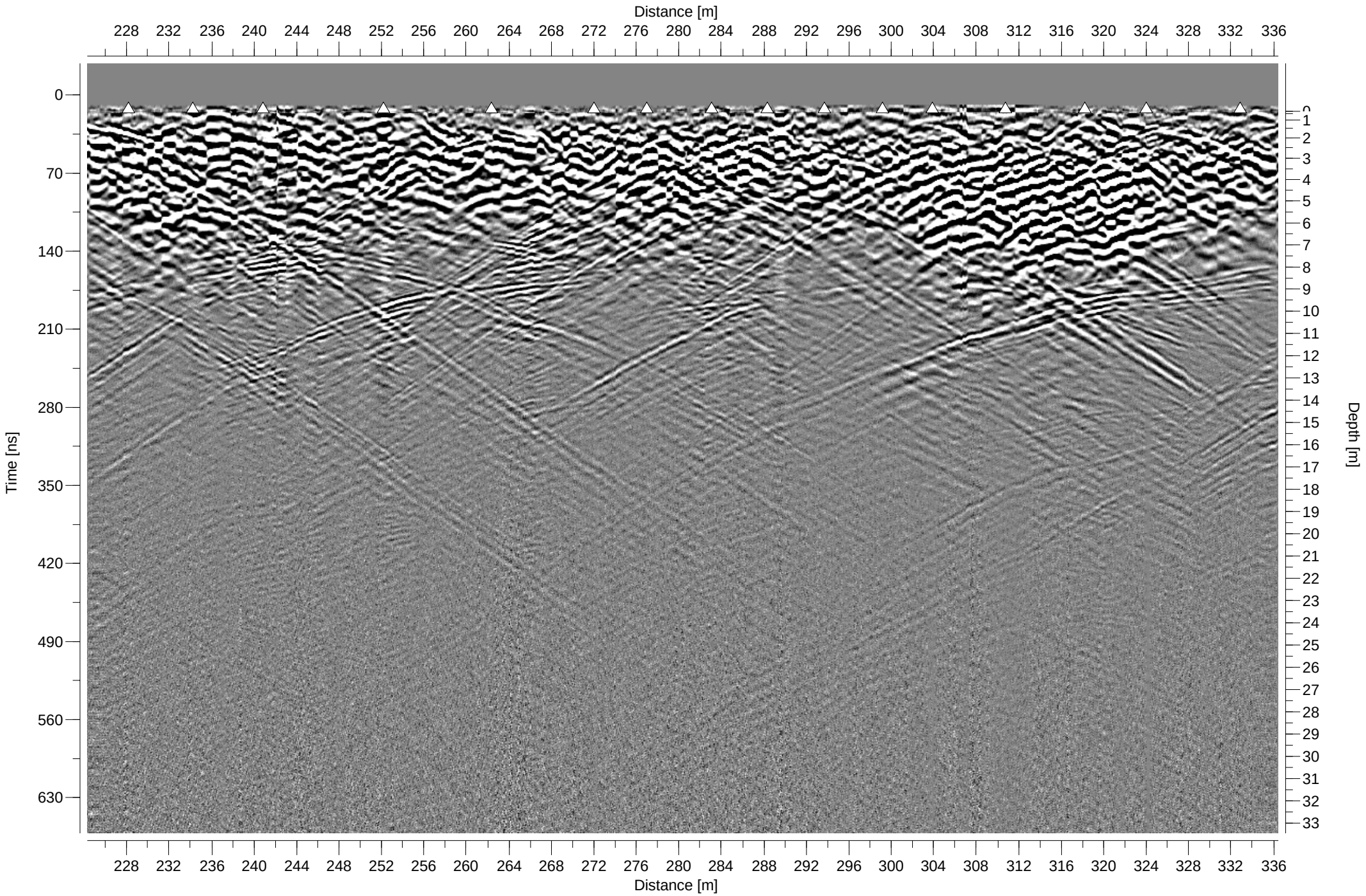

Distance [m]
564 568 572 576 580 584 588 592 596 600 604 608 612 616 620 624 628 632 636 640 644 648 652 656 660 664 668 672
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
564 568 572 576 580 584 588 592 596 600 604 608 612 616 620 624 628 632 636 640 644 648 652 656 660 664 668 672

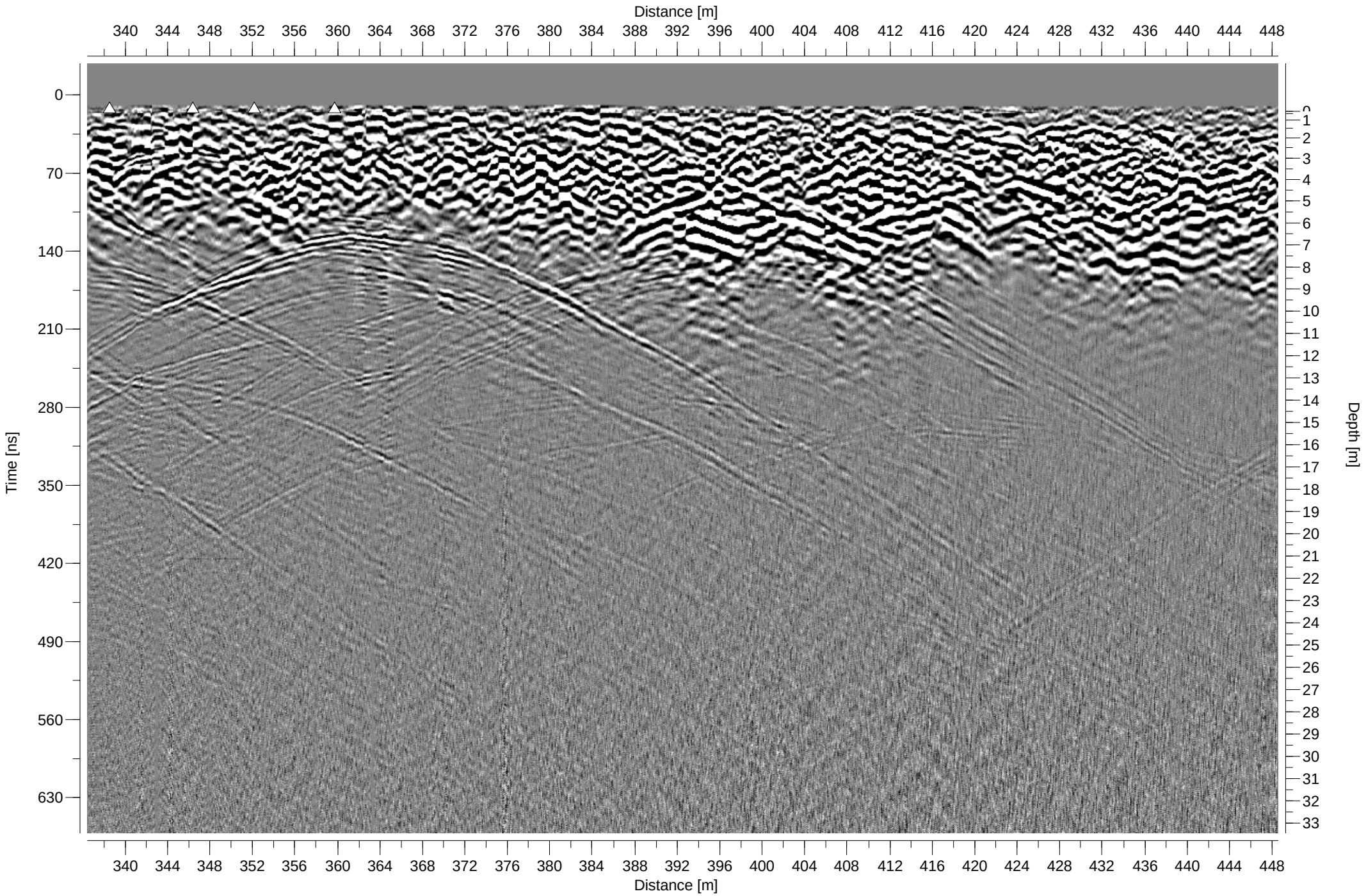

Distance [m]
676 680 684 688 692 696 700 704
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
676 680 684 688 692 696 700 704
Distance [m]

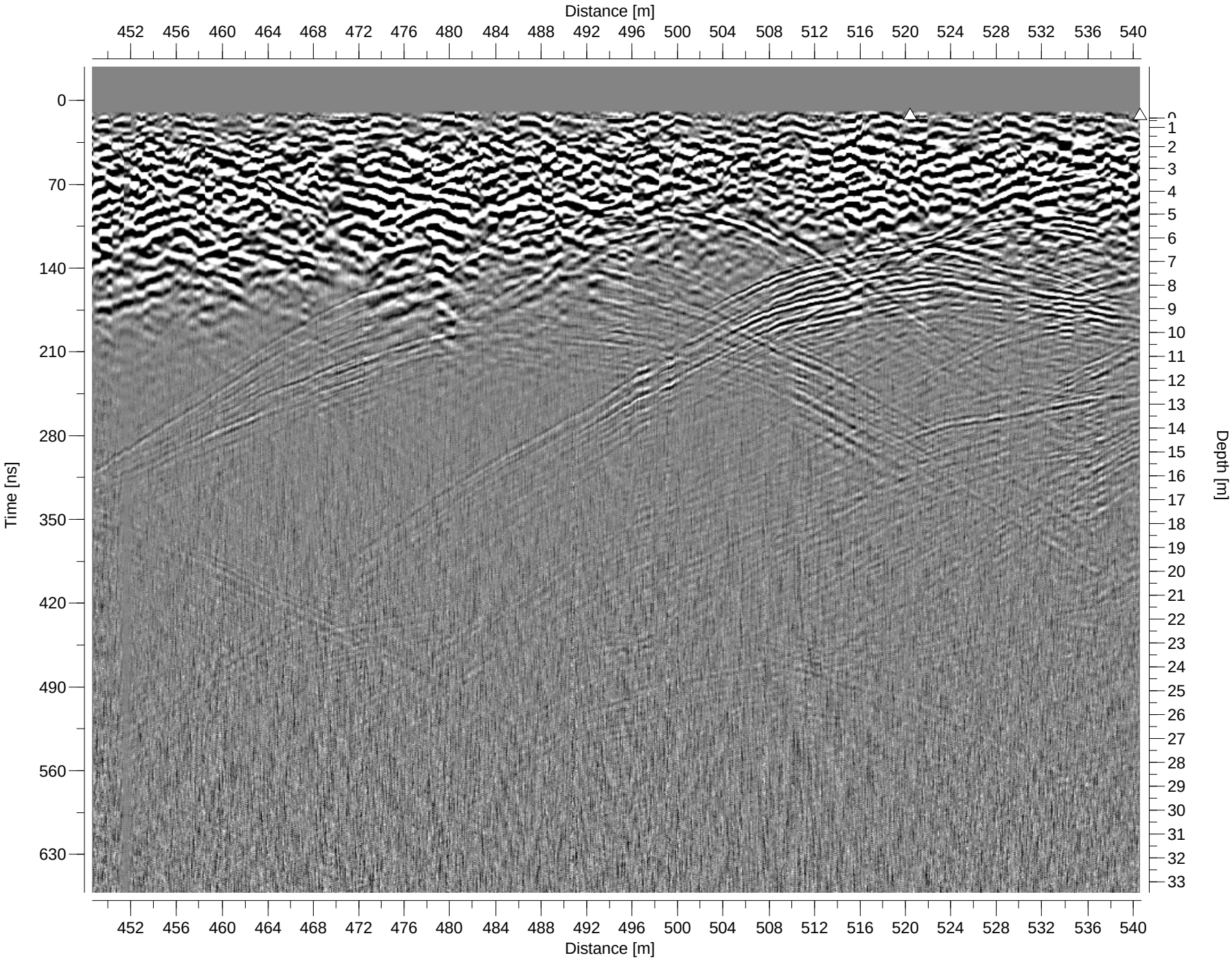
PROFILES 7 WAYPOINTS 042 TO 044 5 SHEETS


Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112

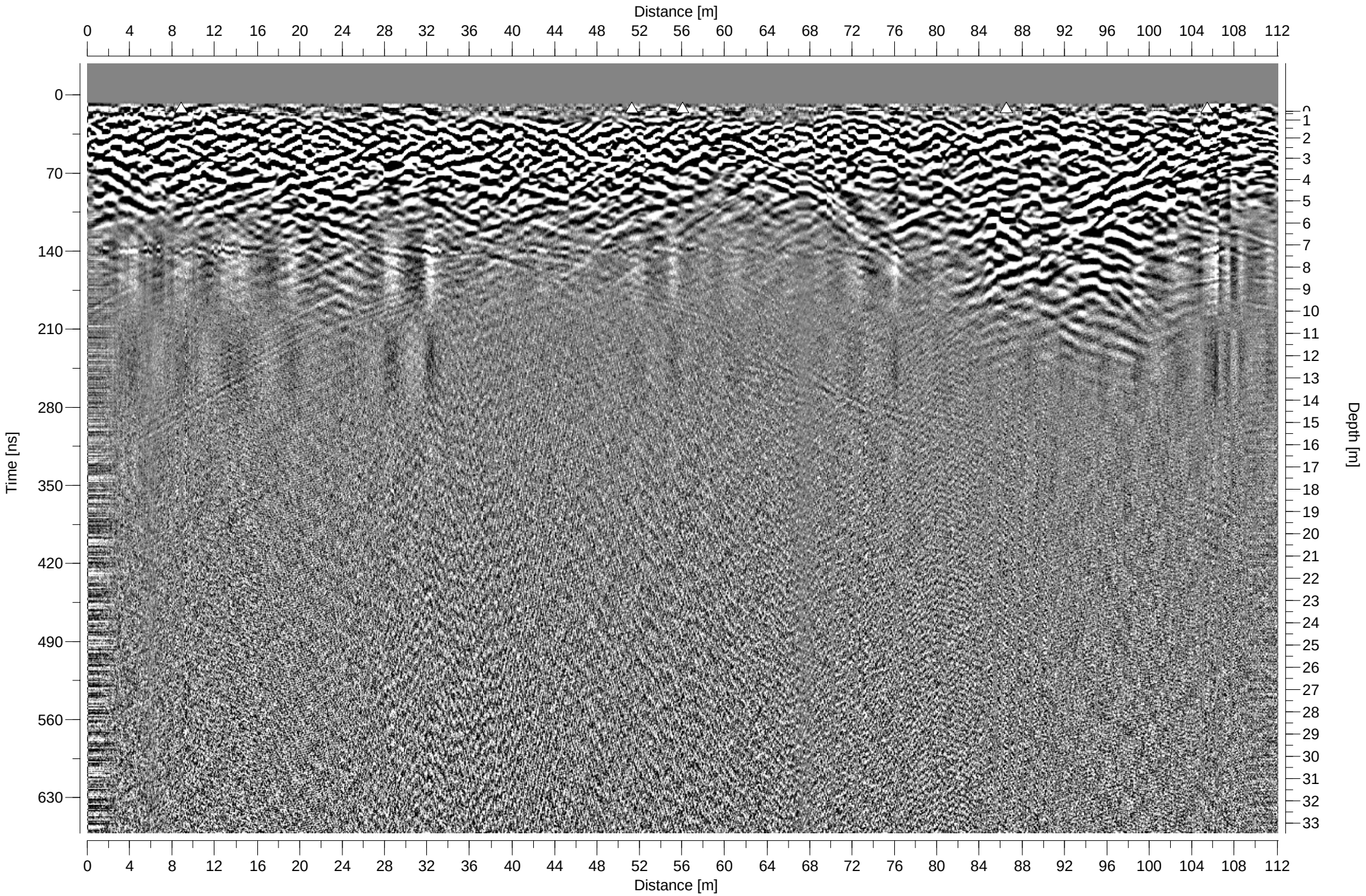

Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224

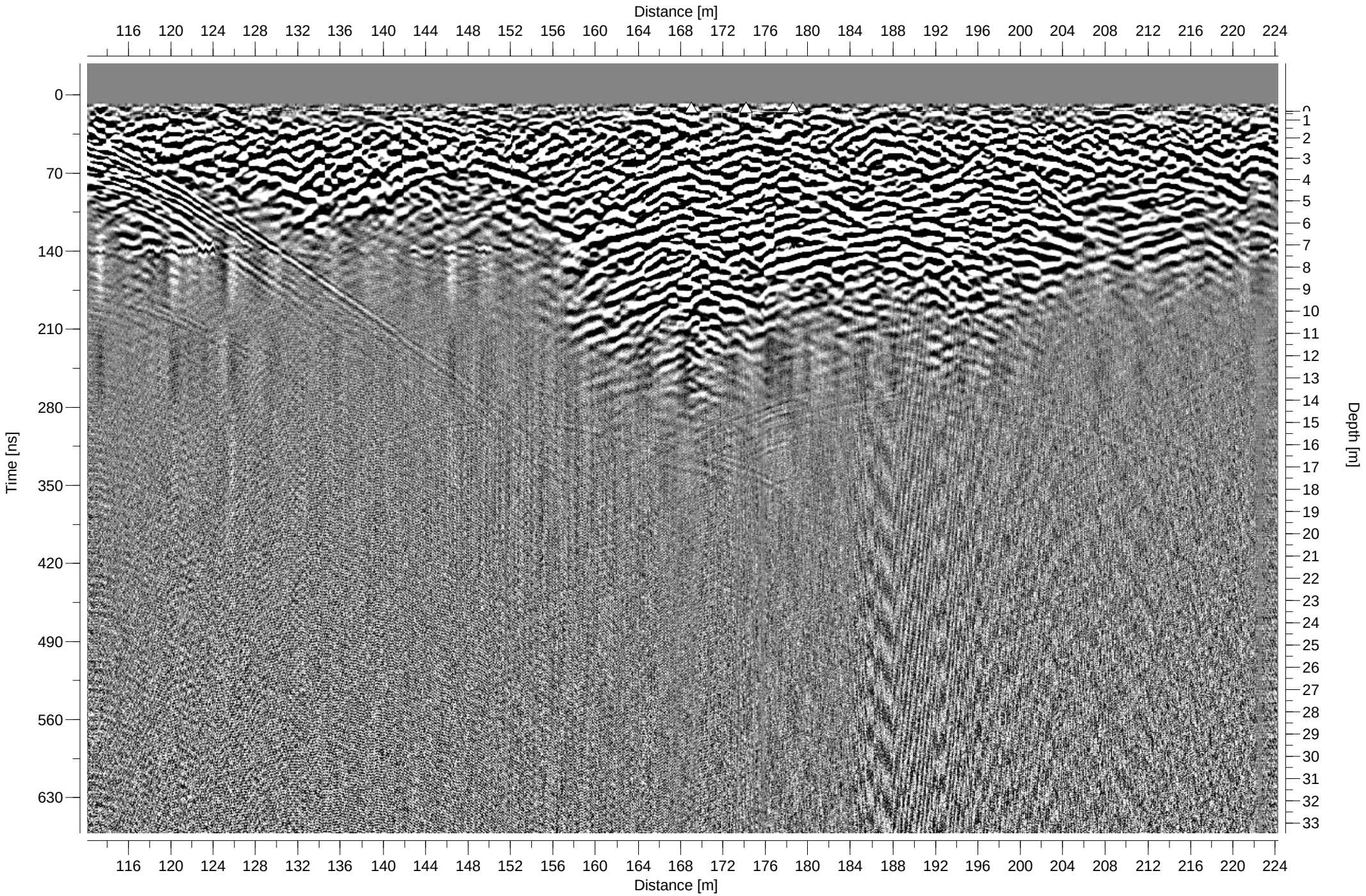

Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336

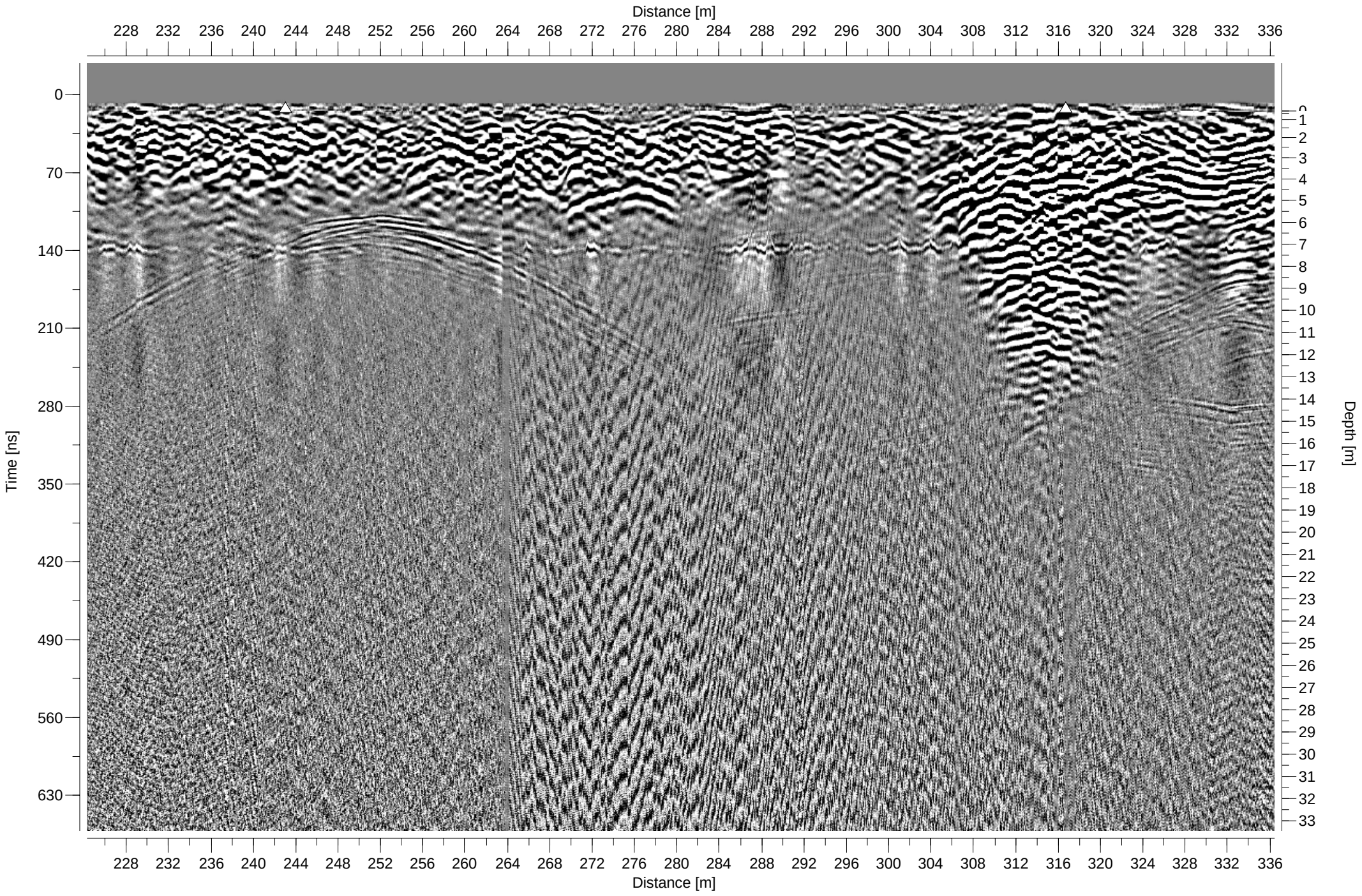

Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440 444 448
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440 444 448

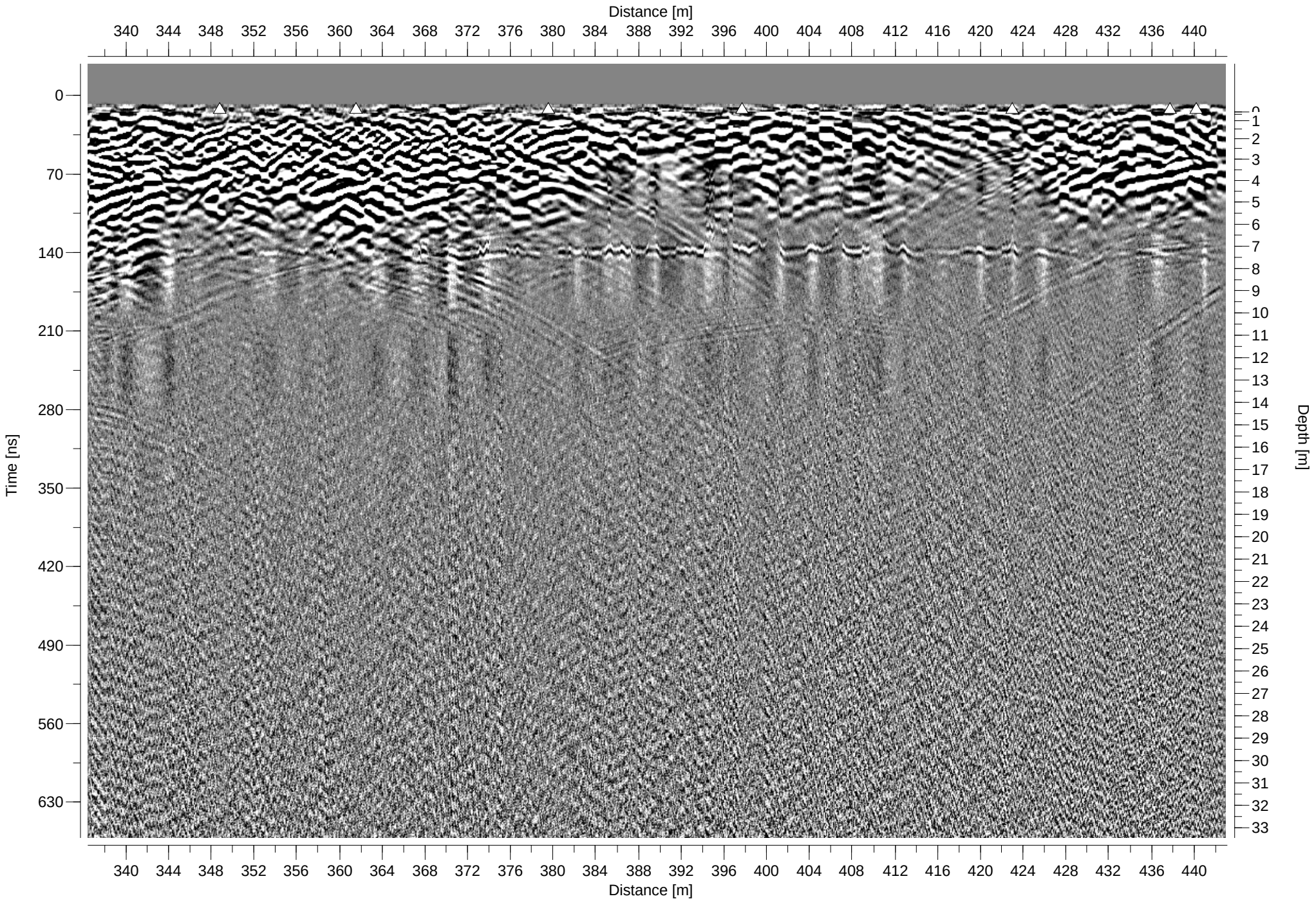

Distance [m]
452 456 460 464 468 472 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
452 456 460 464 468 472 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540

PROFILES 8 WAYPOINTS 047 TO 051 4 SHEETS


Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112


Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
116 120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224


Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336


Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440
Time [ns]
0 70 140 210 280 350 420 490 560 630
Depth [m]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Distance [m]
340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440